

Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 1

Accounting in Action

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CHAPTER 1

ACCOUNTING IN ACTION

After studying this chapter, you should be able to:

- **1 Explain what accounting is.**
- **2 Identify users and uses of accounting.**
- **3 Understand why ethics is a fundamental business concept.**
- **4 Explain the meaning of generally accepted accounting principles and the cost principle.**

CHAPTER 1

ACCOUNTING IN ACTION

After studying this chapter, you should be able to:

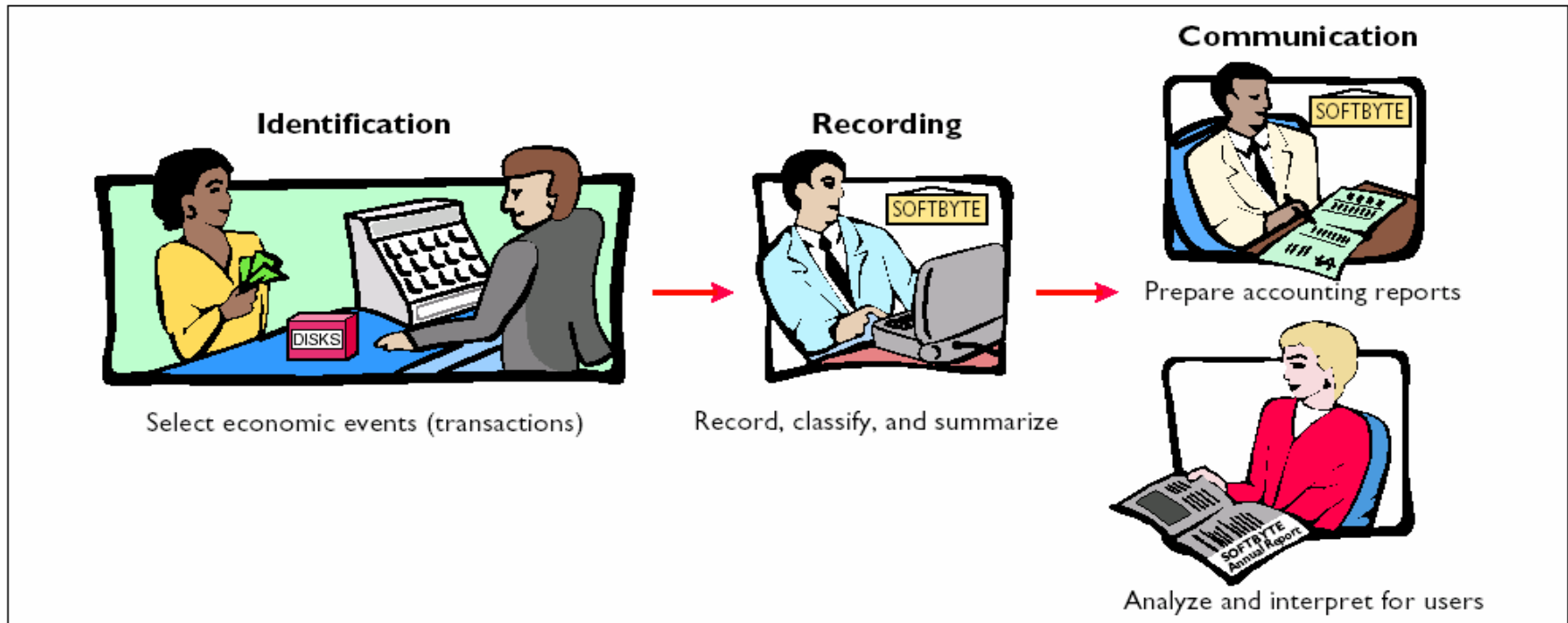
- **5 Explain the meaning of the monetary unit assumption and the economic entity assumption.**
- **6 State the basic accounting equation and explain the meaning of assets, liabilities, and owner's equity.**
- **7 Analyze the effect of business transactions on the basic accounting equation.**
- **8 Understand what the four financial statements are and how they are prepared.**

WHAT IS ACCOUNTING?

STUDY OBJECTIVE 1

- **Accounting** is an information system that
- **Identifies**
- **Records**
- **Communicates the economic events of an organization to interested users**

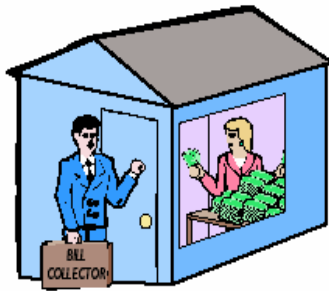
THE ACCOUNTING PROCESS



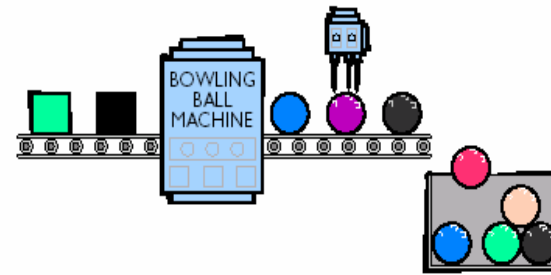
QUESTIONS ASKED BY INTERNAL USERS

STUDY OBJECTIVE 2

Questions Asked by Internal Users



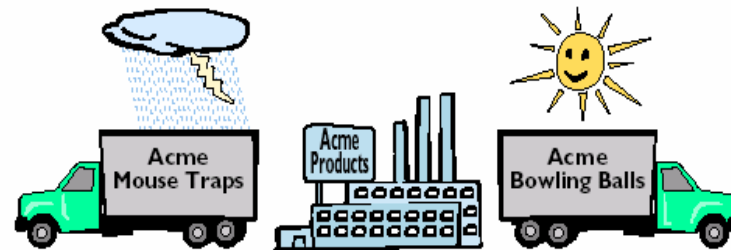
Is cash sufficient to pay bills?



What is the cost of manufacturing each unit of product?



Can we afford to give employee pay raises this year?



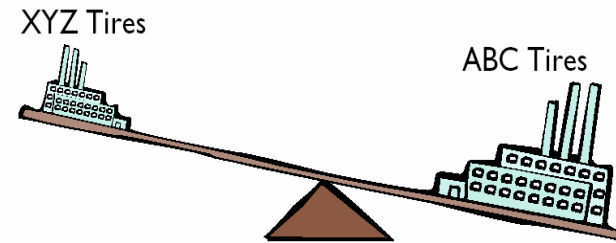
Which product line is the most profitable?

QUESTIONS ASKED BY EXTERNAL USERS

Questions Asked by External Users



Is the company earning satisfactory income?



How does the company compare in size and profitability with competitors?



Will the company be able to pay its debts as they come due?

BOOKKEEPING DISTINGUISHED FROM ACCOUNTING

- **Accounting**

Includes bookkeeping

Also includes much more

- **Bookkeeping**

The recording of economic events

One part of accounting

THE ACCOUNTING PROFESSION

- **Public Accountants**

Service to the general public through the services they perform.

- **Private Accountants**

Individuals in companies involved in activities including cost and tax accounting, systems, and internal auditing.

- **Not For Profit Accountants**

Reporting and control for government units, foundations, hospitals, labor unions, colleges/universities, and charities.

THE BUILDING BLOCKS OF ACCOUNTING

STUDY OBJECTIVES 3, 4 & 5

- **Ethics**

Standards by which actions are judged as right or wrong, honest or dishonest.

- **Generally Accepted Accounting Principles**

Established by the F.A.S.B and the S.E.C.

- **Assumptions**

- **Monetary Unit**

Only data that can be expressed in terms of money is included in the accounting records.

- **Economic Entity**

Includes any organization or unit in society.

BUSINESS ENTERPRISES

- **Proprietorship**

Owned by one person.

- **Partnership**

Owned by two or more persons.

- **Corporation**

Organized as a separate legal entity under state corporation law and having ownership divided into transferable shares of stock.

The accounting process is correctly sequenced as

- a. identification, communication, recording.
- b. recording, communication, identification.
- c. identification, recording, communication.
- d. communication, recording, identification.

The accounting process is correctly sequenced as

- a. identification, communication, recording.
- b. recording, communication, identification.
- c. identification, recording, communication.
- d. communication, recording, identification.

BASIC ACCOUNTING EQUATION

STUDY OBJECTIVE 6



ASSETS AS A BUILDING BLOCK

- **Assets** are resources owned by a business.
- They are used in carrying out such activities as production, consumption and exchange.

LIABILITIES AS A BUILDING BLOCK

- **Liabilities**

- **are creditor claims against assets**

- **are existing debts and obligations**

OWNER'S EQUITY AS A BUILDING BLOCK

- **Owner's Equity = total assets minus total liabilities. ($A - L = O.E.$)**
- **Owner's Equity represents the **ownership claim** to total assets.**
- **Subdivisions of Owner's Equity:**
 - 1 Capital or Investments by Owner (+)**
 - 2 Drawing (-)**
 - 3 Revenues (+)**
 - 4 Expenses (-)**

INVESTMENTS BY OWNERS AS A BUILDING BLOCK

- **Investments**
 - **are the assets the owner puts in the business**
 - **increase owner's equity**

DRAWINGS AS A BUILDING BLOCK

- **Drawings**
 - are withdrawals of cash or other assets by the owner for personal use
 - decrease owner's equity



REVENUES AS A BUILDING BLOCK

- **Revenues**

- **gross increases in owner's equity from business activities entered into for the purpose of earning income**
- **may result from sale of merchandise, services, rental of property, or lending money**
- **usually result in an increase in an asset**

EXPENSES AS A BUILDING BLOCK

Expenses

- **decreases in owner's equity that result from operating the business**
- **cost of assets consumed or services used in the process of earning revenue**
- **examples: utility expense, rent expense, supplies expense, and tax expense**

INCREASES AND DECREASES IN OWNER'S EQUITY

• **INCREASES**



**Investments
by Owner**



**Owner's
Equity**



DECREASES



**Withdrawals
by Owner**

Revenues

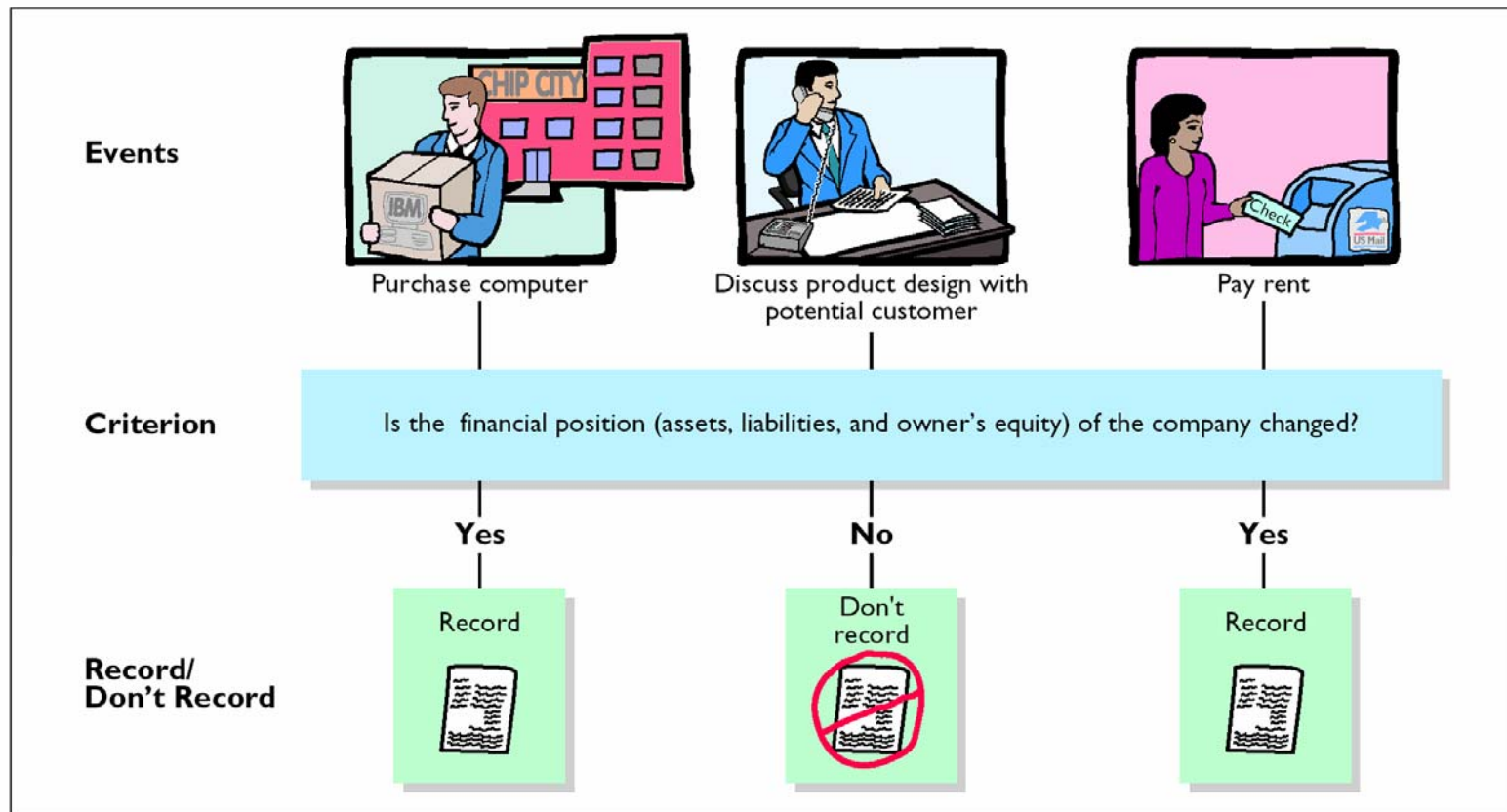


Expenses



TRANSACTION IDENTIFICATION PROCESS

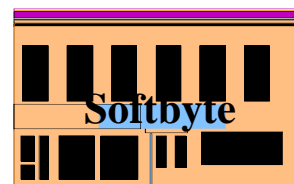
STUDY OBJECTIVE 6



TRANSACTION ANALYSIS

TRANSACTION 1

- **Ray Neal** decides to open a computer programming service.
- On September 1, he invests \$15,000 cash in the business, which he names **Softbyte**.



TRANSACTION ANALYSIS

TRANSACTION 1 SOLUTION

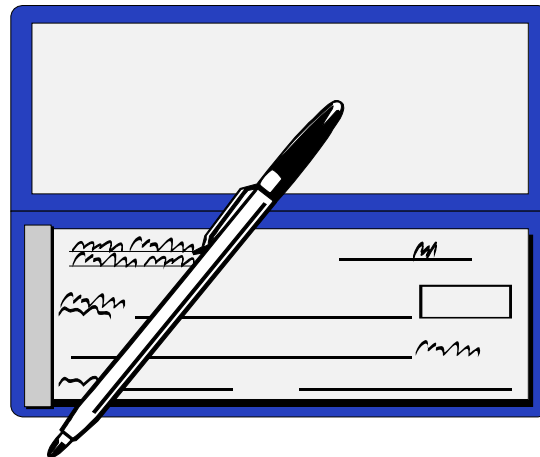
- $$\begin{array}{r} \text{Assets} \\ \hline \text{Cash} \\ \\ + 15,000 \\ \hline \$15,000 \end{array} = \begin{array}{r} \text{Liabilities} \\ \\ \\ \text{Investment} \\ \hline \end{array} + \begin{array}{r} \text{Owner's Equity} \\ \\ \text{R. Neal, Capital} \\ \\ + 15,000 \\ \hline \$15,000 \end{array}$$

There is an increase in the asset **Cash, **\$15,000**, and an equal increase in the owner's equity, **R. Neal, Capital**, **\$15,000**.**

TRANSACTION ANALYSIS

TRANSACTION 2

- **Softbyte purchases computer equipment for \$7,000 cash.**



TRANSACTION ANALYSIS

TRANSACTION 2 SOLUTION

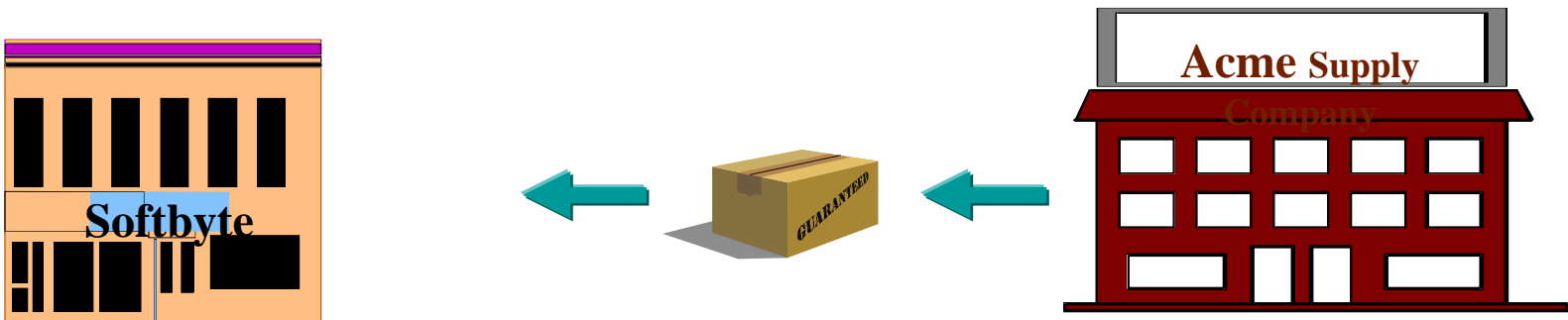
- $$\frac{\text{Assets}}{\text{Cash} + \text{Equipment}} = \frac{\text{Liabilities}}{\text{R. Neal, Capital}} + \frac{\text{Owner's Equity}}{\text{R. Neal, Capital}}$$
- Old
- $$\begin{array}{r} \$15,000 \\ (2) \quad - 7,000 + 7,000 \\ \hline \end{array} = \$15,000$$
- New
- $$\$ 8,000 + \$7,000 = \$15,000$$

Cash is decreased by \$7,000 and the asset Equipment is increased by \$7,000.

TRANSACTION ANALYSIS

TRANSACTION 3

- **Softbyte** purchases supplies expected to last for several months for **\$1,600** from **Acme Supply Company**.
- **Acme** agrees to allow **Softbyte** to pay this bill next month, in October.
- This transaction is referred to as a purchase on account or a credit purchase.



TRANSACTION ANALYSIS

TRANSACTION 3 SOLUTION

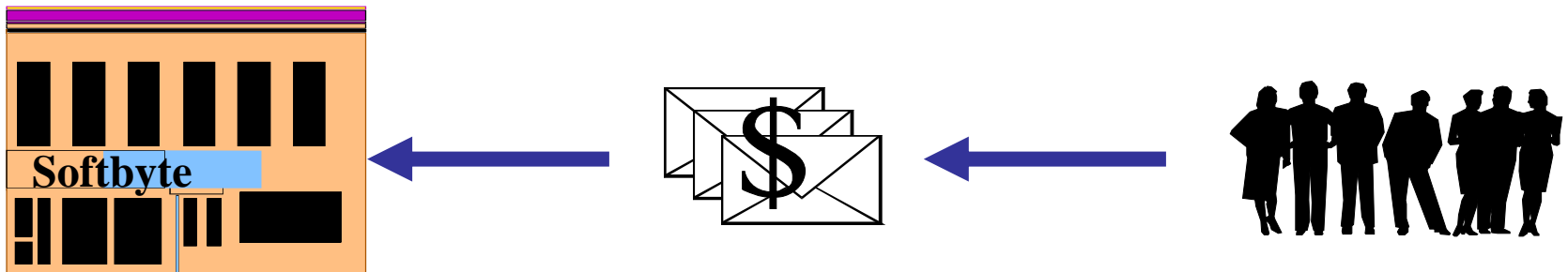
- $$\frac{\text{Assets}}{\text{Cash} + \text{Supplies} + \text{Equip.}} = \frac{\text{Liabilities}}{\text{Accts. Pay.}} + \frac{\text{Owner's Equity}}{\text{R. Neal, Capital}}$$
- Old \$8,000 + \$7,000 = \$15,000
- (3)
$$\frac{\text{+ \$1,600}}{\text{+ \$1,600}}$$
- New
$$\underbrace{\$8,000 + \$1,600 + \$7,000}_{\$16,600} = \underbrace{+ \$1,600 + \$15,000}_{\$16,600}$$
-
-

The asset **Supplies** is increased by **\$1,600**, and the liability **Accounts Payable** is increased by the same amount.

TRANSACTION ANALYSIS

TRANSACTION 4

- **Softbyte** receives \$1,200 cash from customers for programming services it has provided.
- This transaction represents the **Softbyte's** principal revenue-producing activity.



TRANSACTION ANALYSIS

TRANSACTION 4 SOLUTION

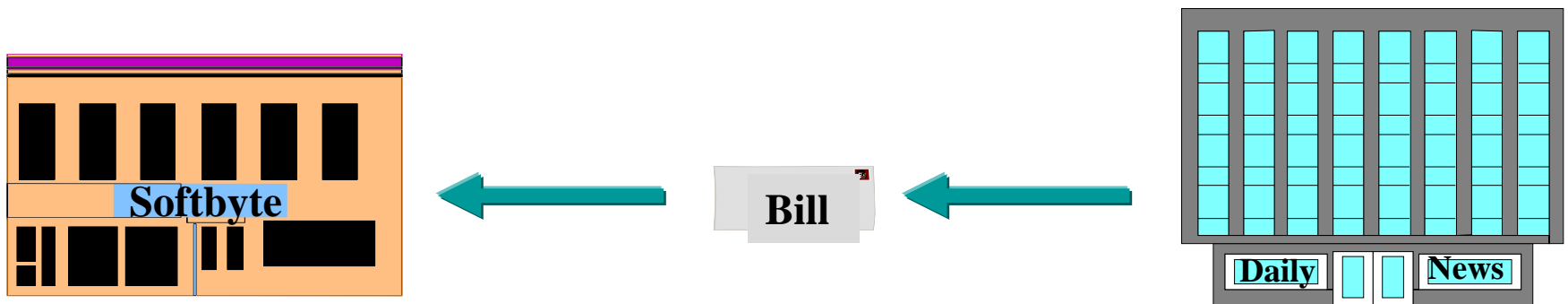
- $$\frac{\text{Assets}}{\text{Cash} + \text{Supplies} + \text{Equip.}} = \frac{\text{Liabilities}}{\text{Accts. Pay.}} + \frac{\text{Owner's Equity}}{\text{R. Neal, Capital}}$$
- Old $\$8,000 + \$1,600 + \$7,000 = \$1,600 + \$15,000$
- (4) $+ 1,200$ $+ 1,200$
- New $\underbrace{\$9,200 + \$1,600 + \$7,000}_{\$17,800} = \underbrace{\$1,600 + \$16,200}_{\$17,800}$
-

Cash is increased by \$1,200 and R. Neal, Capital is increased by \$1,200.

TRANSACTION ANALYSIS

TRANSACTION 5

- **Softbyte** receives a bill for **\$250** from the **Daily News** for advertising but postpones payment of the bill until a later date.



TRANSACTION ANALYSIS

TRANSACTION 5 SOLUTION

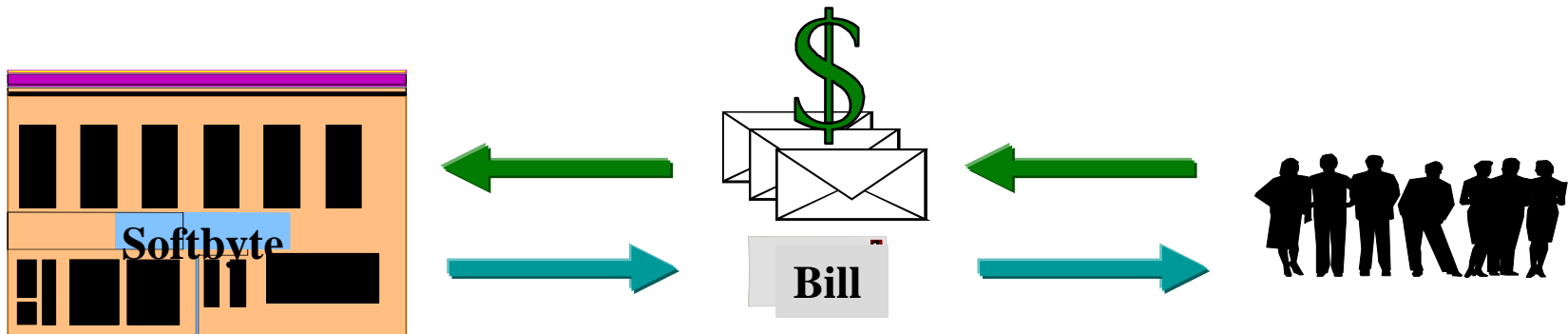
- | | | | | | |
|-----|---|---|--------------------|---|-------------------------|
| | <u>Assets</u> | = | <u>Liabilities</u> | + | <u>Owner's Equity</u> |
| | <u>Cash</u> + <u>Supplies</u> + <u>Equip.</u> | = | <u>Accts. Pay.</u> | + | <u>R. Neal, Capital</u> |
| Old | \$9,200 + \$1,600 + \$7,000 | = | \$1,600 | + | \$16,200 |
| (5) | <u>Advertising Expense</u> | = | <u>+ 250</u> | - | <u>250</u> |
| New | \$9,200 + \$1,600 + \$7,000 | = | \$1,850 | + | \$15,950 |
| | \$17,800 | | \$17,800 | | |

Accounts Payable is increased by **\$250** and **R. Neal, Capital** is decreased by **\$250**.

TRANSACTION ANALYSIS

TRANSACTION 6

- **Softbyte** provides \$3,500 of programming services for customers.
- Cash of \$1,500 is received from customers, and the balance of \$2,000 is billed on account.



TRANSACTION ANALYSIS

TRANSACTION 6 SOLUTION

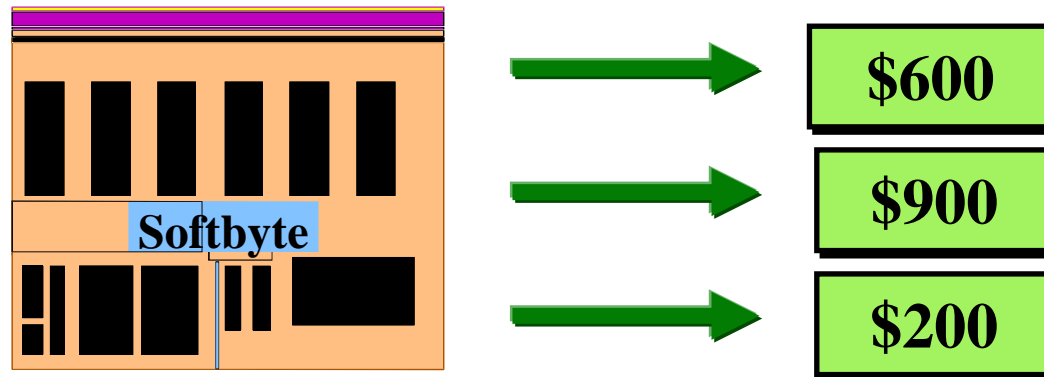
- $$\underline{\text{Assets}} = \underline{\text{Liabilities}} + \underline{\text{Owner's Equity}}$$
- $$\underline{\text{Cash}} + \underline{\text{Accts. Rec.}} + \underline{\text{Supplies}} + \underline{\text{Equip.}} = \underline{\text{Accts. Pay.}} + \underline{\text{R. Neal, Capital}}$$
- Old
- $$\$ 9,200 + \$ 1,600 + \$ 7,000 = \$ 1,850 + \$ 15,950$$
- (6)
- $$+ \underline{1,500 + 2,000} = \underline{} + \underline{3,500}$$
- New
- $$\underbrace{\$ 10,700 + \$ 2,000 + \$ 1,600 + \$ 7,000}_{\$ 21,300} = \underbrace{\$ 1,850 + \$ 19,450}_{\$ 21,300}$$
-

Cash is increased by \$1,500; Accounts Receivable is increased by \$2,000, and R. Neal, Capital is increased by \$3,500.

TRANSACTION ANALYSIS

TRANSACTION 7

- Expenses paid in cash for September are store rent, **\$600**; employees' salaries, **\$900**; and utilities, **\$200**.



TRANSACTION ANALYSIS

TRANSACTION 7 SOLUTION

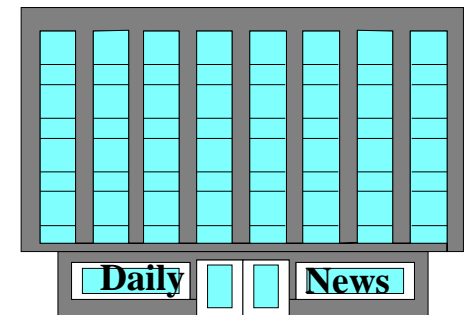
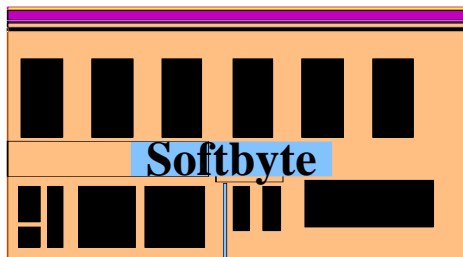
- $$\underline{\text{Assets}} = \underline{\text{Liabilities}} + \underline{\text{Owner's Equity}}$$
- $$\underline{\text{Cash}} + \underline{\text{Accts. Rec.}} + \underline{\text{Supplies}} + \underline{\text{Equip.}} = \underline{\text{Accts. Pay.}} + \underline{\text{R. Neal, Capital}}$$
- Old
- $$\$10,700 + \$2,000 + \$1,600 + \$7,000 = \$1,850 + \$19,450$$
- (7)
- $$- 1,700$$
- $$\begin{array}{r} \text{Rent Expense} \quad - \quad 600 \\ \text{Salaries Expense} \quad - \quad 900 \\ \text{Utilities Expense} \quad - \quad 200 \\ \hline \end{array}$$
- New
- $$\underbrace{\$9,000 + \$2,000 + \$1,600 + \$7,000}_{\$19,600} = \underbrace{\$1,850 + \$17,750}_{\$19,600}$$

Cash is decreased by \$1,700 and R. Neal, Capital is decreased by the same amount.

TRANSACTION ANALYSIS

TRANSACTION 8

- **Softbyte** pays its **\$250 Daily News** advertising bill in cash.



TRANSACTION ANALYSIS

TRANSACTION 8 SOLUTION

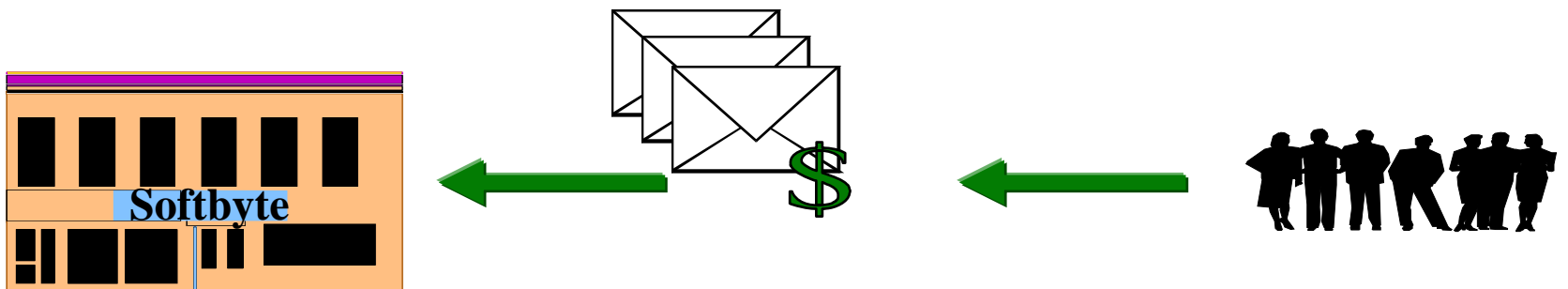
- $$\underline{\text{Assets}} = \underline{\text{Liabilities}} + \underline{\text{Owner's Equity}}$$
- $$\underline{\text{Cash}} + \underline{\text{Accts. Rec.}} + \underline{\text{Supplies}} + \underline{\text{Equip.}} = \underline{\text{Accts. Pay.}} + \underline{\text{R. Neal, Capital}}$$
- Old
- $$\$9,000 + \$2,000 + \$1,600 + \$7,000 = \$1,850 + \$17,750$$
- $$(8) - \underline{250} = \underline{- 250}$$
- New
- $$\underbrace{\$8,750 + \$2,000 + \$1,600 + \$7,000}_{\$19,350} = \underbrace{\$1,600 + \$17,750}_{\$19,350}$$

Both Cash and Accounts Payable are decreased by \$250. Since the expense was previously recorded, it is not recorded now.

TRANSACTION ANALYSIS

TRANSACTION 9

- The sum of **\$600** in cash is received from customers who have previously been billed for services (in Transaction 6).



TRANSACTION ANALYSIS

TRANSACTION 9 SOLUTION

- $$\underline{\text{Assets}} = \underline{\text{Liabilities}} + \underline{\text{Owner's Equity}}$$
- $$\underline{\text{Cash}} + \underline{\text{Accts. Rec.}} + \underline{\text{Supplies}} + \underline{\text{Equip.}} = \underline{\text{Accts. Pay.}} + \underline{\text{R. Neal, Capital}}$$
- Old
- $$\$8,750 + \$2,000 + \$1,600 + \$7,000 = \$1,600 + \$17,750$$
- $$(\text{9}) + 600 - 600$$

- New
- $$\$9,350 + \$1,400 + \$1,600 + \$7,000 = \$1,600 + \$17,750$$
- $$\$19,350 \qquad \qquad \qquad \$19,350$$

Cash is increased by \$600 and Accounts Receivable is decreased by the same amount. R. Neal, Capital is not increased because the revenue was already recorded.

TRANSACTION ANALYSIS

TRANSACTION 10

- **Ray Neal** withdraws \$1,300 in cash from the business for his personal use.



TRANSACTION ANALYSIS

TRANSACTION 10 SOLUTION

- $$\underline{\text{Assets}} = \underline{\text{Liabilities}} + \underline{\text{Owner's Equity}}$$
- $$\underline{\text{Cash}} + \underline{\text{Accts. Rec.}} + \underline{\text{Supplies}} + \underline{\text{Equip}} = \underline{\text{Accts. Pay.}} + \underline{\text{R. Neal, Capital}}$$
- Old
- $$\$9,350 + \$1,400 + \$1,600 + \$7,000 = \$1,600 + \$17,750$$
- (10)
- $$\underline{- 1,300} \qquad \qquad \qquad \underline{\text{Drawing}} \qquad \qquad \qquad - \qquad \qquad \qquad \underline{1,300}$$
- New
- $$\underbrace{\$8,050 + \$1,400 + \$1,600 + \$7,000}_{\$18,050} = \underbrace{\$1,600 + \$16,450}_{\$18,050}$$
-

Cash is decreased by \$1,300 and R. Neal, Capital is decreased by the same amount. This is not an expense, but rather a withdrawal of owner's equity.

FINANCIAL STATEMENTS

STUDY OBJECTIVE 8

• **Four** financial statements are prepared from the summarized accounting data:

- **Income Statement**
revenues and expenses and resulting net income or net loss for a specific period of time
- **Owner's Equity Statement**
Changes in owner's equity for a specific period of time
- **Balance Sheet**
assets, liabilities, and owner's equity at a specific date
- **Statement of Cash Flows**
cash inflows (receipts) and outflows (payments) for a specific period of time

FINANCIAL STATEMENTS AND THEIR INTERRELATIONSHIPS

SOFTBYTE, INC.		
Income Statement		
For the Month Ended September 30, 2005		
Revenues		
Service revenue		\$ 4,700
Expenses		
Salaries expense	\$ 900	
Rent expense	600	
Advertising expense	250	
Utilities expense	200	
Total expenses		1,950
Net income		\$ 2,750

Net income of **\$2,750** shown on the income statement is added to the beginning balance of owner's capital in the owner's equity statement.

FINANCIAL STATEMENTS AND THEIR INTERRELATIONSHIPS

SOFTBYTE, INC.		
Owner's Equity Statement		
For the Month Ended September 30, 2005		
Retained earnings, September 1, 2005		\$ -0-
Add: Investments	\$ 15,000	
Net income	2,750	17,750
		<hr/>
		17,750
Less: Drawings		1,300
		<hr/>
Retained earnings, September 30, 2005		•\$16,450

Net income of \$2,750 carried forward from the income statement to the owner's equity statement. The owner's capital of **\$16,450** at the end of the reporting period is shown as the final total of the owner's equity column of the Summary of Transactions (Illustration 1-8).

FINANCIAL STATEMENTS AND THEIR INTERRELATIONSHIPS

SOFTBYTE, INC.		
Balance Sheet		
September 30, 2005		
Assets		
Cash		\$ 8,050
Accounts receivable		1,400
Supplies		1,600
Equipment		7,000
Total assets		<u><u>\$ 18,050</u></u>
Liabilities and Owner's Equity		
Liabilities		
Accounts payable		\$ 1,600
Owner's equity		
R. Neal, capital		<u>•16,450</u>
Total liabilities and owner's equity		<u><u>\$ 18,050</u></u>

Owner's capital of **\$16,450** at the end of the reporting period shown in the owner's equity statement is shown on the balance sheet.

FINANCIAL STATEMENTS AND THEIR INTERRELATIONSHIPS

SOFTBYTE, INC.		
Balance Sheet		
September 30, 2005		
Assets		
Cash		•\$ 8,050
Accounts receivable		1,400
Supplies		1,600
Equipment		7,000
Total assets		<u><u>\$ 18,050</u></u>
Liabilities and Owner's Equity		
Liabilities		
Accounts payable		\$ 1,600
Owner's equity		
R. Neal, capital		16,450
Total liabilities and owner's equity		<u><u>\$ 18,050</u></u>

Cash of **\$8,050** on the balance sheet is reported on the statement of cash flows.

FINANCIAL STATEMENTS AND THEIR INTERRELATIONSHIPS

SOFTBYTE, INC.		
Statement of Cash Flows		
For the Month Ended September 30, 2005		
Cash flows from operating activities		
Cash receipts from revenues		\$ 3,300
Cash payments for expenses		(1,950)
Net cash provided by operating activities		<u>1,350</u>
Cash flows from investing activities		
Purchase of equipment		(7,000)
Cash flows from financing activities		
Sale of common stock	\$ 15,000	
Payment of cash dividends	<u>(1,300)</u>	
Net cash provided by financing activities		<u>13,700</u>
Net increase in cash		8,050
Cash at the beginning of the period		<u>-0-</u>
Cash at the end of the period		<u>•\$ 8,050</u>

Cash of **\$8,050** on the balance sheet and statement of cash flows is shown as the final total of the cash column of the Summary of Transactions (Illustration 1-8).

Which of the following is not an advantage of the corporate form of business organization?

- a. Limited liability of stockholders
- b. Transferability of ownership
- c. Unlimited personal liability for stockholders
- d. Unlimited life

Which of the following is not an advantage of the corporate form of business organization?

- a. Limited liability of stockholders
- b. Transferability of ownership
- c. Unlimited personal liability for stockholders
- d. Unlimited life

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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 2

The Recording Process

Prepared by Naomi Karolinski
Monroe Community College

and

Marianne Bradford
Bryant College

CHAPTER 2

THE RECORDING PROCESS

After studying this chapter, you should be able to:

- 1 Explain what an account is and how it helps in the recording process**
- 2 Define debits and credits and explain how they are used to record business transactions**
- 3 Identify the basic steps in the recording process**
- 4 Explain what a journal is and how it helps in the recording process**

CHAPTER 2

THE RECORDING PROCESS

After studying this chapter, you should be able to:

- 5 Explain what a ledger is and how it helps in the recording process**
- 6 Explain what posting is and how it helps in the recording process**
- 7 Prepare a trial balance and explain its purpose**

THE ACCOUNT

STUDY OBJECTIVE 1

- An **account** is an individual accounting record of increases and decreases in a specific asset, liability, or owner's equity item.
- There are separate accounts for the items we used in transactions such as **cash**, **salaries expense**, **accounts payable**, etc.

BASIC FORM OF ACCOUNT

STUDY OBJECTIVE 2

- The simplest form an account consists of
 - 1 the title of the account
 - 2 a left or debit side
 - 3 a right or credit side
- The alignment of these parts resembles the letter T = **T account**

Title of Account	
Left or debit side	Right or credit side
Debit balance	Credit balance

DEBITS AND CREDITS

- **Debit** indicates left and **Credit** indicates right
- Recording \$ on the **left** side of an account is debiting the account
- Recording \$ on the **right** side is crediting the account
- If the total of debit amounts is bigger than credits, the account has a **debit** balance
- If the total of credit amounts is bigger than debits, the account has a **credit** balance

TABULAR SUMMARY COMPARED TO ACCOUNT FORM

Tabular Summary

Cash
\$15,000
-7,000
1,200
1,500
-1,700
-250
600
-1,300
<u>\$ 8,050</u>

Account Form

Cash			
(Debits)	15,000	(Credits)	7,000
	1,200		1,700
	1,500		250
	600		1,300
Balance	8,050		
(Debit)			

DEBITING AN ACCOUNT

Cash	
Debits	Credits
15,000	

Example: The owner makes an initial investment of **\$15,000** to start the business. **Cash** is debited as the owner's **Capital** is credited.

CREDITING AN ACCOUNT

Cash	
Debits	Credits
	7,000

Example: Monthly rent of **\$7,000** is paid.
Cash is credited as **Rent Expense** is debited.

DEBITING / CREDITING AN ACCOUNT

Cash

Debits	Credits
15,000	7,000
8,000	

Example: **Cash** is debited for **\$15,000** and credited for **\$7,000**, leaving a debit balance of **\$8,000**.

DOUBLE-ENTRY SYSTEM

- **equal debits and credits made accounts for each transaction**
- **total debits always equal the total credits**
- **accounting equation always stays in balance**

Assets



Liabilities



Equity

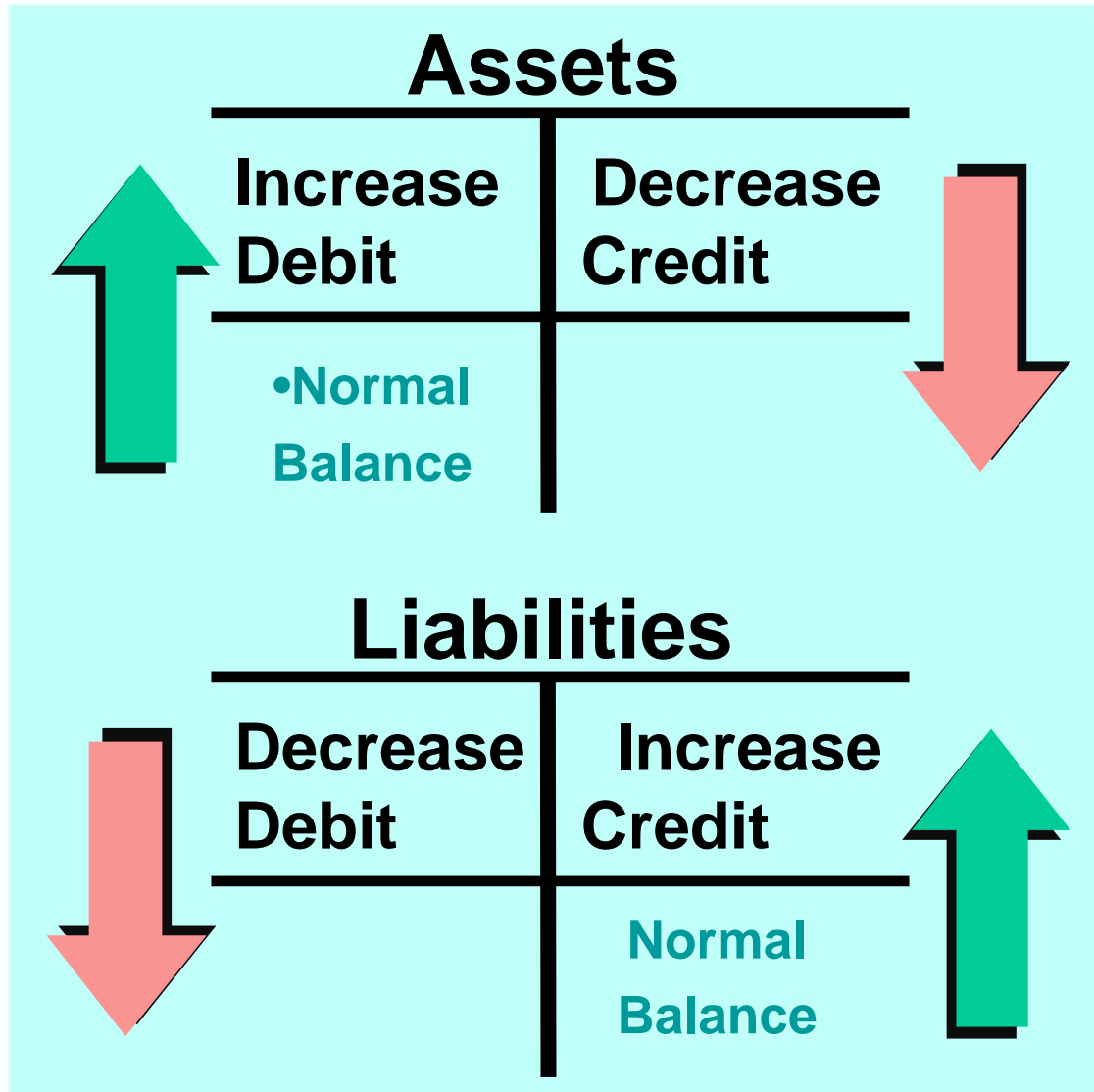
DEBIT AND CREDIT EFFECTS — ASSETS AND LIABILITIES

Debits	Credits
Increase assets Decrease liabilities	Decrease assets Increase liabilities

NORMAL BALANCE

- **every account has a designated **normal** balance.**
 - It is either a debit or credit.
- **accounts rarely have an abnormal balance.**

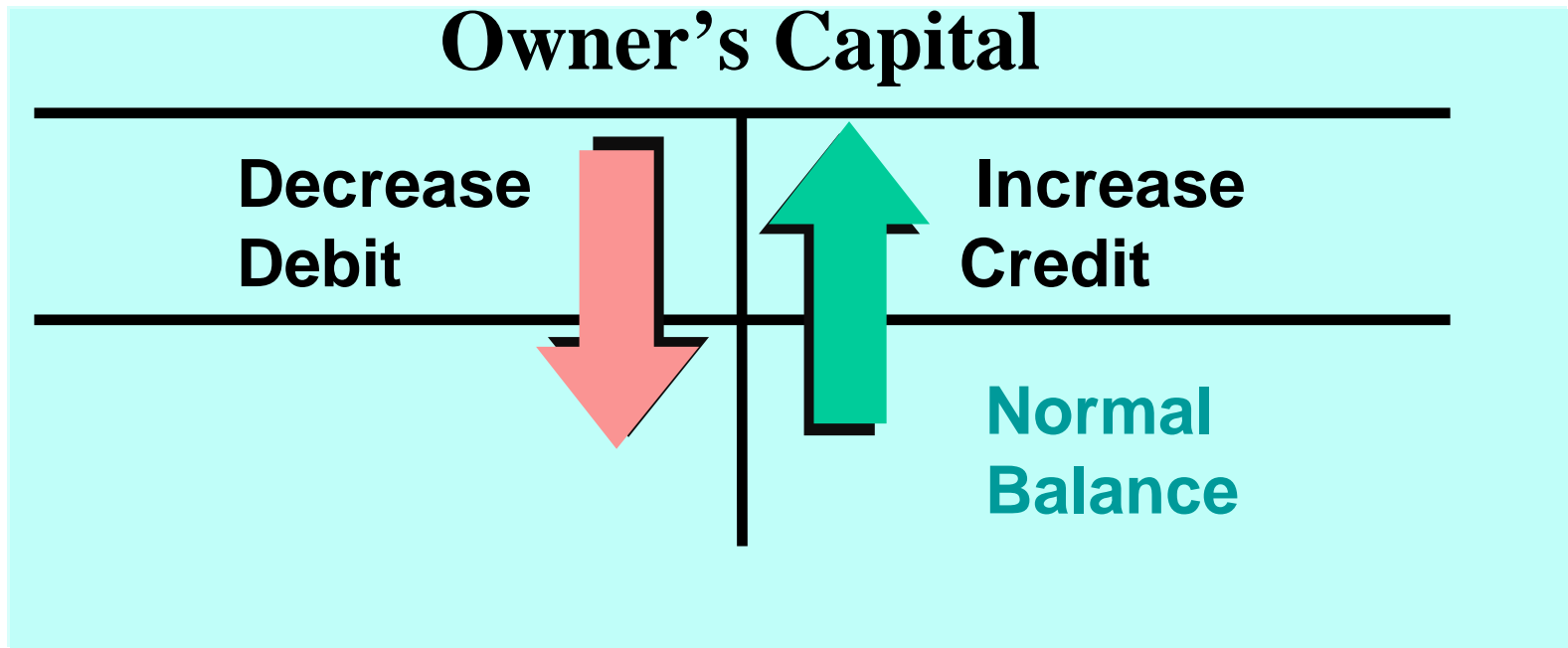
NORMAL BALANCES — ASSETS AND LIABILITIES



DEBIT AND CREDIT EFFECTS — OWNER'S CAPITAL

Debits	Credits
Decrease owner's capital	Increase owner's capital

NORMAL BALANCE — OWNER'S CAPITAL

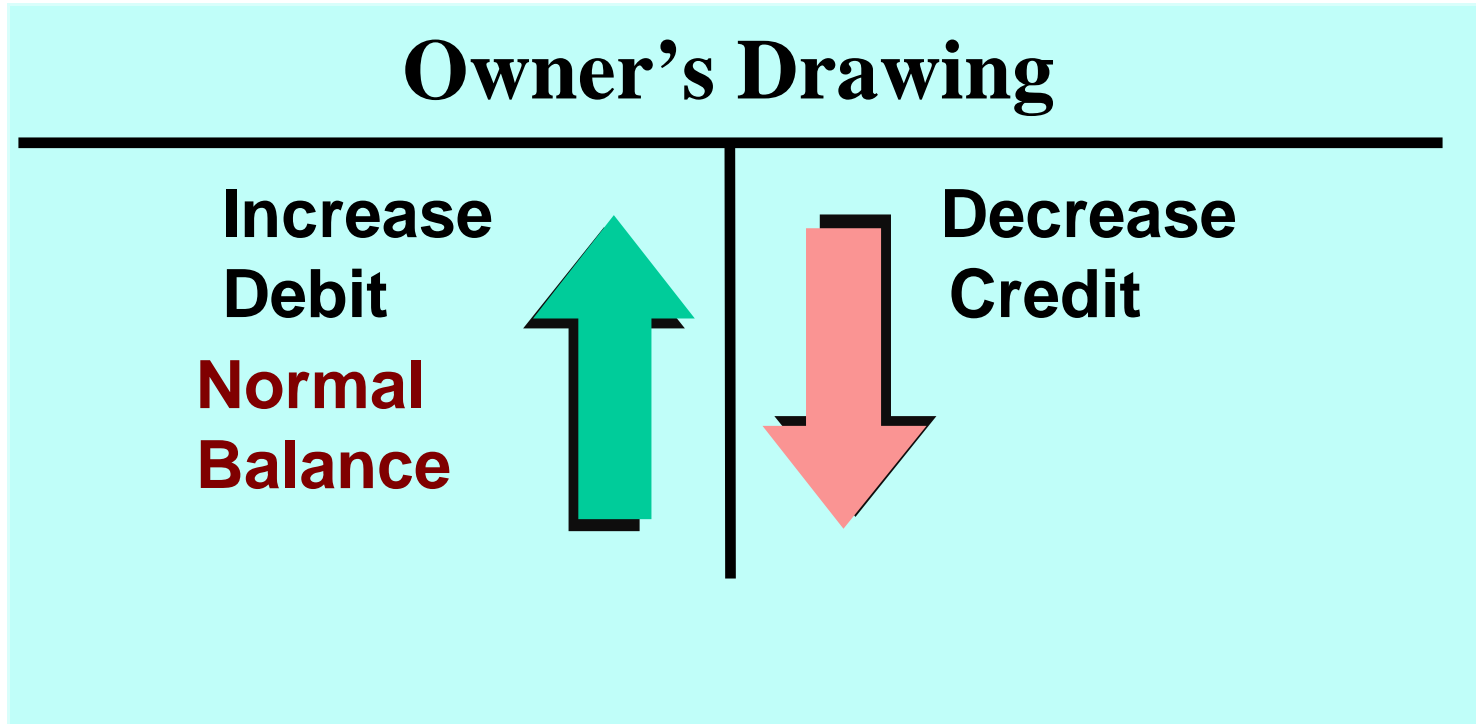


DEBIT AND CREDIT EFFECTS — OWNER'S DRAWING

Debits	Credits
Increase owner's drawing	Decrease owner's drawing

Remember, **Drawing** is a **contra-account** – an account that is backwards from the account it accompanies (the **Capital** account).

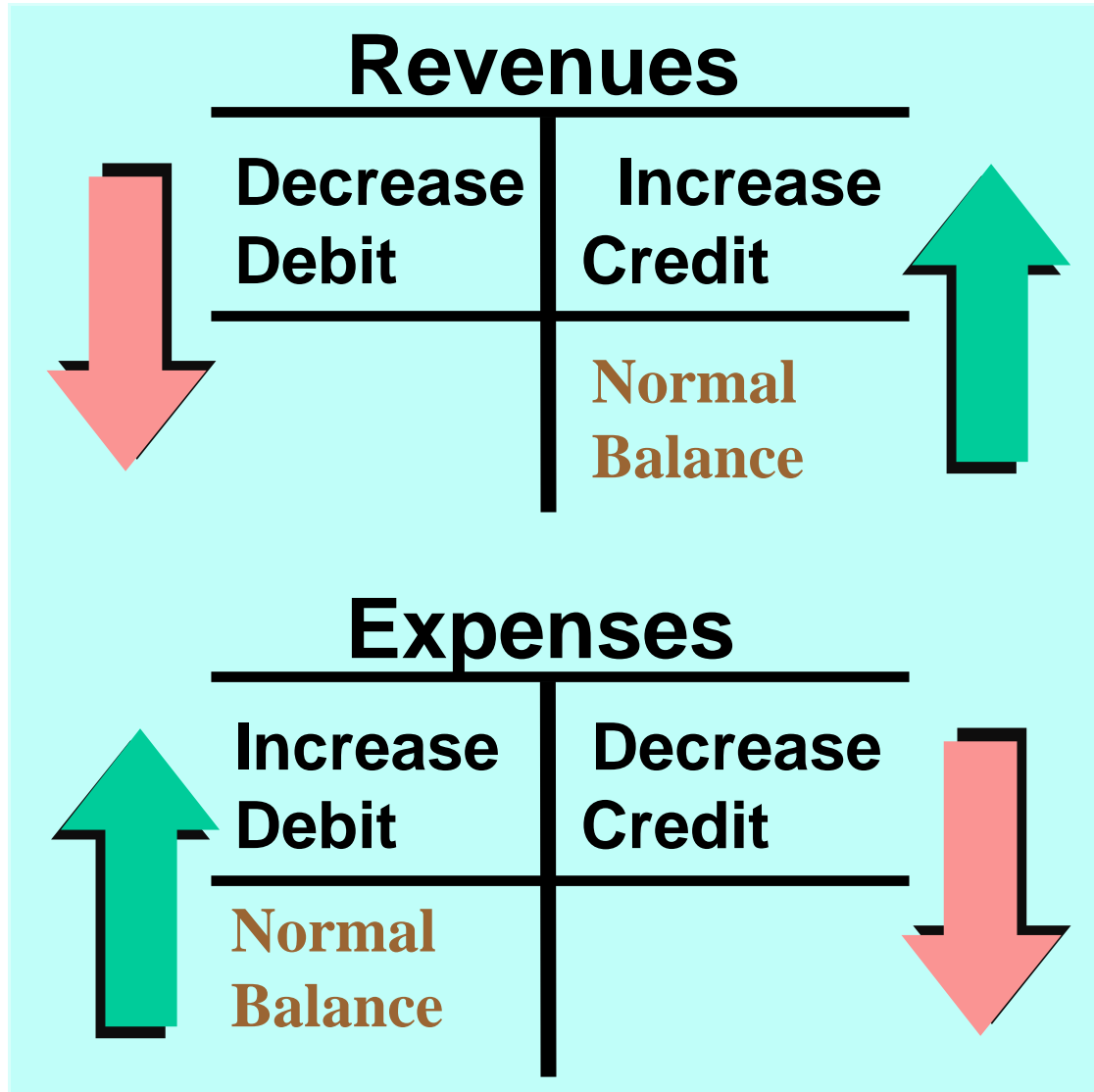
NORMAL BALANCE — OWNER'S DRAWING



DEBIT AND CREDIT EFFECTS — REVENUES AND EXPENSES

Debits	Credits
Decrease revenues Increase expenses	Increase revenues Decrease expenses

NORMAL BALANCES — REVENUES AND EXPENSES



EXPANDED BASIC EQUATION AND DEBIT/CREDIT RULES AND EFFECTS

Assets	=	Liabilities	+	Owner's Equity
---------------	---	--------------------	---	-----------------------

Assets	=	Liabilities	+	Owner's Capital	-	Owner's Drawing																
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 5px; text-align: center;">Dr.</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">Cr.</td> </tr> <tr> <td style="border: 1px solid black; padding: 5px; text-align: center;">+</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">-</td> </tr> </table>	Dr.	Cr.	+	-		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 5px; text-align: center;">Dr.</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">Cr.</td> </tr> <tr> <td style="border: 1px solid black; padding: 5px; text-align: center;">-</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">+</td> </tr> </table>	Dr.	Cr.	-	+		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 5px; text-align: center;">Dr.</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">Cr.</td> </tr> <tr> <td style="border: 1px solid black; padding: 5px; text-align: center;">-</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">+</td> </tr> </table>	Dr.	Cr.	-	+		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 5px; text-align: center;">Dr.</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">Cr.</td> </tr> <tr> <td style="border: 1px solid black; padding: 5px; text-align: center;">+</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">-</td> </tr> </table>	Dr.	Cr.	+	-
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+	Revenues	-	Expenses								
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Dr.	Cr.										
-	+										
Dr.	Cr.										
+	-										

Review

Which of the following is not true of the terms **debit** and **credit**.

- a. They can be abbreviated as Dr. and Cr.
- b. They can be interpreted to mean increase and decrease.
- c. They can be used to describe the balance of an account.
- d. They can be interpreted to mean left and right.

Review

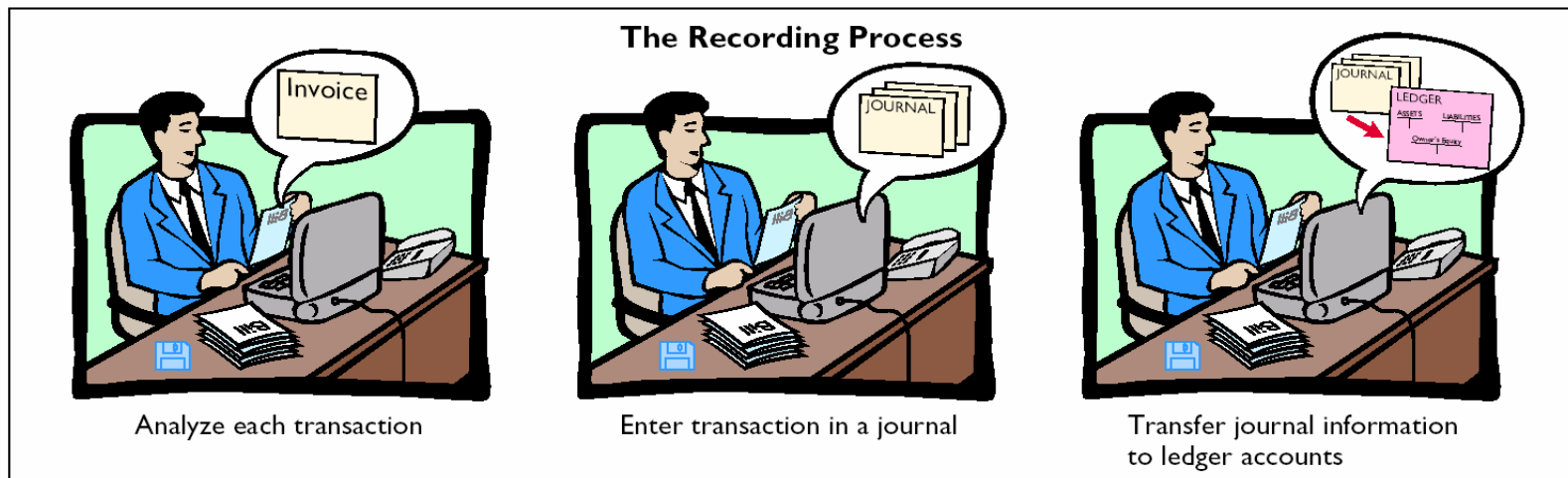
Which of the following is not true of the terms **debit** and **credit**.

- a. They can be abbreviated as Dr. and Cr.
- b. They can be interpreted to mean increase and decrease.
- c. They can be used to describe the balance of an account.
- d. They can be interpreted to mean left and right.

THE RECORDING PROCESS

STUDY OBJECTIVE 3

- 1 analyze each transaction (+, -)
- 2 enter transaction in a journal
- 3 transfer journal information to ledger accounts



THE JOURNAL

STUDY OBJECTIVE 4

- **Transactions**
 - Are initially recorded in chronological order before they are transferred to the ledger accounts.
- A **general journal** has
 - 1 spaces for dates
 - 2 account titles and explanations
 - 3 references
 - 4 two amount columns

THE JOURNAL

A **journal** makes several contributions to recording process:

- 1** discloses in one place the complete effect of a transaction
- 2** provides a chronological record of transactions
- 3** helps to prevent or locate errors as debit and credit amounts for each entry can be compared

JOURNALIZING

- Entering transaction data in the journal is known as **journalizing**.
- Separate journal entries are made for each transaction.
- A complete entry consists of:
 - 1 the date of the transaction,
 - 2 the accounts and amounts to be debited and credited,
 - 3 a brief explanation of transaction.

TECHNIQUE OF JOURNALIZING

The date of the transaction is entered into the date column.

GENERAL JOURNAL					J1
Date	Account Titles and Explanation	Ref.	Debit	Credit	
2005 Sept. 1	Cash R. Neal, Capital (Invested cash in business)		15,000	15,000	
1	Computer Equipment Cash (Purchased equipment for cash)		7,000	7,000	

TECHNIQUE OF JOURNALIZING

The **debit** account title is entered at the extreme left margin of the Account Titles and Explanation column. The **credit** account title is indented on the next line.

GENERAL JOURNAL					J1
Date	Account Titles and Explanation	Ref.	Debit	Credit	
2005 Sept. 1	Cash R. Neal, Capital (Invested cash in business)		15,000	15,000	
1	Computer Equipment Cash (Purchased equipment for cash)		7,000	7,000	

TECHNIQUE OF JOURNALIZING

The amounts for the **debits** are recorded in the Debit column and the amounts for the **credits** are recorded in the Credit column.

GENERAL JOURNAL					J1
Date	Account Titles and Explanation	Ref.	Debit	Credit	
2005 Sept. 1	Cash R. Neal, Capital (Invested cash in business)		15,000	15,000	
1	Computer Equipment Cash (Purchased equipment for cash)		7,000	7,000	

TECHNIQUE OF JOURNALIZING

A brief explanation of the transaction is given.

GENERAL JOURNAL					J1
Date	Account Titles and Explanation	Ref.	Debit	Credit	
2005 Sept. 1	Cash R. Neal, Capital (Invested cash in business)		15,000	15,000	
1	Computer Equipment Cash (Purchased equipment for cash)		7,000	7,000	

TECHNIQUE OF JOURNALIZING

A space is left between journal entries. The blank space separates individual journal entries and makes the entire journal easier to read.

GENERAL JOURNAL				J1
Date	Account Titles and Explanation	Ref.	Debit	Credit
2005 Sept. 1	Cash R. Neal, Capital (Invested cash in business)		15,000	15,000
1	Computer Equipment Cash (Purchased equipment for cash)		7,000	7,000

TECHNIQUE OF JOURNALIZING

The column entitled Ref. is left blank at the time journal entry is made and is used later when the journal entries are transferred to the ledger accounts.

GENERAL JOURNAL					J1
Date	Account Titles and Explanation	Ref.	Debit	Credit	
2005					
Sept. 1	Cash R. Neal, Capital (Invested cash in business)		15,000	15,000	
1	Computer Equipment Cash (Purchased equipment for cash)		7,000	7,000	

SIMPLE AND COMPOUND JOURNAL ENTRIES

If an entry involves only two accounts, one debit and one credit, it is considered a **simple entry**.

GENERAL JOURNAL				J1
Date	Account Titles and Explanation	Ref.	Debit	Credit
2005 July 1	Cash K. Browne, Capital (Invested cash in the business)		20,000	20,000

COMPOUND JOURNAL ENTRY

When three or more accounts are required in one journal entry, the entry is referred to as a **compound entry**.

GENERAL JOURNAL					J1
Date	Account Titles and Explanation	Ref.	Debit	Credit	
2005 July 1	Delivery Equipment		14,000		
	Cash			8,000	
	Accounts Payable			6,000	
	(Purchased truck for cash with balance on account)				

1

2

3

COMPOUND JOURNAL ENTRY

This is the wrong format; all debits must be listed before the credits are listed.

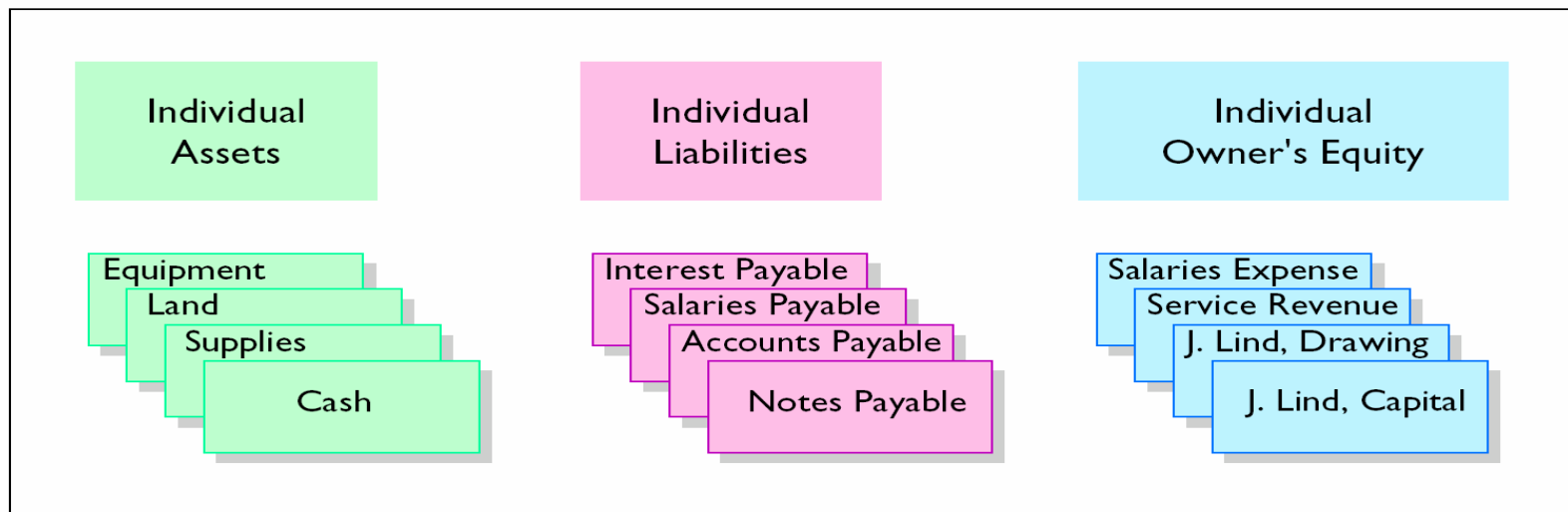
GENERAL JOURNAL				J1
Date	Account Titles and Explanation	Ref.	Debit	Credit
2005 July 1	Cash			8,000
	Delivery Equipment		14,000	
	Accounts Payable			6,000
	(Purchased truck for cash with balance on account)			

THE LEDGER

STUDY OBJECTIVE 5

A Group of accounts maintained by a company is called the **ledger**.

A **general ledger** contains all the assets, liabilities, and owner's equity accounts



POSTING A JOURNAL ENTRY

GENERAL JOURNAL						J1
Date	Account Titles and Explanation	Ref.	Debit	Credit		
2005 Sept. 1	Cash R. Neal, Capital (invested cash in business)	10 25	15,000	15,000		

GENERAL LEDGER

CASH						NO. 10
Date	Explanation	Ref.	Debit	Credit	Balance	
2005 Sept. 1		J1	15,000		15,000	

R. NEAL, CAPITAL						NO. 25
Date	Explanation	Ref.	Debit	Credit	Balance	
2005 Sept. 1		J1		15,000	15,000	

In the ledger, enter in the appropriate columns of the account(s) debited the **date**, **journal page**, and **debit amount** shown in the journal.

POSTING A JOURNAL ENTRY

GENERAL JOURNAL					J1
Date	Account Titles and Explanation	Ref.	Debit	Credit	
2005 Sept. 1	Cash R. Neal, Capital (invested cash in business)	10 25	15,000	15,000	

GENERAL LEDGER					
CASH					NO. 10
Date	Explanation	Ref.	Debit	Credit	Balance
2005 Sept. 1		J1	15,000		15,000

R. NEAL, CAPITAL					NO. 25
Date	Explanation	Ref.	Debit	Credit	Balance
2005 Sept. 1		J1		15,000	15,000

In the reference column of the journal, write the **account number** to which the debit amount was posted.

POSTING A JOURNAL ENTRY

GENERAL JOURNAL					
Date	Account Titles and Explanation	Ref.	Debit	Credit	
2005 Sept. 1	Cash R. Neal, Capital (invested cash in business)	10 25	15,000	15,000	

GENERAL LEDGER

CASH						NO. 10
Date	Explanation	Ref.	Debit	Credit	Balance	
2005 Sept. 1		J1	15,000		15,000	

R. NEAL, CAPITAL						NO. 25
Date	Explanation	Ref.	Debit	Credit	Balance	
2005 Sept. 1		J1		15,000	15,000	

In the ledger, enter in the appropriate columns of the account(s) credited the **date**, **journal page**, and **credit amount** shown in the journal.

POSTING A JOURNAL ENTRY

GENERAL JOURNAL					J1
Date	Account Titles and Explanation	Ref.	Debit	Credit	
2005 Sept. 1	Cash R. Neal, Capital (invested cash in business)	10 25	15,000	15,000	

GENERAL LEDGER

CASH					NO. 10
Date	Explanation	Ref.	Debit	Credit	Balance
2005 Sept. 1		J1	15,000		15,000

R. NEAL, CAPITAL					NO. 25
Date	Explanation	Ref.	Debit	Credit	Balance
2005 Sept. 1		J1		15,000	15,000

In the reference column of the journal, write the **account number** to which the credit amount was posted.

CHART OF ACCOUNTS

A **Chart of Accounts** lists the accounts and the account numbers which identify their location in the ledger.

PIONEER ADVERTISING AGENCY

Chart of Accounts

Assets

101 Cash
112 Accounts Receivable
126 Advertising Supplies
130 Prepaid Insurance
157 Office Equipment
158 Accumulated Depreciation—Office Equipment

Liabilities

200 Notes Payable
201 Accounts Payable
209 Unearned Revenue
212 Salaries Payable
230 Interest Payable

Owner's Equity

301 C. R. Byrd, Capital
306 C. R. Byrd, Drawing
350 Income Summary

Revenues

400 Service Revenue

Expenses

631 Advertising Supplies Expense
711 Depreciation Expense
722 Insurance Expense
726 Salaries Expense
729 Rent Expense
905 Interest Expense

INVESTMENT OF CASH BY OWNER

Transaction

October 1, C.R. Byrd invests \$10,000 cash in an advertising business known as:
The Pioneer Advertising Agency.

Basic Analysis

- The asset Cash is increased \$10,000
- Owner's equity, C. R. Byrd, Capital is increased \$10,000.

Debit-Credit Analysis

Debits increase assets: debit Cash **\$10,000**.
Credits increase owner's equity: credit C.R. Byrd, Capital **\$10,000**.

PURCHASE OF OFFICE EQUIPMENT

JOURNAL ENTRY

Date	Account Titles and Explanation	Ref.	Debit	Credit
Oct. 1	Cash	101	10,000	
	C. R. Byrd, Capital	301		10,000
	(Owner invests \$10,000 In the business)			

POSTING

Cash		101
Oct. 1	10,000	

C. R. Byrd, Capital		301
	Oct. 1	10,000

INVESTMENT OF CASH BY OWNER

Transaction

October 1, C. R. Byrd purchases \$5,000 of equipment by issuing a 3-month, 12% note payable.

Basic Analysis

- The asset Office Equipment is increased \$5,000.
- The liability, Notes Payable is increased \$5,000.

Debit-Credit Analysis

Debits increase assets: debit Office Equipment \$5,000.
Credits increase liabilities: credit Notes Payable \$5,000.

PURCHASE OF OFFICE EQUIPMENT

JOURNAL ENTRY

Date	Account Titles and Explanation	Ref.	Debit	Credit
Oct. 1	Office Equipment Notes Payable (Issued 3-month, 12% note for office equipment)	157 200	5,000	5,000

POSTING

	Office Equipment	157
Oct. 1	5,000	

Notes Payable	200
Oct. 1	5,000

RECEIPT OF CASH FOR FUTURE SERVICE

Transaction

October 2, a \$1,200 cash advance is received from a client, for advertising services expected to be completed by December 31.

Basic Analysis

Asset Cash is increased \$1,200

Liability Unearned Fees is increased \$1,200

- Service has not been rendered yet.

Liabilities often have the word “payable” in their title, Unearned fees are a liability.

Debit-Credit Analysis

Debits increase assets: debit Cash **\$1,200.**

Credits increase liabilities: credit Unearned Fees **\$1,200.**

RECEIPT OF CASH FOR FUTURE SERVICE

JOURNAL ENTRY

Date	Account Titles and Explanation	Ref.	Debit	Credit
Oct. 2	Cash	101	1,200	
	Unearned Fees (Received advance from R. Knox for future services)	209		1,200

POSTING

Cash		101
Oct. 1	10,000	
2	1,200	

Unearned Fees		209
	Oct. 2	1,200

PAYMENT OF MONTHLY RENT

Transaction

October 3, office rent for October is paid in cash, \$900.

Basic Analysis

The expense Rent is increased \$900
Payment pertains only to the current month
Asset Cash is decreased \$900.

Debit-Credit Analysis

Debits increase expenses: debit Rent Expense \$900.
Credits decrease assets: credit Cash \$900.

PAYMENT OF RENT EXPENSE

JOURNAL ENTRY

Date	Account Titles and Explanation	Ref.	Debit	Credit
Oct. 3	Rent Expense	729	900	
	Cash	101		900
	(Paid \$900 for October rent)			

POSTING

Rent Expense		729
Oct. 3	900	

Cash		101
Oct. 1	10,000	
Oct. 2	1,200	
Oct. 3		900

PAYMENT FOR INSURANCE

Transaction

October 4, \$600 Paid one-year insurance policy- expires next year on September 30.

Basic Analysis

- Asset Prepaid Insurance increases \$600**
- Payment extends to more than the current month**
- Asset Cash is decreased \$600.**
- Payments of expenses benefiting more than one period are prepaid expenses or prepayments.**

Debit-Credit Analysis

Debits increase assets: debit Prepaid Insurance \$600. Credits decrease assets: credit Cash \$600.

PAYMENT FOR INSURANCE

JOURNAL ENTRY

Date	Account Titles and Explanation	Ref.	Debit	Credit
Oct. 4	Prepaid Insurance	130	600	
	Cash	101		600
	(Paid one-year policy; effective date October 1)			

POSTING

Cash		101
Oct. 1	10,000	Oct. 3 900
2	1,200	4 600

Prepaid Insurance		130
Oct. 4	600	

PURCHASE OF SUPPLIES ON CREDIT

Transaction

October 5, an estimated 3-month supply of advertising materials is purchased on account from Aero Supply for \$2,500.

Basic Analysis

The asset Advertising Supplies is increased \$2,500; the liability Accounts Payable is increased \$2,500.

Debit-Credit Analysis

Debits increase assets: debit Advertising Supplies **\$2,500**. Credits increase liabilities: credit Accounts Payable **\$2,500**.

PURCHASE OF SUPPLIES ON CREDIT

JOURNAL ENTRY

Date	Account Titles and Explanation	Ref.	Debit	Credit
Oct. 5	Advertising Supplies Accounts Payable (Purchased supplies on account from Aero Supply)	126 201	2,500	2,500

POSTING

Advertising Supplies		126
Oct. 5	2,500	

Accounts Payable		201
	Oct. 5	2,500

HIRING OF EMPLOYEES

Transaction

October 9, hire four employees to begin work on October 15. Each employee is to receive a weekly salary of \$500 for a 5-day work week, payable every 2 weeks -- first payment made on October 26.

Basic Analysis

A business transaction has not occurred only an agreement between the employer and the employees to enter into a business transaction beginning on October 15.

Debit-Credit Analysis

A debit-credit analysis is not needed because there is no accounting entry.

WITHDRAWAL OF CASH BY OWNER

Transaction

October 20, C. R. Byrd withdraws \$500 cash for personal use.

Basic Analysis

The owner's equity account C. R. Byrd, Drawing is increased \$500.
The asset Cash is decreased \$500.

Debit-Credit Analysis

Debits increase drawings: debit C. R. Byrd, Drawing **\$500**. Credits decrease assets: credit Cash **\$500**.

WITHDRAWAL OF CASH BY OWNER

JOURNAL ENTRY

Date	Account Titles and Explanation	Ref.	Debit	Credit
Oct. 20	C. R. Byrd, Drawing Cash (Withdrew cash for personal use)	306 101	500	500

POSTING

Cash		101
Oct. 1	10,000	Oct. 3 900
2	1,200	4 600
		20 500

C. R. Byrd, Drawing		306
Oct. 20	500	

PAYMENT OF SALARIES

Transaction

October 26, employee salaries of \$4,000 are owed and paid in cash. (See October 9 transaction.)

Basic Analysis

The expense account Salaries Expense is increased \$4,000; the asset Cash is decreased \$4,000.

Debit-Credit Analysis

Debits increase expenses: debit Salaries Expense **\$4,000**. Credits decrease assets: credit Cash **\$4,000**.

PAYMENT OF SALARIES

JOURNAL ENTRY

Date	Account Titles and Explanation	Ref.	Debit	Credit
Oct. 26	Salaries Expense	726	4,000	
	Cash	101		4,000
	(Paid salaries to date)			

POSTING

Cash		101	
Oct. 1	10,000	Oct. 3	900
2	1,200	4	600
		20	500
		26	4,000

Salaries Expense		726	
Oct. 26	4,000		

RECEIPT OF CASH FOR FEES EARNED

Transaction

October 31, received \$10,000 in cash from Copa Company for advertising services rendered in October.

Basic Analysis

The asset Cash is increased \$10,000; the revenue Fees Earned is increased \$10,000.

Debit-Credit Analysis

Debits increase assets: debit Cash **\$10,000**. Credits increase revenues: credit Fees Earned **\$10,000**.

RECEIPT OF CASH FOR FEES EARNED

JOURNAL ENTRY

Date	Account Titles and Explanation	Ref.	Debit	Credit
Oct. 31	Cash	101	10,000	
	Fees Earned	400		10,000
	(Received cash for fees earned)			

POSTING

Cash		101	Fees Earned		400
Oct. 1	10,000	Oct. 3	900	Oct. 31	10,000
2	1,200	4	600		
31	10,000	20	500		
		26	4,000		

THE TRIAL BALANCE

STUDY OBJECTIVE 7

- The **trial balance** is a list of accounts and their balances at a given time.
- The primary purpose of a trial balance is to prove debits = credits after posting.
- If debits and credits do not agree, the trial balance can be used to uncover errors in journalizing and posting.

THE TRIAL BALANCE

The Steps in preparing the Trial Balance are:

1. List the account titles and balances
2. Total the debit and credit columns
3. Prove the equality of the two columns

A TRIAL BALANCE

PIONEER ADVERTISING AGENCY
Trial Balance
October 31, 2005

	Debit	Credit
Cash	\$ 15,200	
Advertising Supplies	2,500	
Prepaid Insurance	600	
Office Equipment	5,000	
Notes Payable		\$ 5,000
Accounts Payable		2,500
Unearned Fees		1,200
C. R. Byrd, Capital		10,000
C. R. Byrd, Drawing	500	
Fees Earned		10,000
Salaries Expense	4,000	
Rent Expense	900	
	\$ 28,700	\$ 28,700

The total debits must equal the total credits.

LIMITATIONS OF A TRIAL BALANCE

- **A trial balance does not prove all transactions have been recorded or the ledger is correct.**
- **Numerous errors may exist even though the trial balance columns agree. For example, the trial balance may balance even when:**
 - **a transaction is not journalized**
 - **a correct journal entry is not posted**
 - **a journal entry is posted twice**
 - **incorrect accounts used in journalizing or posting**
 - **offsetting errors are made in recording**

Review

Which one of the following represents the expanded basic accounting equation?

- a. $\text{Assets} = \text{Liabilities} + \text{Owner's Capital} + \text{Owner's Drawings} - \text{Revenue} - \text{Expenses}.$
- b. $\text{Assets} + \text{Owner's Drawings} + \text{Expenses} = \text{Liabilities} + \text{Owner's Capital} + \text{Revenue}.$
- c. $\text{Assets} - \text{Liabilities} - \text{Owner's Drawings} = \text{Owner's Capital} + \text{Revenue} - \text{Expenses}.$
- d. $\text{Assets} = \text{Revenue} + \text{Expenses} - \text{Liabilities}.$

Review

Which one of the following represents the expanded basic accounting equation?

- a. $\text{Assets} = \text{Liabilities} + \text{Owner's Capital} + \text{Owner's Drawings} - \text{Revenue} - \text{Expenses}.$
- b. $\text{Assets} + \text{Owner's Drawings} + \text{Expenses} = \text{Liabilities} + \text{Owner's Capital} + \text{Revenue}.$
- c. $\text{Assets} - \text{Liabilities} - \text{Owner's Drawings} = \text{Owner's Capital} + \text{Revenue} - \text{Expenses}.$
- d. $\text{Assets} = \text{Revenue} + \text{Expenses} - \text{Liabilities}.$

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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 3

Adjusting the Accounts

Prepared by Naomi Karolinski
Monroe Community College

and

Marianne Bradford
Bryant College

CHAPTER 3

ADJUSTING THE ACCOUNTS

After studying this chapter, you should be able to:

- 1 Explain the time period assumption**
- 2 Explain the accrual basis of accounting**
- 3 Explain why adjusting entries are needed**
- 4 Identify the major types of adjusting entries**
- 5 Prepare adjusting entries for prepayments**
- 6 Prepare adjusting entries for accruals**
- 7 Describe the nature and purpose of an adjusted trial balance**

TIME-PERIOD ASSUMPTION

STUDY OBJECTIVE 1

- **The **time period** (or periodicity) **assumption****
 - assumes the economic life of a business can be divided into artificial time periods
- **Accounting time periods**
 - generally month, a quarter, or a year
- **Accounting time period of one year in length**
 - referred to as a **fiscal year**

ACCRUAL BASIS OF ACCOUNTING

STUDY OBJECTIVE 2

- **Revenue recognition and matching principles**
 - Used under the **accrual basis of accounting**
- **Cash basis accounting**
 - revenue is recorded when cash is received
 - expenses are recorded when cash is paid
- **GAAP requires accrual basis accounting**
 - cash basis often causes misleading financial statements.

REVENUE RECOGNITION PRINCIPLE

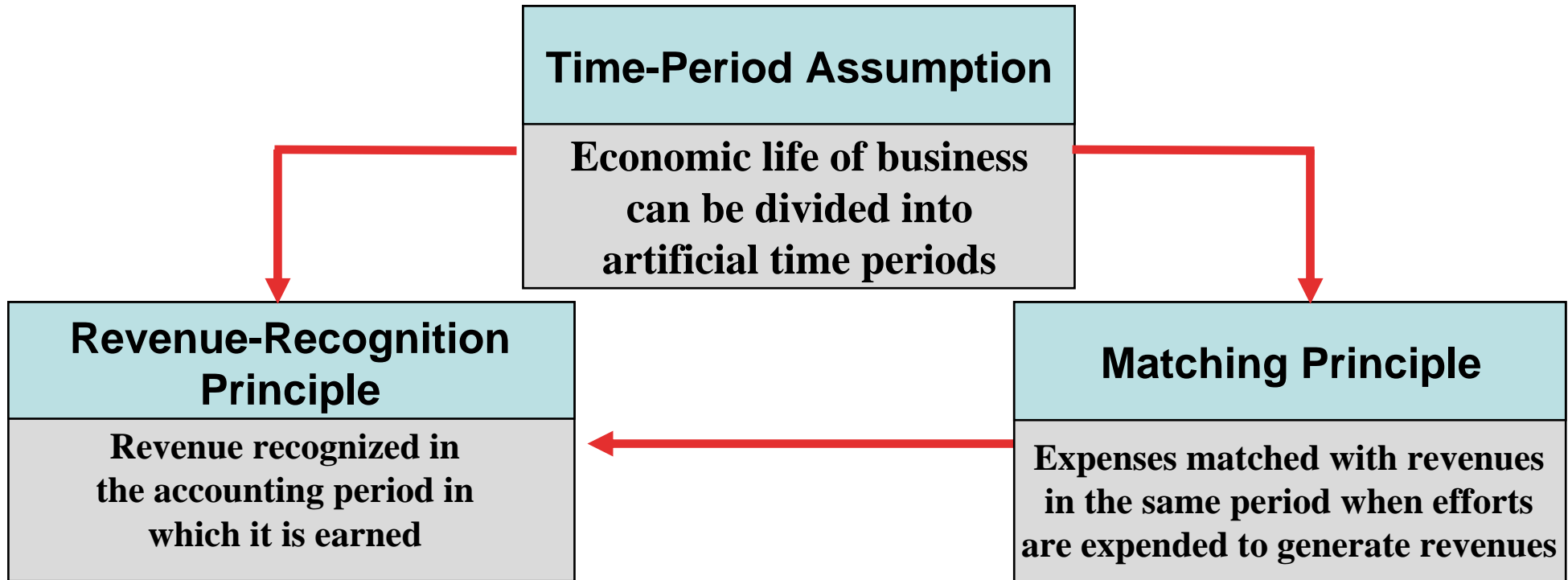
- **Revenue recognition principle**
 - Revenue must be recognized in the accounting period in which it is earned, not just when money is exchanged.
 - In a service business, revenue is earned at the time the service is performed.

THE MATCHING PRINCIPLE

- Expense recognition is the **matching principle**.
- **Efforts (expenses) must be matched with accomplishments (revenues).**



GAAP RELATIONSHIPS IN REVENUE AND EXPENSE RECOGNITION

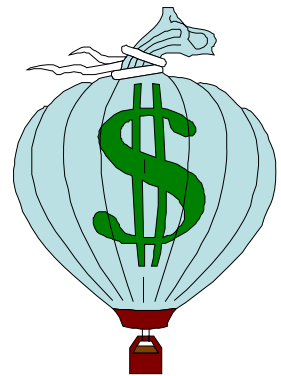


ADJUSTING ENTRIES

STUDY OBJECTIVE 3

Adjusting entries are made in order for:

- revenues to be recorded in the period in which they are *earned*
- expenses to be recognized in the period in which they are *incurred*



ADJUSTING ENTRIES

STUDY OBJECTIVE 4

Adjusting entries

- required each time financial statements are prepared
- Adjusting entries are classified as
 - Prepayments (*prepaid expenses* and *unearned revenues*) OR
 - Accruals (*accrued revenues* and *accrued expenses*)

TYPES OF ADJUSTING ENTRIES

Prepayments

- **Prepaid Expenses**

Expenses paid in cash - recorded as assets before used or consumed

- **Unearned Revenues**

Cash received - recorded as liabilities before the revenue is earned

TYPES OF ADJUSTING ENTRIES

Accruals

- **Accrued Revenues**

revenues earned but not yet received in cash or recorded

- **Accrued Expenses**

expenses incurred but not yet paid in cash or recorded

TRIAL BALANCE

PIONEER ADVERTISING AGENCY Trial Balance October 31, 2005		
	Debit	Credit
Cash	\$ 15,200	
Advertising Supplies	2,500	
Prepaid Insurance	600	
Office Equipment	5,000	
Notes Payable		\$ 5,000
Accounts Payable		2,500
Unearned Revenue		1,200
C. R. Byrd, Capital		10,000
C. R. Byrd, Drawing	500	
Service Revenue		10,000
Salaries Expense	4,000	
Rent Expense	900	
	\$ 28,700	\$ 28,700

The Trial Balance
is the starting place
for adjusting
entries.

PREPAYMENTS

STUDY OBJECTIVE 5

Prepayments

- The first category of adjusting entry is prepayments.
- Required to record revenues earned and expenses incurred
 - Also ensures that assets and liabilities are not overstated
- The adjusting entry for prepayments:
 - Increases an income statement account
 - Decreases a balance sheet account

ADJUSTING ENTRIES FOR PREPAYMENTS

Adjusting Entries

Prepaid Expenses

Asset	
Unadjusted Balance	Credit Adjusting Entry (-)



Expense	
Debit Adjusting Entry (+)	

Unearned Revenues

Liability	
Debit Adjusting Entry (-)	Unadjusted Balance



Revenue	
	Credit Adjusting Entry (+)

PREPAID EXPENSES

- **Prepaid expenses**
 - expenses paid in cash and recorded as assets before they are used or consumed
 - Prepaid expenses expire with the passage of time or through use and consumption
- **An asset-expense account relationship exists with prepaid expenses**

PREPAID EXPENSES

- **Prior to adjustment**
 - assets are **overstated** and expenses are **understated**
- **Adjusting entry**
 - debit expense account
 - credit asset account
- **Examples**
 - prepaid expenses include supplies, insurance, and depreciation

ADJUSTING ENTRIES FOR PREPAYMENTS SUPPLIES

ADJUSTMENT

October 31, an inventory count reveals that \$1,000 of \$2,500 of supplies are still on hand.

JOURNAL ENTRY

Date	Account Titles and Explanation	Debit	Credit
Oct. 31	Advertising Supplies Expense Advertising Supplies (To record supplies used)	1,500	1,500

POSTING

Advertising Supplies			Advertising Supplies Expense		
Oct. 5	2,500	Oct. 31	1,500	Oct. 31	1,500
31	1,000				

ADJUSTING ENTRIES FOR PREPAYMENTS INSURANCE

ADJUSTMENT

October 31, an analysis of the policy reveals that \$50 of insurance expires each month.

JOURNAL ENTRY

Date	Account Titles and Explanation	Debit	Credit
Oct. 31	Insurance Expense Prepaid Insurance (To record insurance expired)	50	50

POSTING

Prepaid Insurance		Insurance Expense	
Oct. 4	600	Oct. 31	50
31	550	Oct. 31	50
			63

DEPRECIATION

Depreciation

- **the allocation of the cost of an asset to expense over its useful life in a rational and systematic manner**
- **Equipment or a building**
 - **viewed as a long-term prepayment of services**
 - **allocated in the same manner as other prepaid expenses**

DEPRECIATION

- **Depreciation**
 - is an estimate rather than a factual measurement of the cost that has expired
- **Recording depreciation**
 - Debit *Depreciation Expense*
 - Credit *Accumulated Depreciation (contra asset)*

Depreciation Expense

XXX	
-----	--

Accumulated Depreciation

	XXX
--	-----

DEPRECIATION

- **Balance Sheet**
 - **Accumulated Depreciation is offset against the asset account**
- **Book Value**
 - **difference between the cost of any depreciable asset and its related accumulated depreciation is the **book value** of the asset**
 - **not market value**

ADJUSTING ENTRIES FOR PREPAYMENTS DEPRECIATION

ADJUSTMENT

October 31, depreciation on the office equipment is estimated to be \$480 a year, or \$40 per month.

JOURNAL ENTRY

Date	Account Titles and Explanation	Debit	Credit
Oct. 31	Depreciation Expense Accumulated Depreciation - Office Equipment (To record monthly depreciation)	40	40

POSTING

Accumulated Depreciation - Office Equipment		Depreciation Expense	
	Oct. 31	40	40

UNEARNED REVENUES

- **Unearned revenues**
 - revenues received and recorded as liabilities before they are earned
- **Unearned revenues**
 - earned by rendering a service to a customer
- A *liability-revenue* account relationship exists with unearned revenues

UNEARNED REVENUES

- **Prior to adjustment**
 - liabilities are **overstated** and revenues are **understated**
- **Adjusting entry**
 - debit to a liability account
 - credit to a revenue account
- **Examples**
 - rent, magazine subscriptions and customer deposits for future services

ADJUSTING ENTRIES FOR PREPAYMENTS UNEARNED REVENUES

ADJUSTMENT

October 31, analysis reveals that, of \$1,200 in fees, \$400 has been earned in October.

JOURNAL ENTRY

Date	Account Titles and Explanation	Debit	Credit
Oct. 31	Unearned Revenue Service Revenue (To record revenue for services provided)	400	400

POSTING

Unearned Revenue			
Oct. 31	400	Oct. 2	1,200
		31	800

Service Revenue			
		Oct. 31	10,000
		31	400

ACCRUALS

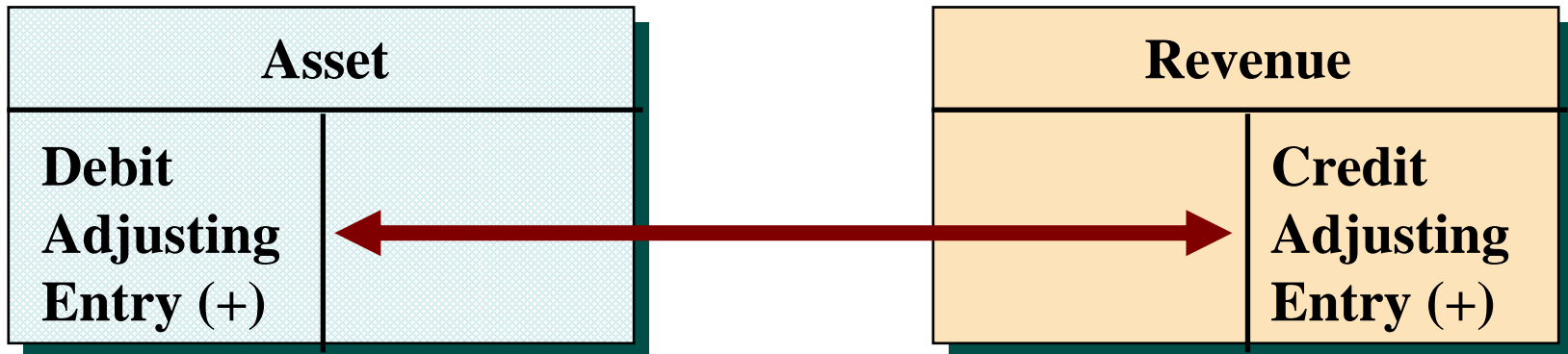
STUDY OBJECTIVE 6

- **Second category of adjusting entries is **accruals****
- **Adjusting entries**
 - **required to record revenues earned and expenses incurred in the current period**
- **Adjusting entry for accruals**
 - **increase both a balance sheet and an income statement account**

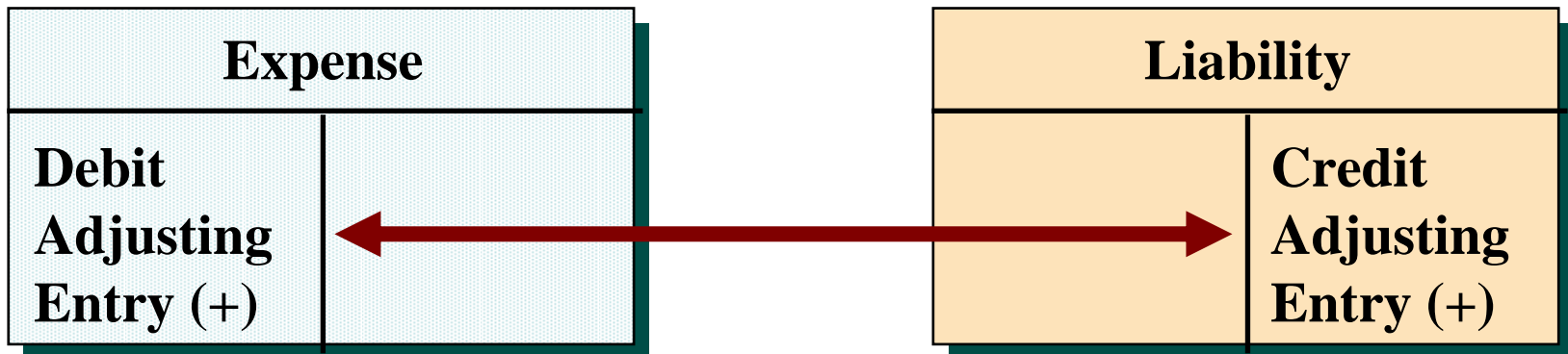
ADJUSTING ENTRIES FOR ACCRUALS

Adjusting Entries

Accrued Revenues



Accrued Expenses



ACCRUED REVENUES

- **Accrued revenues**
 - accumulate with the passing of time or through services performed but not billed or collected
 - An asset-revenue account relationship exists
 - Prior to adjustment, assets and revenues are understated
- **Adjusting entry**
 - debit an asset account
 - credit a revenue account

ADJUSTING ENTRIES FOR ACCRUALS

ACCRUED REVENUES

ADJUSTMENT

October 31, the agency earned \$200 for advertising services that were not billed to clients before October 31.

JOURNAL ENTRY

Date	Account Titles and Explanation	Debit	Credit
Oct. 31	Accounts Receivable Service Revenue (To accrue revenue for services provided)	200	200

POSTING

Accounts Receivable	
Oct. 31	200

Service Revenue		
	Oct. 31	10,000
	31	400
	31	200
	31	10,600

ACCRUED EXPENSES

- **Accrued expenses**
 - Expenses incurred but not paid yet
 - A liability-expense account relationship exists
 - Prior to adjustment, liabilities and expenses are understated
- **Adjusting Entry**
 - debit an expense account
 - credit a liability account

ADJUSTING ENTRIES FOR ACCRUALS

ACCRUED INTEREST

ADJUSTMENT

October 31, the portion of the interest to be accrued on a 3-month note payable is calculated to be \$50.

JOURNAL ENTRY

Date	Account Titles and Explanation	Debit	Credit
Oct. 31	Interest Expense Interest Payable (To accrue interest on notes payable)	50	50

POSTING

Interest Expense	
Oct. 31	50

Interest Payable	
Oct. 31	50

ADJUSTING ENTRIES FOR ACCRUALS

ACCRUED SALARIES

ADJUSTMENT

October 31, accrued salaries are calculated to be \$1,200.

JOURNAL ENTRY

Date	Account Titles and Explanation	Debit	Credit
Oct. 31	Salaries Expense Salaries Payable (To record accrued salaries)	1,200	1,200

POSTING

Salaries Expense	
Oct. 26	4,000
31	1,200
31	5,200

Salaries Payable	
Oct. 31	1,200

SUMMARY OF ADJUSTING ENTRIES

Type of Adjustment	Account Relationship	Accounts before Adjustment	Adjusting Entry
1 Prepaid expenses	Assets and expenses	Assets overstated Expenses understated	Dr. Expenses Cr. Assets
2 Unearned revenues	Liabilities and revenues	Liabilities overstated Revenues understated	Dr. Liabilities Cr. Revenues
3 Accrued revenues	Assets and revenues	Assets understated Revenues understated	Dr. Assets Cr. Revenues
4 Accrued expenses	Expenses and liabilities	Expenses understated Liabilities understated	Dr. Expenses Cr. Liabilities

Review

Which of the following statements concerning accrual-basis accounting is incorrect?

- a. Accrual-basis accounting follows the revenue recognition principle.
- b. Accrual-basis accounting is the method required by generally accepted accounting principles.
- c. Accrual-basis accounting recognizes expenses when they are paid.
- d. Accrual-basis accounting follows the matching principle.

Review

Which of the following statements concerning accrual-basis accounting is incorrect?

- a. Accrual-basis accounting follows the revenue recognition principle.
- b. Accrual-basis accounting is the method required by generally accepted accounting principles.
- c. Accrual-basis accounting recognizes expenses when they are paid.
- d. Accrual-basis accounting follows the matching principle.

ADJUSTED TRIAL BALANCE

STUDY OBJECTIVE 7

- **Adjusted Trial Balance**
 - prepared after all adjusting entries have been journalized and posted
 - purpose is to prove equality of the total debit and credit balances in the ledger after adjustments have been made
- **Financial statements**
 - prepared directly from the adjusted trial balance

TRIAL BALANCE AND ADJUSTED TRIAL BALANCE COMPARED

PIONEER ADVERTISING AGENCY				
Adjusted Trial Balance				
October 31, 2005				
	Before Adjustment		After Adjustment	
	Debit	Credit	Debit	Credit
Cash	\$ 15,200		\$ 15,200	
Accounts Receivable			200	
Advertising Supplies	2,500		1,000	
Prepaid Insurance	600		550	
Office Equipment	5,000		5,000	
Accumulated Depreciation - Office Equipment				\$ 40
Notes Payable		\$ 5,000		5,000
Accounts Payable		2,500		2,500
Interest Payable				50
Unearned Revenue		1,200		800
Salaries Payable				1,200
C. R. Byrd, Capital		10,000		10,000
C. R. Byrd, Drawing	500		500	
Service Revenue		10,000		10,600
Salaries Expense	4,000		5,200	
Advertising Supplies Expense			1,500	
Rent Expense	900		900	
Insurance Expense			50	
Interest Expense			50	
Depreciation Expense			40	
	<u>\$ 28,700</u>	<u>\$ 28,700</u>	<u>\$ 30,190</u>	<u>\$ 30,190</u>

PREPARING FINANCIAL STATEMENTS

Financial statements are prepared directly from the **adjusted trial balance**

- **Income statement**
 - use the revenue and expense accounts
- **Owner's Equity Statement**
 - use the owner's capital and drawing accounts and the net income (or net loss) from the Income Statement
- **Balance sheet**
 - use asset and liability accounts and ending owner's capital balance reported in Owner's Equity Statement

PREPARATION OF THE INCOME STATEMENT AND THE OWNER'S EQUITY STATEMENT FROM THE ADJUSTED TRIAL BALANCE

PIONEER ADVERTISING AGENCY Adjusted Trial Balance October 31, 2005		
	Debit	Credit
Cash	\$ 15,200	
Accounts Receivable	200	
Advertising Supplies	1,000	
Prepaid Insurance	550	
Office Equipment	5,000	
Accumulated Depreciation - Office Equipment		\$ 40
Notes Payable		5,000
Accounts Payable		2,500
Interest Payable		50
Unearned Revenue		800
Salaries Payable		1,200
C. R. Byrd, Capital		10,000
C. R. Byrd, Drawing	500	
Service Revenue		10,600
Salaries Expense	5,200	
Advertising Supplies Expense	1,500	
Rent Expense	900	
Insurance Expense	50	
Interest Expense	50	
Depreciation Expense	40	
	\$ 30,190	\$ 30,190

PREPARATION OF THE INCOME STATEMENT AND THE OWNER'S EQUITY STATEMENT FROM THE ADJUSTED TRIAL BALANCE

PIONEER ADVERTISING AGENCY Income Statement For the Month Ended October 31, 2005

Revenues		
Fees earned		\$ 10,600
Expenses		
Salaries expense	\$ 5,200	
Advertising supplies expense	1,500	
Rent expense	900	
Insurance expense	50	
Interest expense	50	
Depreciation expense	40	
Total expenses		7,740
Net income		\$ 2,860

The income statement is prepared from the **revenue and expense accounts**.

PREPARATION OF THE INCOME STATEMENT AND THE OWNER'S EQUITY STATEMENT FROM THE ADJUSTED TRIAL BALANCE

PIONEER ADVERTISING AGENCY Adjusted Trial Balance October 31, 2005		
	Debit	Credit
Cash	\$ 15,200	
Accounts Receivable	200	
Advertising Supplies	1,000	
Prepaid Insurance	550	
Office Equipment	5,000	
Accumulated Depreciation – Office Equipment		\$ 40
Notes Payable		5,000
Accounts Payable		2,500
Interest Payable		50
Unearned Revenue		800
Salaries Payable		1,200
C. R. Byrd, Capital		10,000
C. R. Byrd, Drawing	500	
Service Revenue		10,600
Salaries Expense	5,200	
Advertising Supplies Expense	1,500	
Rent Expense	900	
Insurance Expense	50	
Interest Expense	50	
Depreciation Expense	40	
	\$ 30,190	\$ 30,190

PREPARATION OF THE INCOME STATEMENT AND THE OWNER'S EQUITY STATEMENT FROM THE ADJUSTED TRIAL BALANCE

PIONEER ADVERTISING AGENCY Owner's Equity Statement For the Month Ended October 31, 2005

C.R. Byrd, Capital, October 1		\$	-0-
Add: Investments	\$ 10,000		
Net income	<u>2,860</u>		<u>12,860</u>
			12,860
Less: Drawings			<u>500</u>
C.R. . Byrd, Capital, October 31			<u><u>\$ 12,360</u></u>

The owner's equity statement is prepared from the **owner's capital and drawing accounts** and the **net income** (or **net loss**) shown in the income statement.

PREPARATION OF THE BALANCE SHEET FROM THE ADJUSTED TRIAL BALANCE

PIONEER ADVERTISING AGENCY Adjusted Trial Balance October 31, 2005		
	Debit	Credit
Cash	\$ 15,200	
Accounts Receivable	200	
Advertising Supplies	1,000	
Prepaid Insurance	550	
Office Equipment	5,000	
Accumulated Depreciation – Office Equipment		\$ 40
Notes Payable		5,000
Accounts Payable		2,500
Interest Payable		50
Unearned Revenue		800
Salaries Payable		1,200
C. R. Byrd, Capital		10,000
C. R. Byrd, Drawing	500	
Service Revenue		10,600
Salaries Expense	5,200	
Advertising Supplies Expense	1,500	
Rent Expense	900	
Insurance Expense	50	
Interest Expense	50	
Depreciation Expense	40	
	\$ 30,190	\$ 30,190

PREPARATION OF THE BALANCE SHEET FROM THE ADJUSTED TRIAL BALANCE

PIONEER ADVERTISING AGENCY

Balance Sheet

October 31, 2005

<u>Assets</u>		<u>Liabilities and Owner's Equity</u>	
Cash	\$ 15,200	Liabilities	
Accounts receivable	200	Notes payable	\$ 5,000
Advertising supplies	1,000	Accounts payable	2,500
Prepaid insurance	550	Interest payable	50
Office equipment	\$ 5,000	Unearned fees	800
Less: Accumulated depreciation	40	Salaries payable	1,200
	<u>4,960</u>	Total liabilities	<u>9,550</u>
		Owner's equity	
		C.R. Byrd, Capital	12,360
		Total liabilities and owner's equity	<u>\$ 21,910</u>
Total assets	<u>\$ 21,910</u>		

The balance sheet is then prepared from the **asset** and **liability** accounts and the **ending owner's capital balance** as reported in the owner's equity statement.

ALTERNATIVE TREATMENT OF PREPAID EXPENSES AND UNEARNED REVENUES

- **Alternative treatment uses Income Statement accounts initially**
 - **Debit the expense for prepaid expenses when cash is paid**
 - **Credit the revenue at the time cash is received**
- **After adjustments, alternative treatment of prepaid expenses and unearned revenues will result in the same effect to financial statements as the initial entries to the balance sheet accounts**

ALTERNATIVE ADJUSTMENTS FOR PREPAYMENTS SUPPLIES

ADJUSTMENT

October 31, an inventory count reveals that \$1,000 of \$2,500 of supplies are still on hand.

JOURNAL ENTRY

Date	Account Titles and Explanation	Debit	Credit
Oct. 31	Advertising Supplies Advertising Supplies Expense (To record supplies inventory)	1,000	1,000

POSTING

Advertising Supplies	
Oct. 31	1,000

Advertising Supplies Expense	
Oct. 5	2,500
Oct. 31	1,000
31	1,500

ALTERNATIVE ADJUSTMENTS FOR PREPAYMENTS

UNEARNED REVENUES

ADJUSTMENT

October 31, analysis reveals that, of \$1,200 in fees, \$400 has been earned in October.

JOURNAL ENTRY

Date	Account Titles and Explanation	Debit	Credit
Oct. 31	Service Revenue Unearned Revenue (To record unearned revenue)	800	800

POSTING

Unearned Revenue		Service Revenue	
	Oct. 31	800	
			Oct. 2 1,200
			31 400

SUMMARY OF BASIC RELATIONSHIPS FOR PREPAYMENTS

<u>Type of Adjustment</u>	<u>Account Relationship</u>	<u>Reason for Adjustment</u>	<u>Account Balances before Adjustment</u>	<u>Adjusting Entry</u>
1 Prepaid Expenses	Assets and Expenses	a Prepaid expenses initially recorded in asset accounts have been used.	Assets overstated Expenses understated	Dr Expenses Cr Assets
		b Prepaid expenses initially recorded in expense accounts have not been used.	Assets understated Expenses overstated	Dr Assets Cr Expenses
2 Unearned Revenues	Liabilities and Revenues	a Unearned revenues initially recorded in liability accounts have been earned.	Liabilities overstated Revenues understated	Dr Liabilities Cr Revenues
		b Unearned revenues initially recorded in revenue accounts have not been earned.	Liabilities understated Revenues overstated	Dr Revenues Cr Liabilities

Review

Which of the statements below is not true?

1. An adjusted trial balance should show ledger account balances.
2. An adjusted trial balance can be used to prepare financial statements.
3. An adjusted trial balance proves the mathematical equality of debits and credits in the ledger.
4. An adjusted trial balance is prepared before all transactions have been posted from the journal.

Review

Which of the statements below is not true?

1. An adjusted trial balance should show ledger account balances.
2. An adjusted trial balance can be used to prepare financial statements.
3. An adjusted trial balance proves the mathematical equality of debits and credits in the ledger.
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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 4

Completion of the Accounting Cycle

Prepared by Naomi Karolinski
Monroe Community College

and

Marianne Bradford
Bryant College

CHAPTER 4

COMPLETION OF THE ACCOUNTING CYCLE

After studying this chapter, you should be able to:

- 1** prepare a work sheet
- 2** explain the process of closing the books
- 3** describe the content and purpose of a post-closing trial balance
- 4** state the required steps in the accounting cycle
- 5** explain the approaches to preparing correcting entries
- 6** identify the sections of a classified balance sheet


WORK SHEET

STUDY OBJECTIVE 1


- **Work Sheet**
 - multiple-column form used for the adjustment process and preparing financial statements
 - a **working tool** for the accountant
 - not a permanent accounting record
- **Work Sheet**
 - makes preparation of adjusting entries and financial statements easier

FORM AND PROCEDURE FOR A WORK SHEET


Work Sheet										
Account Titles	Trial Balance		Adjustments		Adjusted Trial Balance		Income Statement		Balance Sheet	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.




1
Prepare a trial balance on the work sheet




2
Enter adjustment data



3
Enter adjusted balances



4
Extend adjusted balances to appropriate statement columns



5
Total the statement columns, compute net income (or net loss), and complete work sheet

WORK SHEET

- **Work sheet**
 - **is not a permanent accounting record**
- **When used**
 - **financial statements are prepared from the work sheet**
 - **adjustments are journalized and posted from the work sheet after financial statements**

STEPS IN PREPARING A WORK SHEET

- 1** prepare trial balance
- 2** enter adjustments in the adjustments columns
- 3** enter adjusted balances in adjusted trial balance columns
- 4** extend adjusted trial balance amounts to appropriate financial statement columns
- 5** total the statement columns, compute net income (loss), and complete the work sheet

PREPARING A WORK SHEET

1 PREPARING A TRIAL BALANCE

PIONEER ADVERTISING AGENCY						
Work Sheet						
For the Month Ended October 31, 2005						
Account Titles	Trial Balance		Adjustments		Adjusted Trial Balance	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Cash	15,200					
Advertising Supplies	2,500					
Prepaid Insurance	600					
Office Equipment	5,000					
Notes Payable		5,000				
Accounts Payable		2,500				
Unearned Revenue		1,200				
C.R. Byrd, Capital		10,000				
C.R. Byrd, Drawing	500					
Service Revenue		10,000				
Salaries Expense	4,000					
Rent Expense	900					
Totals	28,700	28,700				

PREPARING A WORK SHEET

2 ENTER THE ADJUSTMENTS

PIONEER ADVERTISING AGENCY						
Work Sheet						
For the Month Ended October 31, 2005						
Account Titles	Trial Balance		Adjustments		Adjusted Trial Balance	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Cash	15,200					
Advertising Supplies	2,500			a 1,500		
Prepaid Insurance	600			b 50		
Office Equipment	5,000					
Notes Payable		5,000				
Accounts Payable		2,500				
Unearned Revenue		1,200	d 400			
C.R. Byrd, Capital		10,000				
C.R. Byrd, Drawing	500					
Service Revenue		10,000		d 400		
				e 200		
Salaries Expense	4,000		g 1,200			
Rent Expense	900					
Totals	28,700	28,700				
Advertising Supplies Expense			a 1,500			
Insurance Expense			b 50			
Accum. Depr —Off Equip				c 40		
Depreciation Expense			c 40			
Accounts Receivable			e 200			
Interest Expense			f 50			
Interest Payable				f 50		
Salaries Payable				g 1,200		
Totals			3,440	3,440		

PREPARING A WORK SHEET

3 ENTER ADJUSTED BALANCES

PIONEER ADVERTISING AGENCY						
Work Sheet						
For the Month Ended October 31, 2005						
Account Titles	Trial Balance		Adjustments		Adjusted Trial Balance	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Cash	15,200				15,200	
Advertising Supplies	2,500			a 1,500	1,000	
Prepaid Insurance	600			b 50	550	
Office Equipment	5,000				5,000	
Notes Payable		5,000				5,000
Accounts Payable		2,500				2,500
Unearned Revenue		1,200	d 400			800
C.R. Byrd, Capital		10,000				10,000
C.R. Byrd, Drawing	500				500	
Service Revenue		10,000		d 400 e 200		10,600
Salaries Expense	4,000		g 1,200		5,200	
Rent Expense	900				900	
Totals	28,700	28,700				
Advertising Supplies Expense			a 1,500		1,500	
Insurance Expense			b 50		50	
Accum. Depr —Off Equip				c 40		40
Depreciation Expense			c 40		40	
Interest Expense			f 50		50	
Accounts Receivable			e 200		200	
Interest Payable				f 50		50
Salaries Payable				g 1,200		1,200
Totals			3,440	3,440	30,190	30,190

PREPARING A WORK SHEET

4 EXTEND ADJUSTED BALANCES

PIONEER ADVERTISING AGENCY						
Work Sheet						
For the Month Ended October 31, 200 5						
Account Titles	Adjusted Trial Balance		Income Statement		Balance Sheet	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Cash	15,200					
Advertising Supplies	1,000					
Prepaid Insurance	550					
Office Equipment	5,000					
Notes Payable		5,000				
Accounts Payable		2,500				
Unearned Revenue		800				
C.R. Byrd, Capital		10,000				
C.R. Byrd, Drawing	500					
Service Revenue		10,600		10,600		
Salaries Expense	5,200		5,200			
Rent Expense	900		900			
Advertising Supplies Expense	1,500		1,500			
Insurance Expense	50		50			
Accum. Depr. — Office Equip.		40				
Depreciation Expense	40		40			
Interest Expense	50		50			
Accounts Receivable	200					
Interest Payable		50				
Salaries Payable		1,200				
Totals	30,190	30,190	7,740	10,600		
Net Income			2,860			
Totals			10,600	10,600		

PREPARING A WORK SHEET

4 EXTEND ADJUSTED BALANCES

PIONEER ADVERTISING AGENCY						
Work Sheet						
For the Month Ended October 31, 2005						
Account Titles	Adjusted Trial Balance		Income Statement		Balance Sheet	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Cash	15,200				15,200	
Advertising Supplies	1,000				1,000	
Prepaid Insurance	550				550	
Office Equipment	5,000				5,000	
Notes Payable		5,000				5,000
Accounts Payable		2,500				2,500
Unearned Revenue		800				800
C.R. Byrd, Capital		10,000			500	10,000
C.R. Byrd, Drawing	500					
Service Revenue		10,600		10,600		
Salaries Expense	5,200		5,200			
Rent Expense	900		900			
Advertising Supplies Expense	1,500		1,500			
Insurance Expense	50		50			40
Accum. Depr. — Office Equip.		40				
Depreciation Expense	40		40		200	
Interest Expense	50		50			50
Accounts Receivable	200					1,200
Interest Payable		50				
Salaries Payable		1,200				
Totals	30,190	30,190	7,740	10,600	22,450	19,590
Net Income			2,860			2,860
Totals			10,600	10,600	22,450	22,450

ADJUSTING ENTRIES JOURNALIZED

GENERAL JOURNAL				
Date	Account Titles and Explanation	Ref.	Debit	Credit
2005 Oct. 31	a Advertising Supplies Expense Advertising Supplies		1,500	1,500
31	b Insurance Expense Prepaid Insurance		50	50
31	c Depreciation Expense Accumulated Expense		40	40
31	d Unearned Fees Fees Earned		400	400
31	e Accounts Receivable Fees Earned		200	200
31	f Interest Expense Interest Payable		50	50
31	g Salaries Expense Salaries Payable		1,200	1,200

PREPARATION OF FINANCIAL STATEMENTS

INCOME STATEMENT

PIONEER ADVERTISING AGENCY Income Statement For the Month Ended October 31, 2005		
Revenues		
Service revenue		\$10,600
Expenses		\$5,200
Salaries expense		1,500
Advertising supplies expense		900
Rent expense		50
Insurance expense		50
Interest expense		40
Depreciation expense		<u>40</u>
Total expenses		7,740
Net income		<u>\$ 2,860</u>

**The income statement is
 prepared from the income
 statement columns of the
 work sheet.**

PREPARATION OF FINANCIAL STATEMENTS

OWNER'S EQUITY STATEMENT

PIONEER ADVERTISING AGENCY Owner's Equity Statement For the Month Ended October 31, 2005			
C.R. Byrd, Capital, October 1		\$	-0-
Add: Investments		\$10,000	
Net income		2,860	12,860
			12,860
Less: Drawings			500
C.R. Byrd, Capital, October 31			\$12,360

The owner's equity statement is prepared from the balance sheet columns of the work sheet.

PREPARATION OF FINANCIAL STATEMENTS

BALANCE SHEET

PIONEER ADVERTISING AGENCY			
Balance Sheet			
October 31, 2005			
<u>Assets</u>		<u>Liabilities and Owner's Equity</u>	
Cash		\$ 15,200	
Accounts receivable		200	
Advertising supplies		1,000	
Prepaid insurance		550	
Office equipment	\$5,000		
Less: Accumulated depreciation			
	<u>40</u>	<u>4,960</u>	
Total assets		<u><u>\$21,910</u></u>	
		Liabilities	
		Notes payable	\$ 5,000
		Accounts payable	2,500
		Interest payable	50
		Unearned revenue	800
		Salaries payable	1,200
		Total liabilities	<u>9,550</u>
		Owner's equity	
		C.R. Byrd, Capital	12,360
		Total liabilities and owner's equity	<u><u>\$21,910</u></u>

The balance sheet is prepared from the balance sheet columns of the work sheet.

Review

A work sheet can be thought of as a(n)

- a. permanent accounting record
- b. optional device used by accountants
- c. part of the general ledger
- d. part of the journal

Review

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TEMPORARY VERSUS PERMANENT ACCOUNTS

STUDY OBJECTIVE 2

TEMPORARY (NOMINAL)

These accounts are closed

All revenue accounts

All expense accounts

Owner's drawing

PERMANENT (REAL)

These accounts are not closed

All asset accounts

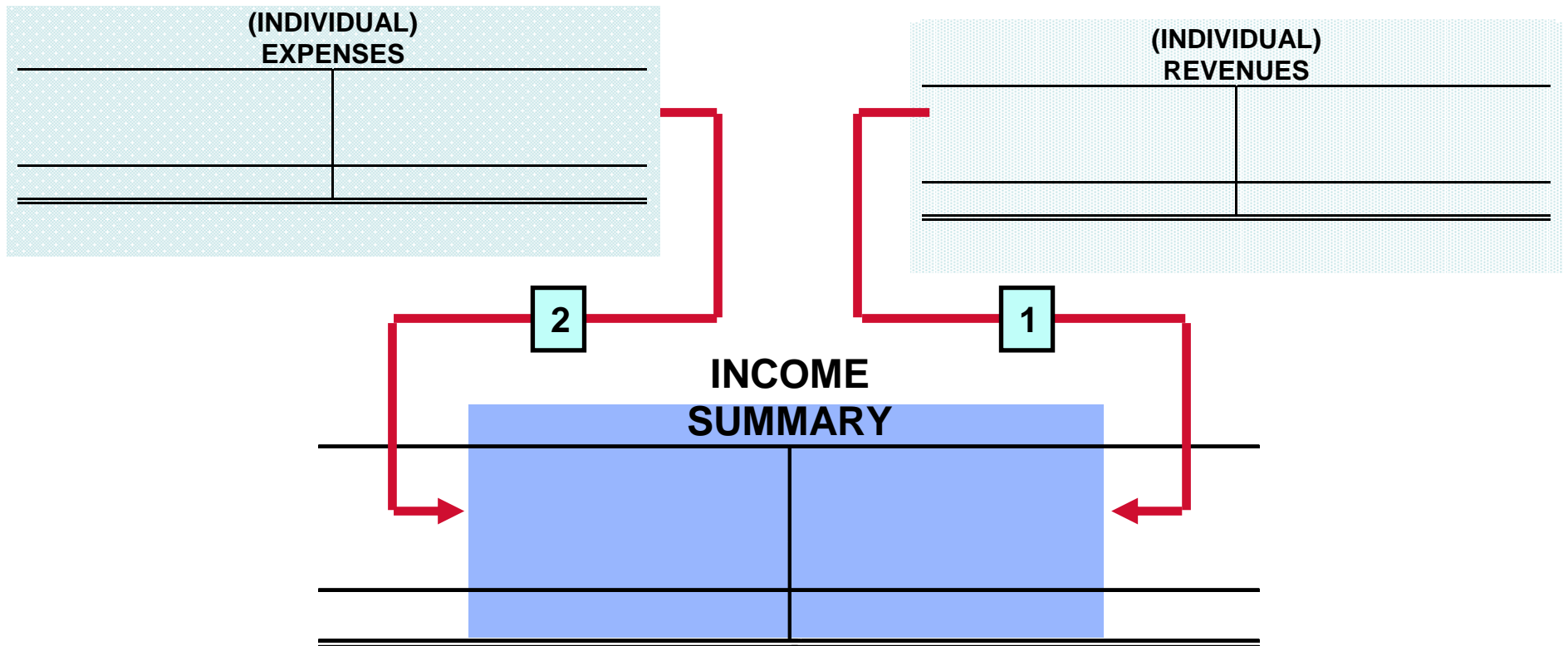
All liability accounts

Owner's capital account

CLOSING ENTRIES

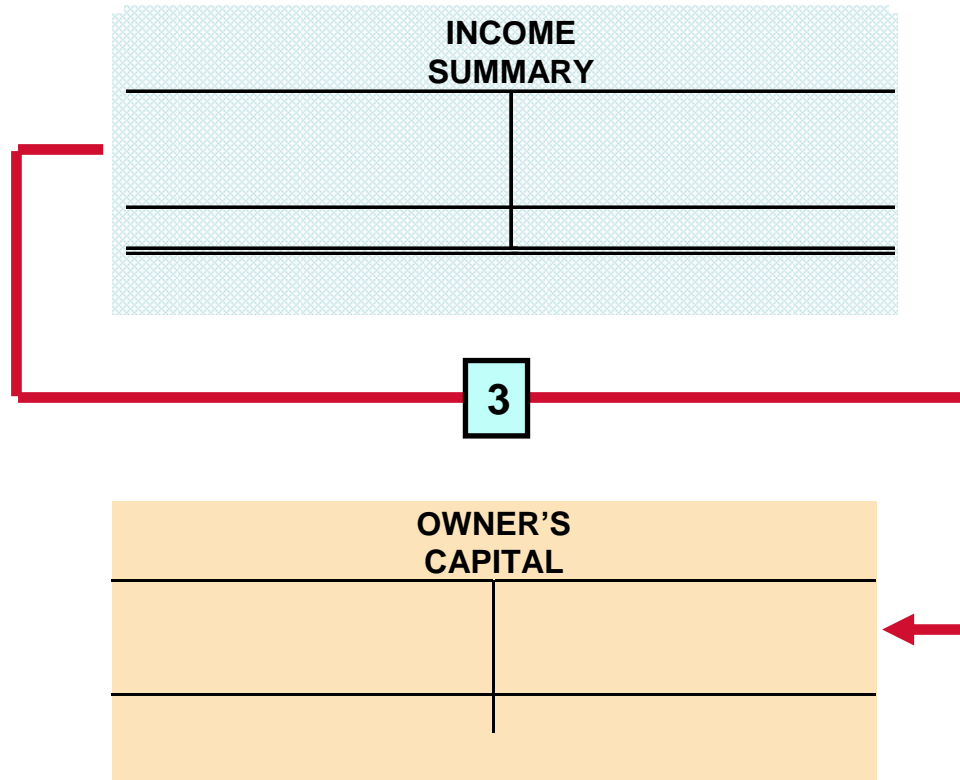
- **Closing entries**
 - Formally transfers net income (loss) and owner's drawings to owner's capital
 - Journalizing and posting is a required step in the **accounting cycle**
- **Income Summary**
 - A temporary account
 - Used in closing revenue and expense accounts
 - Minimizes the details in the permanent owner's capital account

DIAGRAM OF CLOSING PROCESS PROPRIETORSHIP



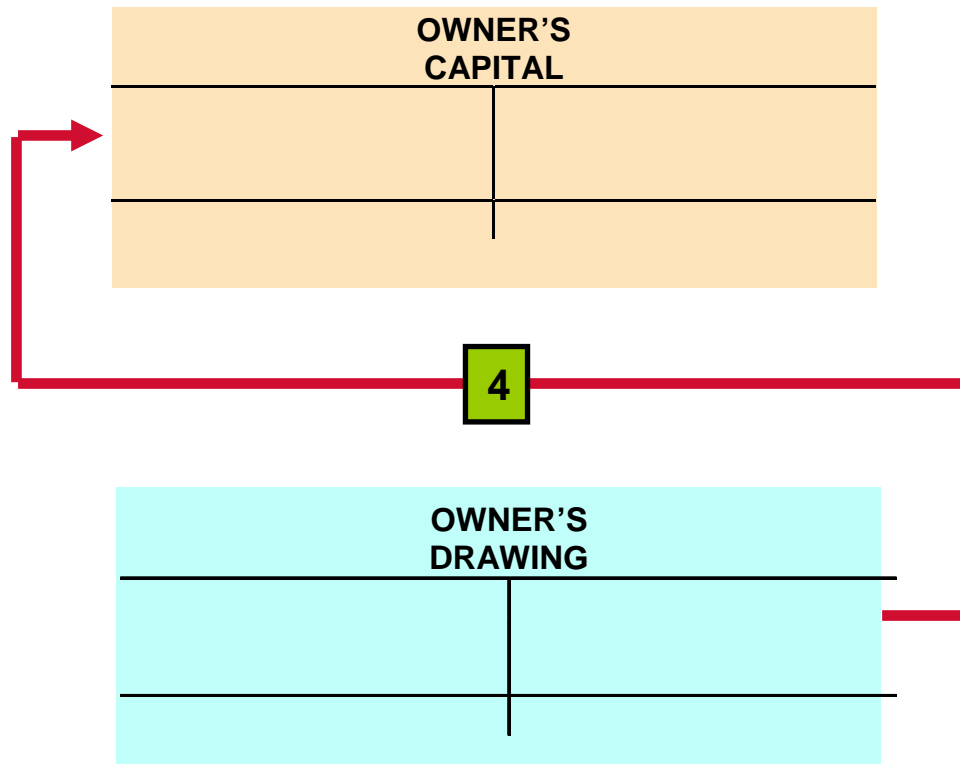
- 1** Debit each revenue account for its balance, and credit Income Summary for total revenues.
- 2** Debit Income Summary for total expenses, and credit each expense account for its balance.

DIAGRAM OF CLOSING PROCESS



3 Debit (credit) Income Summary and credit (debit) owner's capital for the amount of net income (loss).

DIAGRAM OF CLOSING PROCESS



4 Debit owner's capital for the balance in the owner's drawing account and credit owner's drawing for the same amount.

CLOSING ENTRIES JOURNALIZED

GENERAL JOURNAL				
Date	Account Titles and Explanation	Ref.	Debit	Credit
Oct. 31	Service Revenue Income Summary (To close revenue account)	400 350	10,600	10,600

INCOME SUMMARY				No. 400
Date	Explanation	Debit	Credit	Balance
Oct. 31			10,600	10,600

SERVICE REVENUE				No. 350
Date	Explanation	Debit	Credit	Balance
Oct. 31		10,600		10,600 -0-

CLOSING ENTRIES JOURNALIZED

GENERAL JOURNAL				
Date	Account Titles and Explanation	Ref.	Debit	Credit
2005 Oct. 31	Income Summary	350	7,740	
	Salaries Expense	726		5,200
	Advertising Supplies Expense	631		1,500
	Rent Expense	729		900
	Insurance Expense	722		50
	Interest Expense	905		50
	Depreciation Expense	911		40
	(To close expense accounts)			

INCOME SUMMARY				No. 350
Date	Explanation	Debit	Credit	Balance
Oct. 31			10,600	10,600
31		7,740		2,860

CLOSING ENTRIES JOURNALIZED

GENERAL JOURNAL				
Date	Account Titles and Explanation	Ref.	Debit	Credit
2005 Oct. 31	(3) Income Summary C. R. Byrd, Capital (To close net income to capital)	350 301	2,860	2,860

INCOME SUMMARY No. 350				
Date	Explanation	Debit	Credit	Balance
2005 Oct. 31			10,600	10,600
31		7,740		2,860
31		2,860		-0-

C. R. BYRD, CAPITAL No. 301				
Date	Explanation	Debit	Credit	Balance
Oct. 31			10,000	10,000
31			2,860	12,860

CLOSING ENTRIES JOURNALIZED

GENERAL JOURNAL				
Date	Account Titles and Explanation	Ref.	Debit	Credit
2005 Oct. 31	(4) C. R. Byrd, Capital C. R. Byrd, Drawing (To close net income to capital)	350 301	500	500

C. R. BYRD, DRAWING				No. 350
Date	Explanation	Debit	Credit	Balance
2005 Oct. 31		500		500
31			500	-0-

C. R. BYRD, CAPITAL				No. 301
Date	Explanation	Debit	Credit	Balance
Oct. 31			10,000	10,000
31				12,860
31		500		12,360

CAUTIONS RELATING TO CLOSING ENTRIES

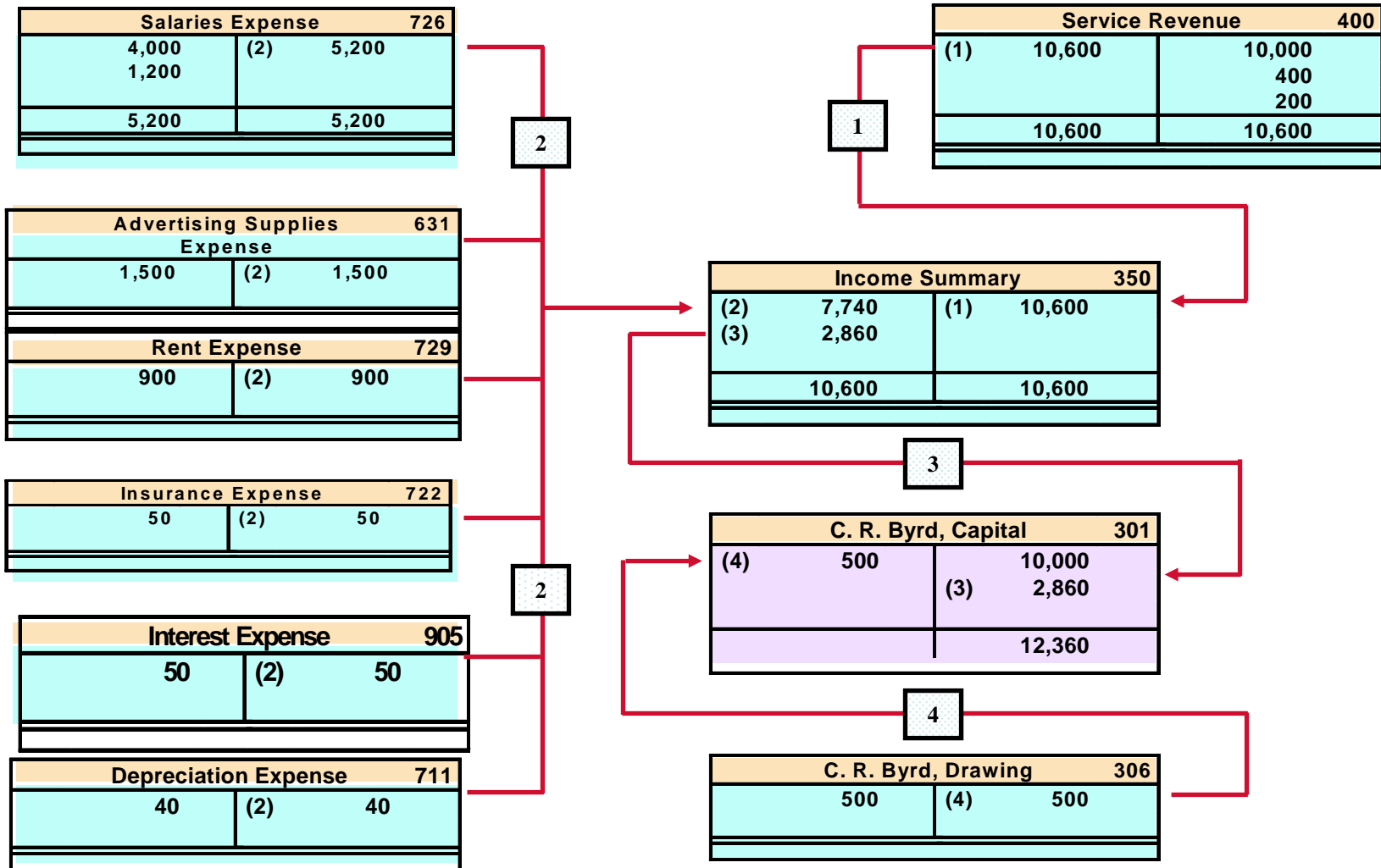
Caution:

- **Avoid doubling revenue and expense balances**
- **Owner's Drawing does not move to the Income Summary account. Owner's drawing is not an expense and it is not a factor in determining net income.**

POSTING CLOSING ENTRIES

- **Temporary accounts**
 - All temporary accounts will have zero balances after posting the closing entries
 - Temporary accounts (revenues and expenses) are totaled, balanced and double ruled
- **Owner's capital**
 - Total equity of the owner at the end of the accounting period
 - No entries are journalized and posted to owner's capital during the year
- **Permanent accounts (assets, liabilities, and owner's capital) not closed**

POSTING OF CLOSING ENTRIES



POST-CLOSING TRIAL BALANCE

STUDY OBJECTIVE 3

After all closing entries have been journalized the **post-closing trial balance** is prepared from the ledger.

The purpose of this trial balance is to prove the equality of the permanent account balances that are carried forward into the next accounting period.

POST-CLOSING TRIAL BALANCE

PIONEER ADVERTISING AGENCY

Post-Closing Trial Balance

October 31, 2005

	<u>Debit</u>	<u>Credit</u>
Cash	\$15,200	
Accounts Receivable	200	
Advertising Supplies	1,000	
Prepaid Insurance	550	
Office Equipment	5,000	
Accumulated Depreciation—Office Equipment		\$ 40
Notes Payable		5,000
Accounts Payable		2,500
Unearned Revenue		800
Salaries Payable		1,200
Interest Payable		50
C. R. Byrd, Capital		12,360
	<u>\$21,950</u>	<u>\$21,950</u>

STEPS IN THE ACCOUNTING CYCLE

STUDY OBJECTIVE 4

- 1 Analyze business transactions**
- 2 Journalize the transactions**
- 3 Post to ledger accounts**
- 4 Prepare a trial balance**
- 5 Journalize and post adjusting entries**

STEPS IN THE ACCOUNTING CYCLE

- 6 Prepare an adjusted trial balance**
- 7 Prepare financial statements:
Income Statement, Owner's
Equity Statement, Balance Sheet**
- 8 Journalize and post closing entries**
- 9 Prepare a post-closing trial
balance**

REVERSING ENTRIES

- **Reversing entry**
 - Made at the beginning of the next accounting period
 - Purpose is to simplify the recording of a subsequent transaction related to an adjusting entry
 - Most often used to reverse two types of adjusting entries: **accrued revenues** and **accrued expenses**

ILLUSTRATIVE EXAMPLE OF REVERSING ENTRY

When Reversing Entries Are Not Used (per chapter)				When Reversing Entries Are Used (per appendix)			
<u>Initial Salary Entry</u>				<u>Initial Salary Entry</u>			
Oct. 26	Salaries Expense	4,000		Oct. 26	Salaries Expense	4,000	
	Cash		4,000		Cash		4,000
<u>Adjusting Entry</u>				<u>Adjusting Entry</u>			
Oct. 31	Salaries Expense	1,200		Oct. 31	Salaries Expense	1,200	
	Salaries Payable		1,200		Salaries Payable		1,200
<u>Closing Entry</u>				<u>Closing Entry</u>			
Oct. 31	Income Summary	5,200		Oct. 31	Income Summary	5,200	
	Salaries Expense		5,200		Salaries Expense		5,200
<u>Reversing Entry</u>				<u>Reversing Entry</u>			
Nov. 1	No reversing entry is made.			Nov. 1	Salaries Payable	1,200	
					Salaries Expense		1,200
<u>Subsequent Salary Entry</u>				<u>Subsequent Salary Entry</u>			
Nov. 9	Salaries Payable	1,200		Nov. 9	Salaries Expense	4,000	
	Salaries Expense	2,800			Cash		4,000
	Cash		4,000				

CORRECTING ENTRIES

STUDY OBJECTIVE 5

- **Correcting Entries**
 - errors should be corrected as soon as discovered
 - correcting entries are unnecessary if records are free of errors
 - can be journalized and posted whenever an error is discovered
 - involve any combination of balance sheet and income statement accounts

ILLUSTRATIVE EXAMPLE OF
CORRECTING ENTRY 1

May 10	<p><u>Incorrect Entry</u></p> <p>Cash</p> <p style="padding-left: 40px;">Service Revenue</p> <p style="text-align: center;">(To record collection from customer an account)</p>	50	50
10	<p><u>Correct Entry</u></p> <p>Cash</p> <p style="padding-left: 40px;">Accounts Receivable</p> <p style="text-align: center;">(To record collection from customer an account)</p>	50	50
20	<p><u>Correcting Entry</u></p> <p>Service Revenue</p> <p style="padding-left: 40px;">Accounts Receivable</p> <p style="text-align: center;">(To correct entry of May 10)</p>	50	50

ILLUSTRATIVE EXAMPLE OF
CORRECTING ENTRY 2

May 18	<p><u>Incorrect Entry</u></p> <p>Delivery Equipment</p> <p>Accounts Payable</p> <p>(To record purchase of equipment on account)</p>	45	45
18	<p><u>Correct Entry</u></p> <p>Office Equipment</p> <p>Accounts Payable</p> <p>(To record purchase of equipment on account)</p>	450	450
June 3	<p><u>Correcting Entry</u></p> <p>Office Equipment</p> <p>Delivery Equipment</p> <p>Accounts Payable</p> <p>(To correct entry of May 18)</p>	450	45 405

Review

The closing entry process consists of closing

- a. all asset and liability accounts
- b. out the owner's capital account
- c. all permanent accounts
- d. all temporary accounts

Review

The closing entry process consists of closing

- a. all asset and liability accounts
- b. out the owner's capital account
- c. all permanent accounts
- d. all temporary accounts

STANDARD BALANCE SHEET CLASSIFICATIONS

STUDY OBJECTIVE 6

- **Financial statements become more useful when the elements are classified into significant subgroups.**
- **A *classified balance sheet* generally has the following standard classifications:**

Assets	Liabilities and Owner's Equity
Current Assets	Current Liabilities
Long-Term Investments	Long-Term Liabilities
Property, Plant and Equipment	Owner's (Stockholders') Equity
Intangible Assets	

CURRENT ASSETS

- **Current assets**
 - Cash and other resources that are reasonably expected to be realized in cash or sold or consumed in the business within one year of the balance sheet date or the company's operating cycle, whichever is longer
 - Current assets are listed in the order of their liquidity
- **Operating cycle of a company**
 - This is the average time required to go from cash to cash in producing revenues
- **Examples**
 - Inventory, accounts receivable and cash



LONG-TERM INVESTMENTS

- **Long-term investments**
 - Resources which can be realized in cash
 - Their conversion into cash is not expected within one year or the operating cycle, whichever is longer
- **Examples**
 - Investments in bonds of another company or investment in land held for resale

XYZ stock



PROPERTY, PLANT, AND EQUIPMENT

- **Property, plant, and equipment**
 - Tangible resources, relatively permanent nature, used in the business, and not intended for sale
- **Examples**
 - Land, buildings, and machinery



INTANGIBLE ASSETS

- **Intangible assets**
 - Non-current resources that do not have physical substance
- **Examples**
 - Includes patents, copyrights, trademarks, or trade names, gives the holder exclusive right of use for a specified period of time

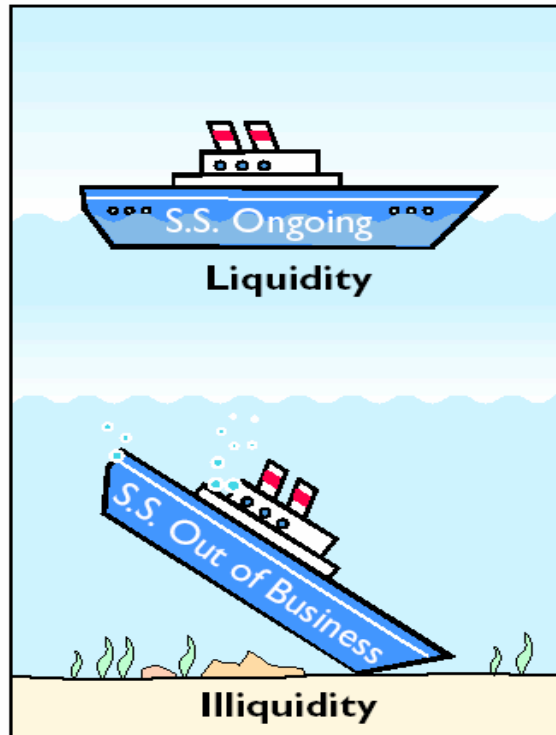
AOL TIME WARNER, INC.
Balance Sheet (partial)
(in millions)

Intangible assets	
Music catalogues and copyrights	\$ 2,935
Cable television and sports franchises	27,371
Brands and trademarks	10,650
Goodwill and other intangible assets	126,942

CURRENT LIABILITIES

- **Current liabilities**
 - **Obligations reasonably expected to be paid from existing current assets or through the creation of other current liabilities within one year or the operating cycle, whichever is longer**
- **Examples**
 - **Accounts payable, wages payable, interest payable and current maturities of long-term debt**

CURRENT LIABILITIES



Liquidity is the ability of a company to pay obligations that are expected to become due within the next year or operating cycle.

LONG-TERM LIABILITIES

- **Long-term liabilities**
Obligations expected to be paid after one year
- **Examples**
 - **Long-term notes payable, bonds payable, mortgages payable, and lease liabilities**

OWNER'S EQUITY

- **The content of the owner's equity section**
 - Varies with the form of business organization
- **Proprietorship**
 - A single owner's equity account called (Owner's Name), Capital
- **Partnership**
 - Separate capital accounts for each partner
- **Corporation**
 - Called stockholders' equity, and it consists of two accounts: **Capital Stock and Retained Earnings**

CLASSIFIED BALANCE SHEET IN ACCOUNT FORM

PIONEER ADVERTISING AGENCY

Balance Sheet
October 31, 2005

<u>Assets</u>		
Current assets		\$ 15,200
Cash		200
Accounts receivable		1,000
Advertising supplies		550
Prepaid insurance		<u>16,950</u>
Total current assets		16,950
Property, plant, and equipment	\$5,000	
Office equipment		4,960
Less: Accumulated depreciation	<u>40</u>	<u>4,960</u>
Total assets		<u><u>\$21,910</u></u>

A classified balance sheet

1 availability of assets to meet debts

2 claims of short- and long-term creditors on total assets

CLASSIFIED BALANCE SHEET IN REPORT FORM

	<u>Liabilities and Owner's Equity</u>	
Current liabilities		\$ 1,000
Notes payable		2,500
Accounts payable		50
Interest payable		800
Unearned revenue		1,200
Salaries payable		<u>1,200</u>
Total current liabilities		5,550
Long-term liabilities		4,000
Notes payable		<u>4,000</u>
Total liabilities		9,550
Owner's equity		
C. R. Byrd, Capital		12,360
Total liabilities and owner's equity		<u>\$21,910</u>

The balance sheet is most often presented in the report form, with the assets above liabilities and owner's equity.

Review

A current asset is

- a. the last asset purchased by a business
- b. an asset which is currently being used to produce a product or service
- c. usually found as a separate classification in the income statement
- d. expected to be realized in cash, sold or consumed within one year of the balance sheet or the company's operating cycle, whichever is longer

Review

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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 5

Accounting for Merchandising Operations

Prepared by Naomi Karolinski
Monroe Community College

and

Marianne Bradford
Bryant College

CHAPTER 5

ACCOUNTING FOR MERCHANDISING OPERATIONS

After studying this chapter, you should be able to:

- 1 identify the differences between a service enterprise and a merchandising company**
- 2 explain the entries for purchases under a perpetual inventory system**
- 3 explain the entries for sales revenues under a perpetual inventory system**
- 4 explain the steps in the accounting cycle for a merchandising company**

CHAPTER 5

ACCOUNTING FOR MERCHANDISING OPERATIONS

After studying this chapter, you should be able to:

- 5 distinguish between a multiple-step and a single-step income statement**
- 6 explain the computation and importance of gross profit**
- 7 determine the cost of goods sold under a periodic system**

MERCHANDISING COMPANY

A merchandising company buys and sells goods to earn a profit.

1) Wholesalers sell to retailers

2) Retailers sell to consumers

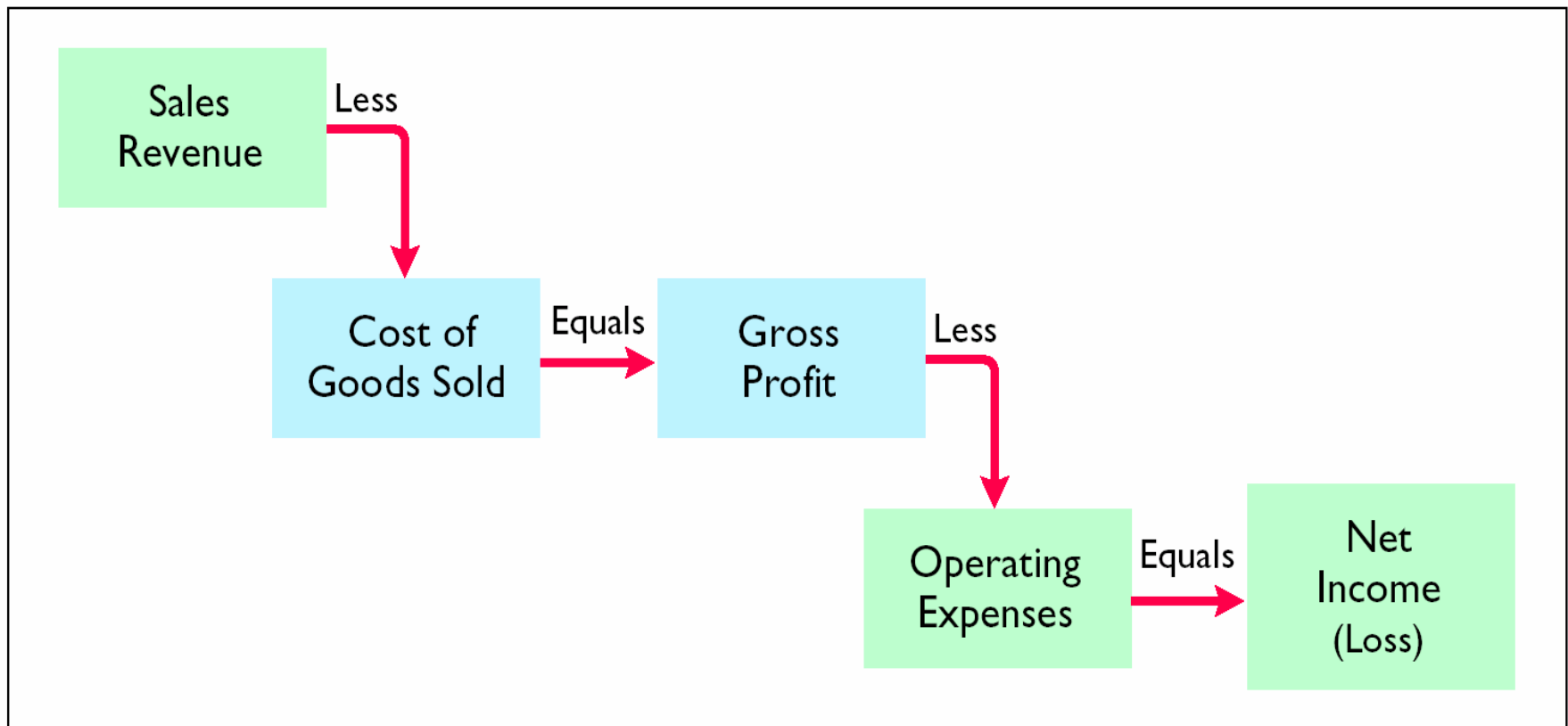
Primary source of revenue is Sales



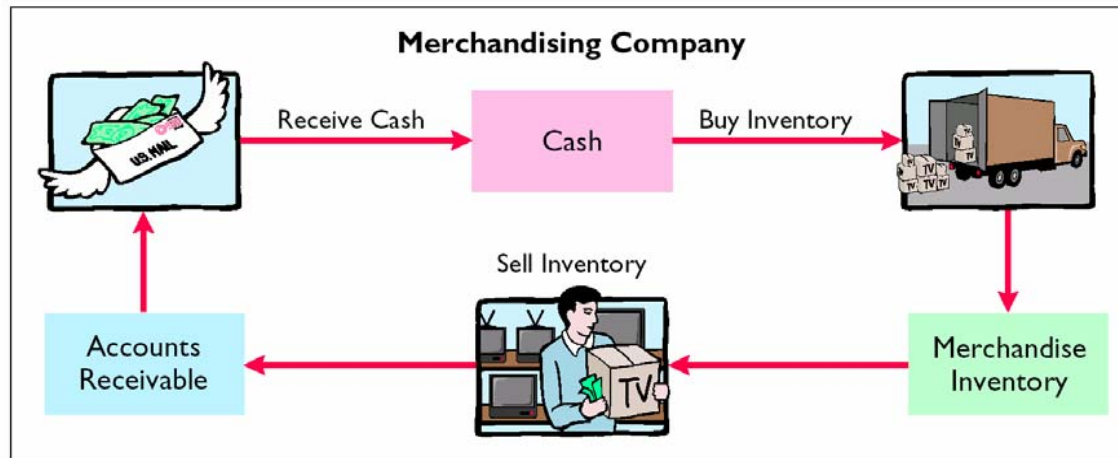
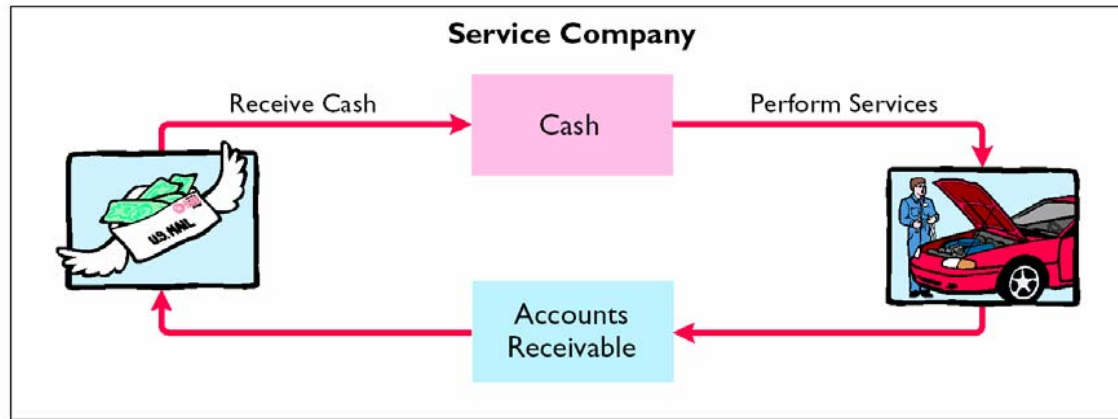
MEASURING NET INCOME

- **Expenses for a merchandiser** are divided into two categories:
 - 1 **Cost of goods sold**
 - The total cost of merchandise sold during the period
 - 2 **Operating expenses**
 - Expenses incurred in the process of earning sales revenue (Examples: sales salaries and insurance expense)
- **Gross profit** is equal to Sales Revenue less Cost of Goods Sold

INCOME MEASUREMENT PROCESS FOR A MERCHANDISING COMPANY



OPERATING CYCLES FOR A SERVICE COMPANY AND A MERCHANDISING COMPANY



INVENTORY SYSTEMS

Merchandising entities may use either:

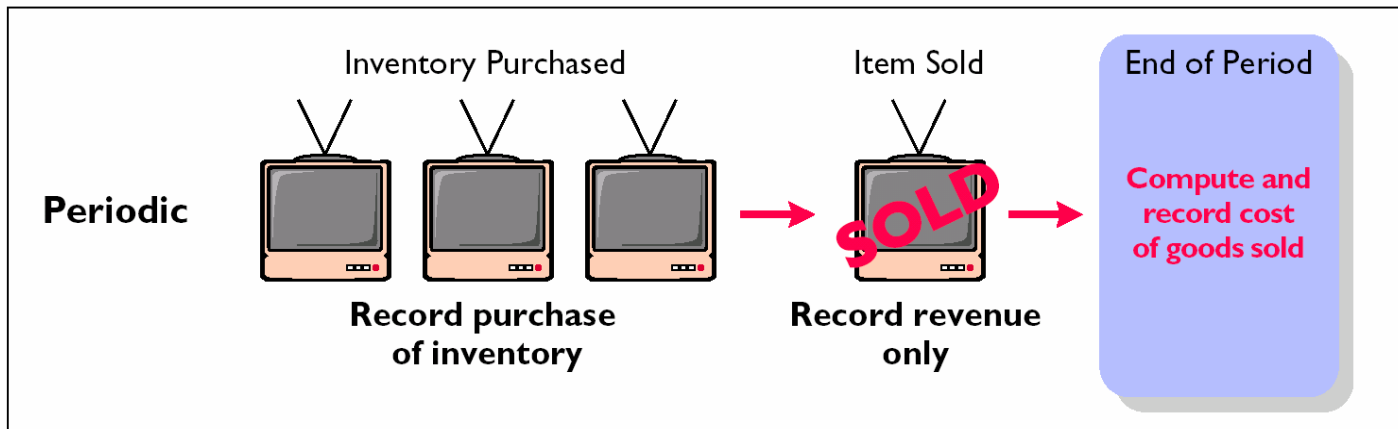
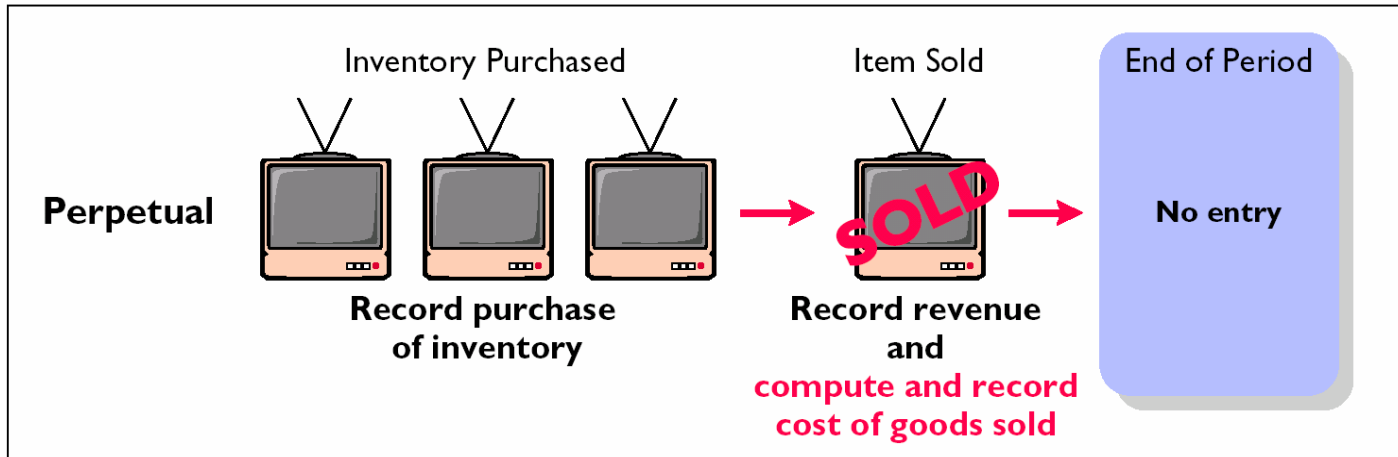
1) Perpetual Inventory

Detailed records of the cost of each item are maintained, and the cost of each item sold is determined from records **when the sale occurs.**

2) Periodic Inventory

Cost of goods sold is determined only at the **end of an accounting period.**

PERPETUAL VS. PERIODIC



COST OF GOODS SOLD

To determine the cost of goods sold under a **periodic inventory system**:

- 1) Determine the cost of goods on hand at the beginning of the accounting period,**
- 2) Add to it the cost of goods purchased, and**
- 3) Subtract the cost of goods on hand at the end of the accounting period.**

PURCHASES OF MERCHANDISE

STUDY OBJECTIVE 2

- **Merchandise is purchased for resale to customers, the account**
 - **Merchandise Inventory** is debited for the cost of goods.
- **Like sales, purchases may be made for cash or on account (credit).**
- **The purchase is normally recorded by the purchaser when the goods are **received** from the seller.**
- **Each credit purchase should be supported by a **purchase invoice**.**



PURCHASES OF MERCHANDISE

SALES INVOICE

Date	Salesperson	Terms	Freight Paid by Buyer		
Catalog No.	Description	Quantity	Price	Amount	
5/4/06	Malone	2/10, n/30			
X572Y9820	Printed Circuit Board-prototype	1	2,300	\$2,300	
A2547Z45	Production Model Circuits	5	300	1,500	
IMPORTANT: ALL RETURNS MUST BE MADE WITHIN 10 DAYS			TOTAL	\$3,800	

SELLERS ELECTRONIX
27 CIRCLE DRIVE
HARDING, MICHIGAN 48281

INVOICE NO. 731

S
O
L
D
T
O

Firm Name Beyer Video
Attention of James Hoover, Purchasing Agent
Address 125 Main Street
Chelsea Illinois 60915
City State Zip

PURCHASES OF MERCHANDISE

GENERAL JOURNAL			
Date	Account Titles and Explanation	Dr.	Cr.
May 4	Merchandise Inventory Accounts Payable (To record goods purchased on account, terms 2/10, n/30, from Sellers Electronix)	3,800	3,800

For purchases on account, **Merchandise Inventory** is debited and **Accounts Payable** is credited.

PURCHASE RETURNS AND ALLOWANCES

- A purchaser may be dissatisfied with merchandise received because the goods:
 - 1) are damaged or defective,
 - 2) are of inferior quality, or
 - 3) are not in accord with the purchaser's specifications.
- The purchaser initiates the request for a reduction of the balance due through the issuance of a **debit memorandum** (purchaser's debit decreases A/P!).
- The **debit memorandum** is a document issued by a buyer to inform a seller that the seller's account has been debited because of unsatisfactory merchandise.

PURCHASE RETURNS AND ALLOWANCES

GENERAL JOURNAL			
Date	Account Titles and Explanation	Dr.	Cr.
May 8	Accounts Payable Merchandise Inventory (To record return of inoperable goods received from Sellers Electronix, DM No. 126)	300	300

For purchases returns and allowances, **Accounts Payable** is debited and **Merchandise Inventory** is credited.

FREE ON BOARD

A sales agreement should indicate whether the seller or the buyer is to pay the cost of transporting the goods to the buyer's place of business.

- **FOB Shipping Point**

- 1) Goods placed free on board the carrier by seller

- 2) **Buyer** pays freight costs

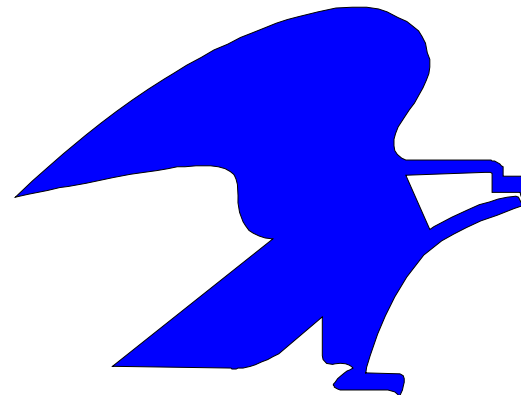
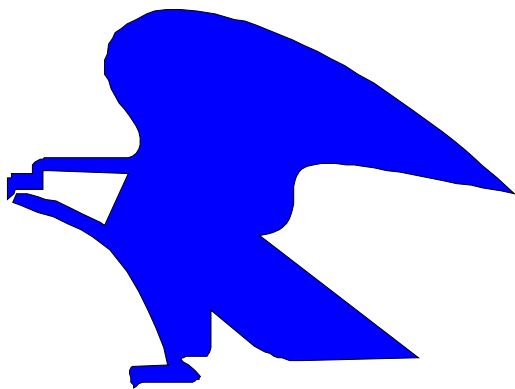
- **FOB Destination**

- 1) Goods placed free on board at buyer's business

- 2) **Seller** pays freight costs

ACCOUNTING FOR FREIGHT COSTS

- **Merchandise Inventory** is debited if buyer pays freight.
- **Freight-out (or Delivery Expense)** is debited if seller pays freight.



ACCOUNTING FOR FREIGHT COSTS

GENERAL JOURNAL			
Date	Account Titles and Explanation	Dr.	Cr.
May 6	Merchandise Inventory	150	
	Cash		150
	(To record payment of freight, terms FOB shipping point)		

When the purchaser directly incurs the freight costs, the account **Merchandise Inventory** is debited and **Cash** is credited.

ACCOUNTING FOR FREIGHT COSTS

GENERAL JOURNAL			
Date	Account Titles and Explanation	Dr.	Cr.
May 4	Freight-out (Delivery Expense) Cash (To record payment of freight on goods sold FOB destination)	150	150

Freight costs incurred by the seller on outgoing merchandise are debited to **Freight-out** (or **Delivery Expense**) and **Cash** is credited.

PURCHASE DISCOUNTS

- **Credit terms may permit the buyer to claim a cash discount for the prompt payment of a balance due.**
- **The buyer calls this discount a **purchase discount**.**
- **Like a sales discount, a purchase discount is based on the invoice cost less returns and allowances, if any.**



PURCHASE DISCOUNTS

GENERAL JOURNAL			
Date	Account Titles and Explanation	Dr.	Cr.
May 14	Accounts Payable	3,500	
	Cash		3,430
	Merchandise Inventory		70
	(To record payment within discount period)		

If payment is made within the discount period, **Accounts Payable** is debited, **Cash** is credited, and **Merchandise inventory** is credited for the discount taken.

PURCHASE DISCOUNTS

GENERAL JOURNAL			
Date	Account Titles and Explanation	Debit	Credit
June 3	Accounts Payable Cash (To record payment with no discount taken)	3,500	3,500

If payment is made after the discount period, **Accounts Payable** is debited and **Cash** is credited for the full amount.

SAVINGS OBTAINED BY TAKING PURCHASE DISCOUNT

A buyer should usually take all available discounts.

If Beyer Video takes the discount, it pays \$70 less in cash.

If it forgoes the discount and invests the \$3,500 for 20 days at 10% interest, it will earn only \$19.44 in interest.

The savings obtained by taking the discount is calculated as follows:

Discount of 2% on \$3,500	\$ 70.00
Interest received on \$3,500 (for 20 days at 10%)	(19.44)
Savings by taking the discount	<u>\$ 50.56</u>

SALES TRANSACTIONS

STUDY OBJECTIVE 3

- **Revenues – (Revenue recognition principle)**
 - **Earned when the goods are transferred from seller to buyer**
- **All sales should be supported by a document such as a cash register tape or sales invoice.**

RECORDING CASH SALES

GENERAL JOURNAL			
Date	Account Titles and Explanation	Dr.	Cr.
May 4	Cash Sales (To record daily cash sales)	2,200	2,200
4	Cost of Goods Sold Merchandise Inventory (To record cost of merchandise sold for cash)	1,400	1,400

- For cash sales, **Cash** is debited and **Sales** is credited.
- For the cost of goods sold for cash, **Cost of Goods Sold** is debited and **Merchandise Inventory** is credited.

RECORDING CREDIT SALES

GENERAL JOURNAL			
Date	Account Titles and Explanation	Dr.	Cr.
May 4	Accounts Receivable Sales (To record credit sales to Beyer Video per invoice #731)	3,800	3,800
4	Cost of Goods Sold Merchandise Inventory (To record cost of merchandise sold on invoice #731 to Beyer Video)	2,400	2,400

- For credit sales, **Accounts Receivable** is debited and **Sales** is credited.
- For the cost of goods sold on account, **Cost of Goods Sold** is debited and **Merchandise Inventory** is credited.

SALES RETURNS AND ALLOWANCES

- **Sales Returns**
 - Customers dissatisfied with merchandise and are allowed to return the goods to the seller for credit or a refund.
- **Sales Allowances**
 - Result when customers are dissatisfied and the seller allows a deduction from the selling price.



SALES RETURNS AND ALLOWANCES

- **Credit memorandum**
 - the seller prepares a form to inform the customer that a credit has been made to the customer's account receivable
- **Sales Returns and Allowances**
 - Contra revenue account to the Sales account
- The normal balance of Sales Returns and Allowances is a **debit**

RECORDING SALES RETURNS AND ALLOWANCES

GENERAL JOURNAL			
Date	Account Titles and Explanation	Dr.	Cr.
May 8	Sales Returns and Allowances Accounts Receivable (To record return of inoperable goods delivered to Beyer Video, per credit memorandum)	300	300
8	Merchandise Inventory Cost of Goods Sold (To record cost of goods returned per credit memorandum)	140	140

The seller's entry to record a credit memorandum involves a debit to the **Sales Returns and Allowances** account and a credit to **Accounts Receivable**. The entry to record the cost of the returned goods involves a debit to **Merchandise Inventory** and a credit to **Cost Goods Sold**.

SALES DISCOUNTS

- **Sales discount**
 - Offer of a cash discount to a customer for the prompt payment of a balance due
 - Is a **contra revenue account** with a normal debit balance
- **Example:** Credit sale has the terms 3/10, n/30, a 3% discount is allowed if payment is made within 10 days. After 10 days there is no discount, and the balance is due in 30 days.

CREDIT TERMS

Credit terms specify the amount and time period for the cash discount

- Indicates the length of time in which the purchaser is expected to pay the full invoice price

T E R M S	E X P L A N A T I O N
2/10, n/30	A 2% discount may be taken if payment is made within 10 days of the invoice date.
1/10 EOM	A 1% discount is available if payment is made by the 10 th of the next month.

RECORDING SALES DISCOUNTS

GENERAL JOURNAL			
Date	Account Titles and Explanation	Dr.	Cr.
May 14	Cash	3,430	
	Sales Discounts	70	
	Accounts Receivable		3,500
	(To record collection within 2/10, n/30 discount period from Beyer Video)		

When cash discounts are taken by customers, the seller debits **Sales Discounts**.

CLOSING ENTRIES

STUDY OBJECTIVE 4

- Adjusting entries are journalized from the **adjustment columns** of the work sheet.
- All accounts that affect the determination of net income are closed to **Income Summary**.
- Data for the preparation of closing entries may be obtained from the **income statement columns** of the work sheet.

GENERAL JOURNAL			
Date	Account Titles and Explanation	Debit	Credit
2005 Dec. 31	(1) Sales Income Summary (To close income statement accounts with credit balances)	480,000	480,000

CLOSING ENTRIES

Cost of Goods Sold is a new account that must be closed to **Income Summary**.

GENERAL JOURNAL			
Date	Account Titles and Explanation	Debit	Credit
2005	(2)		
Dec. 31	Income Summary	140,000	
	Sales Returns and Allowances		12,000
	Sales Discounts		8,000
	Cost of goods sold		316,000
	Store Salaries Expense		45,000
	Rent Expense		19,000
	Freight-out		7,000
	Advertising Expense		16,000
	Utilities Expense		17,000
	Depreciation Expense		8,000
	Insurance Expense		2,000
	(To close income statement		
	accounts with debit balances)		

CLOSING ENTRIES

GENERAL JOURNAL			
Date	Account Titles and Explanation	Debit	Credit
2005 Dec. 31	(3) Income Summary R. A. Lamb, Capital (To close net income to capital)	30,000	30,000
31	(4) R. A. Lamb, Capital R. A. Lamb, Drawing (To close drawings to capital)	15,000	15,000

- After the closing entries are posted, all temporary accounts have **zero balances**
- In addition, **R. A. Lamb, Capital** has a credit balance of **\$98,000** ($\$83,000 + \$30,000 - \$15,000$).

Review

Under a perpetual inventory system, acquisition of merchandise for resale is debited to the

- a. purchases account
- b. supplies account
- c. merchandise inventory account
- d. cost of goods sold account

Review

Under a perpetual inventory system, acquisition of merchandise for resale is debited to the

- a. purchases account
- b. supplies account
- c. merchandise inventory account
- d. cost of goods sold account

MULTIPLE-STEP INCOME STATEMENT

STUDY OBJECTIVE 5

- **Includes sales revenue, cost of goods sold, and gross profit sections**
- **Additional nonoperating sections may be added for:**
 - 1) revenues and expenses resulting from secondary or auxiliary operations**
 - 2) gains and losses unrelated to operations**

MULTIPLE-STEP INCOME STATEMENT

Operating expenses may be subdivided into:

- a) Selling expenses**
- b) Administrative expenses**

Nonoperating sections are reported after income from operations and are classified as:

- a) Other revenues and gains**
- b) Other expenses and losses**

SINGLE-STEP INCOME STATEMENT

SELLERS ELECTRONIX Income Statement For the Year Ended December 31, 2005

Revenues

Net sales

Interest revenue

Gain on sale of equipment

Total revenues

Expenses

Cost of goods sold

Selling expenses

Administrative expenses

Interest expense

Casualty loss from vandalism

Total expenses

Net income

All data are classified under two categories:

1 Revenues

2 Expenses

Only one step is required in determining net income or net loss.

\$ 316,000

76,000

38,000

1,800

200

\$ 460,000

3,000

600

463,600

432,000

\$ 31,600

COMPUTATION OF GROSS PROFIT

STUDY OBJECTIVE 6

Gross profit is determined as follows:

Net sales	\$ 460,000
Cost of goods sold	<u>316,000</u>
Gross profit	\$ 144,000

OPERATING EXPENSES IN COMPUTING NET INCOME

Net income is determined as follows:

Gross profit	\$ 144,000
Operating expenses	<u>114,000</u>
Net income	<u>\$ 30,000</u>

Review

Gross profit for a merchandiser is net sales minus

- a. operating expenses
- b. cost of goods sold
- c. sales discounts
- d. cost of goods available for sale

Review

Gross profit for a merchandiser is net sales minus

- a. operating expenses
- b. cost of goods sold
- c. sales discounts
- d. cost of goods available for sale

PERIODIC INVENTORY SYSTEMS

Appendix 5A

- **Revenues from the sale of merchandise are recorded when sales are made in the same way as in a perpetual system**
- **No attempt is made on the date of sale to record the cost of merchandise sold**
- **Physical inventories are taken at end of period to determine:**
 - **The cost of merchandise on hand**
 - **The cost of the goods sold during the period**

Determining Cost of Goods Sold Periodic

STUDY OBJECTIVE 7

SELLERS ELECTRONIX			
Cost of Goods Sold			
For the Year Ended December 31, 2005			
Cost of goods sold			
Inventory, January 1			\$36,000
Purchases		\$325,000	
Less: Purchase returns and allowances	\$10,400		
Purchase discounts	<u>6,800</u>	<u>17,200</u>	
Net purchases		307,800	
Add: Freight-in		<u>12,200</u>	
Cost of goods purchased			<u>320,000</u>
Cost of goods available for sale			356,000
Inventory, December 31			<u>40,000</u>
Cost of goods sold			316,000

RECORDING MERCHANDISE TRANSACTIONS UNDER A PERIODIC INVENTORY SYSTEM

- **Purchases**

- Merchandise purchased for resale to customers
- May be made for cash or on account (credit)
- Normally recorded by the purchaser when the goods are **received** from the seller
- Credit purchase should be supported by a **purchase invoice**



RECORDING PURCHASES OF MERCHANDISE

General Journal			
Date	Account Titles	Debit	Credit
May 4	Purchases	3,800	
	Accounts Payable		3,800

To illustrate the recording of merchandise transactions under a periodic system, we will use the purchase/sale transactions between Seller and Buyer. For purchases on account, **Purchases** is debited and **Accounts Payable** is credited for merchandise ordered from Seller.

PURCHASE RETURNS AND ALLOWANCES

- A sales return and allowance on the seller's books is recorded as a **purchase return and allowance** on the books of the purchaser.
- **Purchase Returns and Allowances**
 - **contra account** to Purchases
 - Normal credit balance
- **Debit memorandum**
 - Purchaser initiates the request for a reduction of the balance due through the issuance of a debit memorandum
 - A document issued by a buyer to inform a seller that the seller's account has been debited because of unsatisfactory merchandise



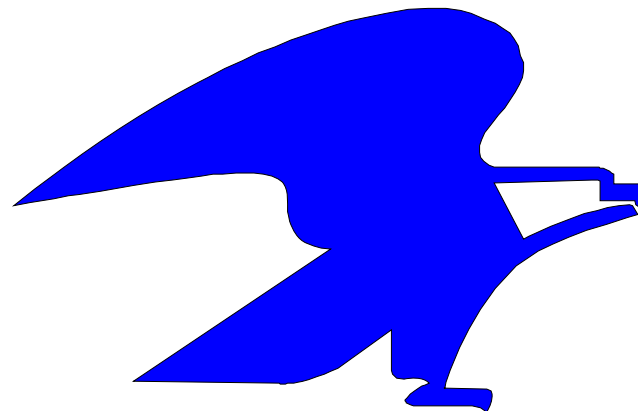
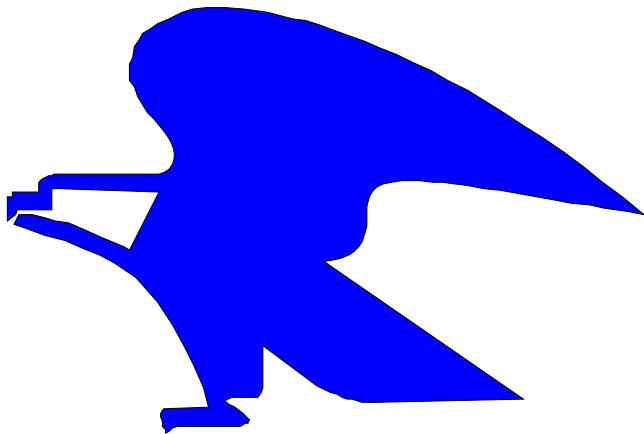
RECORDING PURCHASE RETURNS AND ALLOWANCES

General Journal			
Date	Account Titles	Debit	Credit
May 8	Accounts Payable	300	
	Purchase Returns and Allowances		300

For purchases returns and allowances, **Accounts Payable** is debited and **Purchase Returns and Allowances** is credited. Because \$300 of merchandise received from Seller is inoperable, Buyer returns the goods and issues a debit memo.

ACCOUNTING FOR FREIGHT COSTS

- **Freight-in** is debited if buyer pays freight
- **Freight-out** (or **Delivery Expense**) is debited if seller pays freight



ACCOUNTING FOR FREIGHT COSTS

General Journal			
Date	Account Titles	Debit	Credit
May 9	Freight-in	150	
	Cash		150

When the purchaser directly incurs the freight costs, the account **Freight-in** (or **Transportation-in**) is debited and **Cash** is credited. In this example, Buyer pays Acme Freight Company \$150 for freight charges on its purchase from Seller.

PURCHASE DISCOUNTS

- **Credit terms may permit the buyer to claim a cash discount for the prompt payment of a balance due.**
- **The buyer calls this discount a **purchase discount**.**
- **Like a sales discount, a purchase discount is based on the invoice cost less returns and allowances, if any.**

PURCHASE DISCOUNTS

General Journal			
Date	Account Titles	Debit	Credit
May 14	Accounts Payable	3,500	
	Purchase Discounts		70
	Cash		3,430

If payment is made within the discount period, **Accounts Payable** is debited, **Purchase Discounts** is credited for the discount taken, and **Cash** is credited. On May 14 Buyer pays the balance due on account to Seller taking the 2% cash discount allowed by Seller for payment within 10 days.

RECORDING SALES OF MERCHANDISE

General Journal			
Date	Account Titles	Debit	Credit
May 4	Accounts Receivable	3,800	
	Sales		3,800

For credit sales, **Accounts Receivable** is debited and **Sales** is credited. In this illustration, the sale of \$3,800 of merchandise to Buyer on May 4 is recorded by the Seller.

RECORDING SALES RETURNS AND ALLOWANCES

General Journal			
Date	Account Titles	Debit	Credit
May 8	Sales Returns and Allowances	300	
	Accounts Receivable		300

The seller's entry to record a credit memorandum involves a debit to the **Sales Returns and Allowances** account and a credit to **Accounts Receivable**. Based on the debit memo received from Buyer on May 8 for returned goods, Seller records the \$300 sales returns above.

RECORDING SALES DISCOUNTS

General Journal			
Date	Account Titles	Debit	Credit
May 15	Cash	3,430	
	Sales Discounts		70
	Accounts Receivable		3,500

When cash discounts are taken by customers, the seller debits **Sales Discounts**. On May 15, Seller receives payment of \$3,430 on account from Buyer. Seller honors the 2% discount and records the payment of Buyer's accounts receivable.

WORK SHEET FOR A MERCHANDISING COMPANY

SELLERS ELECTRONIX										
Work Sheet										
For the Year Ended December 31, 2005										
	Trial Balance		Adjustments		Adjusted Trial Balance		Income Statement		Balance Sheet	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Cash	9,500				9,500				9,500	
Accounts Receivable	16,100				16,100				16,100	
MERCHANDISE INVENTORY	40,500			(a) 500	40,000				40,000	
Prepaid Insurance	3,800			(b) 2,000	1,800				1,800	
Store Equipment	80,000				80,000				80,000	
Accumulated Depreciation		16,000		(c) 8,000		24,000				24,000
Accounts Payable		20,400				20,400				20,400
R.A. Lamb, Capital		83,000				83,000				83,000
R.A. Lamb, Drawing	15,000				15,000				15,000	
SALES		480,000				480,000	480,000			
SALES RETURNS AND ALLOWANCES	12,000				12,000		12,000			
SALES DISCOUNTS	8,000				8,000		8,000			
COST OF GOODS SOLD	315,500		(a) 500		316,000		316,000			
Freight-out	7,000				7,000		7,000			
Advertising Expense	16,000				16,000		16,000			
Admin. Sal. Exp.	19,000				19,000		19,000			
Store Salaries Expense	40,000		(d) 5,000		45,000		45,000			
Utilities Expense	17,000				17,000		17,000			
Totals	<u>599,400</u>	<u>599,400</u>								
Insurance Expense			(b) 2,000		2,000		2,000			
Depreciation Expense			(c) 8,000		8,000		8,000			
Salaries Payable				(d) 5,000		5,000				5,000
Totals			<u>15,500</u>	<u>15,500</u>	<u>612,400</u>	<u>612,400</u>	<u>450,000</u>	<u>480,000</u>	<u>162,400</u>	<u>132,400</u>
Net Income							30,000			30,000
Totals							<u>480,000</u>	<u>480,000</u>	<u>162,400</u>	<u>162,400</u>

Key: (a) Adjustment to inventory on hand, (b) Insurance expired, (c) Depreciation expense, (d) Salaries accrued.

USING A WORK SHEET

Appendix 5B

Trial Balance Columns

- 1** Data from the trial balance are obtained from the ledger balances of Sellers Electronix at December 31
- 2** The amount shown for **Merchandise Inventory, \$40,500**, is the year-end inventory amount which results from the application of a perpetual inventory system

USING A WORK SHEET

Adjustments Columns

1 A merchandising company usually has the same types of adjustments as a service company

2 Work sheet adjustments **b**, **c**, and **d** are for insurance, depreciation, and salaries

Adjusted Trial Balance - The **adjusted trial balance** shows the balance of all accounts after adjustment at the end of the accounting period

USING A WORK SHEET

Income Statement Columns

- 1** The accounts and balances that affect the **income statement** are transferred from the **adjusted trial balance columns** to the income statement columns for Sellers Electronix at December 31
- 2** All of the amounts in the **income statement credit column** should be totaled and compared to the total of the amounts in the **income statement debit column**

USING A WORK SHEET

Balance Sheet Columns

- 1** The major difference between the balance sheets of a service company and a merchandising company is **inventory**
- 2** For Sellers Electronix, the ending **Merchandise Inventory** amount of **\$40,000** is shown in the **balance sheet debit column**
- 3** The information to prepare the **owner's equity statement** is also found in these columns

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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 6

Inventories

Prepared by Naomi Karolinski
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CHAPTER 6

INVENTORIES

After studying this chapter, you should be able to:

- 1 Describe steps in determining inventory quantities**
- 2 Explain the basis of accounting for inventories and describe the inventory cost flow methods**
- 3 Explain the financial statements and the tax effects of each inventory cost flow method**
- 4 Explain the lower of cost or market basis of accounting for inventories**
- 5 Indicate the effects of inventory errors on the financial statements**
- 6 Compute and interpret inventory turnover**

INVENTORY BASICS

- **Balance sheet** of merchandising and manufacturing companies
 - inventory significant current asset
- **Income statement**
 - inventory is vital in determining results
- **Gross profit**
 - (net sales - cost of goods sold)
 - watched by management, owners, and others

MERCHANDISE INVENTORY CHARACTERISTICS

Merchandise inventory

- 1 Owned by the company**
- 2 In a form ready for sale**

CLASSIFYING INVENTORY IN A MANUFACTURING ENVIRONMENT

- **Manufacturing inventories**
 - may not yet be ready for sale
- **Classified into three categories:**

1 Finished goods

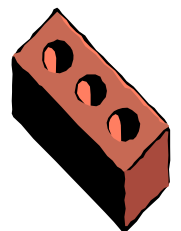
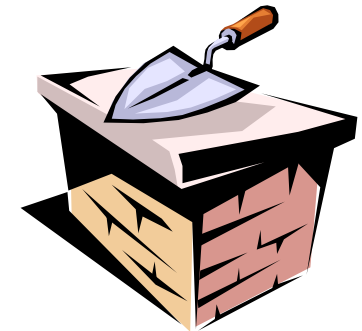
ready for sale

2 Work in process

various stages of production
(not completed)

3 Raw materials

components on hand waiting to be used



DETERMINING INVENTORY QUANTITIES

STUDY OBJECTIVE 1

To prepare financial statements determine

- 1. the **number** of units in inventory by taking a physical inventory of goods on hand
physical inventory by counting, weighing or measuring**
- 2. The ownership of goods**

DETERMINING COST OF GOODS ON HAND

- 3. apply unit costs to the total units on hand for each item**
- 4. total the cost of each item of inventory to determine total cost of goods on hand**

TAKING A PHYSICAL INVENTORY

Internal control principles for inventory:

1 Segregation of duties

**counting by employees not having
custodial responsibility for the inventory**

2 Establishment of responsibility

**each counter should establish the
authenticity of each inventory item**

TAKING A PHYSICAL INVENTORY

3 Independent internal verification

second count by another employee

4 Documentation procedures

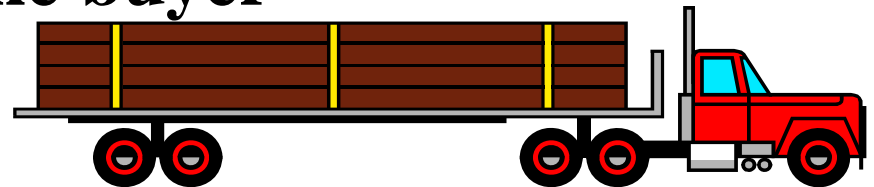
pre-numbered inventory tags

5 Independent internal verification

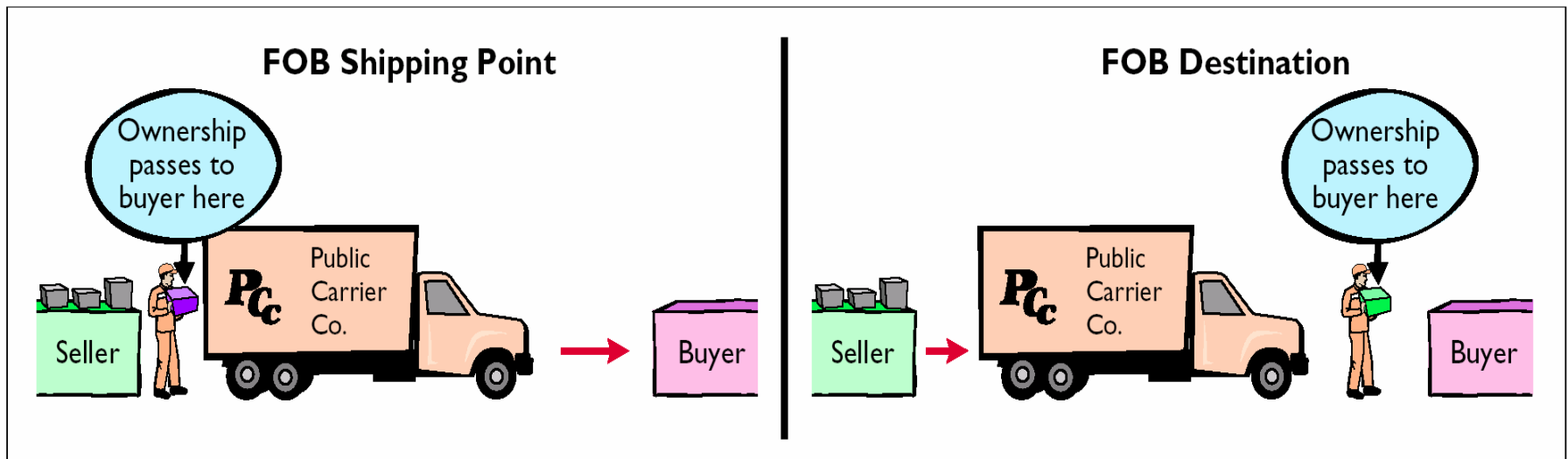
designated supervisor checks all inventory items tags, no items have more than one tag

OWNERSHIP OF GOODS IN TRANSIT

- **Goods in transit:**
included in the inventory of the party that has **legal title** to the goods
- **FOB (Free on Board) shipping point:**
ownership of the goods passes to the buyer when the public carrier accepts the goods from the seller
- **FOB destination point:**
legal title to the goods remains with the seller until the goods reach the buyer



TERMS OF SALE



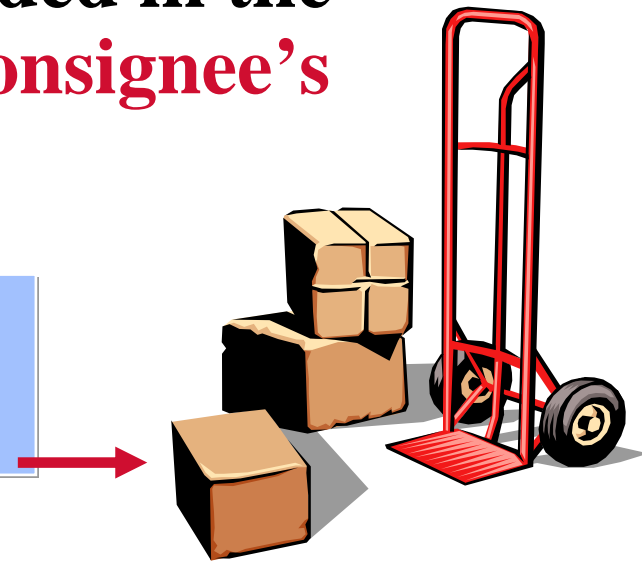
CONSIGNED GOODS

Consignment:

the holder of the goods (**consignee**) does not own the goods

- ownership remains with the **consignor** of the goods until the goods are sold
- consigned goods **should** be included in the **consignor's** inventory, **not** the **consignee's** inventory

Owned by a consignor; do not count in consignee inventory



Consignee Company

INVENTORY ACCOUNTING SYSTEMS

1 Perpetual

- detailed records
- cost of each item maintained
- cost of each item sold is determined when sale occurs

2 Periodic

- cost of goods sold is determined at the end of accounting period

Basis of Accounting for Inventories

Periodic Cost Flow Methods

STUDY OBJECTIVE 2

- **Revenues from the sale of merchandise are recorded when sales are made in the same way as in a perpetual system.**
- **No calculation of cost of goods sold is made at the time of sale of the merchandise.**
- **Physical inventories are taken at end of period to determine:**
 - **the cost of merchandise on hand**
 - **the cost of the goods sold during the period**

ALLOCATING INVENTORIABLE COSTS

- **Inventory costs- periodic inventory system**
 - allocated between **ending inventory** and **cost of goods sold**
 - allocation is made at the end of the accounting period
- 1** the costs assignable to the ending inventory are determined
- 2** the cost of the ending inventory is subtracted from the **cost of goods available for sale** to determine the **cost of goods sold**
- 3** cost of goods sold is then deducted from **sales revenues** in accordance with the **matching principle** to get gross profit

COST OF GOODS SOLD

Cost of Goods Sold –Review

Periodic inventory system

Three steps are required:

- 1. record purchases of merchandise,**
- 2. determine the cost of goods purchased,**
- 3. determine the cost of goods on hand at the beginning and end of the accounting period**

DETERMINING COST OF GOODS PURCHASED

To determine Cost of Goods Purchased:

- 1 subtract contra purchase accounts of Purchases Discounts and Purchases Returns and Allowances from Purchases to get Net Purchases**
- 2 add Freight-in to Net Purchases**

ALLOCATION (MATCHING) OF POOL OF COSTS

STUDY OBJECTIVE 5

Pool of Costs	
Cost of Goods Available for Sale	
Beginning inventory	\$ 20,000
Cost of goods purchased	100,000
Cost of goods available for sale	\$ 120,000

Step 1			Step 2	
Ending Inventory			Cost of Goods Sold	
Units	Unit Cost	Total Cost		
5,000	\$ 3.00	\$15,000	Cost of goods available for sale	\$120,000
			Less: Ending inventory	15,000
			Cost of goods sold	\$105,000

Review

The cost of goods available for sale is allocated between

- a. beginning inventory and ending inventory.
- b. beginning inventory and cost of goods on hand.
- c. cost of goods purchased and cost of goods sold.
- d. beginning inventory and cost of goods purchased.

Review

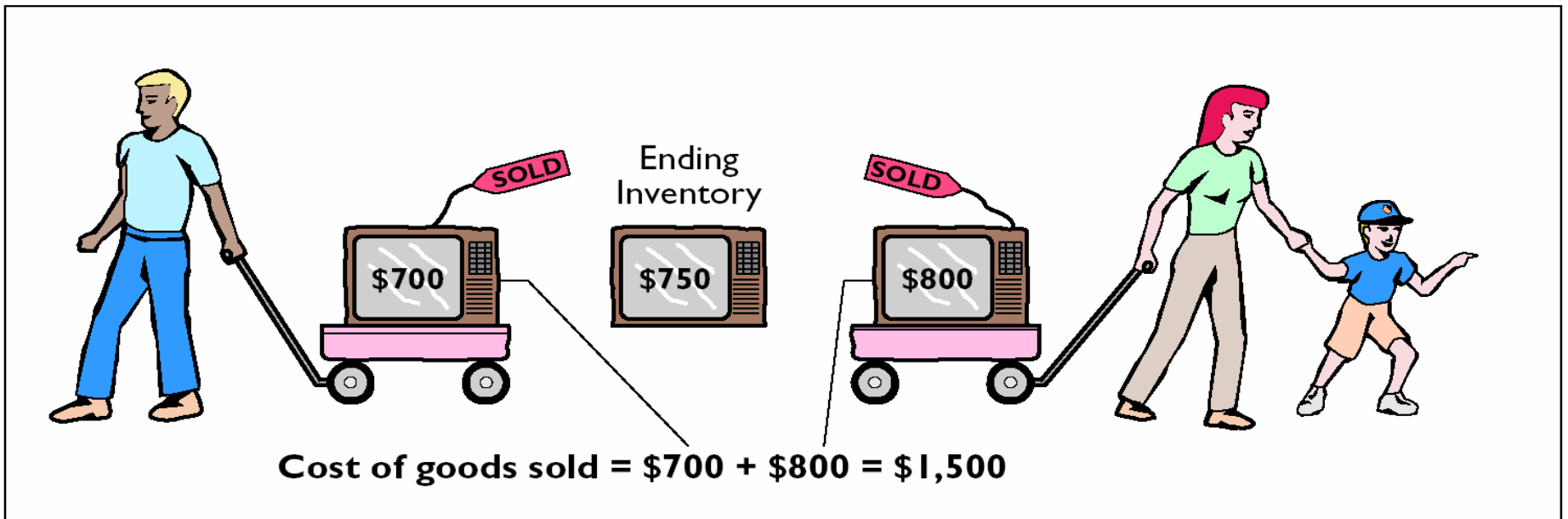
The cost of goods available for sale is allocated between

- a. beginning inventory and ending inventory.
- b. beginning inventory and cost of goods on hand.
- c. cost of goods purchased and cost of goods sold.
- d. beginning inventory and cost of goods purchased.

USING ACTUAL PHYSICAL FLOW COSTING

- Costing of the inventory is complicated because specific items of inventory on hand may have been purchased at different prices.
- The **specific identification** method tracks the **actual physical flow** of the goods.
- Each item of inventory is marked, tagged, or coded with its **specific** unit cost.
- Items still in inventory at the end of the year are specifically costed to arrive at the total cost of the ending inventory.

SPECIFIC IDENTIFICATION METHOD



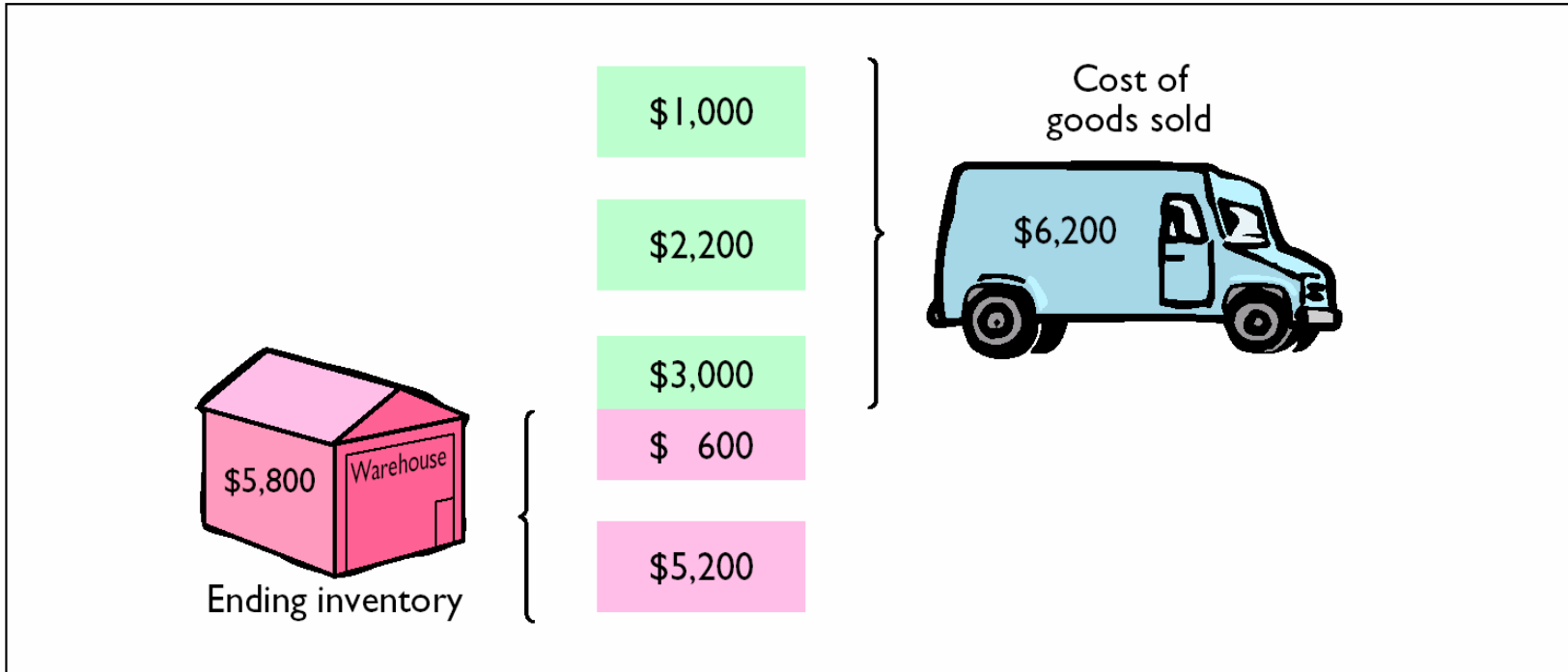
USING ASSUMED COST FLOW METHODS

- **Other cost flow methods are allowed since specific identification is often impractical.**
- **These methods assume flows of costs that may be unrelated to the physical flow of goods.**
- **For this reason we call them **assumed cost flow methods** or **cost flow assumptions**. They are:**
 - 1 First-in, first-out (FIFO).**
 - 2 Last-in, first-out (LIFO).**
 - 3 Average cost.**

FIFO

- **The FIFO method**
 - earliest goods purchased are the first to be sold.
 - often parallels the actual physical flow of merchandise.
 - the **costs** of the earliest goods purchased are the first to be recognized as cost of goods sold.

FIFO



ALLOCATION OF COSTS - FIFO METHOD

Pool of Costs				
Cost of Goods Available for Sale				
Date	Explanation	Units	Unit Cost	Total Cost
01/01	Beginning inventory	100	\$10	\$ 1,000
04/15	Purchase	200	11	2,200
08/24	Purchase	300	12	3,600
11/27	Purchase	400	13	5,200
	Total	<u>1,000</u>		<u>\$ 12,000</u>

Step 1				Step 2	
Ending Inventory				Cost of Goods Sold	
Date	Units	Unit Cost	Total Cost		
11/27	400	\$ 13	\$ 5,200	Cost of goods available for sale	\$ 12,000
08/24	50	12	600	Less: Ending inventory	5,800
	<u>450</u>		<u>\$ 5,800</u>	Cost of goods sold	<u>\$ 6,200</u>

PROOF OF COST OF GOODS SOLD

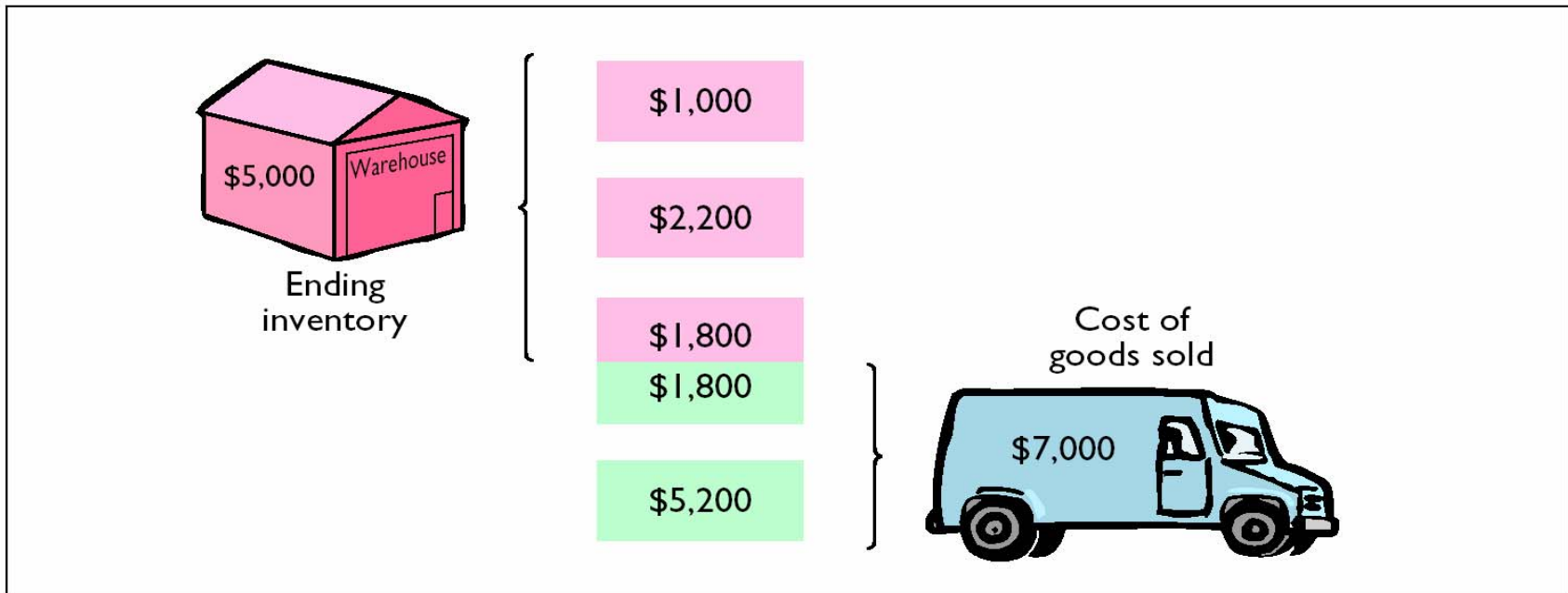
The **accuracy** of the cost of goods sold can be verified by recognizing that the **first** units acquired are the **first** units sold.

<u>Date</u>	<u>Units</u>		<u>Unit Cost</u>		<u>Total Cost</u>
01/01	100	X	\$ 10	=	\$ 1,000
04/15	200	X	11	=	2,200
08/24	250	X	12	=	3,000
Total	<u>550</u>				<u>\$ 6,200</u>

LIFO

- The **LIFO method** assumes that the **latest goods** purchased are the first to be sold.
- LIFO seldom coincides with the actual physical flow of inventory.
- Under LIFO, the **costs** of the latest goods purchased are the first goods to be sold.

LIFO



ALLOCATION OF COSTS - LIFO METHOD

Pool of Costs				
Cost of Goods Available for Sale				
Date	Explanation	Units	Unit Cost	Total Cost
01/01	Beginning inventory	100	\$10	\$ 1,000
04/15	Purchase	200	11	2,200
08/24	Purchase	300	12	3,600
11/27	Purchase	400	13	5,200
	Total	<u>1,000</u>		<u>\$ 12,000</u>

Step 1

Ending Inventory

Date	Units	Unit Cost	Total Cost
01/01	100	\$ 10	\$ 1,000
04/15	200	11	2,200
08/24	150	12	1,800
	<u>450</u>		<u>\$ 5,000</u>

Step 2

Cost of Goods Sold

Cost of goods available for sale	\$ 12,000
Less: Ending inventory	5,000
Cost of goods sold	<u>\$ 7,000</u>

PROOF OF COST OF GOODS SOLD

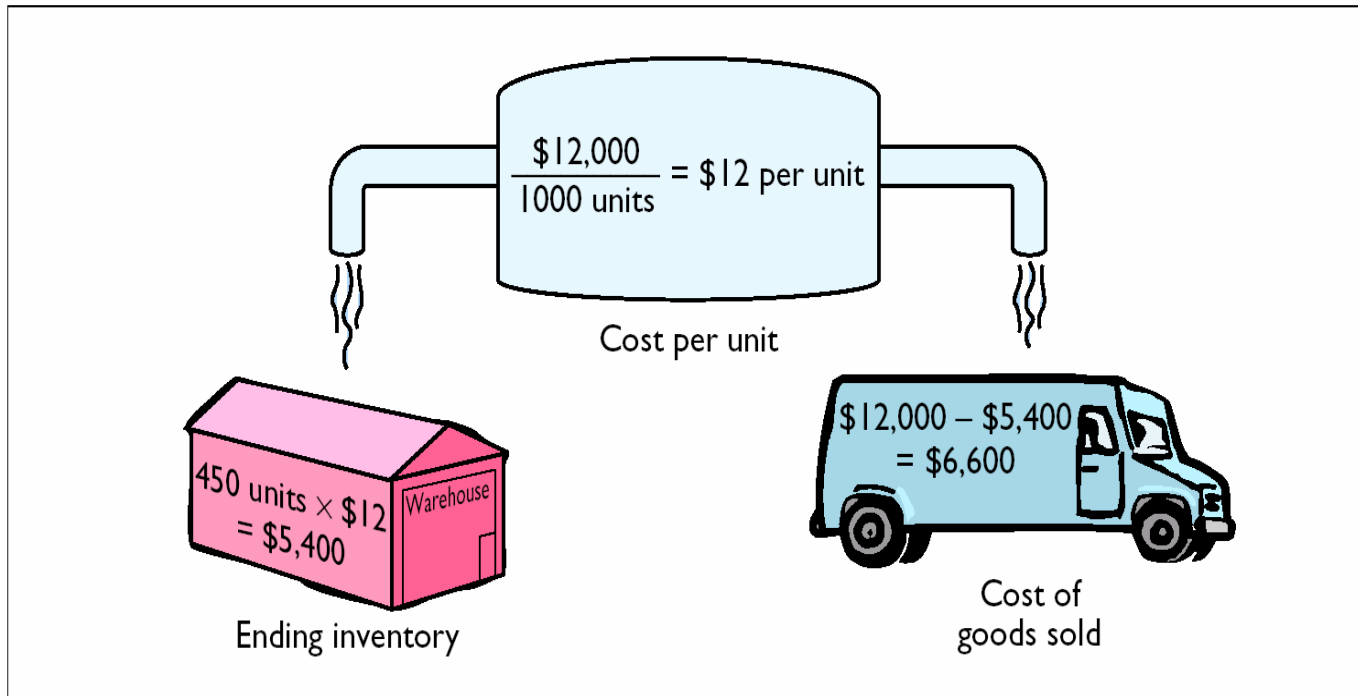
The cost of the **last** goods in are the **first** to be assigned to cost of goods sold. Under a periodic inventory system, **all goods purchased during the period are assumed to be available for the first sale, regardless of the date of purchase.**

<u>Date</u>	<u>Units</u>		<u>Unit Cost</u>		<u>Total Cost</u>
11/27	400	X	\$ 13	=	\$ 5,200
08/24	150	X	12	=	1,800
Total	550				\$ 7,000

AVERAGE COST

- **The average cost method**
 - assumes goods available for sale are homogeneous.
 - the cost of goods available for sale is allocated on the basis of the **weighted average unit cost** incurred.
 - weighted average unit cost is applied to the units on hand to determine cost of the ending inventory.

AVERAGE COST



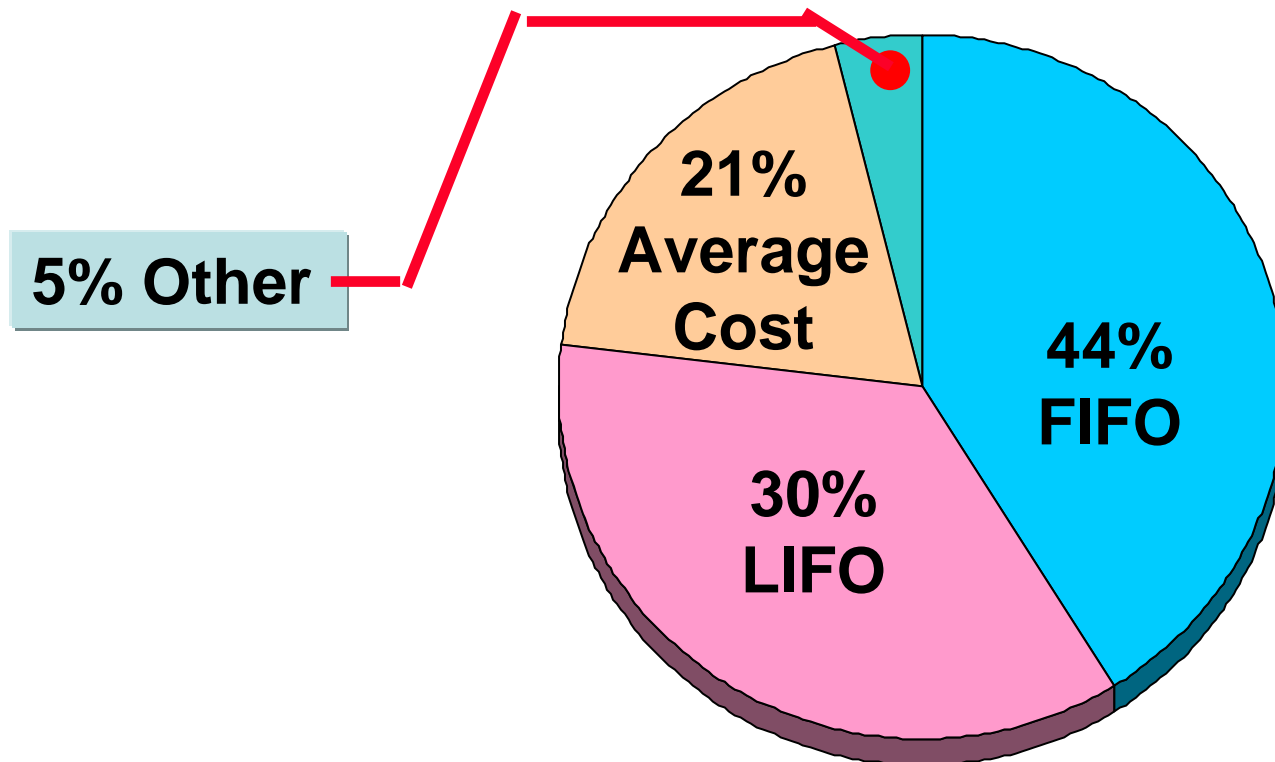
ALLOCATION OF COSTS - AVERAGE COST METHOD

Pool of Costs				
Cost of Goods Available for Sale				
Date	Explanation	Units	Unit Cost	Total Cost
01/01	Beginning inventory	100	\$10	\$ 1,000
04/15	Purchase	200	11	2,200
08/24	Purchase	300	12	3,600
11/27	Purchase	400	13	5,200
	Total	<u>1,000</u>		<u>\$ 12,000</u>

Step 1			Step 2	
Ending Inventory			Cost of Goods Sold	
\$ 12,000	÷	1,000 = \$12.00		
<u>Units</u>		<u>Unit Cost</u>	Cost of goods available for sale	\$ 12,000
450	x	\$ 12.00 = <u>\$ 5,400</u>	Less: Ending inventory	<u>5,400</u>
			Cost of goods sold	<u>\$ 6,600</u>

USE OF COST FLOW METHODS IN MAJOR U.S. COMPANIES

Companies adopt different inventory cost flow methods for various reasons. Usually one of the following factors is involved: **1) income statement effects, 2) balance sheet effects, or 3) tax effects.**



Review

A company had the following inventory information for the month of May:

May 1	Beg. Inventory	400 units	@	\$10.00 =	\$ 4,000
8	Purchase	500 units	@	\$10.50 =	\$ 5,250
20	Purchase	600 units	@	\$10.60 =	\$ 6,360
Total units		1,100			\$15,610

Assuming the company is using the Lifo method of inventory:
Calculate the value of the ending inventory if there are 100 units in ending inventory on May 31st.

Review

Under LIFO, the ending inventory consists of the oldest 100 units, therefore ending inventory = 100 units X \$10 = \$1,000.

INCOME STATEMENT EFFECTS COMPARED

STUDY OBJECTIVE 3

Kralik Company buys 200 XR492s at \$20 per unit on January 10 and 200 more on December 31 at \$24 each. During the year, 200 units are sold at \$30 each. Under LIFO, the company recovers the current replacement cost (\$4,800) of the units sold. Under FIFO, however, the company recovers only the January 10 cost (\$4,000). To replace the units sold, it must invest \$800 (200 x \$4) of the gross profit. Thus, \$800 of the gross profit is said to be **phantom or illusory profits**. As a result, reported net income is overstated in real terms.

	LIFO	FIFO
Cost of goods sold	4,000 (200 x \$20)	4,800 (200 x \$24)

USING INVENTORY COST FLOW METHODS CONSISTENTLY

- **Consistency**
 - Companies needs to use its chosen cost flow method from one period to another.
 - Consistent application makes financial statements **comparable** over successive time periods.
 - If a company adopts a different cost flow method:
 - The change and its effects on net income must be disclosed in the financial statements

VALUING INVENTORY AT THE LOWER OF COST OR MARKET

STUDY OBJECTIVE 4

- **Value of inventory is lower than its cost**
 - **The inventory is written down to its market value**
- **Known as the lower of cost or market (LCM) method**
- **LCM basis**
 - **Market is defined as current replacement cost, not selling price**

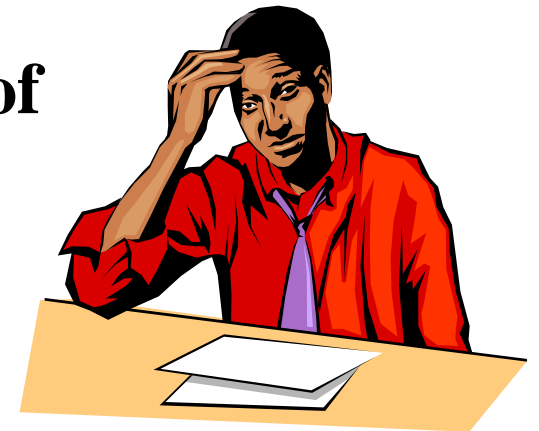
COMPUTATION OF LOWER OF COST OR MARKET

	<u>Cost</u>	<u>Market</u>	<u>Lower of Cost or Market</u>
Television sets			
Consoles	\$ 60,000	\$ 55,000	\$ 55,000
Portables	45,000	52,000	45,000
Total	<u>105,000</u>	<u>107,000</u>	
Video equipment			
Recorders	48,000	45,000	45,000
Movies	15,000	14,000	14,000
Total	<u>63,000</u>	<u>59,000</u>	
Total inventory	<u><u>\$ 168,000</u></u>	<u><u>\$ 166,000</u></u>	<u><u>\$ 159,000</u></u>

INVENTORY ERRORS - INCOME STATEMENT EFFECTS

STUDY OBJECTIVE 5

- **both beginning and ending inventories appear on the income statement**
- **ending inventory of one period automatically becomes the beginning inventory of the next period**
- **inventory errors**
 - **affect the determination of cost of goods sold and net income**



FORMULA FOR COST OF GOODS SOLD

$$\begin{array}{|c|} \hline \text{Beginning} \\ \text{Inventory} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{Cost of} \\ \text{Goods} \\ \text{Purchased} \\ \hline \end{array} - \begin{array}{|c|} \hline \text{Ending} \\ \text{Inventory} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Cost of} \\ \text{Goods} \\ \text{Sold} \\ \hline \end{array}$$

the effects on cost of goods sold can be determined by entering the **incorrect** data in the above formula and then substituting the **correct** data

EFFECTS OF INVENTORY ERRORS ON CURRENT YEAR'S INCOME STATEMENT

<u>Inventory Error</u>	<u>Cost of Goods Sold</u>	<u>Net Income</u>
Understate beginning inventory	Understated	Overstated
Overstate beginning inventory	Overstated	Understated
Understate ending inventory	Overstated	Understated
Overstate ending inventory	Understated	Overstated

An error in ending inventory of the current period will have a **reverse effect** on net income of the next period.

ENDING INVENTORY ERROR - BALANCE SHEET EFFECTS

the effect of ending inventory errors on the balance sheet can be determined by the basic **accounting equation**:

$$\text{Assets} = \text{Liabilities} + \text{Owners Equity}$$

ENDING INVENTORY ERROR - BALANCE SHEET EFFECTS

Errors in the ending inventory have the following effects on these components:

<u>Ending Inventory Error</u>	<u>Assets</u>	<u>Liabilities</u>	<u>Owner's Equity</u>
Overstated	Overstated	None	Overstated
Understated	Understated	None	Understated

INVENTORY DISCLOSURES

- **Inventory**
 - classified as a **current asset** after receivables in the balance sheet
- **Cost of goods sold**
 - subtracted from sales in the income statement
- **Disclosure either in the balance sheet or in accompanying notes for:**
 - 1** major inventory classifications
 - 2** basis of accounting (**cost or lower of cost or market**)
 - 3** costing method (**FIFO, LIFO, or average cost**)

Wal-Mart Stores, Inc

Notes to the Financial Statements

Note 1. Summary of accounting policies

Inventories

The company uses the retail, last-in, first-out (LIFO) method for the Wal-Mart Stores segment, cost LIFO for the SAM'S CLUB segment, and other cost methods, including the retail first-in, first-out (FIFO) and average costs methods, for the International segment. Inventories are not recorded in excess of market value.

INVENTORY TURNOVER FORMULA AND COMPUTATION

STUDY OBJECTIVE 6

The inventory turnover ratio measures the number of times, on average, the inventory is sold during the period – which measures the liquidity of the inventory. It is computed by dividing cost of goods sold by average inventory during the year. Assume that Wal-Mart, Inc. has a beginning inventory of \$21,442 million and ending inventory of \$21,614 and cost of goods sold for 2002 of \$171,562; its inventory turnover formula and computation is shown below:

$$\text{INVENTORY TURNOVER} = \frac{\text{COST OF GOODS SOLD}}{\text{AVERAGE INVENTORY}}$$

$$7.97 \text{ times} = \frac{\$171,562}{(\$21,442 + \$21,614) / 2}$$

APPENDIX 6A

INVENTORY COST FLOW METHODS IN PERPETUAL INVENTORY SYSTEMS

To illustrate the application of the **3** assumed cost flow methods (**FIFO**, **Average Cost**, and **LIFO**), the data shown below for Bow Valley Electronics' product Z202 Astro Condenser is used.

Bow Valley Electronics Z202 Astro Condensers

Date	Explanation	Units	Unit Cost	Total Cost
01/01	Beginning inventory	100	\$10	\$ 1,000
04/15	Purchase	200	11	2,200
08/24	Purchase	300	12	3,600
11/27	Purchase	400	13	5,200
	Total			<u>\$ 12,000</u>

PERPETUAL SYSTEM - FIFO

Under **FIFO**, the cost of the **earliest** goods on hand prior to each sale is charged to **cost of goods sold**. Therefore, the cost of goods sold on September 10 consists of the units on hand January 1 and the units purchased April 15 and August 24.

<u>Date</u>	<u>Purchases</u>	<u>Sales</u>	<u>Balance</u>
January 1			(100 @ \$10) \$1,000
April 15	(200 @ \$11) \$2,200		(100 @ \$10) } (200 @ \$11) } \$3,200
August 24	(300 @ \$12) \$3,600		(100 @ \$10) } (200 @ \$11) } (300 @ \$12) } \$6,800
September 10		(100 @ \$10) } (200 @ \$11) } \$6,200 (250 @ \$12) }	(50 @ \$12) } \$600
November 27	(400 @ \$13) \$5,200		(50 @ \$12) } (400 @ \$13) } \$5,800

PERPETUAL SYSTEM - LIFO

Under the **LIFO method** using a perpetual system, the cost of the **most recent purchase prior to sale** is allocated to the units sold. The cost of the goods sold on September 10 consists entirely of goods from the August 24 and April 15 purchases and 50 of the units in beginning inventory.

<u>Date</u>	<u>Purchases</u>	<u>Sales</u>	<u>Balance</u>
January 1			(100 @ \$10) \$1,000
April 15	(200 @ \$11) \$2,200		(100 @ \$10) } (200 @ \$11) } \$3,200
August 24	(300 @ \$12) \$3,600		(100 @ \$10) } (200 @ \$11) } (300 @ \$12) } \$6,800
September 10		(300 @ \$12) } (200 @ \$11) } \$6,300 (50 @ \$10) }	(50 @ \$10) } \$500
November 27	(400 @ \$13) \$5,200		(50 @ \$10) } (400 @ \$13) } \$5,700

PERPETUAL SYSTEM - AVERAGE COST

The average cost method in a perpetual inventory system is called the **moving average method**. Under this method a new average is computed **after each purchase**. The average cost is computed by dividing the cost of goods available for sale by the units on hand. The average cost is then applied to

1. the units sold, to determine the cost of goods sold, and,
2. the remaining units on hand, to determine the ending inventory amount.

PERPETUAL SYSTEM - AVERAGE COST METHOD

As indicated below, a new average is computed each time a purchase is made. On April 15, after 200 units are purchased for \$2,200, a total of 300 units costing \$3,200 (\$1,000 + \$2,200) are on hand. The average cost is \$10.667 (\$3,200/300).

<u>Date</u>	<u>Purchases</u>	<u>Sales</u>	<u>Balance</u>
January 1			(100 @ \$100) \$1,000
April 15	(200 @ \$11) \$2,200		(300 @ \$10.667) \$3,200
August 24	(300 @ \$12) \$3,600		(600 @ \$11.333) \$6,800
September 10		(550 @ \$11.333) \$6,233	(50 @ \$11.333) \$567
November 27	(400 @ \$13) \$5,200		(450 @ \$12.816) \$5,767

APPENDIX 6B

ESTIMATING INVENTORIES

- **Two circumstances for estimating inventories:**
 - 1** management may want monthly or quarterly financial statements, but a physical inventory is usually only taken annually.
 - 2** a casualty such as a fire or flood may make it impossible to take a physical inventory.
- **Two widely used methods of estimating inventories:**
 - 1** the **gross profit method** and
 - 2** the **retail inventory method**

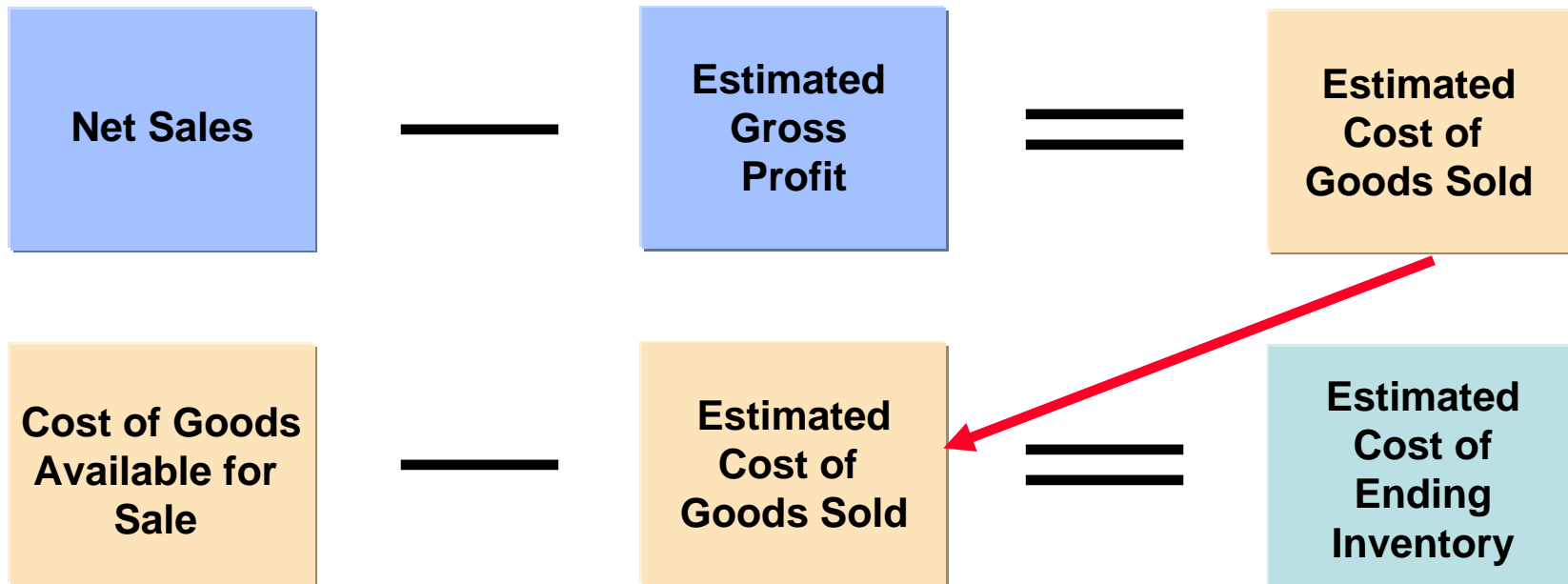


GROSS PROFIT METHOD

- **Gross profit method**
 - Estimates the cost of ending inventory by applying a gross profit rate to net sales
- used in preparing monthly financial statements under a periodic system
- should NOT be used in preparing the company's financial statements at year-end
- is assumed to remain constant from one year to the next

GROSS PROFIT METHOD FORMULAS

Step 1 Net sales less estimated gross profit equals estimated cost of goods sold.



Step 2 Cost of goods available for sale less estimated cost of goods sold (**from Step 1**) equals the estimated cost of ending inventory.

RETAIL INVENTORY METHOD

- **A store has many different types of merchandise at low unit costs**
 - the retail inventory method is often used
 - a company's records must show both the cost and retail value of the goods available for sale
- **Major disadvantage**
 - it is an averaging technique



RETAIL INVENTORY METHOD FORMULAS

Step
1

Goods
Available for
Sale at Retail

—

Net Sales

=

Ending
Inventory
at Retail

Step
2

Goods
Available for
Sale at Cost

÷

Goods
Available for
Sale at Retail

=

Cost to
Retail
Ratio

Step
3

Ending
Inventory
at Retail

×

Cost to
Retail
Ratio

=

Estimated
Cost of
Ending
Inventory

DETERMINING COST OF GOODS ON HAND

Under the periodic method, cost of inventory on hand is determined from a physical inventory requiring:

- 1 counting the units on hand for each item of inventory**
- 2 applying unit costs to the total units on hand for each item**
- 3 totaling the cost of each item of inventory to determine total cost of goods on hand**

Review

A company had the following inventory information for the month of May:

May 1	Beg. Inventory	400 units	@	\$10.00 =	\$ 4,000
8	Purchase	500 units	@	\$10.50 =	\$ 5,250
20	Purchase	600 units	@	\$10.60 =	<u>\$ 6,360</u>
Total units and cost		1,500			<u>\$15,610</u>

Assuming the company is using the LIFO method of inventory:

Calculate the value of the ending inventory if there are 100 units in ending inventory on May 31.

Review

A company had the following inventory information for the month of May:

May 1	Beg. Inventory	400 units	@	\$10.00 =	\$ 4,000
8	Purchase	500 units	@	\$10.50 =	\$ 5,250
20	Purchase	600 units	@	\$10.60 =	\$ 6,360
Total units and cost		1,500			<u>\$15,610</u>

Assume an ending inventory of 100 units, then ending inventory would consist of the oldest layer:

100 units @ \$10.00 = \$1,000

(Cost of Goods sold would be equal to (Cost of Goods available for Sale - Ending Inventory) **\$15,610-\$1,000= \$14,610**

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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 7

Accounting Information Systems

Prepared by Naomi Karolinski
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CHAPTER 7

ACCOUNTING INFORMATION SYSTEMS

After studying this chapter, you should be able to:

- 1 Identify basic principles of accounting information systems.**
- 2 Explain the major phases in the development of an accounting system.**
- 3 Describe the nature and purpose of a subsidiary ledger.**
- 4 Explain how special journals are used in journalizing.**
- 5 Indicate how a multi-column journal is posted.**

ACCOUNTING INFORMATION SYSTEMS

STUDY OBJECTIVE 1

Accounting information system (AIS)

- **Collects and processes data.**
- **Disseminates financial information to interested parties.**
- **Can either be manual or computerized.**

PRINCIPLES OF AN EFFICIENT AND EFFECTIVE ACCOUNTING INFORMATION SYSTEM

Cost Effectiveness

The accounting system must be cost effective. Benefits of information must outweigh the cost of providing it.



Useful Output

To be useful, information must be understandable, relevant, reliable, timely, and accurate. Designers of accounting systems must consider the needs and knowledge of various users.



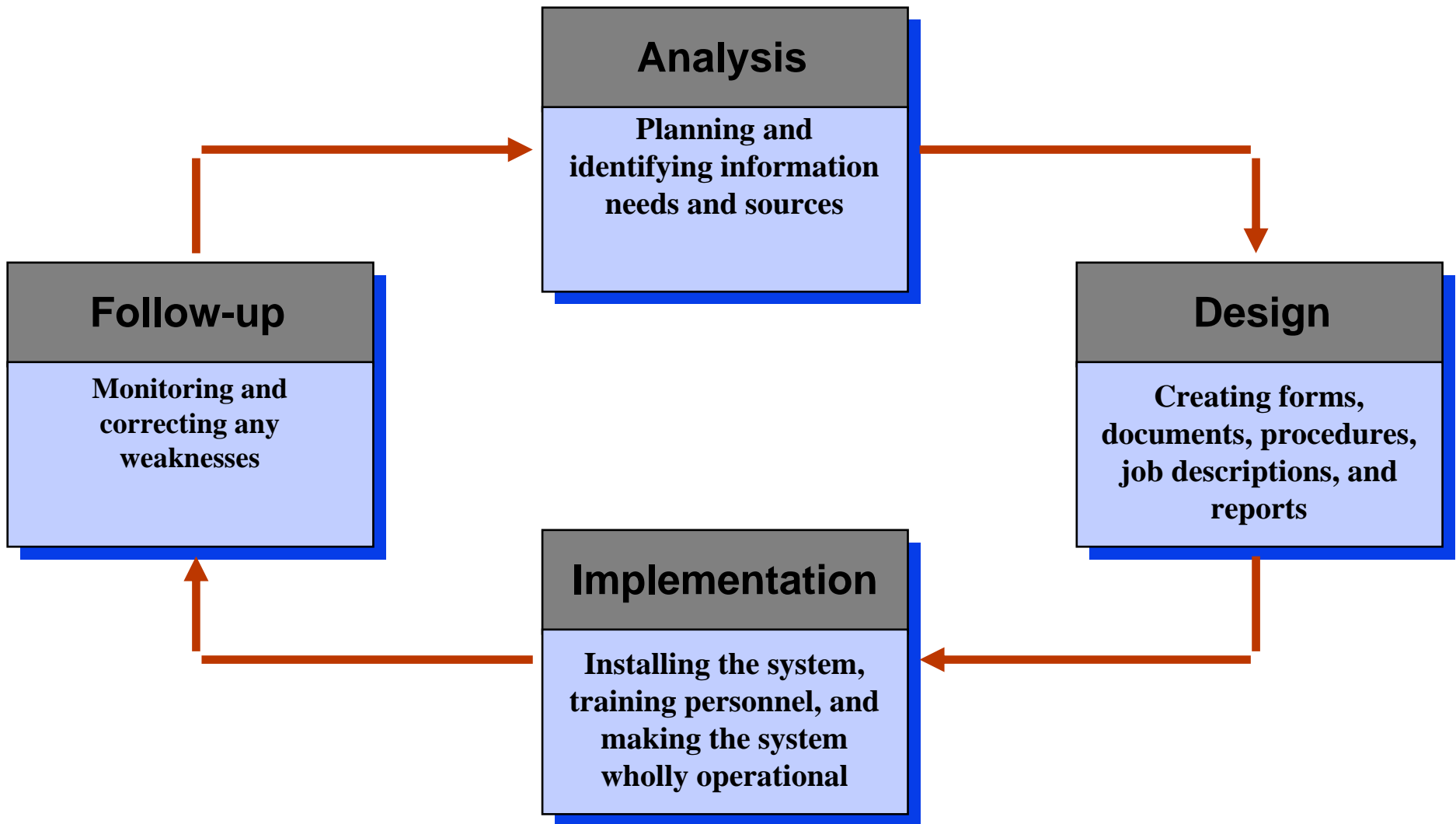
Flexibility

The accounting system should accommodate a variety of users and changing information needs. The system should be sufficiently flexible to meet the resulting changes in the demands made upon it.



PHASES IN THE DEVELOPMENT OF AN ACCOUNTING SYSTEM

Study Objective 2



MANUAL VS. COMPUTERIZED SYSTEMS

- **Small businesses-**
 - **begin operations with manual accounting systems and convert to computerized systems as business grows**
- **To understand computerized accounting systems-**
 - **one must understand how manual accounting systems work**

SUBSIDIARY LEDGERS

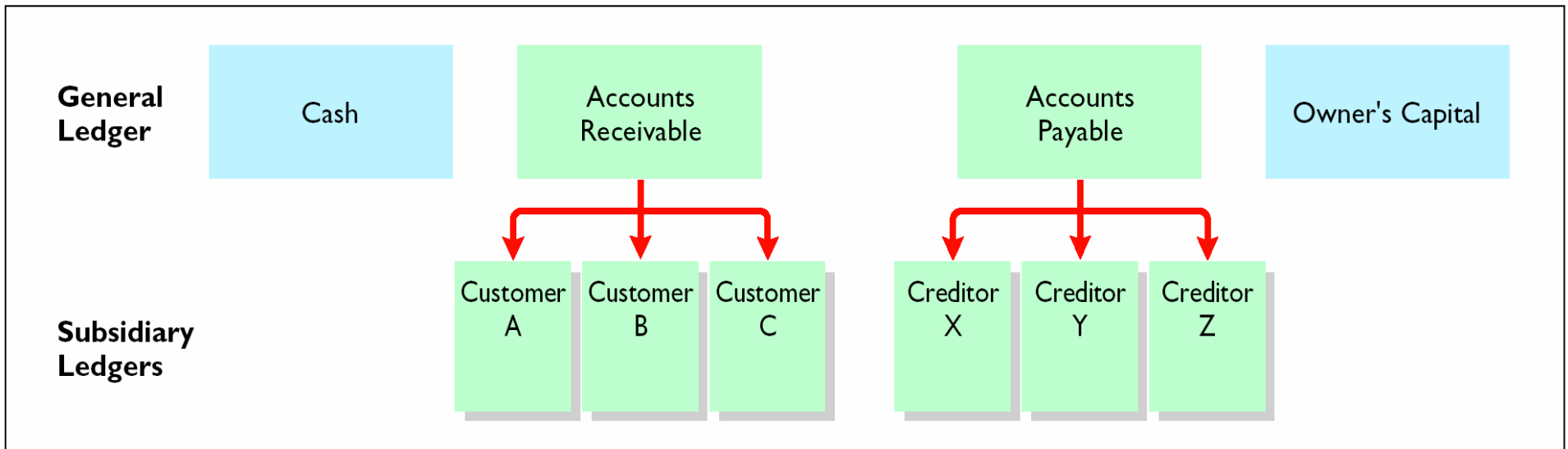
STUDY OBJECTIVE 3

- **A group of accounts**
 - With a common characteristic for example, all accounts receivable
 - Facilitates the recording process freeing the general ledger from details concerning individual balances
- **Two common subsidiary ledgers**
 - **Accounts Receivable Ledger**
 - **Accounts Payable Ledger**

CONTROL ACCOUNT

- **Control account**
 - **General Ledger account which summarizes subsidiary ledger data**
- **Subsidiary Ledger**
 - **general ledger control account balance equals the composite balance of the individual accounts in the subsidiary ledger**

RELATIONSHIP OF GENERAL LEDGERS AND SUBSIDIARY ACCOUNTS



RELATIONSHIP BETWEEN LEDGERS

ACCOUNTS RECEIVABLE SUBSIDIARY LEDGER

Aaron Co.

Date	Ref.	Debit	Credit	Balance
2005 Jan. 10 19		6,000	4,000	6,000 2,000

Branden Inc.

Date	Ref.	Debit	Credit	Balance
2005 Jan. 12 21		3,000	3,000	3,000 -0-

Caron Co.

Date	Ref.	Debit	Credit	Balance
2005 Jan. 20 29		3,000	1,000	3,000 2,000

GENERAL LEDGER

Accounts Receivable

Date	Ref.	Debit	Credit	Balance
2005 Jan. 31 31		12,000	8,000	12,000 4,000

The subsidiary ledger is separate from the general ledger.

Accounts Receivable is a control account.

SUBSIDIARY LEDGERS

Advantages

- 1 Shows transactions affecting one customer or one creditor in a single account**
- 2 Frees the general ledger of excessive details**
- 3 Helps locate errors in individual accounts**
- 4 Reduces the number of accounts in one ledger and by using control accounts**
- 5 Division of labor in posting**
 - One employee posts to the general ledger
 - Another employee posts to the subsidiary ledger

SPECIAL JOURNALS

STUDY OBJECTIVE 4

- **Special journals**
 - used to group similar types of transactions
 - permits greater division of labor and reduces time needed to complete the posting process
- If a transaction cannot be recorded in a special journal, it is recorded in the **general journal.**

USE OF SPECIAL JOURNALS AND THE GENERAL JOURNAL

Sales Journal	Cash Receipts Journal	Purchases Journal	Cash Payments Journal	General Journal
<u>Used for:</u> All sales of merchandise on account	<u>Used for:</u> All cash received (including cash sales)	<u>Used for:</u> All purchases of merchandise on account	<u>Used for:</u> All cash paid (including cash purchases)	<u>Used for:</u> Transactions that cannot be entered in a special journal, including correcting, adjusting, and closing entries

The types of special journals used depend largely on the types of transactions that occur frequently in a business enterprise.

JOURNALIZING THE SALES JOURNAL

PERPETUAL INVENTORY SYSTEM

Karns Wholesale Supply					
SALES JOURNAL					\$1
Date	Account Debited	Invoice No.	Ref.	Accts. Receivable Dr. Sales Cr.	Cost of Goods Sold Dr. Merchandise Inventory Cr.
2005					
May 3	Abbot Sisters	101		10,600	6,360
7	Babson Co.	102		11,350	7,370
14	Carson Bros.	103		7,800	5,070
19	Deli Co.	104		9,300	6,510
21	Abbot Sisters	105		15,400	10,780
24	Deli Co.	106		21,210	15,900
27	Babson Co.	107		14,570	10,200
				90,230	62,190
				90,230	62,190

- Under a **perpetual inventory system**, one entry at **selling price** in the **Sales Journal** results in a debit to Accounts Receivable and a credit to Sales.
- Another entry **at cost** results in a debit to Cost of Goods Sold and a credit to Merchandise Inventory.
- Only one line is needed to record each transaction and all entries are made from **sales invoices**.

PROVING THE EQUALITY OF THE POSTINGS FROM THE SALES JOURNAL

Postings to General Ledger		Debit Postings to the Accounts Receivable Subsidiary Ledger	
General Ledger		Subsidiary Ledger	
<u>Credits</u>			
Merchandise Inventory	\$62,190	Abbot Sisters	\$26,000
Sales	90,230	Babson Co.	25,920
	<u>\$152,420</u>	Carson Bros.	7,800
		Deli Co.	30,510
			<u>\$90,230</u>
<u>Debits</u>			
Accounts Receivable	\$90,230		
Cost of Goods Sold	62,190		
	<u>\$152,420</u>		

To prove the ledgers it is necessary to determine that **1** the total of the general ledger debit balances must equal the total of the general ledger credit balances and **2** the sum of the subsidiary ledger balances must equal the balance in the control account.

ADVANTAGES OF A SALES JOURNAL

1 One-line entry

- **saves time**
- **not necessary to write out four account titles for each transaction**

2 Only totals are posted to the general ledger

- **saves posting time**
- **reduces the possibilities of errors in posting**

3 Division of labor

- **one individual may take responsibility for the sales journal**

CASH RECEIPTS JOURNAL

KARNS WHOLESALE SUPPLY

Cash Receipts Journal

Date	Accounts Credited	Ref.	Cash Dr.	Sales Discounts Dr.	Accounts Receivable Cr.	Sales Cr.	Other Accounts Cr.
2005							
May 1	D. A. Karns, Capital		5,000				5,000
7			1,900			1,900	
10	Abbot Sisters		10,388	212	10,600		
12			2,600			2,600	
17	Babson Co.		11,123	227	11,350		
22	Notes Payable		6,000				6,000
23	Carson Bros.		7,644	156	7,800		
28	Deli Co.		9,114	186	9,300		
			<u>53,769</u>	<u>781</u>	<u>39,050</u>	<u>4,500</u>	<u>11,000</u>

- Has debit columns for Cash, Sales Discounts, and Cost of Goods Sold, and credit columns for Accounts Receivable, Sales, Other Accounts, and Merchandise Inventory.
- Involves posting all column totals once at the end of the month to the appropriate accounts.
- Note: The journal above doesn't show the Cost of Goods Sold Dr. and Merchandise Inventory Cr. column.

Review

If a customer returns goods for credit, an entry is normally made in the:

- a. cash payments journal.
- b. sales journal.
- c. general journal.
- d. cash receipts journal.

Review

If a customer returns goods for credit, an entry is normally made in the:

- a. cash payments journal.
- b. sales journal.
- c. general journal.
- d. cash receipts journal.

CASH RECEIPTS JOURNAL

- The total of the **Other Accounts** column is not posted. The individual amounts comprising the total are posted separately to the general ledger accounts specified in the **Accounts Credited** column.
- The individual amounts in a column are posted daily to the subsidiary ledger account specified in the **Accounts Credited** column.

PROVING THE EQUALITY OF THE CASH RECEIPTS JOURNAL

<u>Debits</u>		<u>Credits</u>	
Cash	\$53,769	Accounts Receivable	\$ 39,050
Sales Discounts	781	Sales	4,500
Cost of goods sold	<u>2,930</u>	Other Accounts	11,000
	<u>\$57,480</u>	Merchandise Inventory	<u>2,930</u>
			<u>\$ 57,480</u>

When the journalizing of a multi-column journal has been completed, the amount columns are totaled (**footing**), and the totals are compared to prove the equality of the debits and credits (**cross-footing**).

PROVING THE LEDGERS AFTER POSTING THE SALES AND THE CASH RECEIPTS JOURNALS

STUDY OBJECTIVE 5

Accounts Receivable Subsidiary Ledger

Abbot Sisters	\$ 15,400
Babson Co.	14,570
Deli Co.	21,210
	<u>\$ 51,180</u>

After the posting of the cash receipts journal is completed, it is necessary to prove the ledgers. The general ledger totals are in agreement. Also, the sum of the subsidiary ledger balances equals the control account balance.

General Ledger

Debits

Cash	\$ 53,769
Accounts Receivable	51,180
Sales Discounts	781
Cost of Goods Sold	65,120
	<u>\$ 170,850</u>

Credits

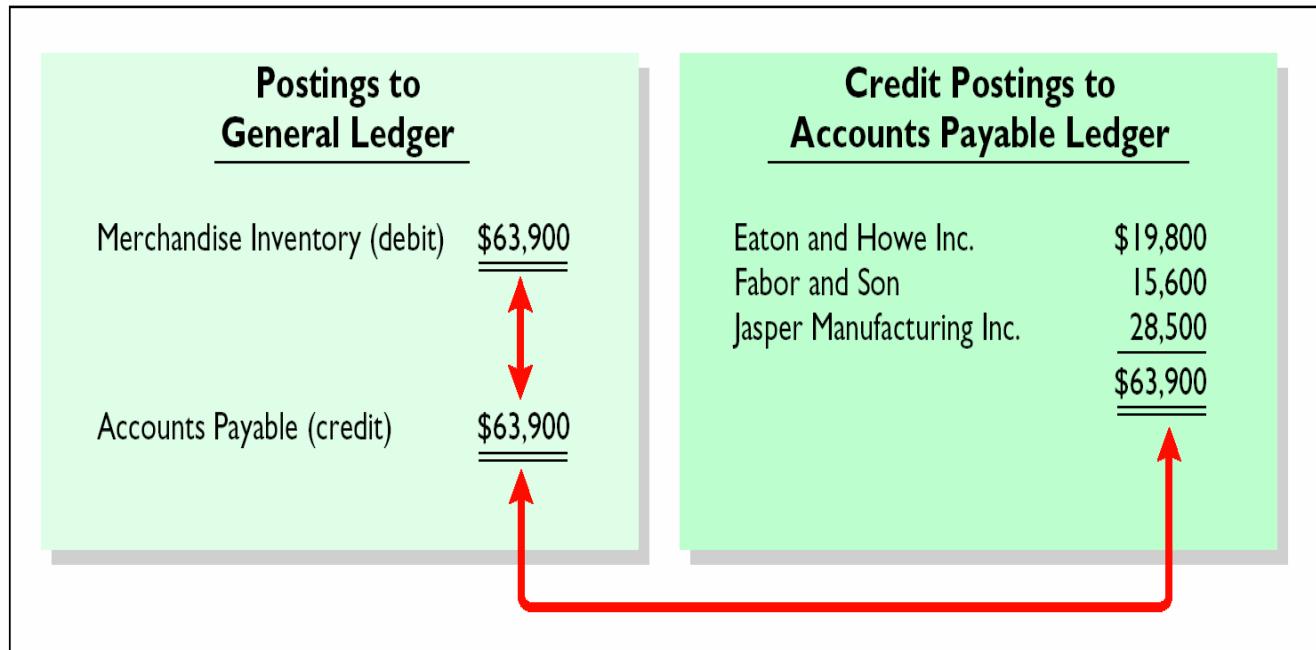
Notes Payable	\$ 6,000
D. A. Karns, Capital	5,000
Sales	94,730
Merchandise Inventory	65,120
	<u>\$ 170,850</u>

PURCHASES JOURNAL

KARNS WHOLESALE SUPPLY Purchases Journal				
Date	Account Credited	Terms	Ref.	Merchandise Inventory Dr. Accounts Payable Cr.
2005				
May 6	Jasper Manufacturing Inc.	2/10, n/30		11,000
10	Eaton and Howe Inc.	3/10, n/30		7,200
14	Fabor and Son	1/10, n/30		6,900
19	Jasper Manufacturing Inc.	2/10, n/30		17,500
26	Fabor and Son	1/10, n/30		8,700
29	Eaton and Howe Inc.	3/10, n/30		12,600
				63,900
				63,900

- Each entry results in a debit to **Merchandise Inventory** and a credit to **Accounts Payable**.
- All entries are made from purchase invoices.
- Postings are made daily to the accounts payable subsidiary journal and monthly to the general ledger.

PROVING THE EQUALITY OF THE PURCHASES JOURNAL



To prove the ledgers it is necessary to determine that **1** the total of the general ledger debit balances equals the total of the general ledger credit balances and **2** the sum of the subsidiary ledger balances equals the balance in the control account.

CASH PAYMENTS JOURNAL

KARNS WHOLESALE SUPPLY							
Cash Payments Journal							
Date	Ck. No.	Accounts Debited	Ref.	Other Accounts Dr.	Accounts Payable Dr.	Merchandise Inventory Cr.	Cash Cr.
2005							
May 1	101	Prepaid Insurance		1,200			1,200
3	102	Freight-in		100			100
8	103	Purchases		4,400			4,400
10	104	Jasper Manufacturing Inc.			11,000	220	10,780
19	105	Eaton and Howe Inc.			7,200	216	6,984
23	106	Fabor and Son			6,900	69	6,831
28	107	Jasper Manufacturing Inc.			17,500	350	17,150
30	108	D. A. Karns, Drawing		500			500
				6,200	42,600	855	47,945
				6,200	42,600	855	47,945

- Has multiple columns because of the multiple reasons that cash payments may be made.
- Journalizing procedures are similar to cash receipts journal.
- All entries are made from pre-numbered checks.
- Posting procedures are also like the cash receipts journal.

EFFECTS ON GENERAL JOURNAL

- **Only transactions that cannot be entered in a special journal are recorded in the general journal.**
- **When the entry involves both control and subsidiary accounts:**
 - 1 In journalizing, control and subsidiary accounts must be identified.**
 - 2 In posting there must be a dual posting (to the control account and subsidiary ledger).**

JOURNALIZING AND POSTING THE GENERAL JOURNAL

Karns Wholesale Supply GENERAL JOURNAL			
Date	Account Titles and Explanation	Debit	Credit
2005 May 31	Accounts Payable — Fabor and Son Merchandise Inventory (Received credit for returned goods)	500	500

ACCOUNTS PAYABLE SUBSIDIARY LEDGER				
Fabor and Son				
Date	Ref.	Debit	Credit	Balance
2005				
May 14	P1		6,900	6,900
23	CP1	6,900		-0-
26	P1		8,700	8,700
31	G1	500		8,200

GENERAL LEDGER				
Accounts Payable				
Date	Ref.	Debit	Credit	Balance
2005				
May 31	P1		63,900	63,900
31	CP1	42,600		21,300
31	G1	500		20,800

Merchandise Inventory				
Date	Ref.	Debit	Credit	Balance
2005				
May 31	G1		500	(500)

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Review

Postings from the purchases journal to the subsidiary ledger are generally made:

- a. yearly.
- b. monthly.
- c. weekly.
- d. daily.

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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 8

Internal Control and Cash

Prepared by Naomi Karolinski
Monroe Community College

and

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Bryant College

CHAPTER 8

INTERNAL CONTROL AND CASH

After studying this chapter, you should be able to:

- 1 Define internal control.**
- 2 Identify the principles of internal control.**
- 3 Explain the applications of internal control principles to cash receipts.**
- 4 Explain the applications of internal control principles to cash disbursements.**
- 5 Describe the operation of a petty cash fund.**
- 6 Indicate the control features of a bank account.**
- 7 Prepare a bank reconciliation.**
- 8 Explain the reporting of cash.**

INTERNAL CONTROL

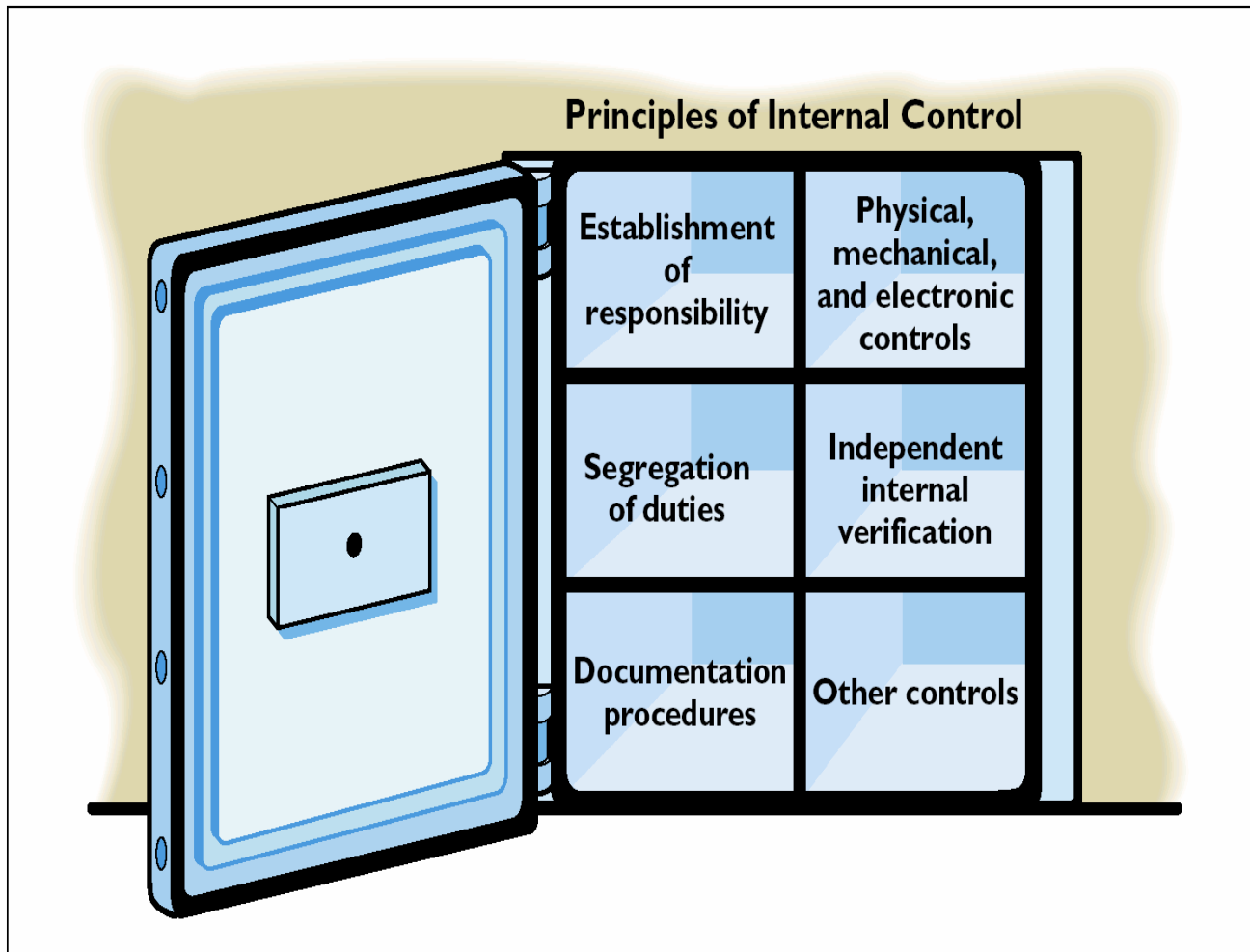
STUDY OBJECTIVE 1

Internal Control

- 1. Safeguards an organization's assets**
- 2. Enhances the accuracy and reliability of accounting records**

PRINCIPLES OF INTERNAL CONTROL

STUDY OBJECTIVE 2



PRINCIPLES OF INTERNAL CONTROL

- **Establishment of responsibility:**
 - most effective when only one person is responsible for a given task
- **Segregation of duties:**
 - the work of one employee should provide a reliable basis for evaluating the work of another employee
- **Documentation procedures:**
 - documents provide evidence that transactions and events have occurred

PRINCIPLES OF INTERNAL CONTROL

- **Physical, mechanical, and electronic controls:**
safeguarding of assets and enhancing accuracy and reliability of the accounting records.
- **Independent internal verification:**
the review, comparison, and reconciliation of information from two sources.
- **Other controls:**
bonding of employees who handle cash, rotating employee's duties, and requiring employees to take vacations.

PHYSICAL, MECHANICAL, AND ELECTRONIC CONTROLS

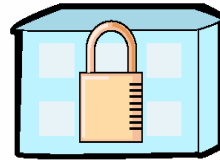
- ◆ **Locked warehouses and storage cabinets for inventories and records**
- ◆ **Safes, vaults, and safety deposit boxes for cash and business papers**
- ◆ **Time clocks for recording time worked**
- ◆ **Computer facilities with pass key access**
- ◆ **Alarms to prevent break-ins**
- ◆ **Television monitors and garment sensors to deter theft**

PHYSICAL, MECHANICAL, AND ELECTRONIC CONTROLS



Safes, vaults, and safety deposit boxes for cash and business papers

Physical Controls

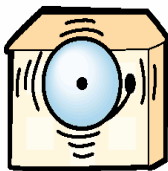


Locked warehouses and storage cabinets for inventories and records



Computer facilities with pass key access or fingerprint or eyeball scans

Mechanical and Electronic Controls



Alarms to prevent break-ins



Television monitors and garment sensors to deter theft



Time clocks for recording time worked

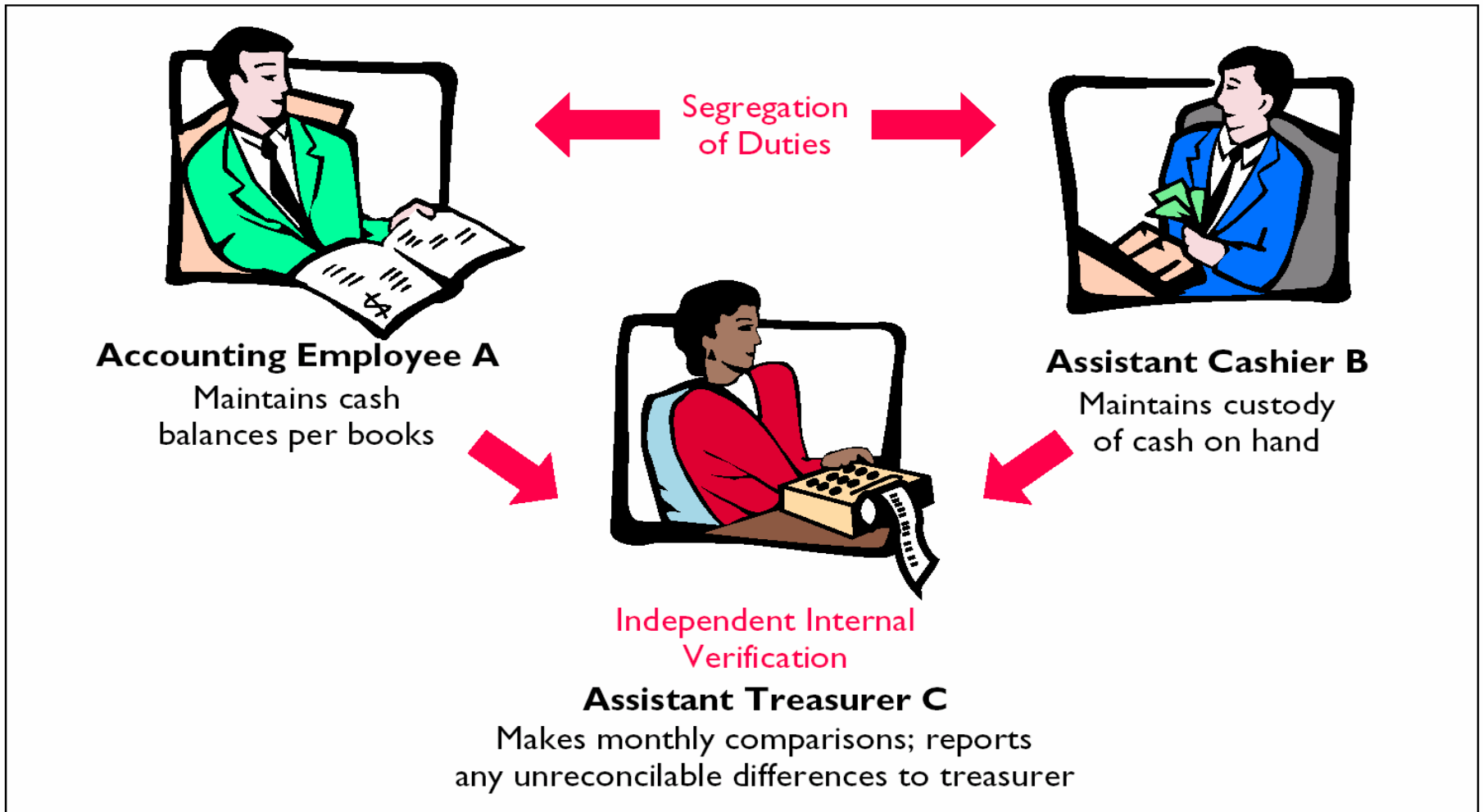
INDEPENDENT INTERNAL VERIFICATION

Maximum benefit

Independent internal verification:

- 1 Made on periodic or surprise basis**
- 2 Should be done by someone who is independent of the employee responsible for the information**
- 3 Report discrepancies and exceptions to a management level that can take appropriate corrective action**

COMPARISON OF SEGREGATION OF DUTIES PRINCIPLE WITH INDEPENDENT INTERNAL VERIFICATION PRINCIPLE



LIMITATIONS OF INTERNAL CONTROL

- ◆ **Costs of establishing control procedures** should not exceed their expected benefits
- ◆ **The human element** is an important factor in every system of internal control.
 - A good system can become ineffective through employee fatigue, carelessness, or indifference.
- ◆ **Collusion** may result.
 - Two or more individuals work together to get around prescribed controls and may significantly impair the effectiveness of a system.



CASH

◆ Cash

- **Coins, currency, checks, money orders, and money on hand or on deposit at a bank or similar depository**

◆ **Internal control over cash is imperative**

- **Safeguards cash and assure the accuracy of the accounting records for cash**

CONTROL OVER CASH RECEIPTS

STUDY OBJECTIVE 3

- **Only designated personnel should be authorized to handle or have access to cash receipts.**
- **Different individuals should:**
 - 1 receive cash**
 - 2 record cash receipt transactions**
 - 3 have custody of cash**



CONTROL OVER CASH RECEIPTS

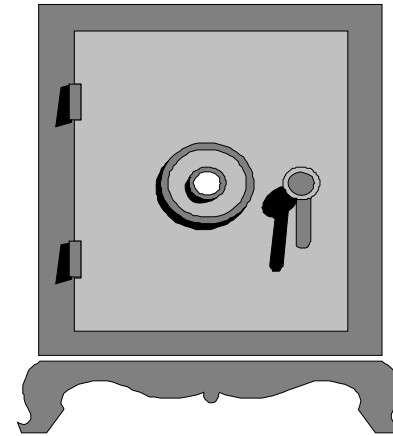
- **Documents should include:**

- 1 Remittance advices**

- 2 Cash register tapes**

- 3 Deposit slips**

- **Cash should be stored in safes and bank vaults**
- **Access to storage areas should be limited to authorized personnel**
- **Cash registers should be used in executing over-the-counter receipts**



Review

Internal control is used in a business to enhance the accuracy and reliability of its accounting records and to:

- a. safeguard its assets.
- b. prevent fraud.
- c. produce correct financial statements.
- d. deter employee dishonesty.

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Internal control is used in a business to enhance the accuracy and reliability of its accounting records and to:

- a. safeguard its assets.
- b. prevent fraud.
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- d. deter employee dishonesty.

CONTROL OVER CASH RECEIPTS

Store No. <u>8</u>	Date <u>March 8, 2008</u>
1. Opening cash balance	\$ 50.00
2. Cash sales per tape (attached)	<u>6,956.20</u>
3. Total cash to be accounted for	7,006.20
4. Cash on hand (see list)	<u>6,996.10</u>
5. Cash (short) or over	\$ (10.10)
6. Ending cash balance	<u>\$ 50.00</u>
7. Cash for deposit (Line 4 – Line 6)	<u>\$6,946.10</u>
Cashier <u>J. Cruise</u>	Supervisor <u>M. Braun</u>

- **Daily cash counts and daily comparisons of total receipts.**
- **All personnel who handle cash receipts should be bonded and required to take vacations.**
- **Control of over-the-counter receipts is centered on cash registers that are visible to customers.**

Internal Control over Cash Receipts

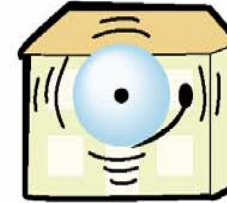
Establishment of Responsibility

Only designated personnel are authorized to handle cash receipts (cashiers)



Physical, Mechanical, and Electronic Controls

Store cash in safes and bank vaults; limit access to storage areas; use cash registers



Segregation of Duties

Different individuals receive cash, record cash receipts, and hold the cash



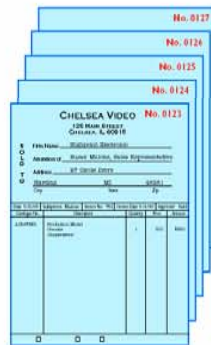
Independent Internal Verification

Supervisors count cash receipts daily; treasurer compares total receipts to bank deposits daily



Documentation Procedures

Use remittance advice (mail receipts), cash register tapes, and deposit slips

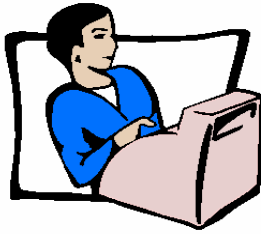


Other Controls

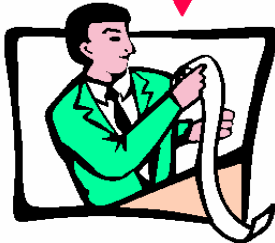
Bond personnel who handle cash; require employees to take vacations; deposit all cash in bank daily



Store Sales Departments



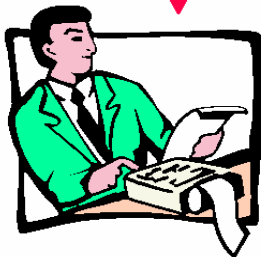
Cashiers ring up sales on registers



Supervisor reads register totals

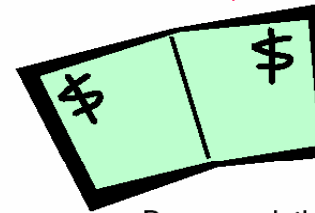
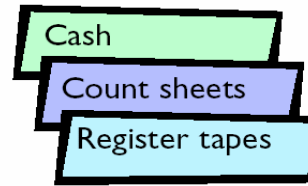


Supervisor makes cash counts



Supervisor prepares cash count sheets

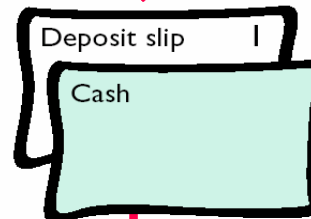
Cashier's Department



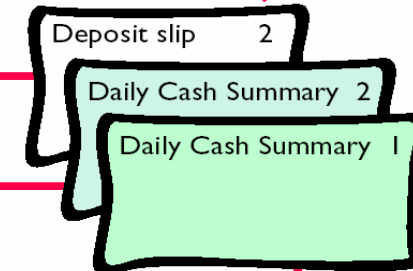
Prepare daily cash summary



Prepare deposit slip



To bank
(for deposit)



To treasurer
(for verification)

To accounting
(for recording)

CONTROL OVER CASH DISBURSEMENTS

STUDY OBJECTIVE 4

- **Payments are made by check rather than by cash, except for petty cash transactions.**
- **Only specified individuals should be authorized to sign checks.**
- **Different departments or individuals should be assigned the duties of approving an item for payment and paying it.**

CONTROL OVER CASH DISBURSEMENTS

- ◆ **Prenumbered checks should be used and each check should be supported by an approved invoice or other document.**
- ◆ **Blank checks should be stored in a safe.**
 - 1 Access should be restricted to authorized personnel.**
 - 2 A check writer machine should be used to imprint the amount on the check in indelible ink.**

CONTROL OVER CASH DISBURSEMENTS

- ◆ Each check should be compared with the approved invoice before it is issued.
- ◆ Following payment, the approved invoice should be stamped “**PAID**”.



Internal Control over Cash Disbursements

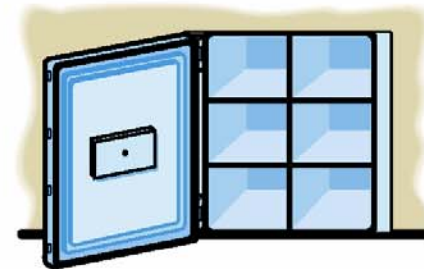
Establishment of Responsibility

Only designated personnel are authorized to sign checks (treasurer)



Physical, Mechanical, and Electronic Controls

Store blank checks in safes, with limited access; print check amounts by machine in indelible ink



Segregation of Duties

Different individuals approve and make payments; check signers do not record disbursements



Independent Internal Verification

Compare checks to invoices; reconcile bank statement monthly



Documentation Procedures

Use prenumbered checks and account for them in sequence; each check must have approved invoice



Other Controls

Stamp invoices
PAID

CHELSEA VIDEO		No. 0404	
125 Main Street, Chestnut Hill, MA 02151			
Item Name	Highspeed Electronic		
Address of	Susan Maloney, Sales Representative		
Address	27 Circle Drive		
Handling	MI	48221	
City	Ann	Ar	
Inv. No./Date	Invoice Month	Invoice No.	Invoice Date
Quantity	Price	Amount	
1	800	800	
PAID			

VOUCHER SYSTEM

- ◆ **The voucher system**
 - ◆ Is often used to enhance the internal control over cash disbursements.
 - ◆ Is an extensive network of approvals by authorized individuals acting independently to ensure that all disbursements by check are proper.
- ◆ A **voucher** is an authorization form prepared for each expenditure.
- ◆ Vouchers are recorded in a journal called the **voucher register**.

ELECTRONIC FUNDS TRANSFER SYSTEM



- **Checks processing is expensive**
 - **New methods are being developed to transfer funds among parties without the use of paper**
- **Electronic Funds Transfer (EFT) System**

A disbursement system that uses wire, telephone, telegraph, or computer to transfer cash from one location to another

PETTY CASH FUND

STUDY OBJECTIVE 5

- ◆ A **petty cash fund** is used to pay relatively small amounts
- ◆ Operation of the fund, often called an **imprest system**, involves:
 - 1 Establishing the fund
 - 2 Making payments from the fund
 - 3 Replenishing the fund
- ◆ Accounting entries are required when:
 - 1 The fund is established
 - 2 The fund is replenished
 - 3 The amount of the fund is changed

ESTABLISHING THE FUND

- **Two essential steps in establishing a petty cash fund are:**
 - 1 appointing a petty cash custodian who will be responsible for the fund and**
 - 2 determining the size of the fund.**
- **Ordinarily, the amount is expected to cover anticipated disbursements for a 3 to 4 week period.**

ESTABLISHING THE FUND

GENERAL JOURNAL			
Date	Account Titles and Explanation	Debit	Credit
Mar. 1	Petty Cash Cash (To establish a petty cash fund)	100	100

When the fund is established, a check payable to the petty cash custodian is issued for the stipulated amount.

REPLENISHING THE FUND

- ◆ **When the money in the petty cash fund reaches a minimum level, the fund is replenished.**
- ◆ **The request for reimbursement is initiated by the petty cash custodian.**
- ◆ **The petty cash custodian prepares a schedule of the payments that have been made and sends the schedule, with supporting documentation, to the treasurer's office.**

REPLENISHING THE FUND

GENERAL JOURNAL			
Date	Account Titles and Explanation	Debit	Credit
Mar. 15	Postage Expense	44	
	Freight-out	38	
	Miscellaneous Expense	5	
	Cash		87
	(To replenish petty cash fund)		

On March 15 the petty cash custodian requests a check for \$87. The fund contains \$13 cash and petty cash receipts for postage, \$44, freight-out, \$38, and miscellaneous expenses, \$5.

REPLENISHING THE FUND

GENERAL JOURNAL			
Date	Account Titles and Explanation	Debit	Credit
Mar. 15	Postage Expense	44	
	Freight-out	38	
	Miscellaneous Expense	5	
	Cash Over and Short	1	
	Cash		88
	(To replenish petty cash fund)		

On March 15 the petty cash custodian requests a check for \$88. The fund contains \$12 cash and petty cash receipts for postage, \$44, freight-out, \$38, and miscellaneous expenses, \$5.

USE OF A BANK

STUDY OBJECTIVE 6

- ◆ **The use of a bank minimizes the amount of currency that must be kept on hand and contributes significantly to good internal control over cash.**
- ◆ **A company can safeguard its cash by using a bank as a depository and as a clearing house for checks received and checks written.**



WRITING CHECKS

- ◆ A **check** is a written order signed by the depositor directing the bank to pay a specified sum of money to a designated recipient.
- ◆ Three parties to a check are:
 - 1** Maker (drawer) issues the check
 - 2** Bank (payer) on which check is drawn
 - 3** Payee to whom check is payable

WRITING CHECKS

Check

Maker →

Payee →


Payer →

No. **448**

77 West Central Avenue, Midland, Michigan 48654 April 16 2005 74-102724

Pay to the order of Watkins Wholesale Supply \$ 1525.00

Fifteen hundred twenty-five and 00/100 Dollars

 **National Bank & Trust**
Midland, Michigan 48654

Memo: _____ W.F. Faine

⑆012410497⑆ 457 9231⑆02 448

Detach this portion before cashing.

Date	Description	Gross Amount	Discount	Net Amount
4-16-05	Invoice No. 27662	1525.00	---	1525.00

W. A. Laird Company, Midland, MI

BANK STATEMENTS

A bank statement shows:

- 1 Checks paid and other debits charged against the account**
- 2 Deposits and other credits made to the account**
- 3 Account balance after each day's transactions**

MEMORANDA

◆ **Bank debit memoranda**

- **Indicate charges against the depositor's account.**

Example: ATM service charges

◆ **Bank credit memoranda**

- **Indicate amounts that will increase the depositor's account.**

Example: interest income on account balance

RECONCILING THE BANK ACCOUNT

STUDY OBJECTIVE 7

◆ Reconciliation

- **Necessary as the balance per bank and balance per books are seldom in agreement due to time lags and errors.**

◆ A bank reconciliation

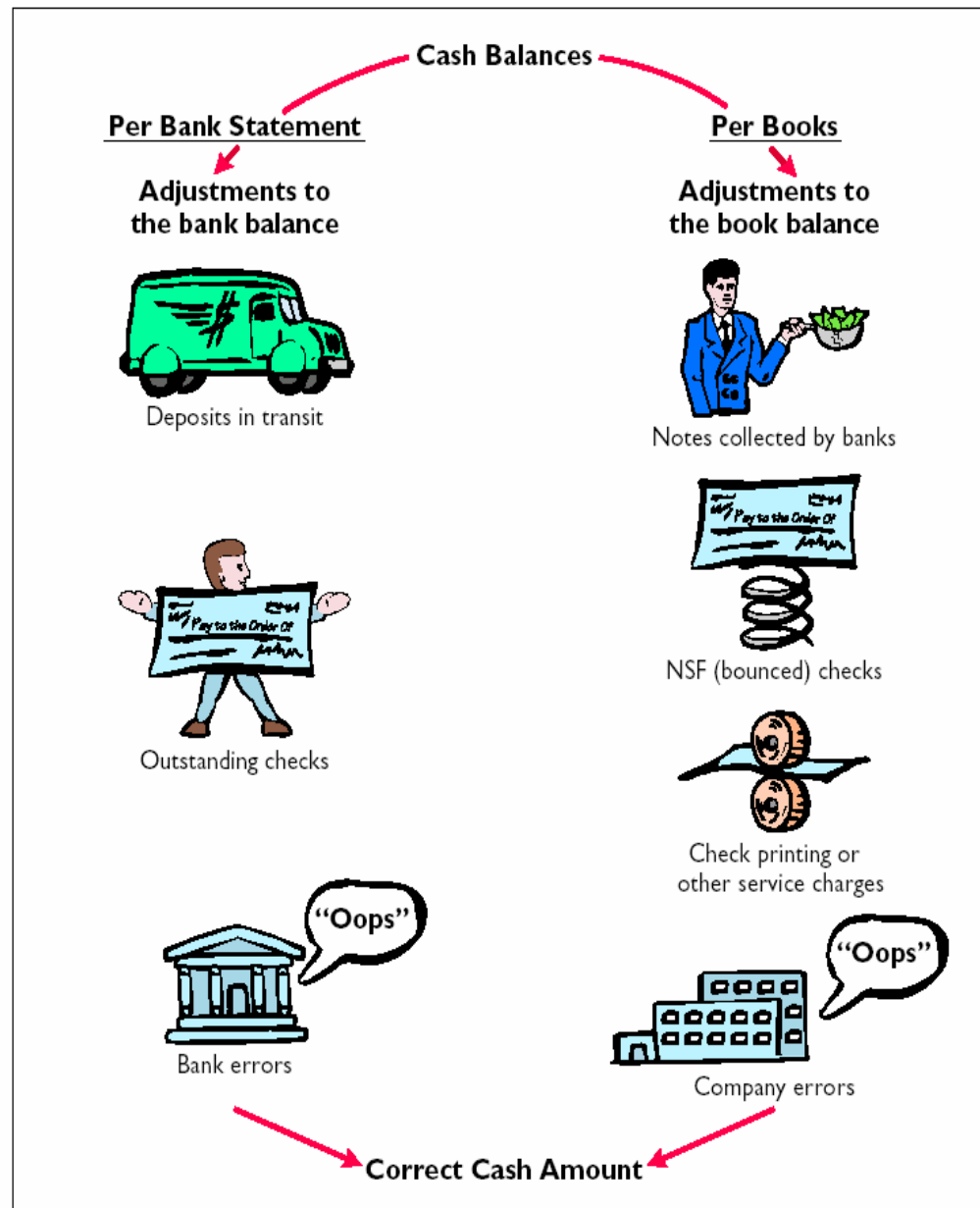
- **Should be prepared by an employee who has no other responsibilities pertaining to cash.**



RECONCILING THE BANK ACCOUNT

- ◆ **Steps in preparing a bank reconciliation:**
 - 1 Determine deposits in transit**
 - 2 Determine outstanding checks**
 - 3 Note any errors discovered**
 - 4 Trace bank memoranda to the records**
- ◆ **Each reconciling item used in determining the adjusted cash balance per books should be recorded by the depositor.**

BANK RECONCILIATION



BANK RECONCILIATION

W. A. LAIRD COMPANY Bank Reconciliation April 30, 2005

Cash balance per bank statement			\$ 15,907.45
Add: Deposits in transit			2,201.40
			18,108.85
Less: Outstanding checks			
No. 453	The bank statement for the Laird Company shows a balance per bank of \$15,907.45 on April 30, 2005.	\$ 3,000.00	
No. 457		1,401.30	
No. 460		1,502.70	5,904.00
		5,904.00	
Adjusted cash balance per bank			\$ 12,204.85
Cash balance per books			\$ 11,589.45
Add: Collection of \$1,000 note receivable plus interest earned \$50, less collection fee \$15		\$ 1,035.00	
Error in recording check 443		36.00	1,071.00
		36.00	12,660.45
Less: NSF check	On this date the balance of cash per books is \$11,589.45.	425.60	
Bank service charge		30.00	455.60
Adjusted cash balance per books			\$ 12,204.85

ENTRIES FROM BANK RECONCILIATION

GENERAL JOURNAL			
Date	Account Titles and Explanation	Debit	Credit
Apr. 30	Cash	1035	
	Miscellaneous Expense	15	
	Notes Receivable		1000
	Interest Revenue		50
	(To record collection of notes receivable by bank)		

Collection of Note Receivable: This entry involves four accounts. Interest of \$50 has not been accrued and the collection fee is charged to Miscellaneous Expense.

ENTRIES FROM BANK RECONCILIATION

GENERAL JOURNAL			
Date	Account Titles and Explanation	Debit	Credit
Apr. 30	Cash Accounts Payable — Andrea Company (To correct error in recording check No. 443)	36	36

Book Error: An examination of the cash disbursements journal shows that check No. 443 was a payment on account to Andrea Company, a supplier. The check, with a correct amount of \$1,226.00, was recorded at \$1,262.00.

ENTRIES FROM BANK RECONCILIATION

GENERAL JOURNAL			
Date	Account Titles and Explanation	Debit	Credit
Apr. 30	Accounts Receivable — J. R. Baron Cash (To record NSF check)	425.60	425.60

NSF Check: An NSF check becomes an accounts receivable to the depositor.

ENTRIES FROM BANK RECONCILIATION

GENERAL JOURNAL			
Date	Account Titles and Explanation	Debit	Credit
Apr. 30	Miscellaneous Expense Cash (To record charge for printing company checks)	30	30

Bank Service Charges: Check printing charges (DM) and other bank service charges (SC) are debited to Miscellaneous Expense because they are usually nominal in amount.

REPORTING CASH

STUDY OBJECTIVE 8

- ◆ **Cash reported on the Balance Sheet includes:**
 - 1 Cash on hand**
 - 2 Cash in banks**
 - 3 Petty cash**
- ◆ **Cash is listed first in the balance sheet under the title **cash and cash equivalents** because it is the most liquid asset.**



CASH EQUIVALENTS

◆ Cash equivalents

- **Are highly liquid investments that can be converted into a specific amount of cash**
- **Typically have maturities of 3 months or less when purchased**

Examples: Money market funds, bank certificates of deposit, and U.S. Treasury bills and notes

Review

The statement that correctly describes the reporting of cash is:

- a. Cash cannot be combined with cash equivalents
- b. Restricted cash funds may be combined with Cash.
- c. Cash is listed first in the current assets.
- d. Restricted cash funds cannot be reported as a current asset.

Review

The statement that correctly describes the reporting of cash is:

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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 9

Accounting for Receivables

Prepared by Naomi Karolinski
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and

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CHAPTER 9

ACCOUNTING FOR RECEIVABLES

After studying this chapter, you should be able to:

1 Identify the different types of receivables.

2 Explain how accounts receivable are recognized in the accounts.

3 Distinguish between the methods and bases used to value accounts receivable.

4 Describe the entries to record the disposition of accounts receivable.

5 Compute the maturity date of and interest on notes receivable.

CHAPTER 9

ACCOUNTING FOR RECEIVABLES

After studying this chapter, you should be able to:

- 6 Explain how notes receivable are recognized in the accounts.**
- 7 Describe how notes receivable are valued.**
- 8 Describe the entries to record the disposition of notes receivable.**
- 9 Explain the statement presentation and analysis of receivables.**

RECEIVABLES

STUDY OBJECTIVE 1

- **Amounts due from individuals and other companies**
 - claims expected to be collected in cash
- **Three major classes of receivables are**
 - 1 Accounts Receivable**
 - amounts owed by customers on account
 - 2 Notes Receivable**
 - claims for which formal instruments of credit are issued
 - 3 Other Receivables –**
 - non-trade receivables
 - Examples: interest receivable and advances to employees**



ACCOUNTS RECEIVABLE

Three primary accounting issues with accounts receivable:

1 Recognizing accounts receivable.

2 Valuing accounts receivable.

3 Disposing of accounts receivable.

RECOGNIZING ACCOUNTS RECEIVABLE

STUDY OBJECTIVE 2

General Journal			
Date	Account Titles	Debit	Credit
July 1	Accounts Receivable – Polo Co.	1,000	
	Sales		1,000

When a business sells merchandise to a customer on credit, **Accounts Receivable** is debited and **Sales** is credited. Assume credit terms are 2/10, n/30.

RECOGNIZING ACCOUNTS RECEIVABLE

General Journal			
Date	Account Titles	Debit	Credit
July 5	Sales Returns and Allowances	100	
	Accounts Receivable – Polo Company		100

When a business receives returned merchandise previously sold to a customer on credit, **Sales Returns and Allowances** is debited and **Accounts Receivable** is credited.

RECOGNIZING ACCOUNTS RECEIVABLE

Cash (\$900-\$18)	882	
Sales Discounts (\$900 x .02)	18	
Accounts Receivable – Polo Company		900
(To record collection of AR)		

When a business collects cash from a customer for merchandise previously sold on credit during the discount period, **Cash** and **Sales Discounts** are debited and **Accounts Receivable** is credited.

VALUING ACCOUNTS RECEIVABLE

STUDY OBJECTIVE 3

- **Cash (net) realizable value**
 - net amount expected to be received in cash and excludes amounts that the company estimates it will not be able to collect
- **Credit losses**
 - debited to Bad Debts Expense
 - considered a normal and necessary risk of doing business.
- **Two methods of accounting for uncollectible accounts are:**
 - 1 Direct write-off method**
 - 2 Allowance method**



DIRECT WRITE-OFF METHOD

- **Direct write-off method**
 - Bad debt losses are **not** anticipated and no allowance account is used
 - No entries are made for bad debts until an account is determined to be **uncollectible** at which time the loss is charged to Bad Debts Expense
- **No matching**
- **No cash realizable value of accounts receivable on the balance sheet**
- **Not acceptable** for financial reporting purposes

DIRECT WRITE-OFF METHOD

General Journal			
Date	Account Titles	Debit	Credit
Dec. 12	Bad Debts Expense	200	
	 Accounts Receivable – M.E. Doran		200

Warden Co. writes off M. E. Doran's \$200 balance as uncollectible on December 12. When this method is used, **Bad Debts Expense** will show only actual losses from uncollectibles.

THE ALLOWANCE METHOD

- **Allowance method**
 - **required when bad debts are deemed to be material in amount.**
- **Uncollectible accounts are estimated**
 - **expense for the uncollectible accounts is matched against sales in the same accounting period in which the sales occurred.**

THE ALLOWANCE METHOD

General Journal			
Date	Account Titles	Debit	Credit
Dec. 31	Bad Debts Expense	12,000	
	Allowance for Doubtful Accounts		12,000

Estimated uncollectibles are debited to **Bad Debts Expense and credited to **Allowance for Doubtful Accounts** at the end of each period.**

THE ALLOWANCE METHOD

General Journal			
Date	Account Titles	Debit	Credit
Mar. 1	Allowance for Doubtful Accounts	500	
	Accounts Receivable - R. A. Ware		500

Actual uncollectibles are debited to **Allowance for Doubtful Accounts** and credited to **Accounts Receivable** at the time the specific account is written off.

THE ALLOWANCE METHOD

General Journal			
Date	Account Titles	Debit	Credit
July 1	Accounts Receivable – R. A. Ware	500	
	Allowance for Doubtful Accounts		500

**When there is recovery of an account that has been written off:
1 reverse the entry made to write off the account and...**

THE ALLOWANCE METHOD

General Journal			
Date	Account Titles	Debit	Credit
July 1	Cash	500	
	Accounts Receivable		500

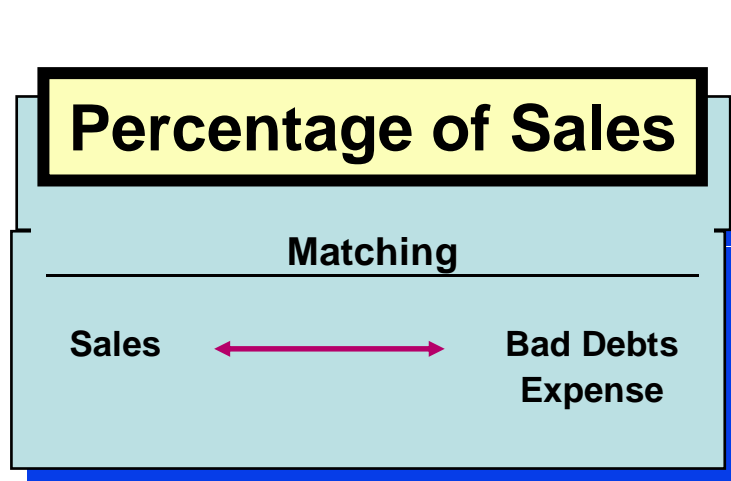
2 record the collection in the usual manner.

BASES USED FOR THE ALLOWANCE METHOD

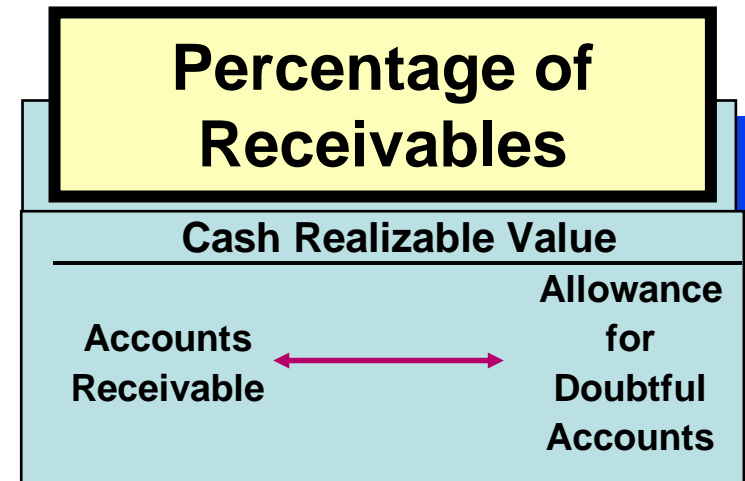
- **Companies use one of two methods in the estimation of uncollectibles:**
 - 1 Percentage of sales**
 - 2 Percentage of receivables**
- **Both bases are GAAP; the choice is a management decision.**



COMPARISON OF BASES OF ESTIMATING UNCOLLECTIBLES



Emphasis on Income Statement Relationships



Emphasis on Balance Sheet Relationships

PERCENTAGE OF SALES BASIS

- **Management estimates what percentage of credit sales will be uncollectible.**
- **Expected bad debt losses are determined by applying the percentage to the sales base of the current period.**
- **Better match**
 - **Expenses with revenues**



PERCENTAGE OF SALES BASIS

General Journal			
Date	Account Titles	Debit	Credit
Dec. 31	Bad Debts Expense	8,000	
	Allowance for Doubtful Accounts		8,000

If net credit sales for the year are \$800,000, the estimated bad debts expense is \$8,000 (1% X \$800,000).

PERCENTAGE OF RECEIVABLES BASIS

- **Management estimates what percentage of receivables will result in losses from uncollectible accounts.**
- **Amount of the adjusting entry**
 - **difference** between the required balance and the existing balance in the allowance account
- **Produces the better estimate of cash realizable value of receivables.**

Review

Which of the following approaches for bad debts is best described as a balance sheet method?

- a. Percentage of receivables basis.
- b. Direct write-off method.
- c. Percentage of sales basis.
- d. Both a and b.

Review

Which of the following approaches for bad debts is best described as a balance sheet method?

- a. Percentage of receivables basis.
- b. Direct write-off method.
- c. Percentage of sales basis.
- d. Both a and b.

PERCENTAGE OF RECEIVABLES BASIS

General Journal			
Date	Account Titles	Debit	Credit
Dec. 31	Bad Debts Expense	1,700	
	Allowance for Doubtful Accounts		1,700

If the trial balance shows Allowance for Doubtful Accounts with a credit balance of \$528, and the required ending balance in the account is \$2,228, an adjusting entry for **\$1,700** ($\$2,228 - \528) is necessary.

DISPOSING OF ACCOUNTS RECEIVABLE

STUDY OBJECTIVE 4

- **Companies frequently dispose of accounts receivable in one of two ways:**
 - 1** sell to a factor such as a finance company or a bank
- **factor** buys receivables from businesses for a fee and collects the payments directly from customers
- 2** make credit card sales



SALE OF RECEIVABLES

General Journal			
Date	Account Titles	Debit	Credit
	Cash	588,000	
	Service Charge Expense (2% x \$600,000)	12,000	
	Accounts Receivable		600,000

Hendrendon Furniture factors \$600,000 of receivables to Federal Factors, Inc. Federal Factors assesses a service charge of 2% of the amount of receivables sold.

CREDIT CARD SALES

- **Credit cards**
 - used by retailers who wish to avoid the paperwork of issuing credit
 - cash is received quickly from the credit card issuer
- **National credit cards**
 - Visa, MasterCard, Discover, and American Express

CREDIT CARD SALES

- **Three parties**
 - 1 credit card issuer**
 - 2 retailer**
 - 3 customer**
- **Retailer pays the credit card issuer a fee of 2-6% of the invoice price for its services.**
- **From an accounting standpoint, sales from Visa, MasterCard, and Discover are treated differently than sales from American Express.**



VISA, MASTERCARD, AND DISCOVER SALES

- **VISA, MasterCard, and Discover**
 - cards issued by banks
 - considered cash sales by the retailer
- **Upon receipt of credit card sales slips from a retailer**
 - the bank immediately adds the amount to the seller's bank balance



VISA, MASTERCARD, AND DISCOVER SALES

General Journal			
Date	Account Titles	Debit	Credit
	Cash	970	
	Service Charge Expense	30	
	Sales		1,000

Anita Ferreri purchases a number of compact discs for her restaurant from Karen Kerr Music Co. for \$1,000 using her VISA First Bank Card. The service fee that First Bank charges is 3%.



AMERICAN EXPRESS SALES

- **American Express cards**
 - reported as credit sales, not cash sales
- **Conversion to cash does not occur until the American Express remits the net amount to the seller.**



AMERICAN EXPRESS SALES

General Journal

Date	Account Titles	Debit	Credit
	Accounts Receivable – American Express	285	
	Service Charge Expense	15	
	Sales		300

Four Seasons Restaurant accepts an American Express card for a \$300 bill. The service fee that American Express charges is 5%.



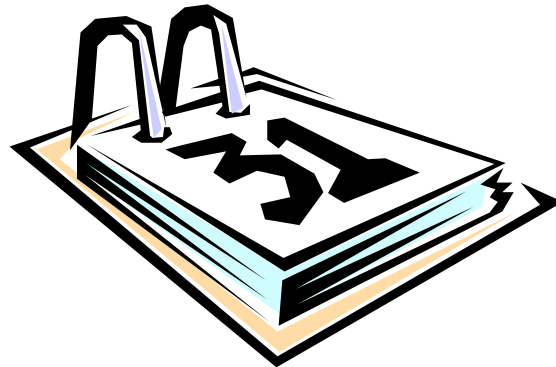
NOTES RECEIVABLE

- **Promissory note**
 - written promise to pay a **specified amount of money on demand** or at a **definite time**.
- **Maker**
 - The party making the promise.
- **Payee**
 - The party to whom payment is made.



NOTES RECEIVABLE

- **Life of the note expressed in terms of months**
 - the due date is found by counting the **months** from the date of issue
- **Example: The maturity date of a 3-month note dated May 31 is August 31.**



DETERMINING THE MATURITY DATE

STUDY OBJECTIVE 5

- **Life of the note is expressed in terms of days**
 - you need to count the days.
 - the date of issue is **omitted** but the due date is **included**.
- **Example: The maturity date of a 60-day note dated July 17 is:**

Term of note		60
July 31 – 17	14	
August	31	45
	<hr/>	<hr/>
Maturity date: September		15
		<hr/> <hr/>

FORMULA FOR COMPUTING INTEREST

The basic formula for computing interest on an **interest-bearing note** is:

$$\begin{array}{|c|} \hline \text{Face Value} \\ \text{of Note} \\ \hline \end{array} \times \begin{array}{|c|} \hline \text{Annual} \\ \text{Interest} \\ \text{Rate} \\ \hline \end{array} \times \begin{array}{|c|} \hline \text{Time} \\ \text{in Terms of} \\ \text{One Year} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Interest} \\ \hline \end{array}$$

The interest rate specified on the note is an **annual** rate of interest.

COMPUTATION OF INTEREST

Terms of Note	Interest Computation						
	Face	X	Rate	X	Time	=	Interest
\$ 730, 18%, 120 days	\$ 730	X	18%	X	120/360	=	\$ 43.80
\$1,000, 15%, 6 months	\$1,000	X	15%	X	6/12	=	\$ 75.00
\$2,000, 12%, 1 year	\$2,000	X	12%	X	1/1	=	\$240.00

Helpful hint: The interest rate specified is the annual rate.

RECOGNIZING NOTES RECEIVABLE

STUDY OBJECTIVE 6

General Journal

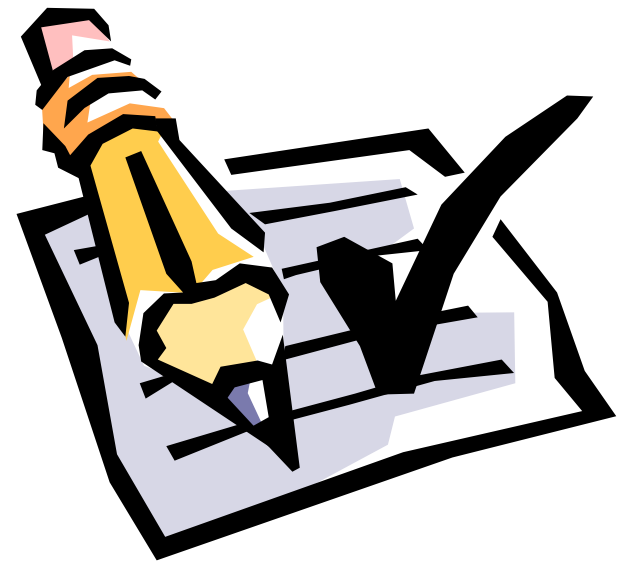
Date	Account Titles	Debit	Credit
May 1	Notes Receivable	1,000	
	Accounts Receivable – Brent Company		1,000

Wilma Company receives a \$1,000, 2-month, 12% promissory note from Brent Company to settle an open account.

VALUING NOTES RECEIVABLE

STUDY OBJECTIVE 7

- Like accounts receivable, short-term notes receivable are reported at their **cash (net) realizable value**.
- The notes receivable allowance account is **Allowance for Doubtful Accounts**.



HONOR OF NOTES RECEIVABLE

STUDY OBJECTIVE 8

Nov. 1	Cash	10,375	
	Notes Receivable		10,000
	Interest Revenue		375
	(To record collection of Higley Inc. note)		

- A note is **honored** when it is paid in full at its maturity date.
- For an interest-bearing note, the amount due at maturity is the face value of the note plus interest for the length of time specified on the note.
- Betty Co. lends Wayne Higley Inc. \$10,000 on June 1, accepting a 5-month, 9% interest-bearing note.
- Betty Co. collects the maturity value of the note from Wayne Higley Inc. on November 1.

HONOR OF NOTES RECEIVABLE

Sept. 30	Interest Receivable	300	
	Interest Revenue		300
	(To accrue 4 months' interest)		

If Betty Co. prepares prepares financial statements as of September 30, interest for 4 months, or \$300, would be accrued.

HONOR OF NOTES RECEIVABLE

Nov. 1	Cash	10,375	
	Notes Receivable		10,000
	Interest Receivable		300
	Interest Revenue		75

When interest has been accrued, it is necessary to credit Interest Receivable at maturity.

DISHONOR OF NOTES RECEIVABLE

General Journal			
Date	Account Titles	Debit	Credit
Nov. 1	Accounts Receivable	10,375	
	Notes Receivable		10,000
	Interest Revenue		375

- A **dishonored note** is a note that is not paid in full at maturity.
- A dishonored note receivable is no longer negotiable.
- Since the payee still has a claim against the maker of the note, the balance in **Notes Receivable** is usually transferred to **Accounts Receivable**.

BALANCE SHEET PRESENTATION OF RECEIVABLES

STUDY OBJECTIVE 9

- In the balance sheet, short-term receivables are reported in the **current assets** section below **short-term investments**.
- Report both the *gross amount of receivables* and the *allowance for doubtful accounts*.

ACCOUNTS RECEIVABLE TURNOVER RATIO AND COMPUTATION

- Ratios are computed to evaluate the liquidity of a company's accounts receivable.
- Accounts receivables turnover ratio used to assess the liquidity of the receivables.
- If Cisco had net credit sales of \$18,915 million for the year and beginning net accounts receivable balance of \$1,466 million and ending net accounts receivable balance of \$1,105 million, then:

Net Credit
Sales

/

Average Net
Receivables

=

Accounts
Receivable
Turnover

\$18,915

/ (\$1,466 + \$1,105)/2 = 14.7 times

AVERAGE COLLECTION PERIOD FOR RECEIVABLES FORMULA AND COMPUTATION

- Variant of the turnover ratio that makes liquidity even more evident.
- This is done by dividing the turnover ratio into 365 days. The *general rule* is that the collection period should not exceed the credit term period.
- Cisco's turnover ratio is computed as:

Days in Year/AR Turnover = **Average Collection Period in Days**

$$365 \text{ days} \quad / \quad 14.7 \text{ times} \quad = \quad \mathbf{24.8 \text{ days}}$$

Review

Which of the following statements about VISA credit card sales is incorrect?

- a. The credit card issuer makes the credit investigation of the customer.
- b. The retailer is not involved in the collection process.
- c. Two parties are involved.

Review

Which of the following statements about VISA credit card sales is incorrect?

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Chapter 10

Plant Assets, Natural Resources, and Intangible Assets

Prepared by Naomi Karolinski
Monroe Community College

and

Marianne Bradford
Bryant College

CHAPTER 10

PLANT ASSETS, NATURAL RESOURCES, AND INTANGIBLE ASSETS

After studying this chapter, you should be able to:

- 1 Describe how the cost principle applies to plant assets.**
- 2 Explain the concept of depreciation.**
- 3 Compute periodic depreciation using different methods.**
- 4 Describe the procedure for revising periodic depreciation.**
- 5 Distinguish between revenue and capital expenditures, and explain the entries for these expenditures.**

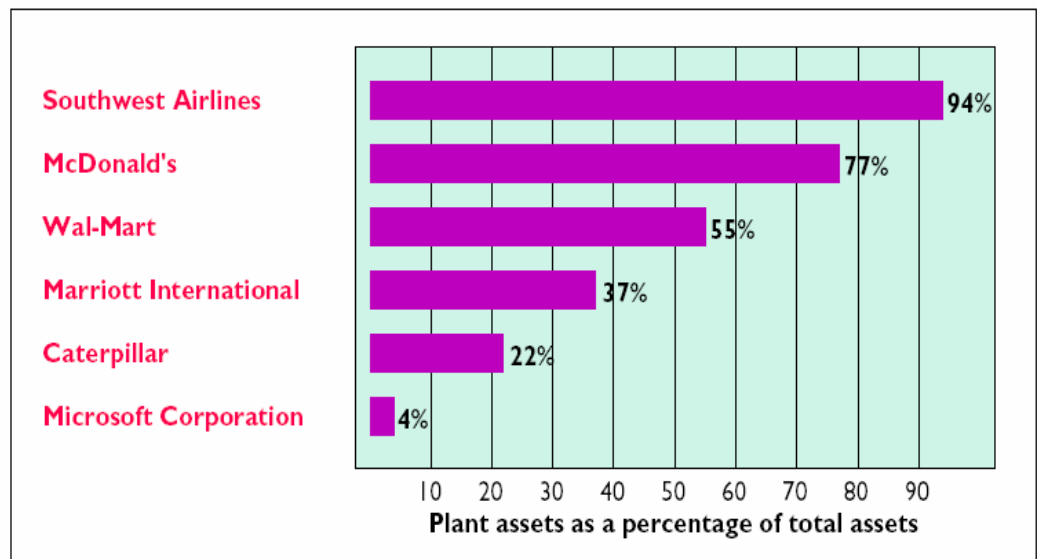
PLANT ASSETS, NATURAL RESOURCES, AND INTANGIBLE ASSETS

After studying this chapter, you should be able to:

- 6 Explain how to account for the disposal of a plant asset.**
- 7 Compute periodic depletion of natural resources.**
- 8 Explain the basic issues related to accounting for intangible assets.**
- 9 Indicate how plant assets, natural resources, and intangible assets are reported and analyzed.**

PLANT ASSETS

- **Plant assets**
 - tangible resources used in the operations of a business
 - not intended for sale to customers
- **Plant assets are subdivided into four classes:**
 - 1 Land**
 - 2 Land improvements**
 - 3 Buildings**
 - 4 Equipment**



DETERMINING THE COST OF PLANT ASSETS

STUDY OBJECTIVE 1

- **Plant assets are recorded at cost in accordance with the **cost principle**.**
- **Cost**
 - consists of all expenditures necessary to acquire the asset and make it ready for its intended use
 - includes **purchase price, freight costs, and installation costs**
- **Expenditures that are not necessary**
 - recorded as expenses, losses, or other assets

LAND

- The cost of **Land** includes:
 - 1 cash purchase price
 - 2 closing costs such as title and attorney's fees
 - 3 real estate brokers' commissions
 - 4 accrued property taxes and other liens on the land assumed by the purchaser.
- All necessary costs incurred to make land ready for its intended use are debited to the **Land** account.



COMPUTATION OF COST OF LAND

Sometimes purchased land has a building on it that must be removed before construction of a new building. In this case, all demolition and removal costs, less any proceeds from salvaged materials are debited to the **Land** account.

Land

Cash price of property	\$ 100,000
Net removal cost of warehouse	6,000
Attorney's fee	1,000
Real estate broker's commission	8,000
Cost of land	\$ 115,000

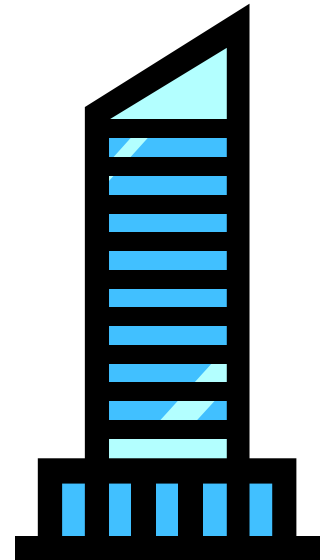
LAND IMPROVEMENTS

The cost of **land improvements** includes:
all expenditures needed to make the
improvements ready for their intended use
such as:

- 1** parking lots
- 2** fencing
- 3** lighting

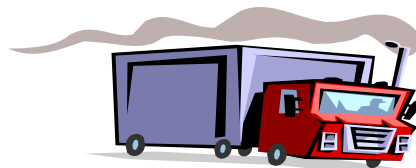
BUILDINGS

- **The cost**
 - includes all necessary expenditures relating to the purchase or construction of a building:
 - costs include the purchase price, closing costs, and broker's commission
- **Costs to make the building ready for its intended use include**
 - expenditures for remodeling and replacing or repairing the roof, floors, wiring, and plumbing
- **If a new building is **constructed**, costs include**
 - contract price plus payments for architects' fees, building permits, interest payments during construction, and excavation costs



EQUIPMENT

- **Cost of equipment**
 - consists of the cash purchase price and certain related costs
 - costs include sales taxes, freight charges, and insurance paid by the purchaser during transit
 - includes all expenditures required in assembling, installing, and testing the unit
- **Recurring costs such as licenses and insurance are expensed as incurred.**



ENTRY TO RECORD PURCHASE OF MACHINERY

Factory Machinery

Cash price	\$ 50,000
Sales taxes	3,000
Insurance during shipping	500
Installation and testing	1,000
Cost of factory machinery	<u><u>\$ 54,500</u></u>

The summary entry to record the cost of the factory machinery and related expenditures is as follows:

Factory Machinery	54,500	
Cash		54,500

COMPUTATION OF COST OF DELIVERY TRUCK

The cost of equipment consists of the **cash purchase price**, **sales taxes**, **freight charges**, and **insurance during transit paid by the purchaser**. It also includes expenditures required in **assembling**, **installing**, and **testing** the unit. However, motor vehicle licenses and accident insurance on company cars and trucks are expensed as incurred, since they represent annual recurring events that do not benefit future periods.

Delivery Truck

Cash price	\$ 22,000
Sales taxes	1,320
Painting and lettering	500
Cost of delivery truck	<u>\$ 23,820</u>

ENTRY TO RECORD PURCHASE OF TRUCK

Delivery Truck

Cash price	\$ 22,000
Sales taxes	1,320
Painting and lettering	500
Cost of delivery truck	<u><u>\$ 23,820</u></u>

The entry to record the cost of the delivery truck and related expenditures is as follows:

Account Titles and Explanation	Debit	Credit
Delivery Truck	23,820	
License Expense	80	
Prepaid Insurance	1,600	
Cash		25,500
(To record purchase of delivery truck and related expenditures)		

DEPRECIATION

STUDY OBJECTIVE 2

- **Depreciation**
 - allocation of the cost of a plant asset to expense over its useful (service) life in a rational and systematic manner.
- **Cost allocation**
 - provides for the proper **matching** of expenses with revenues in accordance with the **matching principle**.
- **Usefulness may decline because of wear and tear or obsolescence.**
- **Depreciation does not result in an accumulation of cash for the replacement of the asset.**
- **Land**
 - is the only plant asset that is **not** depreciated.

FACTORS IN COMPUTING DEPRECIATION

THREE FACTORS THAT AFFECT THE COMPUTATION OF DEPRECIATION ARE:

1 Cost:

all expenditures necessary to acquire the asset and make it ready for intended use

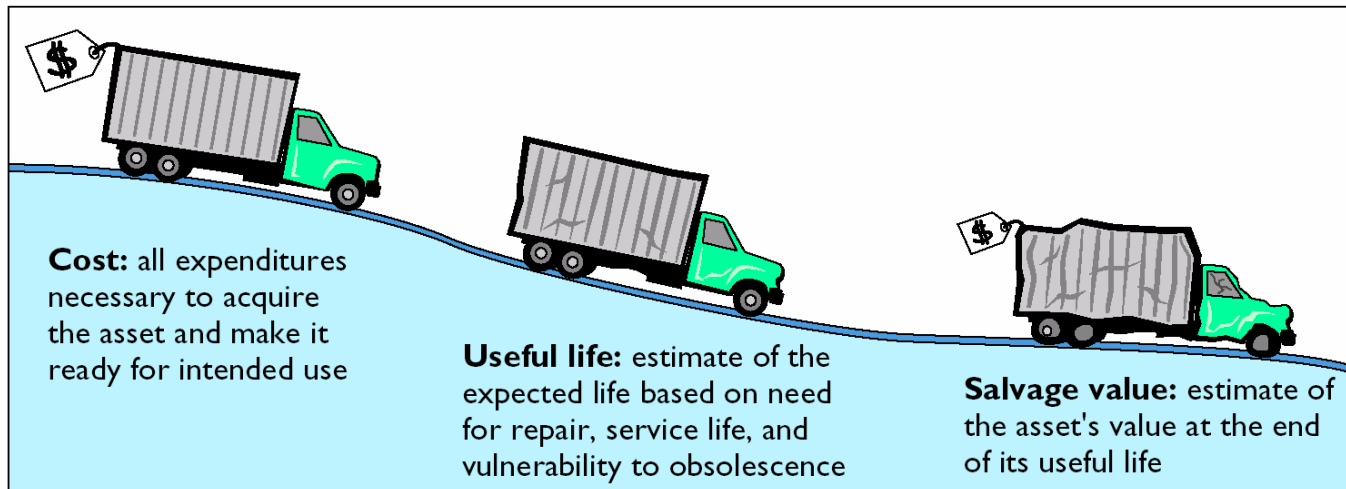
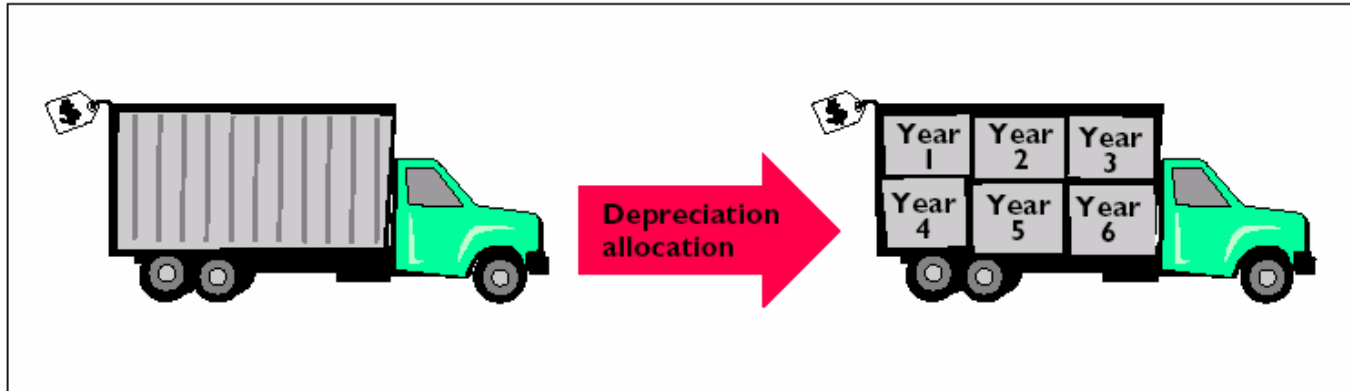
2 Useful life:

estimate of the expected life based on need for repair, service life, and vulnerability to obsolescence

3 Salvage value:

estimate of the asset's value at the end of its useful life

DEPRECIATION



Review

Depreciation is a process of:

- a. valuation.
- b. cost allocation.
- c. cash accumulation.
- d. appraisal.

Review

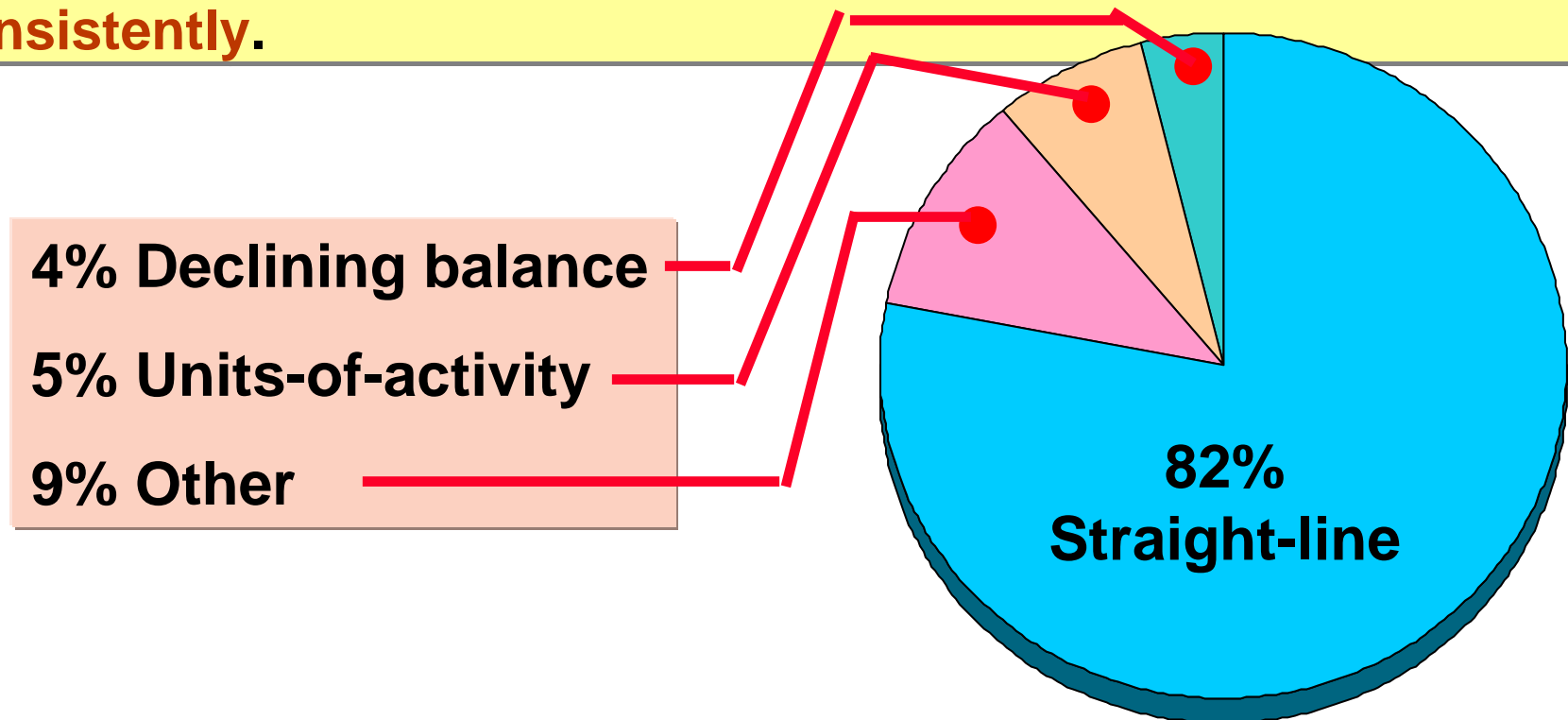
Depreciation is a process of:

- a. valuation.
- b. cost allocation.**
- c. cash accumulation.
- d. appraisal.

USE OF DEPRECIATION METHODS IN 600 LARGE U.S. COMPANIES

STUDY OBJECTIVE 3

Three methods of recognizing depreciation are: **1 Straight-line**, **2 Units of activity**, and **3 Declining-balance**. Each method is acceptable under **generally accepted accounting principles**. Management selects the method that is appropriate in the circumstances. Once a method is chosen, it should be applied **consistently**.



DELIVERY TRUCK DATA

- **Compare the three depreciation methods, using the following data for a small delivery truck purchased by Barb's Florists on January 1, 2005.**

Cost	\$13,000
Expected salvage value	\$1,000
Estimated useful life in years	5
Estimated useful life in miles	100,000

STRAIGHT-LINE

- **Straight-line method**
 - Depreciation is the same for each year of the asset's useful life.
 - It is measured solely by the passage of time.
- It is necessary to determine **depreciable cost**.
- **Depreciable cost**
 - total amount subject to depreciation and is computed as follows:
- **Cost of asset - salvage value**

FORMULA FOR STRAIGHT-LINE METHOD

The formula for computing annual depreciation expense is:
Depreciable Cost / Useful Life (in years) = Depreciation Expense

A diagram illustrating the calculation of Depreciable Cost. It consists of three colored boxes: a yellow box on the left labeled 'Cost', a blue box in the middle labeled 'Salvage Value', and an orange box on the right labeled 'Depreciable Cost'. A single horizontal line connects the yellow box to the blue box, and a double horizontal line connects the blue box to the orange box. Below these boxes, the numerical values are shown: '\$13,000' under 'Cost', '\$1,000' under 'Salvage Value', and '\$12,000' under 'Depreciable Cost'. A minus sign '-' is placed between the first two numbers, and an equals sign '=' is placed between the second and third numbers.

$$\begin{array}{ccccc} \text{Cost} & - & \text{Salvage Value} & = & \text{Depreciable Cost} \\ \$13,000 & - & \$1,000 & = & \$12,000 \end{array}$$

A diagram illustrating the calculation of Annual Depreciation Expense. It consists of three colored boxes: an orange box on the left labeled 'Depreciable Cost', a green box in the middle labeled 'Useful Life (in Years)', and a cyan box on the right labeled 'Annual Depreciation Expense'. A horizontal line with a dot above and below it connects the orange box to the green box, and a double horizontal line connects the green box to the cyan box. Below these boxes, the numerical values are shown: '\$12,000' under 'Depreciable Cost', '5' under 'Useful Life (in Years)', and '\$2,400' under 'Annual Depreciation Expense'. A division symbol '÷' is placed between the first two numbers, and an equals sign '=' is placed between the second and third numbers. A red arrow points from the '\$12,000' result of the first calculation down to the '\$12,000' value in this second calculation.

$$\begin{array}{ccccc} \text{Depreciable Cost} & \div & \text{Useful Life (in Years)} & = & \text{Annual Depreciation Expense} \\ \$12,000 & \div & 5 & = & \$2,400 \end{array}$$

UNITS-OF-ACTIVITY

- **Useful life = total units of production or total expected use expressed in hours, miles, etc.**
- **Depreciable Cost ÷ Total Units of Activity = Depreciation Cost per Unit**
- **Depreciation Cost per Unit X Units of Activity During the Year = Annual Depreciation Expense**
 - It is often difficult to make a reasonable estimate of total activity.
- **When productivity varies from one period to another, this method results in the best matching of expenses with revenues.**

FORMULA FOR UNITS-OF-ACTIVITY METHOD

To use the **units-of-activity method**, **1)** the total units of activity for the entire useful life are estimated, **2)** the amount is divided into depreciable cost to determine the depreciation cost per unit, and **3)** the depreciation cost per unit is then applied to the units of activity during the year to determine the annual depreciation.

$$\begin{array}{ccccc} \text{Depreciable Cost} & \div & \text{Total Units of Activity} & = & \text{Depreciable Cost per Unit} \\ \$12,000 & \div & 100,000 \text{ miles} & = & \$0.12 \end{array}$$

$$\begin{array}{ccccc} \text{Depreciable Cost per Unit} & \times & \text{Units of Activity during the Year} & = & \text{Annual Depreciation Expense} \\ \$0.12 & \times & 15,000 \text{ miles} & = & \$1,800 \end{array}$$

DECLINING-BALANCE

- **Decreasing annual depreciation expense over the asset's useful life**
- **Periodic depreciation is based on a**
 - *declining book value**
 - (cost - accumulated depreciation)
- **To compute annual depreciation expense**
 - Multiply the **book value at the beginning of the year** by the **declining-balance depreciation rate**
- **Depreciation rate remains constant from year to year**
 - book value declines each year

DECLINING-BALANCE

- **Book value for the first year is the cost of the asset.**
 - Balance in accumulated depreciation at the beginning of the asset's useful life is zero
- **In subsequent years, book value is the difference between cost and accumulated depreciation at the beginning of the year.**
- **Formula for computing depreciation expense:**
- **Book Value at Beginning of Year x Declining Balance Rate = Annual Depreciation Expense**
- **Method compatible with the matching principle**
 - the higher depreciation in early years is matched with the higher benefits received in these years.

FORMULA FOR DECLINING-BALANCE METHOD

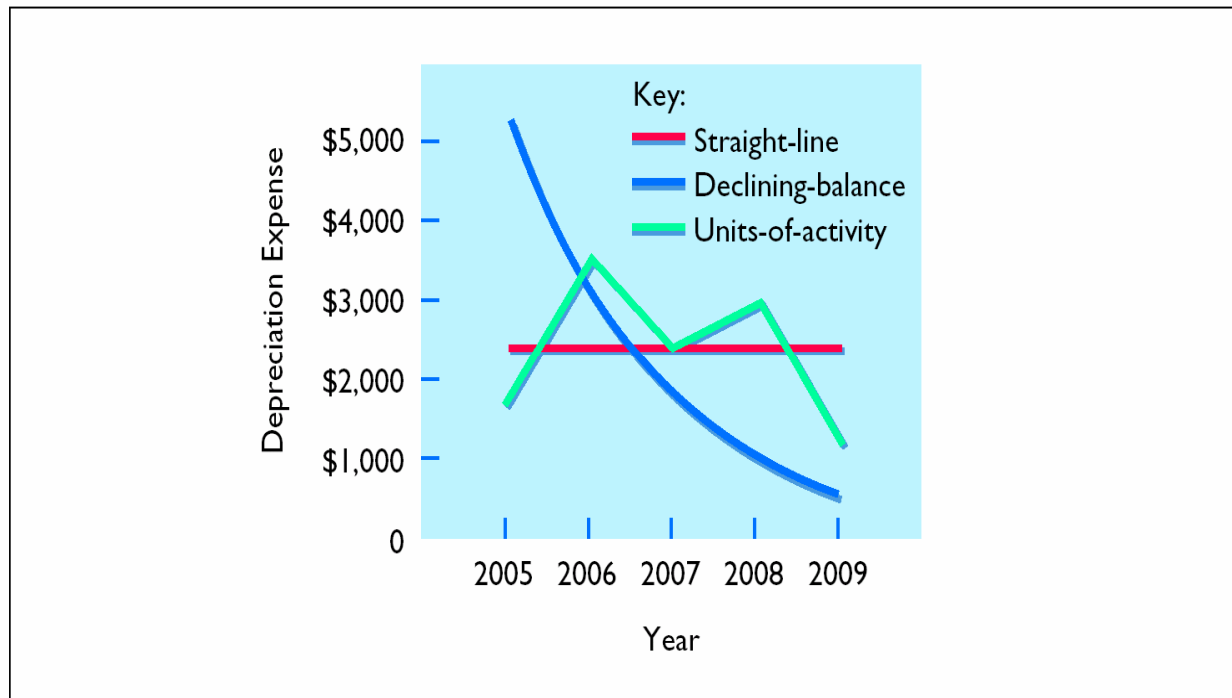
Unlike the other depreciation methods, salvage value is ignored in determining the amount to which the declining balance rate is applied.

A common application of the declining-balance method is the **double-declining-balance method**, in which the declining-balance rate is **double the straight-line rate**.

If Barb's Florists uses the double-declining-balance method, the depreciation is 40% (2 X the straight-line rate of 20%).

Depreciable Cost per Unit	×	Units of Activity during the Year	=	Annual Depreciation Expense
\$13,000	x	40%	=	\$5,200

PATTERNS OF DEPRECIATION



REVISING PERIODIC DEPRECIATION

STUDY OBJECTIVE 4

- **Changes should be made**
 - Excessive wear and tear or obsolescence indicate that annual depreciation estimates are inadequate.
- **When a change is made**
 - No correction of previously recorded depreciation expense
 - Depreciation expense for current and future years is revised
- **To determine the new annual depreciation expense**
 - The depreciable cost at the time of the revision is divided by the remaining useful life.

REVISED DEPRECIATION COMPUTATION

Barb's Florists decides on January 1, 2008, to extend the useful life of the truck one year because of its excellent condition. The company has used the straight-line method to depreciate the asset to date, and book value is \$5,800 (\$13,000 - \$7,200). The new annual depreciation is \$1,600, calculated as follows:

Book value, 1/1/08	\$5,800	
Less: Salvage value	<u>1,000</u>	
Depreciable cost	<u>\$4,800</u>	
Remaining useful life	3 years	(2008-2010)
Revised annual depreciation ($\$4,800 \div 3$)	<u>\$1,600</u>	

EXPENDITURES DURING USEFUL LIFE

STUDY OBJECTIVE 5

- **Ordinary repairs**
 - expenditures to **maintain** the operating efficiency and productive life of the unit
 - such repairs are debited to **Repairs Expense** as incurred and are often referred to as **revenue expenditures**.



EXPENDITURES DURING USEFUL LIFE

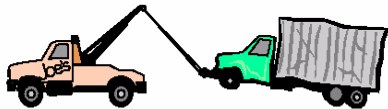
- **Capital expenditures**
 - **Additions and improvements**
 - increase the operating efficiency, productive capacity, or useful life of a plant asset
 - 1 Usually material in amount and occur infrequently.**
 - 2 Increase the company's investment in productive facilities.**
- Debit the plant asset affected.**

PLANT ASSET DISPOSALS

STUDY OBJECTIVE 6

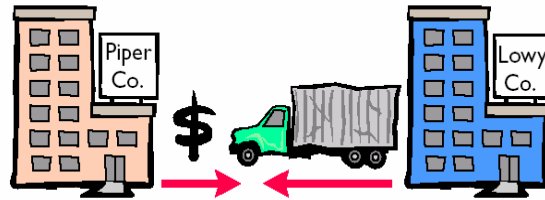
- **Retirement**
 - Plant asset is scrapped or discarded.
 - Eliminate the book value of the plant asset at the date of sale by debiting Accumulated Depreciation and crediting the asset account for its cost.
 - Debit Cash to record the cash proceeds from the sale.
 - Compute gain or loss.
- **If the cash proceeds > the book value**
 - recognize a gain by crediting Gain on Disposal for the difference.
- **If the cash proceeds are < the book value**
 - recognize a loss by debiting Loss on Disposal for the difference.

PLANT ASSET DISPOSALS



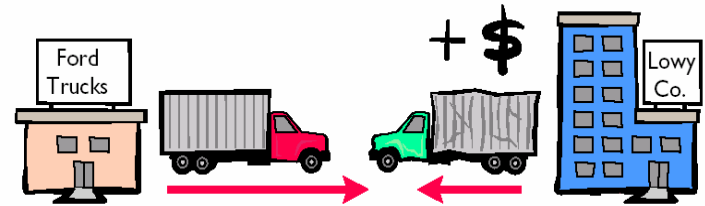
Retirement

Equipment is scrapped or discarded.



Sale

Equipment is sold to another party.



Exchange

Existing equipment is traded for new equipment.

GAIN ON DISPOSAL

On July 1, 2005, Wright Company sells office furniture for \$16,000 cash. Original cost was \$60,000 and as of January 1, 2005, had accumulated depreciation of \$41,000. Depreciation for the first 6 months of 2005 is \$8,000. The entry to record depreciation expense and update accumulated depreciation to July 1 is as follows:

Depreciation Expense		8,000	
Accumulated Depreciation			8,000

GAIN ON DISPOSAL

After the accumulated depreciation is updated, a gain on disposal of \$5,000 is computed:

Cost of office furniture	\$ 60,000
Less: Accumulated depreciation (\$41,000 + \$8,000)	49,000
Book value at date of disposal	<u>11,000</u>
Proceeds from sale	16,000
Gain on disposal	<u><u>\$ 5,000</u></u>

The entry to record the sale and the gain on disposal is as follows:

Cash		16,000	
Accumulated Depr.-Office Furniture		49,000	
Office Furniture			60,000
Gain on Disposal			5,000

LOSS ON DISPOSAL

Instead of the selling the office furniture for \$16,000, Wright sells it for \$9,000. In this case, a loss of \$2,000 is computed:

Cost of office furniture	\$ 60,000
Less: Accumulated depreciation (\$41,000 + \$8,000)	49,000
Book value at date of disposal	<u>11,000</u>
Proceeds from sale	9,000
Loss on disposal	<u><u>\$ 2,000</u></u>

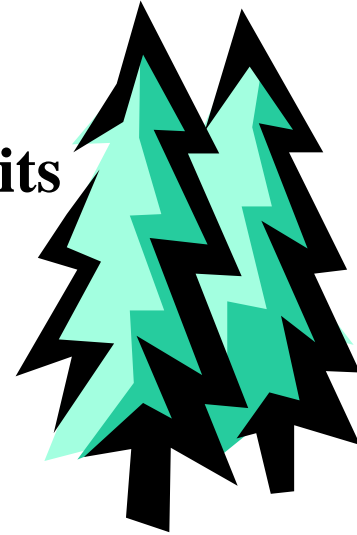
The entry to record the sale and the loss on disposal is as follows:

Cash		9,000	
Accumulated Depr.-Office Furniture		49,000	
Loss on Disposal		2,000	
Office Furniture			60,000

NATURAL RESOURCES

STUDY OBJECTIVE 7

- **Natural resources**
 - consists of standing timber and underground deposits of oil, gas, and minerals
- These long-lived productive assets have two distinguishing characteristics:
 - 1 They are physically extracted in operations.
 - 2 They are replaceable only by an act of nature.

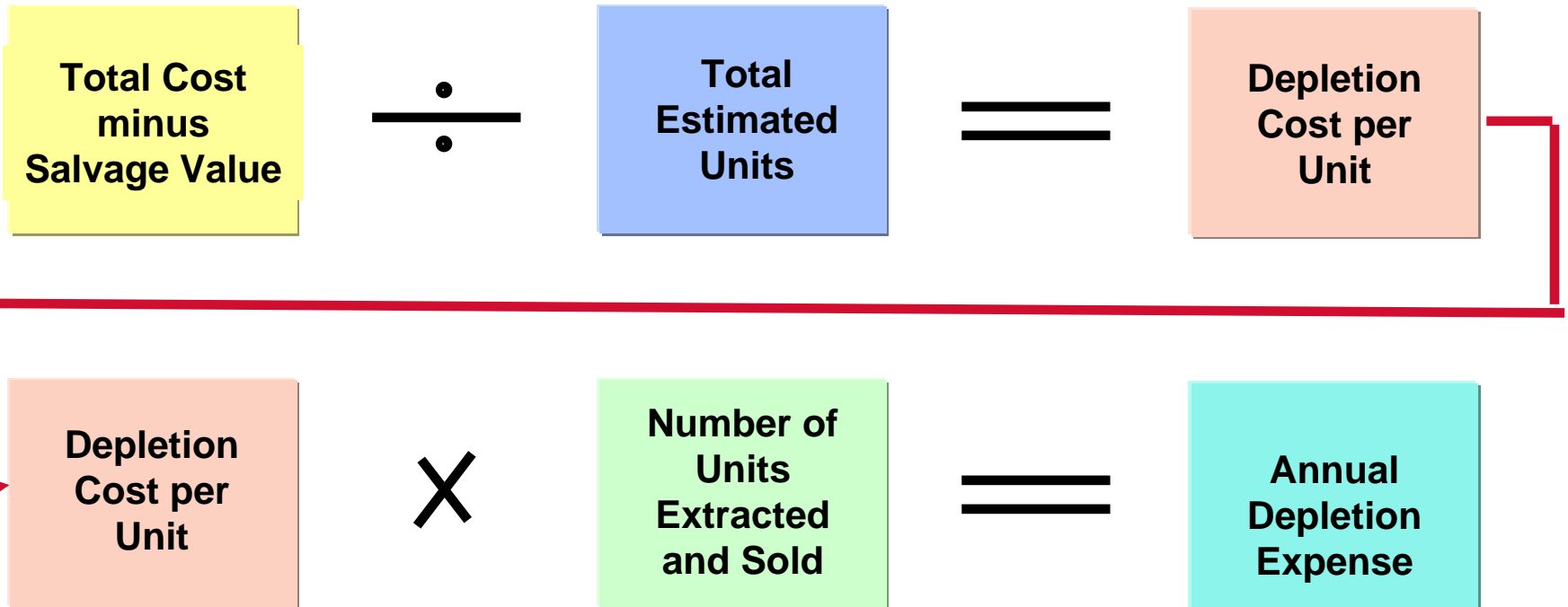


DEPLETION

DEPLETION

- **Allocation of the cost of natural resources to expense in a rational and systematic manner over the resource's useful life.**
- **Units-of-activity method** is generally used to compute depletion.
 - depletion generally is a function of the units extracted during the year

FORMULA TO COMPUTE DEPLETION EXPENSE



Helpful hint: This computation for depletion is similar to the computation for depreciation using the units-of-activity method of depreciation.

RECORDING DEPLETION

The Lane Coal Company invests \$5 million in a mine estimated to have 10 million tons of coal and no salvage value. In the first year, 800,000 tons of coal are extracted and sold. Using the formulas, the calculations are as follows:

$$\begin{aligned} \$5,000,000 \div 10,000,000 &= \$.50 \text{ depletion cost per ton} \\ \$.50 \times 800,000 &= \$400,000 \text{ depletion expense} \end{aligned}$$

The entry to record depletion expense for the first year of operations is as follows:

Depletion Expense	400,000	
Accumulated Depletion		400,000

STATEMENT PRESENTATION OF ACCUMULATED DEPLETION

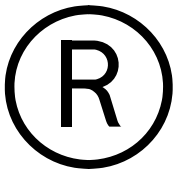
Accumulated Depletion is a contra asset account similar to accumulated depreciation. It is deducted from the cost of the natural resource in the balance sheet as follows:

Lane Coal Company Balance Sheet (partial)		
Coal mine	\$5,000,000	
Less: Accumulated depletion	<u>400,000</u>	<u>\$4,600,000</u>

INTANGIBLE ASSETS

Study Objective 8

- **Intangible assets**
 - Rights, privileges, and competitive advantages that result from the ownership of long lived assets that do not possess physical substance
 - May arise from government grants, acquisition of another business, and private monopolistic arrangements



ACCOUNTING FOR INTANGIBLE ASSETS

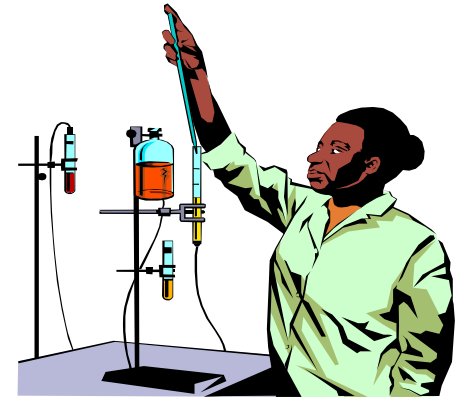
- **In general, accounting for intangible assets parallels the accounting for plant assets.**
- **Intangible assets are:**
 - 1 recorded at cost**
 - 2 written off over useful life in a rational and systematic manner**
 - 3 at disposal, book value is eliminated and gain or loss, if any, is recorded**

ACCOUNTING FOR INTANGIBLE ASSETS

STUDY OBJECTIVE 8

- **Key differences between accounting for intangible assets and accounting for plant assets include:**
 - The systematic write-off of an intangible asset is referred to as **amortization**
- **To record amortization**
 - Debit **Amortization Expense** and credit the specific intangible asset
 - Intangible assets typically amortized on a **straight-line basis**

PATENTS



- **A patent**
 - exclusive right issued by the Patent Office
 - manufacture, sell, or otherwise control an invention for a period of 20 years from the date of grant
- **Cost of a patent**
 - initial cost is the **cash** or **cash equivalent price** paid to acquire the patent
 - legal costs – amount an owner incurs in successfully defending a patent are added to the **Patent** account and amortized over the remaining useful life of the patent
 - should be amortized over its 20-year legal life or its useful life, whichever is shorter.

RECORDING PATENTS

National Labs purchases a patent at a cost of \$60,000. If the useful life of the patent is 8 years, the annual amortization expense is \$7,500 ($\$60,000 \div 8$).

Amortization Expense is classified as an operating expense in the income statement. The entry to record the annual patent amortization is:

Amortization Expense		7,500	
Patents			7,500

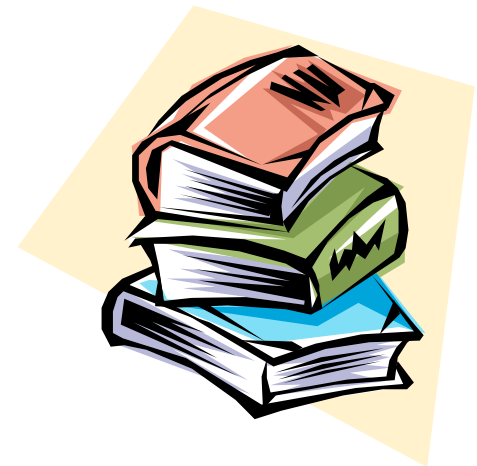
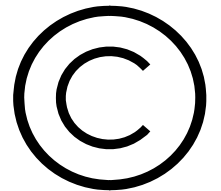
COPYRIGHTS

- **Copyrights**

- grants from the federal government
- gives the owner the exclusive right to reproduce and sell an artistic or published work

- **Copyrights extend for the life of the creator plus 70 years.**

- **The cost of a copyright is the cost of acquiring and defending it.**



TRADEMARKS AND TRADE NAMES

TM

- **A trademark or trade name**
 - word, phrase, jingle or symbol identifying a particular enterprise or product
- **Trademark or trade name purchased**
 - the cost is purchase price
- **Trademark developed by a company**
 - the cost includes attorney's fees, registration fees, design costs and successful legal defense fees

FRANCHISES AND LICENSES

- **Franchise**
 - **contractual arrangement** under which the **franchisor** grants the **franchisee** the right to sell certain products, render specific services, or use certain trademarks or trade names, usually restricted to a designated geographical area
- Another type of franchise, commonly referred to as a **license** or **permit**
 - entered into between a governmental body and a business enterprise and permits the enterprise to use public property in performing its services.

GOODWILL

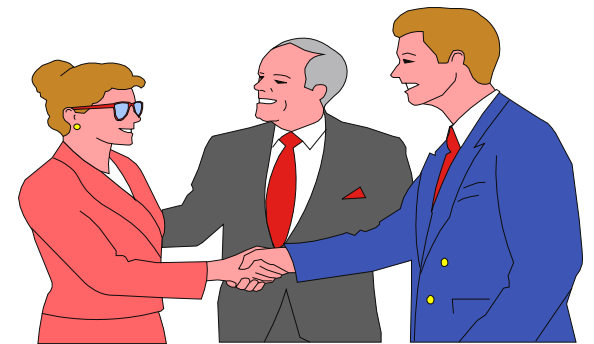
- **Goodwill**

- value of all favorable attributes that relate to a business enterprise
- attributes may include exceptional management, desirable location, good customer relations and skilled employees
- cannot be sold individually in the marketplace; it can be identified only with the business as a whole



GOODWILL

- **Goodwill**
 - recorded **only** when a transaction involves the **purchase of an entire business**
 - excess of cost over the fair market value of the net assets (assets less liabilities) acquired
 - not amortized
 - reported under Intangible Assets



RESEARCH AND DEVELOPMENT COSTS

- **Research and development costs**
 - pertain to expenditures incurred to develop new products and processes
- **These costs are **not** intangible costs**
 - recorded as an expense when incurred



FINANCIAL STATEMENT PRESENTATION

STUDY OBJECTIVE 9

- **Plant assets and natural resources**
 - Under “**property, plant, and equipment**” in the balance sheet
 - Major classes of assets, such as land, buildings, and equipment, and accumulated depreciation by major classes or in total should be **disclosed**
 - Depreciation and amortization **methods** that were used should be **described**. Finally, the **amount** of depreciation and amortization expense for the period **should be disclosed**
- **Intangibles are shown separately under intangible assets**

LANDS' END'S PRESENTATION OF PROPERTY, PLANT, AND EQUIPMENT, AND INTANGIBLES

The financial statement presentation of property, plant, and equipment by Lands' End in its 2005 balance sheet is quite brief, as shown below:

Balance Sheet - Partial
December 31, 2005 (in thousands)

	Jan. 28, 2005	Jan. 29, 2004
Property, plant and equipment, at costs		
Land and buildings	102,776	102,018
Fixtures and equipment	175,910	154,663
Leasehold improvements	4,453	5,475
Total property, plant and equipment	283,139	262,156
Less: accumulated depr. and amort.	117,317	101,570
Property, plant and equipment, net	165,822	160,586
Intangibles, net	966	1,030

The notes to Lands' End financial statements present greater details, namely, that "intangibles" contains goodwill and trademarks...

PRESENTATION OF PROPERTY, PLANT, AND EQUIPMENT AND INTANGIBLE ASSETS

A more comprehensive presentation of property, plant, and equipment is excerpted from the balance sheet of Owens-Illinois and shown below.

OWENS-ILLINOIS, INC. Balance Sheet - Partial (In millions of dollars)			
Property, plant, and equipment			
Timberlands, at cost, less accumulated depletion		\$	95.4
Buildings and equipment, at cost	\$ 2,207.1		
Less: Accumulated depreciation	1,229.0		978.1
Total property, plant, and equipment			\$ 1,073.5
Intangibles			
Patents			410.0
Total			\$ 1,483.5

EXCHANGES OF PLANT ASSETS

- **Exchanges**
 - can be for **similar** or **dissimilar** assets
 - For similar assets, the new asset performs the **same function** as the old asset
- **Necessary to determine two things:**
 - 1) the cost of the asset acquired**
 - 2) the gain or loss on the asset given up**

LOSS TREATMENT

- **Losses on exchange of similar assets**
 - recognized immediately
- **Cost of the new asset received**
 - equal to the fair market value of the old asset exchanged plus any cash or other consideration given up
- **Losses result when the book value is greater than the fair market value of the asset given up.**

COMPUTATION OF COST OF NEW OFFICE EQUIPMENT

Roland Company exchanges old office equipment for new similar office equipment. The **book value** of the old office equipment is \$26,000 (\$70,000 cost less \$44,000 accumulated depreciation), AND its **fair market value** is \$10,000, and \$81,000 of cash is paid. The cost of the new office equipment, \$91,000, is calculated as follows:

Fair market value of old office equipment	\$ 10,000
Cash	81,000
Cost of new office equipment	<u><u>\$ 91,000</u></u>

COMPUTATION OF LOSS ON DISPOSAL

Through this exchange, a loss on disposal of \$16,000 is incurred. A loss results when the book value is greater than the fair market value of the asset given up. The calculation is as follows:

Book value of old office equipment (\$70,000 — \$44,000)	\$ 26,000
Fair market value of old office equipment	10,000
Loss on disposal	\$ 16,000

In recording the exchange at a loss three steps are required: **1)** eliminate the book value of the asset given up, **2)** record the cost of the asset acquired, and **3)** recognize the loss on disposal.

Office Equipment (new)		91,000	
Accumulated Depreciation-Office Equipment		44,000	
Loss on Disposal		16,000	
Office Equipment (old)			70,000
Cash			81,000

GAIN TREATMENT

- **Gains of similar assets**
 - not recognized immediately, but, are deferred by reducing the cost basis of the new asset
- **Cost of the new asset**
 - **fair market value of the old asset exchanged plus any cash or other consideration given up**
- **Gains result when the fair market value is greater than the book value of the asset given up**

COST OF NEW EQUIPMENT (BEFORE DEFERRAL OF GAIN)

Mark's Express Delivery exchanges **old delivery** equipment plus \$3,000 cash for **new delivery** equipment. The book value of the old delivery equipment is \$12,000 (**\$40,000 cost less \$28,000 accumulated depreciation**), its fair market value is \$19,000. The cost of the new delivery equipment, \$22,000, is calculated as follows:

Fair market value of old delivery equipment	\$ 19,000
Cash	3,000
Cost of new delivery equipment (before deferral of gain)	<u><u>\$ 22,000</u></u>

COMPUTATION OF GAIN ON DISPOSAL

For Mark's Express Delivery, there is a gain of \$7,000, calculated as follows, on the disposal:

Fair market value of old delivery equipment	\$ 19,000
Book value of old delivery equipment (\$40,000 – \$28,000)	<u>12,000</u>
Gain on disposal	<u><u>\$ 7,000</u></u>

COST OF NEW DELIVERY EQUIPMENT (AFTER DEFERRAL OF GAIN)

The \$7,000 gain on disposal is then offset against the \$22,000 cost of the new delivery equipment. The result is a \$15,000 cost of the new delivery equipment, after deferral of the gain.

Cost of new delivery equipment (before deferral of gain)	\$ 22,000
Less: Gain on disposal	<u>7,000</u>
Cost of new delivery equipment (after deferral of gain)	<u><u>\$ 15,000</u></u>

The entry to record the exchange is as follows:

Delivery Equipment (new)		15,000	
Accumulated Depreciation - Delivery Equipment (old)		28,000	
Delivery Equipment (old)			40,000
Cash			3,000

ACCOUNTING RULES FOR PLANT EXCHANGES

Type of Event	Recognition
Loss	Recognize immediately by debiting Loss on Disposal
Gain	Defer and reduce cost of new asset

Review

In exchanges of similar assets:

- a. neither gains nor losses are recognized immediately.
- b. gains, but not losses, are recognized immediately.
- c. losses, but not gains, are recognized immediately.
- d. both gains and losses are recognized immediately.

Review

In exchanges of similar assets:

- a. neither gains nor losses are recognized immediately.
- b. gains, but not losses, are recognized immediately.
- c. losses, but not gains, are recognized immediately.
- d. both gains and losses are recognized immediately.

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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 11

Current Liabilities and Payroll Accounting

Prepared by Naomi Karolinski
Monroe Community College

and

Marianne Bradford
Bryant College

CHAPTER 11

CURRENT LIABILITIES AND PAYROLL ACCOUNTING

After studying this chapter, you should be able to:

- 1 Explain a current liability, and identify the major types of current liabilities.**
- 2 Describe the accounting for notes payable.**
- 3 Explain the accounting for other current liabilities.**
- 4 Explain the financial statement presentation and analysis of current liabilities.**
- 5 Describe the accounting and disclosure requirements for contingent liabilities.**

CHAPTER 11

CURRENT LIABILITIES AND PAYROLL ACCOUNTING

After studying this chapter, you should be able to:

- 6 Discuss the objectives of internal control for payroll.**
- 7 Compute and record the payroll for a pay period.**
- 8 Describe and record employer payroll taxes.**

ACCOUNTING FOR CURRENT LIABILITIES

STUDY OBJECTIVE 1

- A **Current Liability** is a debt with two key features:
 - 1) expected to be paid from existing current assets or through the creation of other current liabilities
 - 2) paid within one year or the operating cycle, whichever is longer.
- Current liabilities include:
 - 1) **Notes Payable**
 - 2) **Accounts Payable**
 - 3) **Unearned Revenues**
 - 4) **Accrued Liabilities**

Review

The time period for classifying a liability as current is one year or the operating cycle, whichever is:

- a. longer.
- b. shorter.
- c. probable.
- d. possible.

Review

The time period for classifying a liability as current is one year or the operating cycle, whichever is:

- a. longer.**
- b. shorter.
- c. probable.
- d. possible.

NOTES PAYABLE

STUDY OBJECTIVE 2

- **Obligations in the form of written promissory notes are recorded as *notes payable*.**
- **Those notes due for payment within one year of the balance sheet date are usually classified as current liabilities.**

NOTES PAYABLE

General Journal			
Date	Account Titles	Debit	Credit
March 1	Cash	100,000	
	Notes Payable		100,000

When an interest-bearing note is issued, the assets received generally equal the face value of the note. Assume First National Bank agrees to lend \$100,000 on March 1, 2005, if Cole Williams Co. signs a \$100,000, 12%, 4-month note. Cash is debited and Notes Payable is credited.

Formula for computing interest

The formula for computing interest and its application to Cole Williams Co. are shown below:

**Face Value
of Note**

**Annual
Interest
Rate**

**Time in
Terms
of One Year**

Interest

$$\mathbf{\$100,000 \times 12\% \times 4/12 = \$4,000}$$

NOTES PAYABLE

General Journal			
Date	Account Titles	Debit	Credit
June 30	Interest Expense	4,000	
	Interest Payable		4,000

Interest accrues over the life of the note and must be recorded periodically. If Cole Williams Co. prepares financial statements semiannually, an adjusting entry is required to recognize **interest expense and **interest payable** of **\$4,000** at June 30.**

NOTES PAYABLE

General Journal			
Date	Account Titles	Debit	Credit
July 1	Notes Payable	100,000	
	Interest Payable	4,000	
	Cash		104,000

At maturity, **Notes Payable** is debited for the **face value of the note**, **Interest Payable** is debited for the **amount of accrued interest**, and **Cash** is credited for the **maturity value of the note**.

SALES TAXES PAYABLE

Study Objective 3

Sales tax is a stated percentage of the sales price on goods sold to customers by a retailer.

- The retailer collects the tax from the customer when the sale occurs.
- The retailer serves only as a **collection agent** for the taxing authority.

SALES TAXES PAYABLE

General Journal			
Date	Account Titles	Debit	Credit
Mar. 25	Cash	10,600	
	Sales		10,000
	Sales Tax Payable		600

Cash register readings are used to credit Sales and Sales Taxes Payable. If on March 25th cash register readings for Cooley Grocery show sales of **\$10,000** and sales taxes of **\$600** (sales tax rate is **6%**), the entry is a debit to **Cash** for the total, and a credit to **Sales** for the actual sales and **Sales Taxes Payable** for the amount of the sales tax.

SALES TAXES PAYABLE

STUDY OBJECTIVE 3

- When sales taxes are not rung up separately on the cash register they must be extracted from the total receipts
- If Cooley Grocery “rings up” total receipts, which are **\$10,600**, and the sales tax percentage is **6%**, we can figure sales as follows:

$$\text{\$10,600} \div 1.06 = \text{\$10,000}$$

UNEARNED REVENUES

- **Unearned Revenues** (advances from customers)
 - a company receives cash **before** a service is rendered
- **Examples:**
 - airline sells a ticket for future flights
 - attorney receives legal fees before work is done

UNEARNED REVENUES

General Journal			
Date	Account Titles	Debit	Credit
Aug. 6	Cash	500,000	
	Unearned Football Ticket		
	Revenue		500,000

If Superior University sells **10,000** season football tickets at **\$50** each for its five-game home schedule, the entry for the sale of the tickets is a debit to **Cash** for the advance received, and a credit to **Unearned Football Ticket Revenue**, a current liability.



UNEARNED REVENUES

General Journal			
Date	Account Titles	Debit	Credit
Sept. 7	Unearned Football Ticket Rev.	100,000	
	Football Ticket Revenue		100,000

As each game is completed, the **Unearned Football Ticket Revenue** account is debited for 1/5 of the unearned revenue, and the earned revenue, **Football Ticket Revenue**, is credited.



Unearned and earned revenue accounts

Shown below are specific unearned and earned revenue accounts used in selected types of businesses.

Account Title		
Type of Business	Unearned Revenue	Earned Revenue
Airline	Unearned Passenger Ticket Revenue	Passenger Revenue
Magazine Publisher	Unearned Subscription Revenue	Subscription Revenue
Hotel	Unearned Rental Revenue	Rental Revenue
Insurance Company	Unearned Premium Revenue	Premium Revenue

CURRENT MATURITIES OF LONG-TERM DEBT

Current maturities of long-term debt

- **classified as a current liability**
- **long-term debt due within one year**



FINANCIAL STATEMENT PRESENTATION

STUDY OBJECTIVE 4

- **Current liabilities**
 - first category under liabilities on the balance sheet
 - each of the principal types of current liabilities is listed separately
 - seldom listed in the order of maturity
- **Common methods of presenting current liabilities:**
 - to list them by order of magnitude, with the largest ones first
 - many companies, as a matter of custom, show notes payable and accounts payable first regardless of amount.



CATERPILLAR INC.

Balance Sheet

December 31, 2002

(in millions)

Assets

Current assets	\$14,628
Property, plant and equipment (net)	7,046
Other long-term assets	11,177
Total assets	<u>\$32,851</u>

Liabilities and Stockholders' Equity

Current liabilities

Short-term borrowings	\$2,175
Accounts payable	2,269
Accrued expenses	1,620
Accrued wages, salaries, and employee benefits	1,178
Dividends payable	120
Deferred and current income taxes payable	70
Long-term debt due within one year	3,912
Total current liabilities	<u>11,344</u>

Noncurrent liabilities	16,035
Total liabilities	<u>27,379</u>
Stockholders' equity	5,472
Total liabilities and stockholders' equity	<u>\$32,851</u>

WORKING CAPITAL FORMULA AND COMPUTATION

The excess of current assets over current liabilities is working capital. The formula for the computation of Caterpillar, Inc. working capital is shown below.

$$\begin{array}{rcccl} \text{Current} & & \text{Current} & & \text{Working} \\ \text{Assets} & - & \text{Liabilities} & = & \text{Capital} \\ \$14,628 & - & \$11,344 & = & \$3,284 \end{array}$$

CURRENT RATIO AND COMPUTATION

The current ratio permits us to compare the liquidity of different sized companies and of a single company at different times. The current ratio for Caterpillar, Inc. is shown below.

$$\begin{array}{|c|} \hline \text{Current} \\ \text{Assets} \\ \hline \end{array} / \begin{array}{|c|} \hline \text{Current} \\ \text{Liabilities} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Current} \\ \text{Ratio} \\ \hline \end{array}$$

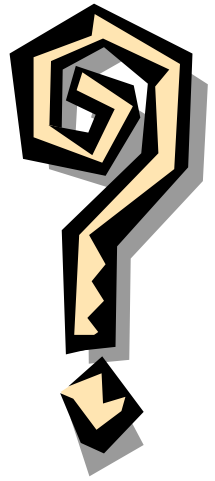
$$\$14,628 / = \$11,344 = 1.29:1$$

CONTINGENT LIABILITIES

STUDY OBJECTIVE 5

Contingent liability

A potential liability that may become an actual liability in the future.



PRODUCT WARRANTIES

■ **Product warranties**

- example of a contingent liability that should be recorded in the accounts
- The **estimated** cost of honoring product warranty contracts should be recognized as an expense in the period in which the sale occurs.

- **Warranty Expense** is reported under **selling expenses** in the income statement, and estimating warranty liability is classified as a **current liability** on the balance sheet.



COMPUTATION OF ESTIMATED PRODUCT WARRANTY LIABILITY

In 2005 Denson Manufacturing Company sells **10,000** washers and dryers at an average price of **\$600** each. The selling price includes a one-year warranty on parts. It is expected that **500** units (**5%**) will be defective and that warranty repair costs will average **\$80** per unit. The calculation of of estimated product costs on 2005 sales is as follows:

Number of units sold		10,000
Estimated rate of defective units	X	5%
Total estimated defective units		500
Average warranty repair cost	X	\$ 80
Estimated product warranty liability		\$ 40,000

ENTRIES TO RECORD WARRANTY COSTS

General Journal			
Date	Account Titles	Debit	Credit
Dec 31	Warranty Expense	40,000	
	Estimated Warranty Liability		40,000

Denson Manufacturing Company makes the adjusting entry above to accrue the **estimated warranty costs on 2005 sales. **Warranty Expense** is debited while **Estimated Warranty Liability** is credited for **\$40,000** at December 31.**

ENTRIES TO RECORD WARRANTY COSTS

General Journal			
Date	Account Titles	Debit	Credit
Jan. 1-	Estimated Warranty Liability	24,000	
Dec. 31	Repair Parts/Wages Payable		24,000

Denson Manufacturing Company makes the \$24,000 (300 X \$80) summary entry above to record repair costs incurred in 2005 to honor warranty contracts on 2005 sales. Estimated Warranty Liability is debited while Repair Parts and Wages Payable are credited by December 31.

ENTRIES TO RECORD WARRANTY COSTS

General Journal			
Date	Account Titles	Debit	Credit
Jan. 31	Estimated Warranty Liability	1,600	
	Repair Parts/Wages Pay.		1,600

Denson Manufacturing Company replaced defective units in January 2006 for \$1,600 (20 X \$80) and made the summary entry above. Estimated Warranty Liability is debited while Repair Parts and Wages Payable are credited.

PAYROLL ACCOUNTING

STUDY OBJECTIVE 6

- **Payroll** pertains to both **salaries and wages**.
- **Managerial, administrative, and sales personnel are generally paid salaries. Salaries are often expressed in terms of a specified amount per month or year.**
- **Store clerks, factory employees and manual laborers are normally paid wages based on a rate per hour.**
- **Payments made to professional individuals who are independent contractors are called fees.**
- **Government regulations relating to the payment and reporting of payroll taxes apply only to employees.**

INTERNAL CONTROLS FOR PAYROLL

- **The objectives of internal accounting control concerning payroll are:**
 - 1 to safeguard company assets from unauthorized payments of payrolls and**
 - 2 to ensure the accuracy and reliability of the accounting records pertaining to payrolls.**
- **Payroll activities involve four functions:**
 - 1 hiring employees,**
 - 2 timekeeping,**
 - 3 preparing the payroll, and**
 - 4 paying the payroll.**

HIRING EMPLOYEES

- The **human resources department** is responsible for ensuring the accuracy of the **personnel authorization form**.
- The human resources department is also responsible for authorizing changes in employment status:
 - 1 changes in pay rates**
 - 2 termination of employment.**



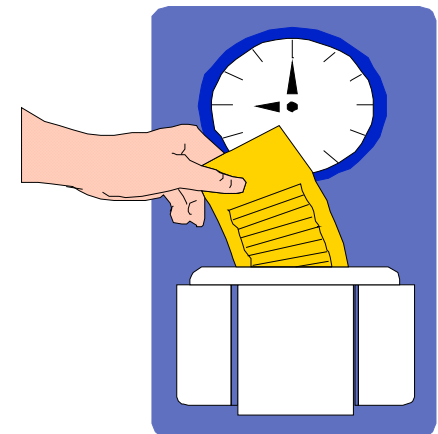
TIMEKEEPING

- Hourly employees are usually required to record time worked by **“punching” a time clock**. Times of arrival and departure are automatically recorded by the employee by inserting a time card into the clock.
- In large companies time clock procedures are often monitored by a supervisor or security guard to make sure an employee punches only one card.
- The employee’s supervisor:
 - 1 approves the hours shown by signing the time card at the end of the pay period and**
 - 2 authorizes any overtime hours for an employee.**

PREPARING THE PAYROLL

The **payroll is** prepared in the payroll department on the basis of **two** inputs:

- 1 human resources department authorizations**
- 2 approved time cards.**



DETERMINING AND PAYING THE PAYROLL

STUDY OBJECTIVE 7

- **Determining the payroll involves computing three amounts:**
 - 1 gross earnings**
 - 2 payroll deductions**
 - 3 net pay**
- **The payroll is paid by the treasurer's department.**
 - 1 Payment by check minimizes the risk of loss from theft and**
 - 2 the endorsed check provides proof of payment.**

COMPUTATION OF TOTAL WAGES

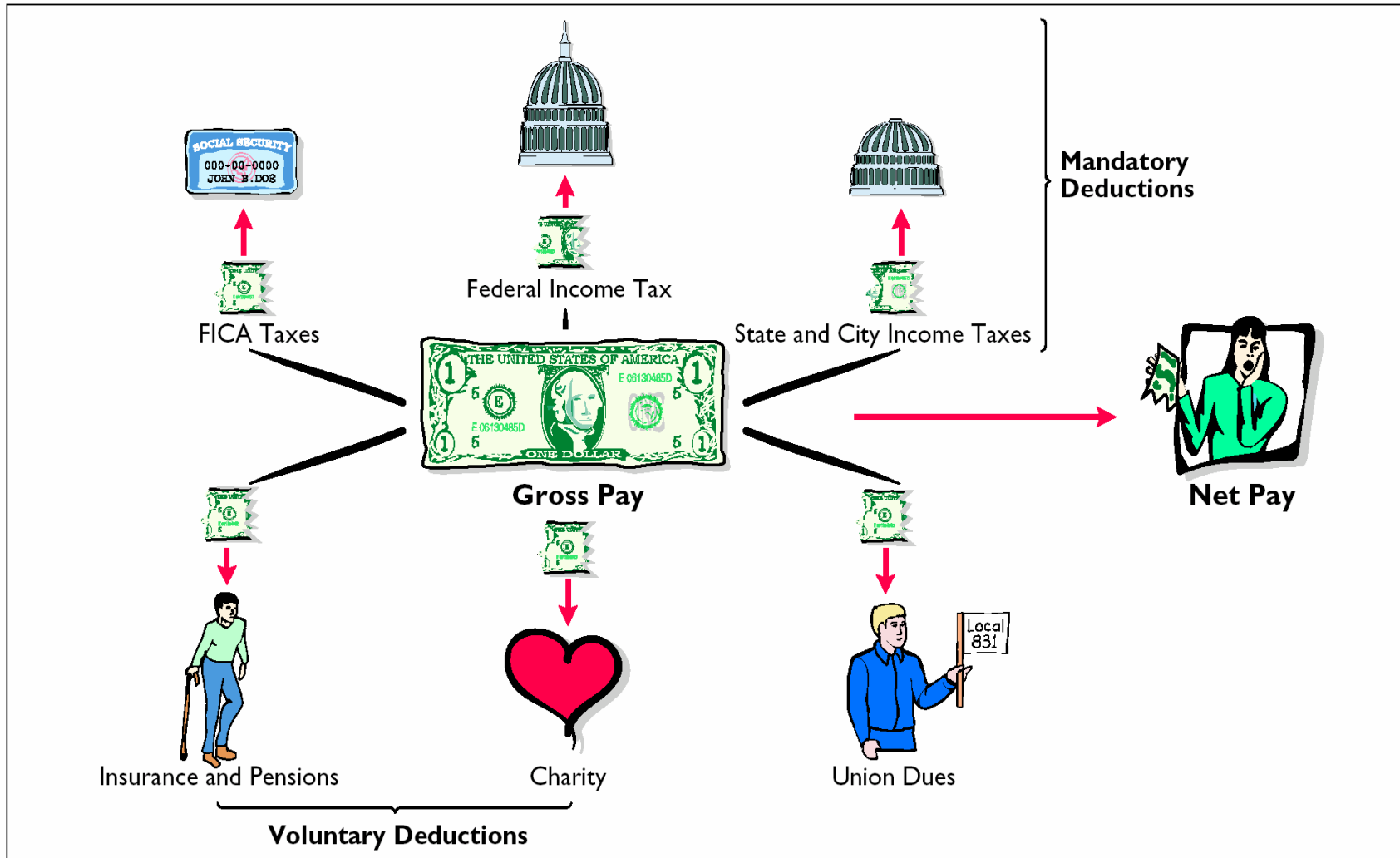
- **Gross earnings** is the total compensation earned by an employee.
- It consists of **wages** or **salaries**, plus any **bonuses and commissions**.
- Total wages are determined by multiplying the **hours worked** by the **hourly rate of pay**.
- Most companies are required to pay a minimum of **1 1/2** the regular hourly rate for overtime work.

<u>Type of Pay</u>	<u>Hours</u>	X	<u>Rate</u>	=	<u>Gross Earnings</u>
Regular	40	X	\$ 12.00	=	\$ 480.00
Overtime	4	X	18.00	=	72.00
Total wages					\$ 552.00

PAYROLL DEDUCTIONS

- **The difference between gross pay and the amount **actually received** is attributable to **payroll deductions**.**
- **Mandatory deductions consist of **FICA taxes** and **income taxes**.**
- **The employer is merely a collection agent and subsequently transfers the amounts deducted to the government and designated recipients.**

PAYROLL DEDUCTIONS



FICA TAXES

- **FICA taxes** (or **social security taxes**) are designed to provide workers with supplemental retirement, employment disability, and medical benefits.
- The benefits are financed by a tax levied on employees' earnings.
- The tax rate and tax base for FICA are set by Congress.



INCOME TAXES

- **Income taxes** are required to be withheld from employees each pay period
- Amount is determined by **3** variables:
 - 1** the employee's gross earnings
 - 2** the number of allowances claimed by the employee
 - 3** the length of the pay period
- To indicate to the **Internal Revenue Service** the number of allowances claimed, the employee must complete an **Employee's Withholding Certificate (Form W-4)**.



VOLUNTARY DEDUCTIONS

- **Voluntary Deductions**
 - pertain to withholdings for charitable, retirement, and other purposes
 - authorized in writing by the employee.



COMPUTATION OF NET PAY

Gross earnings		\$ 552.00
Payroll deductions:		
FICA taxes	\$ 44.16	
Federal income taxes	49.00	
State income taxes	11.04	
United Fund	10.00	
Union dues	5.00	119.20
Net pay		\$ 432.80

Net pay (or **take-home pay**) is determined by subtracting payroll deductions from gross earnings. Assuming an employee's wages are **\$552** each week, the employee will earn **\$28,704** for the year (**52 weeks X \$552**). Thus, all earnings are subject to FICA taxes.

RECORDING THE PAYROLL

- **Employee earnings record**
 - 1 determines when an employee has earned the maximum earnings subject to FICA taxes**
 - 2 file state and federal payroll tax returns**
 - 3 provides each employee with a statement of gross earnings and tax withholdings for the year**
- **Many companies use a payroll register to accumulate the gross earnings, deductions, and net pay by employee for each period.**

RECOGNIZING PAYROLL EXPENSES AND LIABILITIES

General Journal			
Date	Account Titles	Debit	Credit
Jan 14	Office Salaries Expense	5,200.00	
	Wages Expense	12,010.00	
	FICA Taxes Payable		1,376.80
	Federal Income Taxes Pay.		3,490.00
	State Income Taxes Pay.		344.20
	United Fund Pay.		421.50
	Union Dues Pay.		115.00
	Salaries and Wages Pay.		11,462.50

Academy Company records its payroll for the week ending January 14, 2005 with the journal entry above. **Office Salaries Expense (\$5,200)** and **Wages Expense (\$12,010)** are debited in total for **\$17,210** in **gross earnings**. Specific liability accounts are credited for the deductions made during the pay period. **Salaries and Wages Payable** is credited for **\$11,462.50** in **net earnings**.

RECORDING PAYMENT OF THE PAYROLL

General Journal			
Date	Account Titles	Debit	Credit
Jan. 14	Salaries and Wages Pay.	11,462.50	
	Cash		11,462.50

The entry to record payment of the Academy Company payroll is a debit to **Salaries and Wages Payable** and a credit to **Cash**. When currency is used in payment, one check is prepared for the amount of **net earnings (\$11,462.50)**.

EMPLOYER PAYROLL TAXES

STUDY OBJECTIVE 8

Payroll Tax Expense- three taxes levied on employers by governmental agencies.

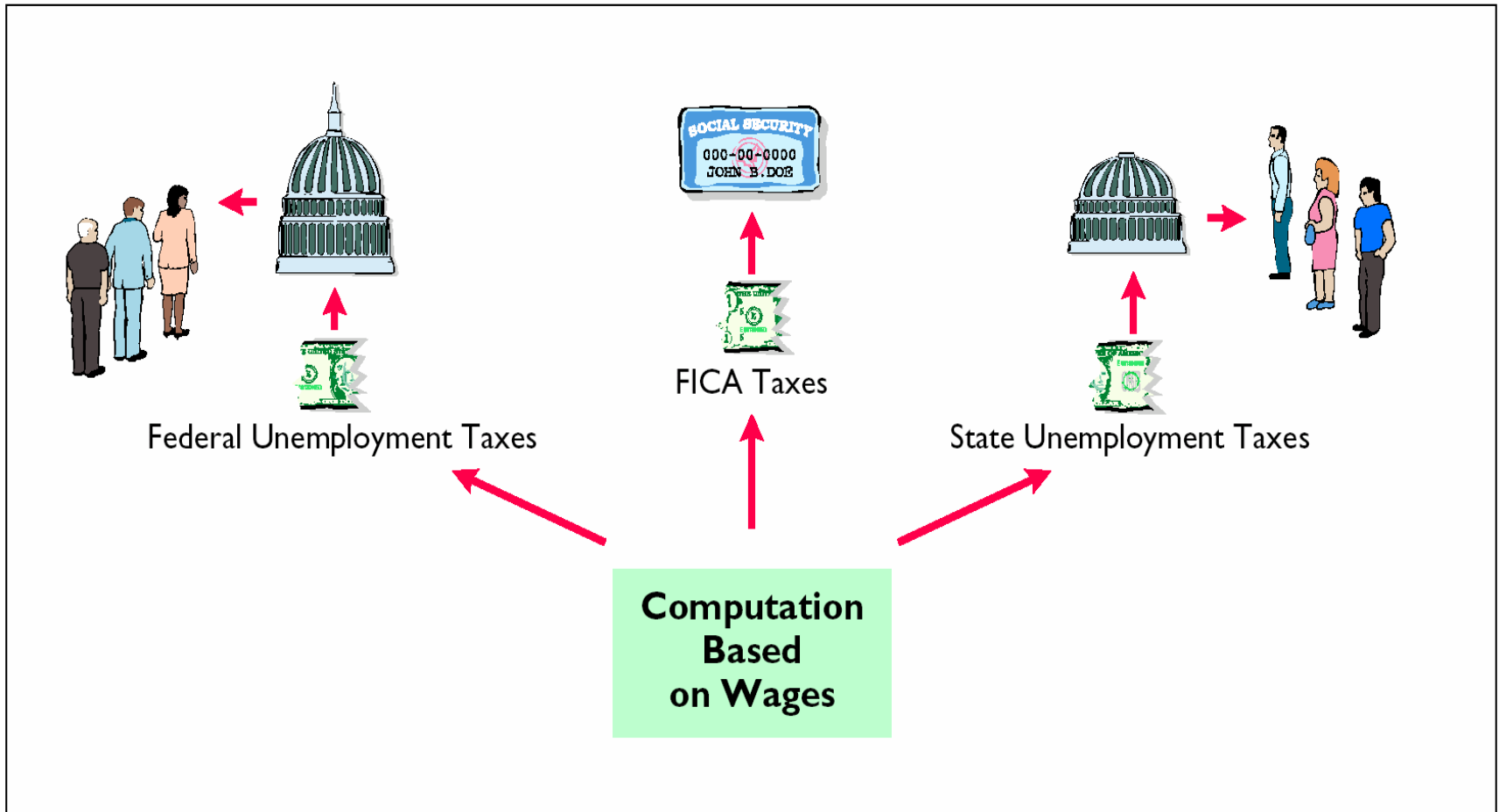
- 1 Employer must match each employee's FICA contribution**
- 2 Federal unemployment taxes (FUTA)**
- 3 State unemployment taxes (SUTA)**

RECORDING EMPLOYER PAYROLL TAXES

The entry to record the **payroll tax expense** associated with the Academy Company payroll results in a debit to **Payroll Tax Expense** for **\$2,443.82**, a credit to **FICA Taxes Payable** for **\$1,376.80** ($\$17,210 \times 8\%$), a credit to **FUTA Payable** for **\$137.68** ($\$17,210 \times 0.8\%$), and a credit to **SUTA Payable** for **\$929.34** ($\$17,210 \times 5.4\%$).

General Journal			
Date	Account Titles	Debit	Credit
Jan 14	Payroll Tax Expense	2,443.82	
	FICA Taxes Payable		1,376.80
	Fed. Unemployment Taxes Pay.		137.68
	State Unemployment Taxes Pay.		929.34

EMPLOYER PAYROLL TAXES

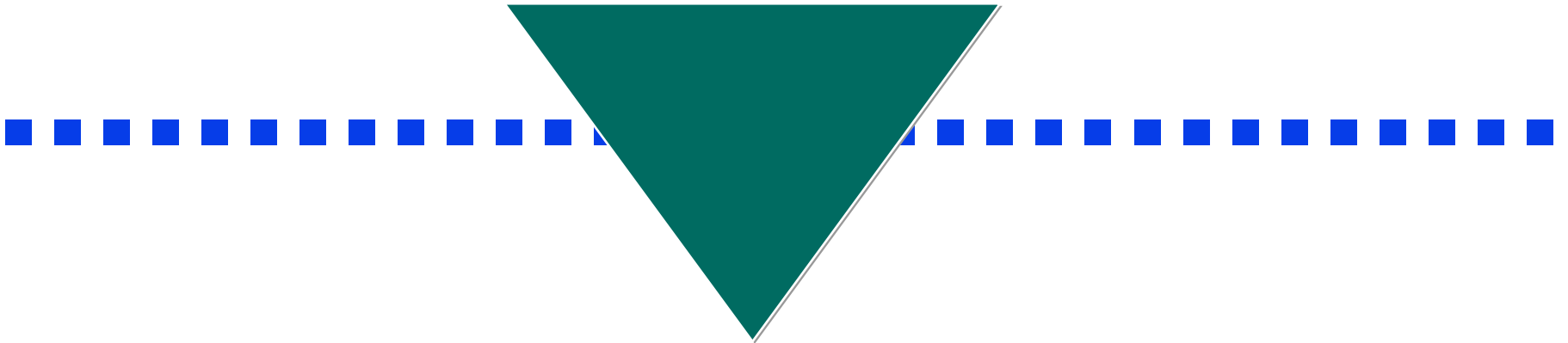


FILING AND REMITTING PAYROLL TAXES

- **Preparation** of payroll tax returns is the responsibility of the **payroll department**. **Payment** of the taxes is made by the **treasurer's department**.
- **FICA taxes** and **Federal income taxes (FIT)** withheld are combined for reporting and remitting purposes.
- The taxes are **reported quarterly** – no later than one month after the close of each quarter.
- **FUTA taxes** are generally filed and remitted **annually** on or prior to January 31 of the subsequent year.
- **SUTA taxes** must be filed and paid by the **end of the month following each quarter**.
- The employer is required to provide each employee with a **Wage and Tax Statement (Form W-2)** by January 31 following the end of the calendar year.

Appendix

Additional Fringe Benefits



ADDITIONAL FRINGE BENEFITS

PAID ABSENCES

Employees often are given rights to receive compensation for absences when certain conditions of employment are met. Such compensation may relate to 1) **paid vacations**, 2) **sick pay benefits**, and 3) **paid holidays**. A liability should be accrued for paid future absences if 1) **its payment is probable** and 2) **the amount can be reasonably estimated**. Academy Company employees are entitled to one day's vacation for each month worked. If **30** employees earn an average of **\$110** per day in a given month, the accrual for vacation benefits for January is **\$3,300** (**\$110 X 30**). The liability is recognized at January 31 by the following adjusting entry:

General Journal			
Date	Account Titles	Debit	Credit
Jan. 31	Vacation Benefits Expense	3,300	
	Vacation Benefits Payable		3,300

ADDITIONAL FRINGE BENEFITS PAID ABSENCES

When **vacation benefits** are paid, **Vacation Benefits Payable** is debited and **Cash** is credited. If Academy Company pays such benefits for **10** employees in July, the journal entry to record the payment is for **\$1,100** (**\$110 X 10**).

General Journal			
Date	Account Titles	Debit	Credit
July 31	Vacation Benefits Pay.	1,100	
	Cash		1,100

POSTRETIREMENT BENEFITS

- **Postretirement benefits** are benefits provided by employers to retired employees for:
 - 1 health care and life insurance**
 - 2 pensions**
- Both types of postretirement benefits are accounted for on the **accrual basis**.

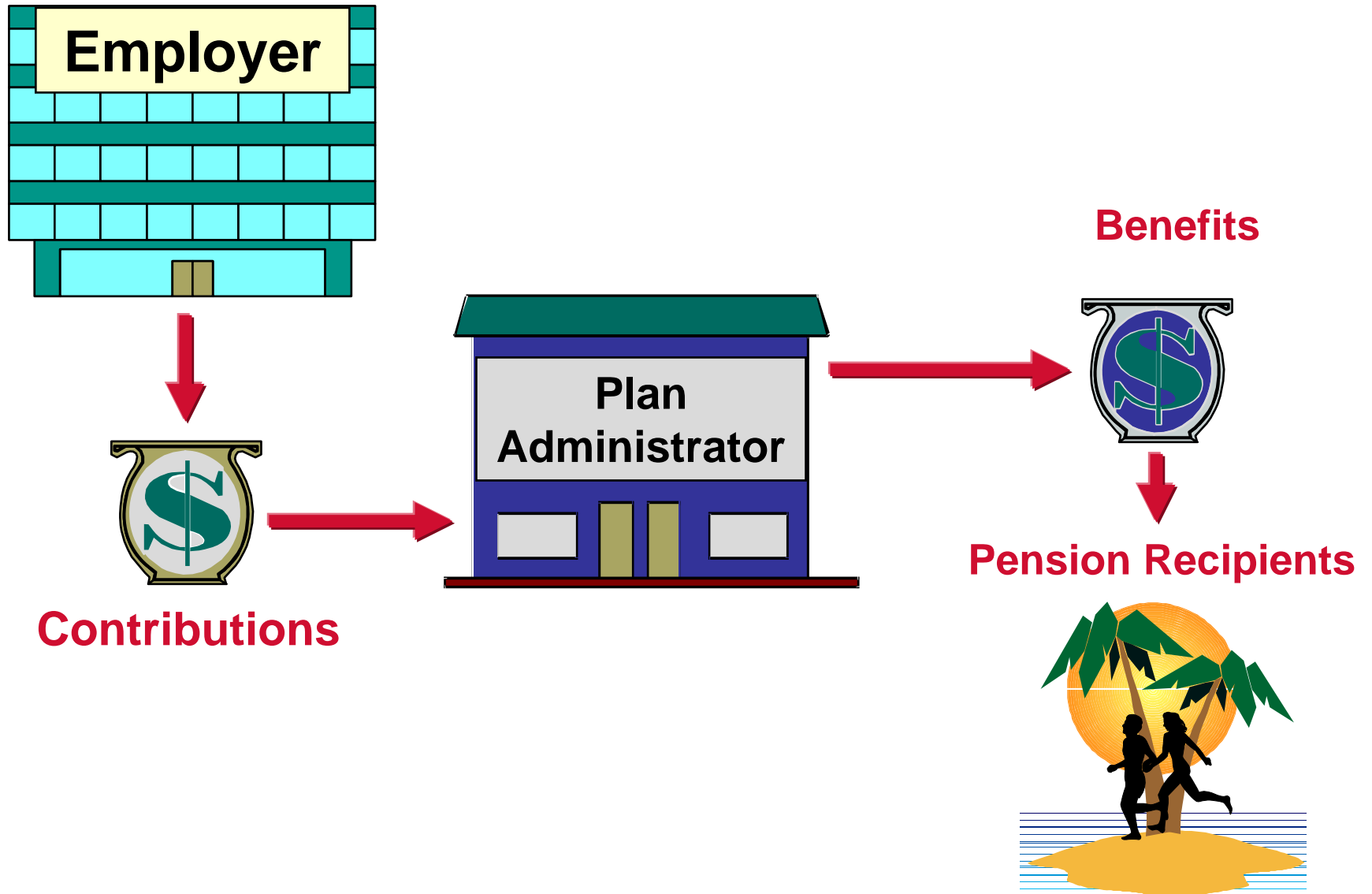


PENSION PLANS

- A **pension plan** is an **agreement** whereby an employer provides benefits to employees after they retire.
- **Three** parties are generally involved in a pension plan.
 - 1) The **employer** sponsors the pension plan.
 - 2) The **plan administrator** receives the contributions from the employer, invests the pension assets, and makes the benefit payments.
 - 3) The **retired employees** receive the pension payments.



PARTIES IN A PENSION PLAN



Review

The department that should pay the payroll is the:

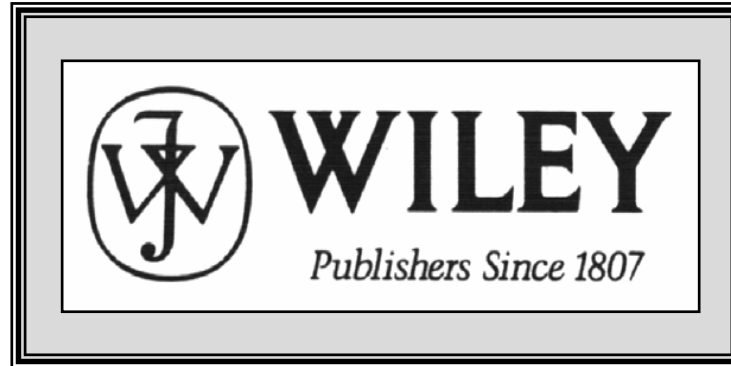
- a. timekeeping department.
- b. human resources department.
- c. payroll department.
- d. treasurer's department.

Review

The department that should pay the payroll is the:

- a. timekeeping department.
- b. human resources department.
- c. payroll department.
- d. treasurer's department.**

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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 12

Accounting Principles

Prepared by Naomi Karolinski
Monroe Community College

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Marianne Bradford
Bryant College

CHAPTER 12

ACCOUNTING PRINCIPLES

After studying this chapter, you should be able to:

- 1 Explain the meaning of generally accepted accounting principles and identify the key items of the conceptual framework.**
- 2 Describe the basic objectives of financial reporting.**
- 3 Discuss the qualitative characteristics of accounting information and elements of financial statements.**

CHAPTER 12

ACCOUNTING PRINCIPLES

After studying this chapter, you should be able to:

- 4 Identify the basic assumptions used by accountants.**
- 5 Identify the basic principles of accounting.**
- 6 Identify the two constraints in accounting.**
- 7 Explain the accounting principles used in international operations.**

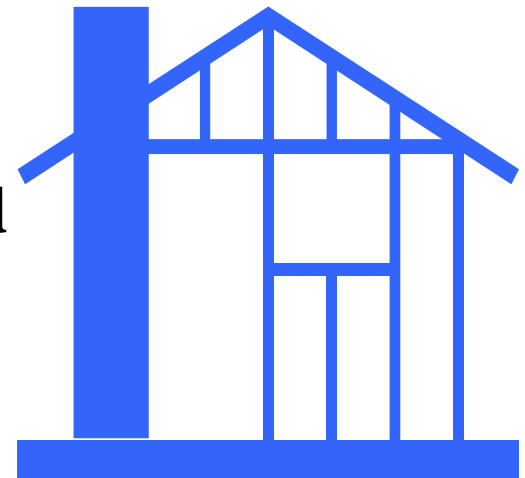
CONCEPTUAL FRAMEWORK OF ACCOUNTING

STUDY OBJECTIVE 1

- **Generally accepted accounting principles**
 - set of standards and rules that are recognized as a general guide for financial reporting
- **Generally accepted**
 - means that these principles must have substantial authoritative support
- **Financial Accounting Standards Board (FASB) and Securities and Exchange Commission (SEC)**
- **The FASB has the responsibility for developing accounting principles in the United States.**

FASB'S CONCEPTUAL FRAMEWORK

- The **conceptual framework** developed by the FASB serves as the basis for resolving accounting and reporting problems.
- The conceptual framework consists of:
 - 1) objectives of financial reporting;
 - 2) qualitative characteristics of accounting information;
 - 3) elements of financial statements; and
 - 4) operating guidelines (assumptions, principles, and constraints).



OBJECTIVES OF FINANCIAL REPORTING

STUDY OBJECTIVE 2

FASB objectives of financial reporting are to provide information that is:

- 1** useful to those making investment and credit decisions
- 2** helps in assessing future cash flows
- 3** identifies the economic resources (**assets**), the claims to those resources (**liabilities**), and the changes in those resources and claims

QUALITATIVE CHARACTERISTICS OF ACCOUNTING INFORMATION

STUDY OBJECTIVE 3

To be useful, information should possess the following qualitative characteristics:

- 1 relevance**
- 2 reliability**
- 3 comparability**
- 4 consistency**

RELEVANCE

- Accounting information has **relevance** if it makes a **difference** in a decision.
- Relevant information helps users forecast future events (**predictive value**), or it confirms or corrects prior expectations (**feedback value**).
- Information must be available to decision makers before it loses its capacity to influence their decisions (**timeliness**).

RELIABILITY

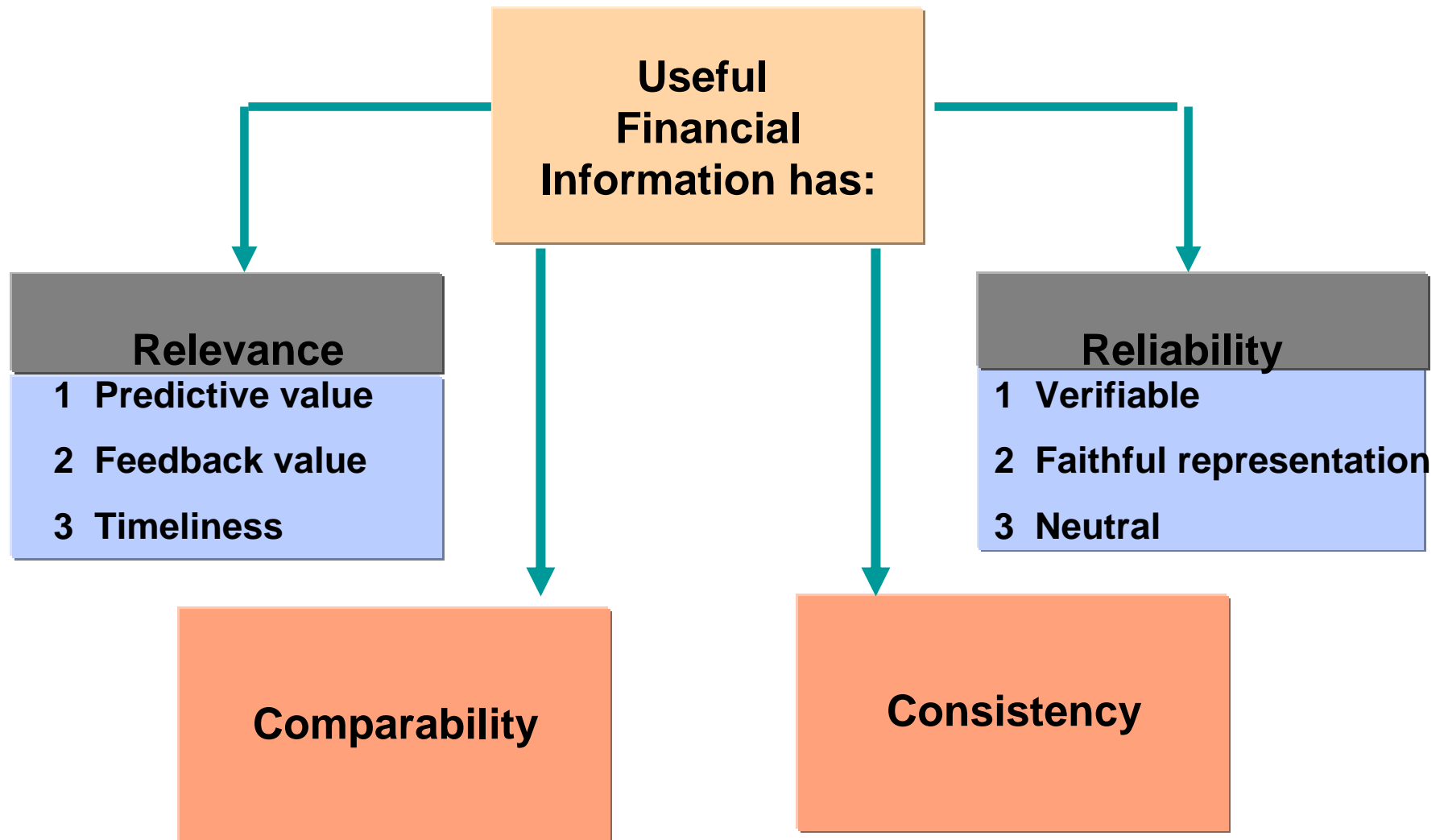
- **Reliability** of information means that the information is free of error and bias, in short, it can be depended on.
- To be reliable, accounting information must be **verifiable**.

COMPARABILITY AND CONSISTENCY

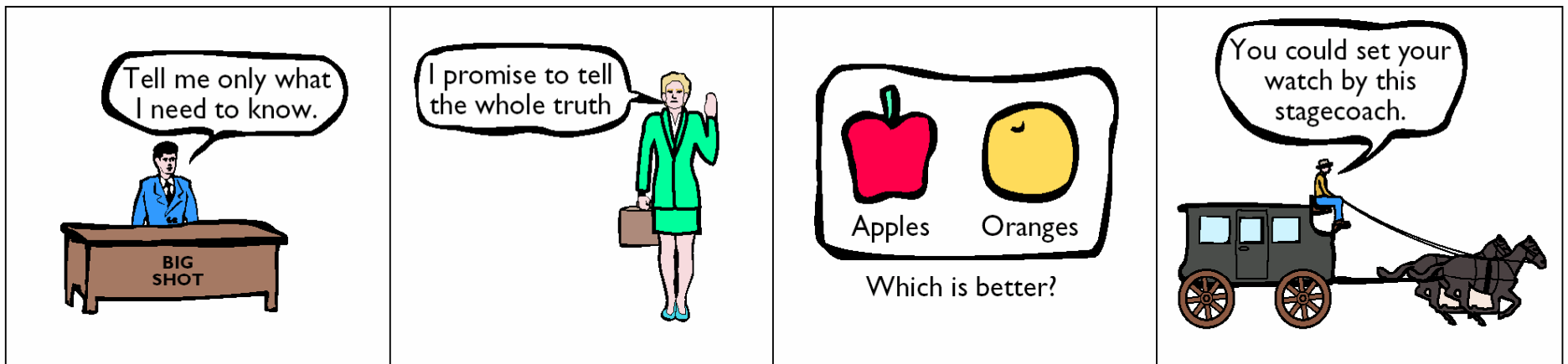
- **Comparability** means that the information should be comparable with accounting information about other enterprises.
- **Consistency** means that the same accounting principles and methods should be used from year to year within a company.



QUALITATIVE CHARACTERISTICS OF ACCOUNTING INFORMATION



CHARACTERISTICS OF USEFUL INFORMATION



Relevance

1. Provides a basis for forecasts
2. Confirms or corrects prior expectations
3. Is timely

Reliability

1. Is verifiable
2. Is a faithful representation
3. Is neutral

Comparability

Different companies use similar accounting principles

Consistency

Company uses same accounting methods from year to year

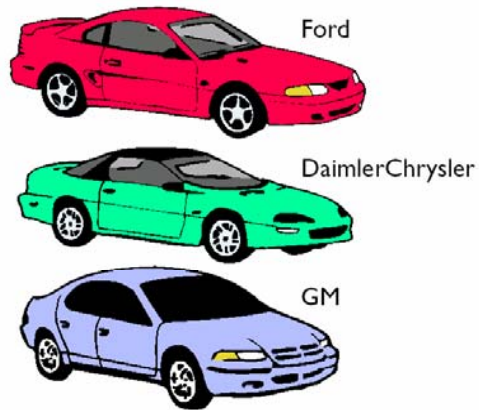
THE OPERATING GUIDELINES OF ACCOUNTING

- **Operating guidelines** are classified as **assumptions, principles, and constraints.**
- **Assumptions** provide a foundation for the accounting process.
- **Principles** indicate how transactions and other economic events should be recorded.
- **Constraints** on the accounting process allow for a relaxation of the principles under certain circumstances.

Assumptions	Principles	Constraints
Monetary unit Economic entity Time period Going concern	Revenue recognition Matching Full disclosure Cost	Materiality Conservatism

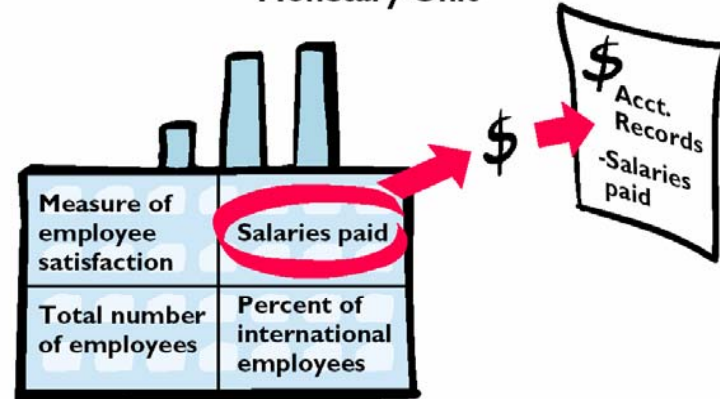
ASSUMPTIONS USED IN ACCOUNTING

Economic Entity



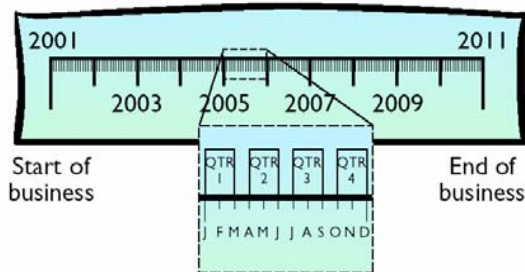
Economic events can be identified with a particular unit of accountability.

Monetary Unit



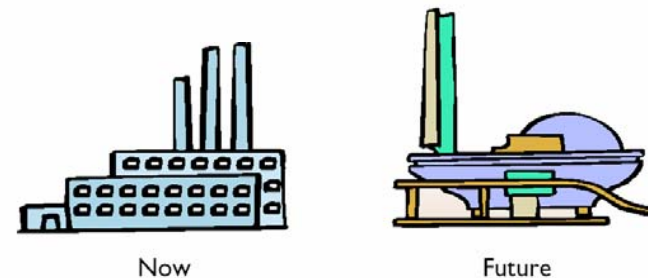
Only transaction data capable of being expressed in terms of money should be included in the accounting records of the economic entity.

Time Period



The economic life of a business can be divided into artificial time periods.

Going Concern



The enterprise will continue in operation long enough to carry out its existing objectives.

Review

The primary criterion by which accounting information can be judged is:

- a. consistency.
- b. predictive value.
- c. decision-usefulness.
- d. comparability.

Review

The primary criterion by which accounting information can be judged is:

- a. consistency.
- b. predictive value.
- c. decision-usefulness.
- d. comparability.

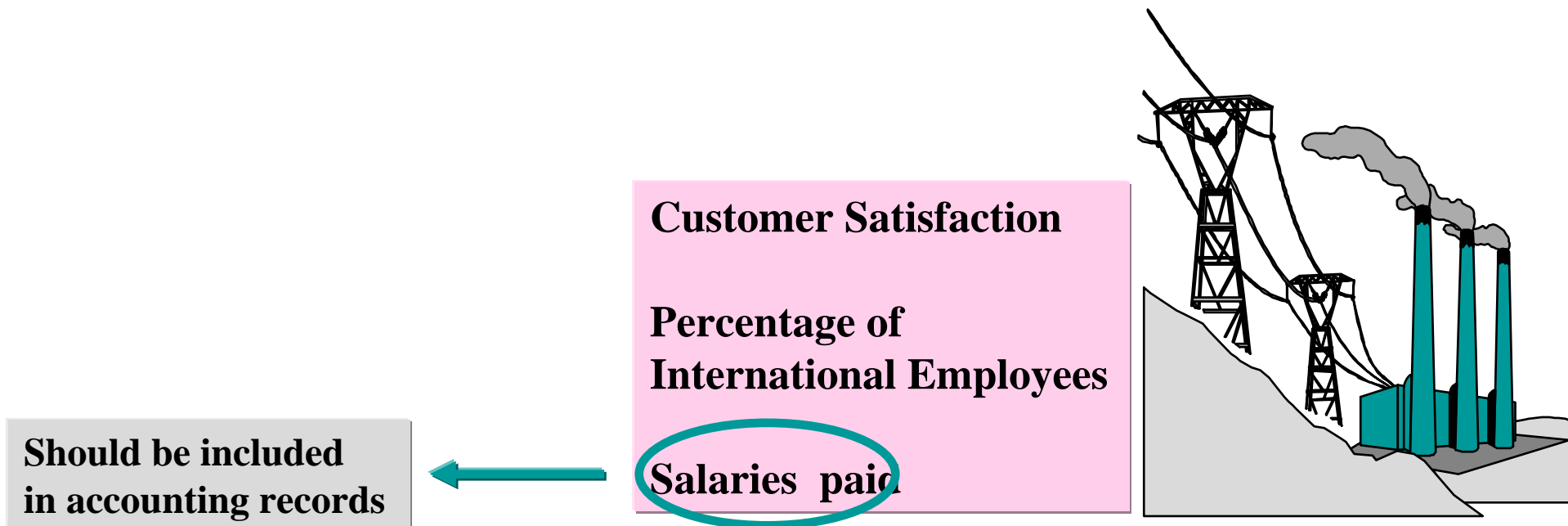
ASSUMPTIONS

STUDY OBJECTIVE 4

Monetary unit assumption:

- only transaction data expressed in terms of money can be included in the accounting records

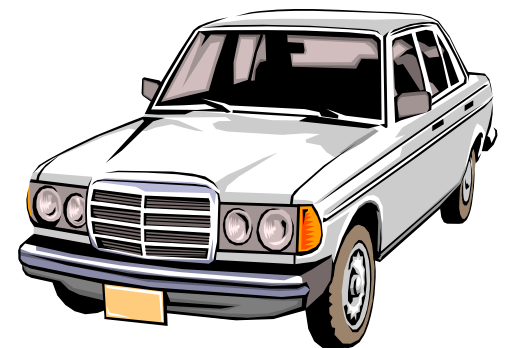
Example: employee satisfaction and percent of international employees are not transactions that should be included in the financial records.



ECONOMIC ENTITY ASSUMPTION

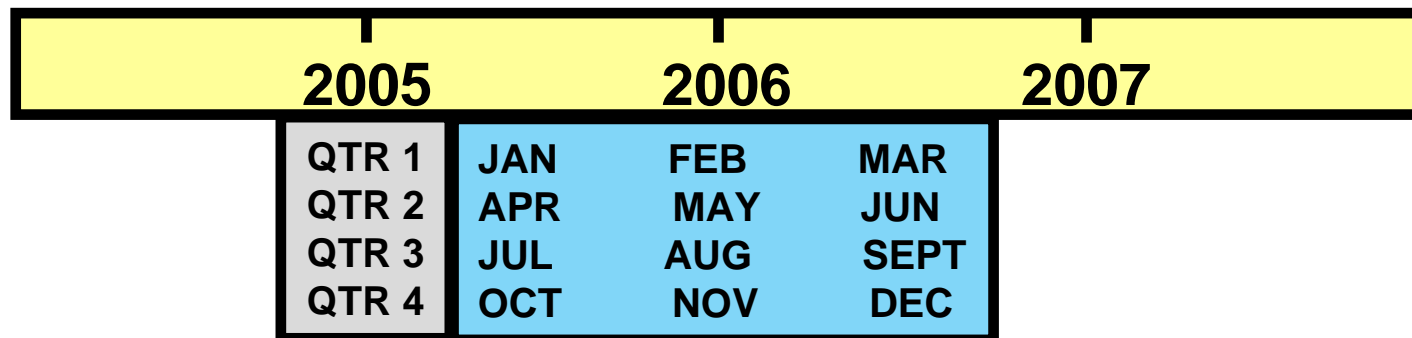
Activities of the entity kept separate and distinct from the activities of the owner and all other economic entities.

Example: **BMW** activities can be distinguished from those of other car manufacturers such as **Mercedes**.



TIME PERIOD ASSUMPTION

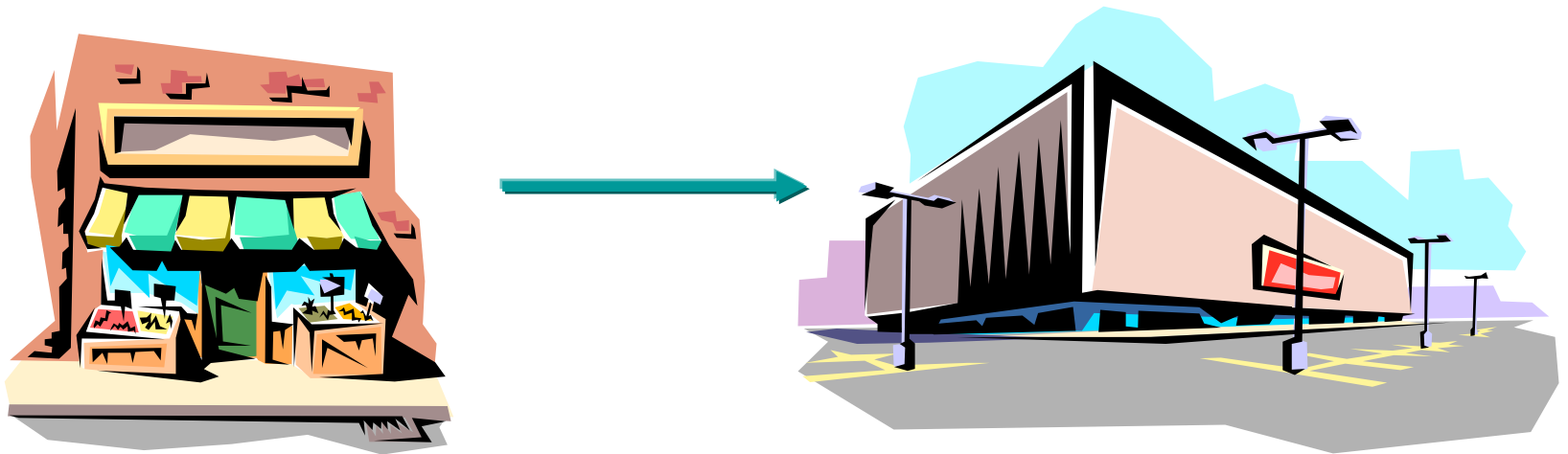
Economic life of a business divided into artificial time periods.



GOING CONCERN ASSUMPTION

Enterprise will continue in operation long enough to carry out its existing objectives.

Implications: depreciation and amortization are used, plant assets recorded at cost instead of liquidation value, items are labeled as fixed or long-term.



PRINCIPLES

REVENUE RECOGNITION

STUDY OBJECTIVE 5

- **Revenue recognition principle** dictates that revenue should be recognized in the accounting period in which it is earned.
- **When a sale is involved, revenue is recognized at the point of sale.**



PERCENTAGE-OF-COMPLETION METHOD OF REVENUE RECOGNITION

- In long-term construction contracts, revenue recognition is usually required before the contract is completed.
- The **percentage-of-completion method** recognizes revenue on the basis of reasonable estimates of **progress toward completion**.
- A project's progress toward completion is measured by comparing the costs incurred in a year to total estimated costs of the entire project.



FORMULA TO RECOGNIZE REVENUE IN THE PERCENTAGE-OF-COMPLETION METHOD

**Costs Incurred
(Current
Period)**

÷

**Total
Estimated
Cost**

=

**Percent
Complete
(Current
Period)**

**Percent
Complete
(Current
Period)**

X

Total Revenue

=

**Revenue
Recognized
(Current
Period)**

FORMULA TO COMPUTE GROSS PROFIT IN CURRENT PERIOD

The costs incurred in the current period are then **subtracted** from the revenue recognized during the current period to arrive at the **gross profit**.

Revenue
Recognized
(Current
Period)

X

Cost Incurred
(Current
Period)

=

Gross Profit
Recognized
(Current
Period)

REVENUE RECOGNIZED PERCENTAGE-OF-COMPLETION METHOD

Warrior Construction Co. has a contract to build a dam for **\$400 million**. It will take **3 years (starting in 2005)** at a construction cost of **\$360 million**. Assume that Warrior incurs **\$54 million in 2005**, **\$180 million in 2006**, and **\$126 million in 2007** on the dam project. The portion of the **\$400 million** of revenue recognized in **each of the 3 years** is shown below:

Year	Costs Incurred (Current Period)	÷	Total Estimated Cost	=	Percent Complete (Current Period)	X	Total Revenue	=	Revenue Recognized (Current Period)	
2005	\$ 54,000,000		\$ 360,000,000		15%		\$ 400,000,000		\$ 60,000,000	
2006	180,000,000		360,000,000		50%		400,000,000		200,000,000	
2007	126,000,000		Balance required to complete the contract							140,000,000
Totals	<u>\$ 360,000,000</u>								<u>\$ 400,000,000</u>	

GROSS PROFIT RECOGNIZED PERCENTAGE-OF-COMPLETION METHOD

The **gross profit** recognized each period for Warrior Construction Co. is as shown below. Use of the **percentage-of-completion method** involves some subjectivity. As a result, **errors are possible** in determining the amount of **revenue recognized**. To wait until completion would seriously distort the financial statements. If it is **not possible to obtain dependable estimates of costs and progress**, then the **revenue should be recognized at the completion date and not by the percentage-of-completion method**.

Year	Revenue Recognized (Current Period)	–	Actual Cost Incurred (Current Period)	=	Gross Profit Recognized (Current Period)
2005	\$ 60,000,000		\$ 54,000,000		\$ 6,000,000
2006	200,000,000		180,000,000		20,000,000
2007	140,000,000		126,000,000		14,000,000
Totals	<u>\$ 400,000,000</u>		<u>\$ 360,000,000</u>		<u>\$ 40,000,000</u>

GROSS PROFIT FORMULA

INSTALLMENT METHOD

- Under **installment method**, each cash collection from a customer consists of
 - 1) a **partial recovery of the cost of goods sold** and
 - 2) **partial gross profit from the sale.**
- The formula to recognize gross profit is shown below.

$$\begin{array}{|c|} \hline \text{Cash} \\ \text{Collections from} \\ \text{Customers} \\ \hline \end{array} \times \begin{array}{|c|} \hline \text{Gross Profit} \\ \text{Percentage} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Gross Profit} \\ \text{Recognized} \\ \text{during the} \\ \text{Period} \\ \hline \end{array}$$

GROSS PROFIT RECOGNIZED INSTALLMENT METHOD

An Iowa farm machinery dealer had **installment sales** in its first year of operations of **\$600,000** and a **cost of goods sold on installment** of **\$420,000**. Therefore, **total gross profit** is **\$180,000** ($\$600,000 - \$420,000$), and the **gross profit percentage** is **30%** ($\$180,000 \div \$600,000$). The **collections on the installment sales** were: **First year, \$280,000** (down payments plus monthly payments), **second year, \$200,000**, and **third year, \$120,000**. The collections of cash and recognition of the gross profit are summarized below (ignoring interest charges).

<u>Year</u>	<u>Cash Collected</u>	X	<u>Gross Profit Percentage</u>	=	<u>Gross Profit Recognized</u>
2005	\$ 280,000		30%		\$ 84,000
2006	200,000		30%		60,000
2007	120,000		30%		36,000
Totals	\$ 600,000				\$ 180,000

MATCHING

(EXPENSE RECOGNITION)

Expense recognition is traditionally tied to **revenue recognition**.

- referred to as the **matching principle**
- dictates that expenses be matched with revenues in the period in which efforts are made to generate revenues.

MATCHING (EXPENSE RECOGNITION)

PRINCIPLE

Unexpired costs become expenses in two ways:

1) Cost of goods

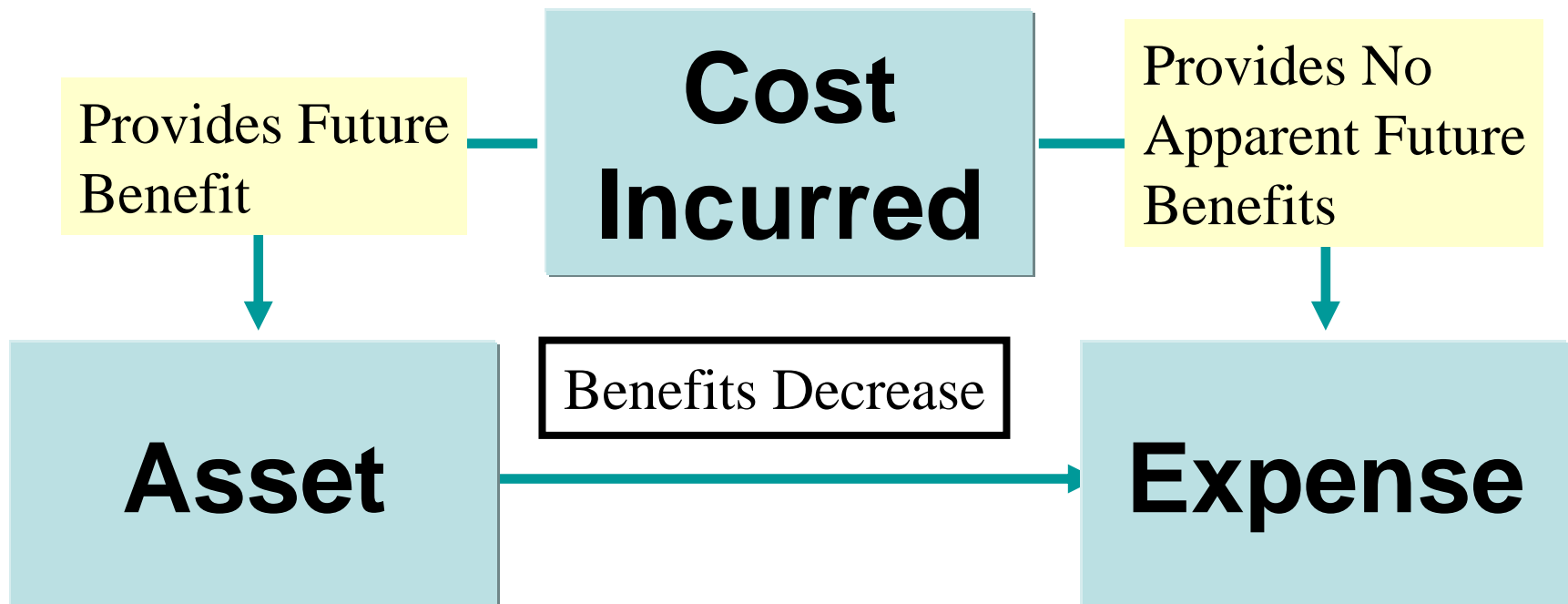
merchandise inventory becomes expensed when the inventory is sold

2) Operating expenses

other unexpired costs through use or consumption or through the passage of time

EXPENSE RECOGNITION PATTERN

Operating expenses contribute to the revenues of the period but their association with revenues is less direct than for cost of goods sold.



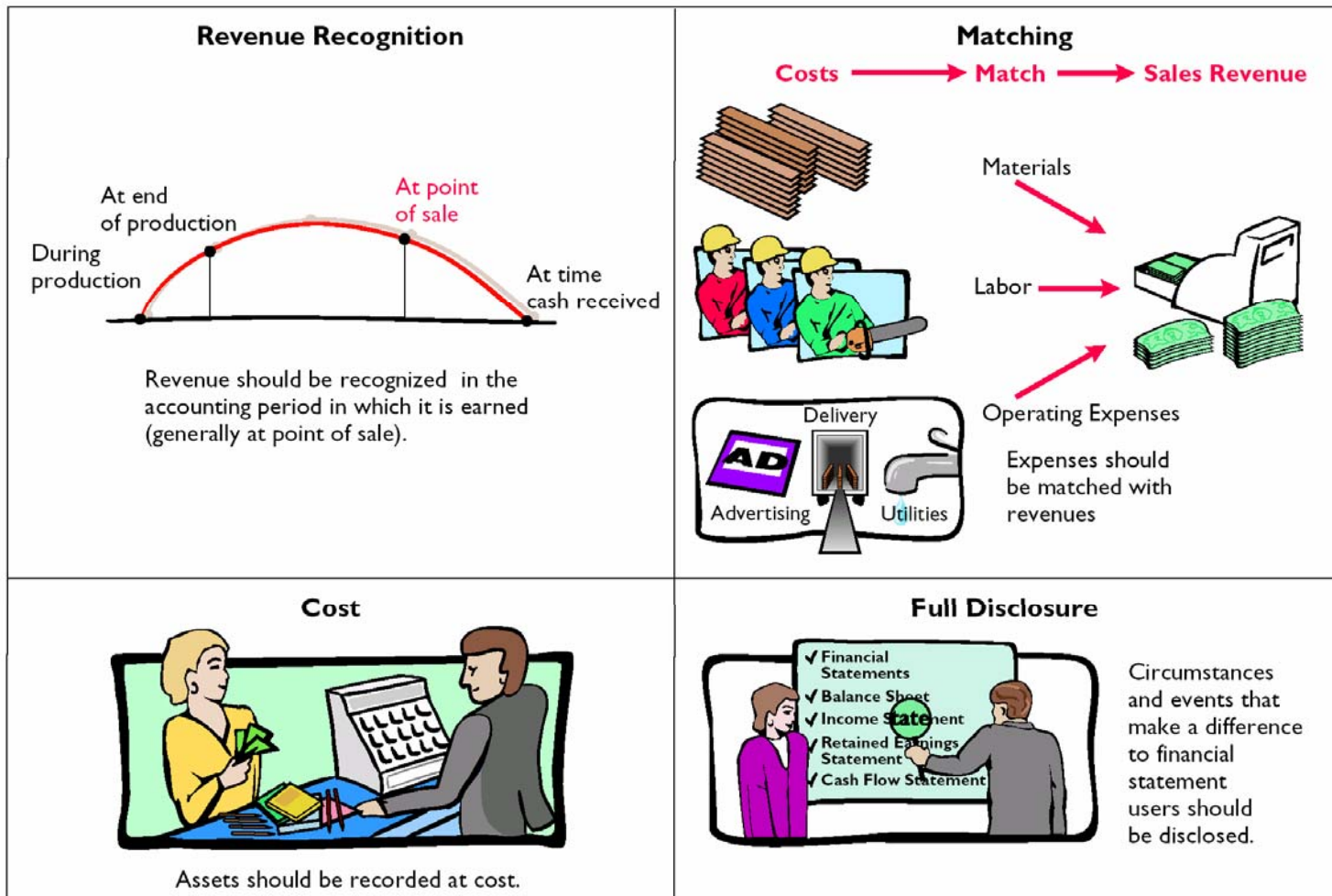
FULL DISCLOSURE PRINCIPLE

- **Requires that circumstances and events that make a difference to financial statement users be disclosed.**
- **Compliance with the full disclosure principle**
 - 1) data in the financial statements**
 - 2) notes that accompanying the statements**
- **Summary of significant accounting policies usually the first note to the financial statements**

COST PRINCIPLE

- The **cost principle** dictates that **assets be recorded at their cost.**
- **Cost is used because it is both relevant and reliable.**
 - 1) Cost is relevant** because it represents **a) the price paid, b) the assets sacrificed, or c) the commitment made at the date of acquisition.**
 - 2) Cost is reliable** because it is **a) objectively measurable, b) factual, and c) verifiable.**

BASIC PRINCIPLES USED IN ACCOUNTING



CONSTRAINTS IN ACCOUNTING

STUDY OBJECTIVE 6

Two constraints

- **Materiality**

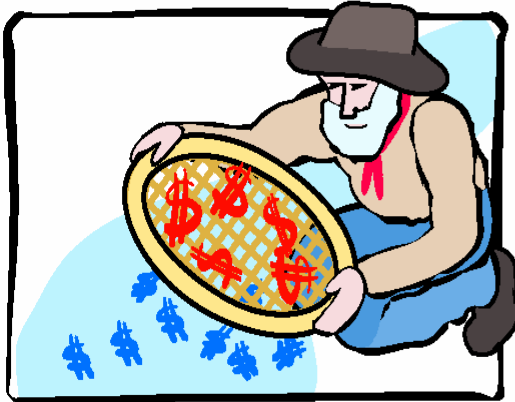
- relates to an item's impact on a firm's **overall financial condition** and **operations**.

- **Conservatism**

- dictates that when in doubt, choose the method that will be the least likely to overstate **assets** and **income**

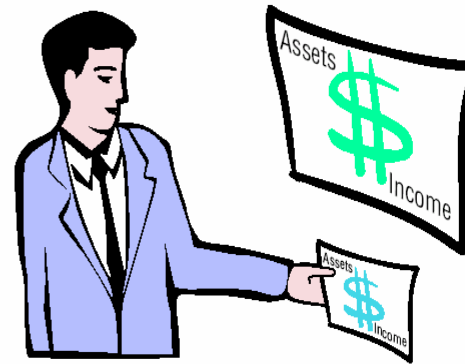
CONSTRAINTS IN ACCOUNTING

Materiality



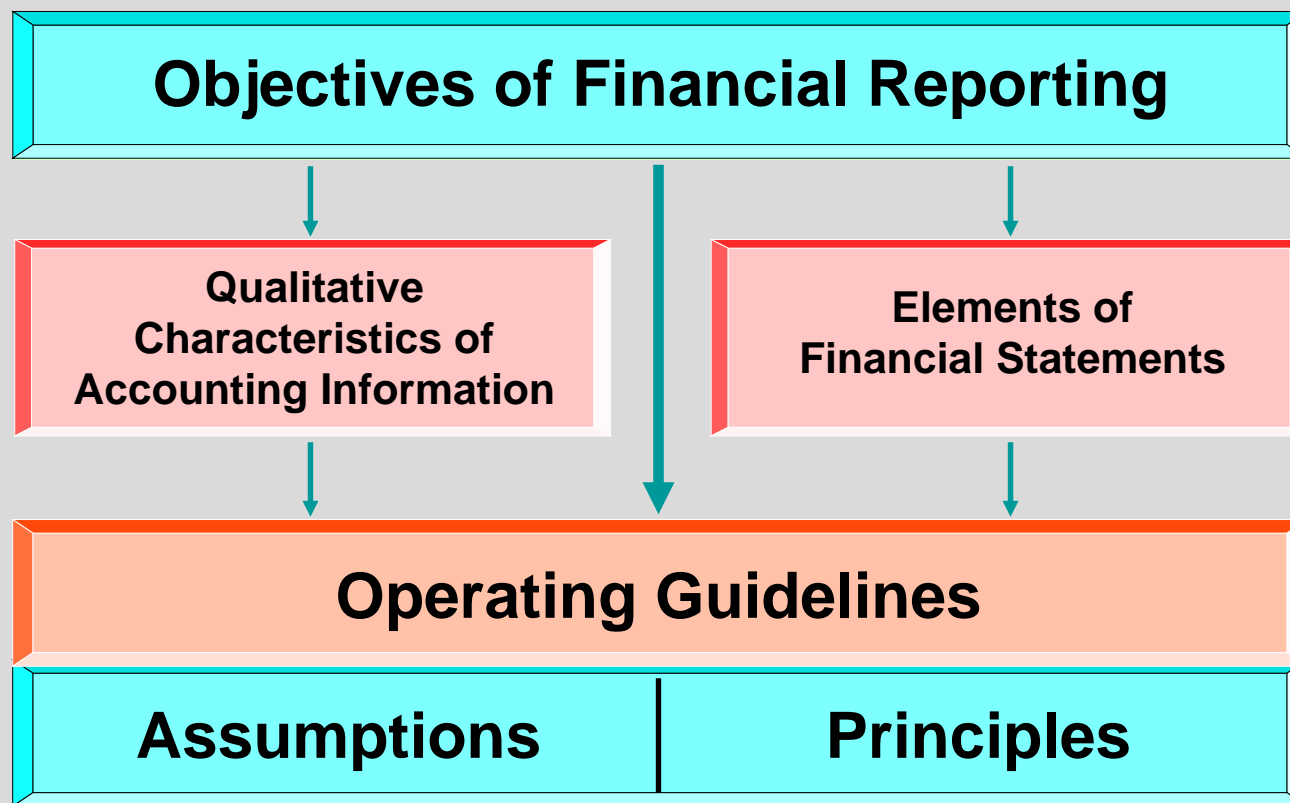
For small amounts, GAAP does not have to be followed.

Conservatism



When in doubt, choose the solution that will be least likely to overstate assets and income.

CONCEPTUAL FRAMEWORK



FOREIGN SALES AND TYPE OF PRODUCT

STUDY OBJECTIVE 7

- **World markets are becoming increasingly intertwined, and foreigners consume American goods.**
- **Americans use goods from many other countries.**
- **Firms that conduct operations in more than one country through subsidiaries, divisions, or branches in foreign countries are referred to as multinational corporations.**
- **International transactions must be translated into U.S. dollars.**

Review

The organization that issues international accounting standards is the:

- a. Financial Accounting Standards Board
- b. International Accounting Standards Board.
- c. International Auditing Standards Committee.
- d. None of the above.

Review

The organization that issues international accounting standards is the:

- a. Financial Accounting Standards Board
- b. International Accounting Standards Board.**
- c. International Auditing Standards Committee.
- d. None of the above.

CHAPTER 12

ACCOUNTING PRINCIPLES



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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 13

Accounting for Partnerships

Prepared by Naomi Karolinski
Monroe Community College

and

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CHAPTER 13

ACCOUNTING FOR PARTNERSHIPS

After studying this chapter, you should be able to:

- 1 Identify the characteristics of the partnership form of business organization.**
- 2 Explain the accounting entries for the formation of a partnership.**
- 3 Identify the basis for dividing net income or net loss.**
- 4 Describe the form and content of partnership financial statements.**
- 5 Explain the effects of the entries to record liquidation of a partnership.**

PARTNERSHIP FORM OF ORGANIZATION

STUDY OBJECTIVE 1

- **Uniform Partnership Act**
 - basic rules for the formation and operation of partnerships in more than 90 percent of the states
 - defines a **partnership**
 - an association of two or more persons to carry on as co-owners of a business for a profit.

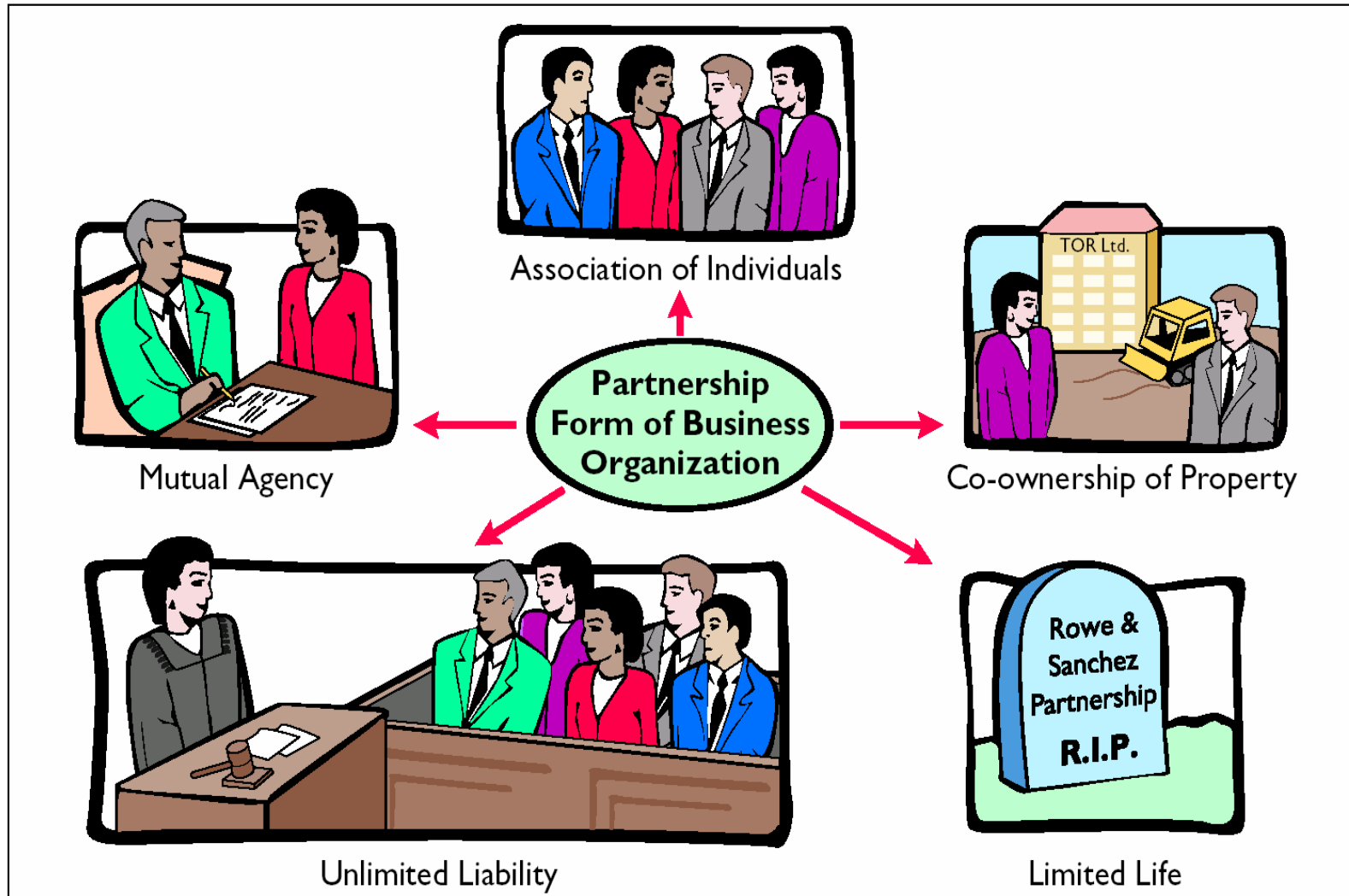


CHARACTERISTICS OF PARTNERSHIPS

Principal characteristics of a partnership

- 1 Association of individuals**
- 2 Mutual agency**
- 3 Limited life**
- 4 Unlimited liability**
- 5 Co-ownership of property**

PARTNERSHIP CHARACTERISTICS



MUTUAL AGENCY

- **Mutual agency**
 - each partner acts on behalf of the partnership when engaging in partnership business
 - act of any partner is binding on all other partners
 - (true even when partners act beyond the scope of their authority, so long as the act appears to be appropriate for the partnership)

ASSOCIATION OF INDIVIDUALS

- **Association of individuals**
 - may be based on as simple an act as a handshake, it is preferable to state the agreement **in writing**
- **A partnership**
 - **legal entity** for certain purposes (i.e., property can be owned in the name of the partnership)
 - **accounting entity** for financial reporting purposes
- **Net income of a partnership**
 - not taxed as a separate entity
 - each partner's share of income is taxable at personal tax rates



LIMITED LIFE

- **Partnerships**
 - have a **limited life**
 - **dissolution**
 - whenever a partner withdraws or a new partner is admitted
 - ends **involuntarily**
 - by death or incapacity of a partner
 - may end **voluntarily**
 - through acceptance of a new partner or withdrawal of a partner

UNLIMITED LIABILITY

- **Unlimited liability**
 - each partner is personally and individually liable for all partnership liabilities.
 - creditors' claims attach first to partnership assets
 - if insufficient assets
 - claims then attach to the personal resources of any partner, irrespective of that partner's capital equity in the company



CO-OWNERSHIP OF PROPERTY

- **Partnership Assets**
 - assets invested in the partnership are owned jointly by all the partners
- **Partnership Income or Loss**
 - co-owned; if the partnership contract does not specify to the contrary, net income or net loss is shared equally by the partners



ADVANTAGES AND DISADVANTAGES OF A PARTNERSHIP

Advantages

Combining skills and resources of two or more individuals
Ease of formation
Freedom from governmental regulations and restrictions
Ease of decision making

Disadvantages

Mutual agency
Limited life
Unlimited liability



THE PARTNERSHIP AGREEMENT

Partnership agreement (Articles of co-partnership)

– written contract

- 1 Names and capital contributions of the partners.**
- 2 Rights and duties of partners.**
- 3 Basis for sharing net income or net loss.**
- 4 Provision for withdrawals of assets.**
- 5 Procedures for submitting disputes to arbitration.**
- 6 Procedures for the withdrawal or addition of a partner.**
- 7 Rights and duties of surviving partners in the event of a partner's death.**

Review

Which of the following is *not* a characteristic of a partnership:

- a. Taxable entity.
- b. Co-ownership of property.
- c. Mutual agency.
- d. Limited Life.

Review

Which of the following is *not* a characteristic of a partnership:

- a. Taxable entity.
- b. Co-ownership of property.
- c. Mutual agency.
- d. Limited Life.

FORMING A PARTNERSHIP

STUDY OBJECTIVE 2

- **Initial investment**
 - recorded **at the fair market value of the assets at the date of their transfer to the partnership**
 - values assigned must be agreed to by all of the partners
- **Once partnership has been formed**
 - accounting is similar to accounting for transactions of any other type of business organization

Computer recorded at its **FMV of \$2,500** instead of book value, which after depreciation may be much lower.

BOOK AND MARKET VALUE OF ASSETS INVESTED

A. Rolfe and T. Shea combine their proprietorships to start a partnership. They have the following assets prior to the formation of the partnership:

	Book Value		Market Value	
	A. Rolfe	T. Shea	A. Rolfe	T. Shea
Cash	\$ 8,000	\$ 9,000	\$ 8,000	\$ 9,000
Office equipment	5,000		4,000	
Accumulated depreciation	(2,000)			
Accounts receivable		4,000		4,000
Allowance for doubtful accounts		(700)		(1,000)
	<u>\$ 11,000</u>	<u>\$ 12,300</u>	<u>\$ 12,000</u>	<u>\$ 12,000</u>

RECORDING INVESTMENTS IN A PARTNERSHIP

Entries to record the investments are:

Account Titles and Explanation	Debit	Credit
<u>Investment of A. Rolfe</u>		
Cash	8,000	
Office Equipment	4,000	
A. Rolfe, Capital		12,000
(To record investment of Rolfe)		
<u>Investment of T. Shea</u>		
Cash	9,000	
Accounts Receivable	4,000	
Allowance for Doubtful Accounts		1,000
T. Shea, Capital		12,000
(To record investment of Shea)		

DIVIDING NET INCOME OR NET LOSS

- **Partnership net income or net loss**
 - shared equally unless the partnership contract indicates otherwise
 - is called the **income ratio** or the **profit and loss ratio**
 - partner's share of net income or net loss is recognized in the accounts through **closing entries**

CLOSING ENTRIES

- 4 closing entries** are required for a partnership:
- 1) Debit each revenue account** for its balance and **credit Income Summary** for total revenues.
 - 2) Debit Income Summary** for total expenses and **credit each expense account** for its balance.
 - 3) Debit (credit) Income Summary** for its balance and **credit (debit) each partner's capital account** for his or her share of **net income (net loss)**.
 - 4) Debit each partner's capital account** for the balance in that partner's drawing account and **credit each partner's drawing account** for the same amount.

CLOSING ENTRIES

The **first 2 entries** are the same as a **proprietorship**, while the **last 2 entries** are **different** because:

- 1) there are **2 or more owners'**
capital and drawing accounts
- 2) it is necessary to **divide net income or loss** among the **partners.**



CLOSING NET INCOME AND DRAWING ACCOUNTS

The AB Company has net income of \$32,000 for 2005. The partners, L. Arbor and D. Barnett, share net income and net loss equally, and drawings for the year were Arbor \$8,000 and Barnett \$6,000. The last two closing entries are:

Date	Account Titles and Explanation	Debit	Credit
Dec. 31	Income Summary	32,000	
	L. Arbor, Capital (\$32,000 X 50%)		16,000
	D. Barnett, Capital (\$32,000 X 50%)		16,000
	(To transfer net income to owners' capital accounts)		
31	L. Arbor, Capital	8,000	
	D. Barnett, Capital	6,000	
	L. Arbor, Drawing		8,000
	D. Barnett, Drawing		6,000
	(To close drawing accounts to capital accounts)		

PARTNERS' CAPITAL AND DRAWING ACCOUNTS AFTER CLOSING

Beginning capital balance is \$47,000 for Arbor and \$36,000 for Barnett, the capital and drawing accounts will show the following after posting the closing entries:

L. Arbor, Capital					
12/31	Closing	8,000	1/1	Balance	47,000
			12/31	Closing	16,000
			12/31	Balance	55,000
L. Arbor, Drawing					
12/31	Balance	8,000	12/31	Closing	8,000
D. Barnett, Capital					
12/31	Closing	6,000	1/1	Balance	36,000
			12/31	Closing	16,000
			12/31	Balance	46,000
D. Barnett, Drawing					
12/31	Balance	6,000	12/31	Closing	6,000

INCOME RATIOS

STUDY OBJECTIVE 3

The partnership agreement should specify the **basis for sharing net income or net loss**. Typical income ratios:

1 A fixed ratio

- expressed as a **proportion (6:4)**, a **percentage (70% and 30%)**, or a **fraction (2/3 and 1/3)**.

2 A ratio based on either:

- capital balances at the beginning of the year or
- on average capital balances during the year

3 Salaries to partners and the remainder on a fixed ratio.

4 Interest on partners' capital balances and the remainder on a fixed ratio

5 Salaries to partners, interest on partners' capitals, and the remainder on a fixed ratio

TYPICAL INCOME-SHARING RATIOS

Salaries, Interest and the Remainder on a Fixed Ratio

Sara King and Ray Lee agree to

- A. Salary Allowance of \$8,400 to King, \$6,000 to Lee**
- B. Interest of 10% on Capital Balances**
- C. Remainder Equally**

TYPICAL INCOME-SHARING RATIOS

Salaries, Interest and the Remainder on a Fixed Ratio

Capital balances - January 1, 2005

Sara King – \$28,000

Ray Lee – \$24,000

INCOME STATEMENT WITH DIVISION OF NET INCOME

Sara King and Ray Lee are copartners in the Kingslee Company. The partnership agreement provides for 1) salary allowances of \$8,400 for Sara and \$6,000 for Ray, 2) interest allowances of 10% on capital balances at the beginning of the year, and 3) the remainder equally. The division of the 2005 net income of \$22,000 is as follows:

KINGSLEE COMPANY			
Income Statement			
For the Year Ended December 31, 2005			
Sales			\$200,000
Net income			<u>\$22,000</u>
Division of Net Income			
	Sara King	Ray Lee	Total
Salary allowance	<u>\$ 8,400</u>	<u>\$6,000</u>	<u>\$14,400</u>
Interest allowance on partner's behalf			
Sara King (\$28,000 X 10%)	2,800		
Ray Lee (\$24,000 X 10%)		2,400	
Total interest allowances			<u>5,200</u>
Total salaries and interest	<u>11,200</u>	<u>8,400</u>	<u>19,600</u>
Remaining income – \$2,400			
Sara King (\$2,400 X 50%)	1,200		
Ray Lee (\$2,400 X 50%)		1,200	
Total remainder			<u>2,400</u>
Total division	<u><u>\$ 12,400</u></u>	<u><u>\$9,600</u></u>	<u><u>\$22,000</u></u>

SALARIES, INTEREST, AND REMAINDER ON A FIXED RATIO

Date	Account Titles and Explanation	Debit	Credit
Dec. 31	Income Summary Sara King, Capital Ray Lee, Capital (To close net income to partners' capitals)	22,000	12,400 9,600

TYPICAL INCOME-SHARING RATIOS CAPITAL BALANCES

- **Income-sharing ratio**
 - may be based either on capital balances at the **beginning of the year**
 - or on **average capital balances during the year.**
- **Capital balances income-sharing**
 - may be equitable when a manager is hired to run the business and the partners do not plan to take an active role in daily operation.

TYPICAL INCOME-SHARING RATIOS BASED ON SALARIES ALLOWANCES

**Income-sharing based on salary allowances
may be:**

- 1) Salary allowances to partners and the remainder
on a fixed ratio or**
- 2) Salary allowances to partners, interest on
partners' capitals, and the remainder on a fixed ratio.**

*** Salaries to partners and interest on partner's capital
balances are not expenses-these items are not included in
determination of net income or net loss.**

Review

The NBC Company reports net income of \$60,000. If partners N, B, and C have an income ratio of 50%, 30%, and 20%, respectively, C's share of net income is:

- a. \$30,000.
- b. \$12,000.
- c. \$18,000.
- d. No correct answer is given.

Review

The NBC Company reports net income of \$60,000. If partners N, B, and C have an income ratio of 50%, 30%, and 20%, respectively, C's share of net income is:

- a. \$30,000.
- b. \$12,000.
- c. \$18,000.
- d. No correct answer is given.

PARTNER'S CAPITAL STATEMENT

STUDY OBJECTIVE 4

The owners' equity statement for a partnership is called the **partners' capital statement**. Its function is to explain the changes **1)** in **each partner's capital account** and **2)** in **total partnership capital during the year**. The enclosed partners' capital statement for the Kingslee Company is based on the division of **\$22,000 of net income**.

KINGSLEE COMPANY Partners' Capital Statement For the Year Ended December 31, 2005

	Sara King	Ray Lee	Total
Capital, January 1	\$ 28,000	\$ 24,000	\$52,000
Add: Additional investment	2,000		2,000
Net income	12,400	9,600	22,000
	<u>42,400</u>	<u>33,600</u>	<u>76,000</u>
Less: Drawings	7,000	5,000	12,000
Capital, December 31	<u>\$ 35,400</u>	<u>\$ 28,600</u>	<u>\$ 64,000</u>

OWNER'S EQUITY SECTION OF A PARTNERSHIP BALANCE SHEET

The partners' capital statement is prepared from the **income statement** and the **partners' capital and drawing accounts**. The **balance sheet** for a partnership is the **same as for a proprietorship except in the owners' equity section**. The **capital balances of the partners** are shown in the **balance sheet**. The owners' equity section of the balance sheet for Kingslee Company is enclosed.

KINGSLEE COMPANY Balance Sheet - partial December 31, 2005

Total liabilities (assumed amount)		\$ 115,000
Owners' equity		
Sara King, Capital	\$ 35,400	
Ray Lee, Capital	<u>28,600</u>	
Total owners' equity		<u>64,000</u>
Total liabilities and owners' equity		<u><u>\$ 179,000</u></u>

LIQUIDATION OF A PARTNERSHIP

The **liquidation of a partnership** terminates the business. In a liquidation, it is necessary to:

- 1) sell noncash assets for cash and recognize a gain or loss on realization**
- 2) allocate gain/loss on realization to the partners based on their income ratios**
- 3) pay partnership liabilities in cash, and**
- 4) distribute remaining cash to partners on the basis of their remaining capital balances**

Each of the steps:

- 1) must be performed in sequence- Creditors must be paid before partners receive any cash distributions and**
- 2) must be recorded by an accounting entry**

ACCOUNT BALANCES PRIOR TO LIQUIDATION

STUDY OBJECTIVE 5

- **No capital deficiency**
 - all partners have credit balances in their capital accounts
- **Capital deficiency**
 - one partner's **capital account** has a debit balance

Ace Company is liquidated with these balances:

Assets		Liabilities and Owners' Equity	
Cash	\$ 5,000	Notes payable	\$ 15,000
Accounts receivable	15,000	Accounts payable	16,000
Inventory	18,000	R. Arnet, Capital	15,000
Equipment	35,000	P. Carey, Capital	17,800
Accumulated depreciation – equipment	(8,000)	W. Eaton, Capital	1,200
	<u>\$ 65,000</u>		<u>\$ 65,000</u>

LIQUIDATION OF A PARTNERSHIP NO CAPITAL DEFICIENCY

Ace Company partners decide to liquidate. The income ratios are 3:2:1

- 1. Noncash assets are sold for \$75,000.**
- 2. Book value of these assets is \$60,000**
- 3. A gain of \$15,000 is realized on the sale**

Account Titles and Explanation	Debit	Credit
(1)		
Cash	75,000	
Accumulated Depreciation – Equipment	8,000	
Accounts Receivable		15,000
Inventory		18,000
Equipment		35,000
Gain on Realization		15,000
(To record realization of noncash assets)		

LIQUIDATION OF A PARTNERSHIP

NO CAPITAL DEFICIENCY

2. The **gain on realization** of **\$15,000** is allocated to the partners on their **income ratios**, which are **3:2:1**.

The entry is:

Account Titles and Explanation	Debit	Credit
(2)		
Gain on Realization	15,000	
R. Arnet, Capital ($\$15,000 \times 3/6$)		7,500
P. Carey, Capital ($\$15,000 \times 2/6$)		5,000
W. Eaton, Capital ($\$15,000 \times 1/6$)		2,500
(To allocate gain to partners' capitals)		

LIQUIDATION OF A PARTNERSHIP

NO CAPITAL DEFICIENCY

3. Partnership liabilities consist of **Notes Payable \$15,000 and **Accounts Payable \$16,000**. Creditors are paid in full by a **cash payment of \$31,000**. The entry is:**

Account Titles and Explanation	Debit	Credit
(3)		
Notes Payable	15,000	
Accounts Payable	16,000	
Cash		31,000
(To record payment of partnership liabilities)		

LEDGER BALANCES BEFORE DISTRIBUTION OF CASH

4. The remaining cash is distributed to the partners on the basis of their **capital balances**. After the entries in the **first 3 steps** are posted, all partnership accounts – including **Gain on Realization** – will have **zero balances** except for **4 accounts**: **Cash \$49,000**; **R. Arnet, Capital \$22,500**; **P. Carey, Capital \$22,800**; and **W. Eaton, Capital \$3,700** – as shown below:

Cash				R. Arnet, Capital		P. Carey, Capital		W. Eaton, Capital	
Bal.	5,000	(3)	31,000	Bal.	15,000	Bal.	17,800	Bal.	1,200
(1)	75,000			(2)	7,500	(2)	5,000	(2)	2,500
Bal.	49,000			Bal.	22,500	Bal.	22,800	Bal.	3,700

LIQUIDATION OF A PARTNERSHIP DISTRIBUTION OF CASH WITH NO CAPITAL DEFICIENCY

4. The remaining cash is distributed to the partners on the basis of their capital balances. After the entries in the first 3 steps are posted, all partnership accounts, including Gain on Realization, will have zero balances except for 4 accounts: Cash \$49,000; R. Arnet, Capital \$22,500; P. Carey, Capital \$22,800; and W. Eaton, Capital \$3,700. The last journal entry is as follows:

Account Titles and Explanation	Debit	Credit
(4)		
R. Arnet, Capital	22,500	
P. Carey, Capital	22,800	
W. Eaton, Capital	3,700	
Cash		49,000
(To close remaining accounts)		

LIQUIDATION OF A PARTNERSHIP CAPITAL DEFICIENCY

A **capital deficiency** may be caused by **1) recurring net losses**, **2) excessive drawings before liquidation**, or **3) losses from realization suffered through liquidation**. Ace Company is on the brink of bankruptcy. The partners decide to liquidate by having a “going-out-of-business” sale in which **1) merchandise is sold at substantial discounts** and **2) the equipment is sold at auction**. Cash proceeds from **1) these sales** and **2) collections from customers** total only **\$42,000**. Therefore, the **loss from liquidation** is **\$18,000**

(\$60,000 – \$42,000).

The steps in the liquidation process are as follows:

1. The entry for the realization of noncash assets is:

Account Titles and Explanation	Debit	Credit
(1)		
Cash	42,000	
Accumulated Depreciation – Equipment	8,000	
Loss on Realization	18,000	
Accounts Receivable		15,000
Inventory		18,000
Equipment		35,000
(To record realization of noncash assets)		

LIQUIDATION OF A PARTNERSHIP CAPITAL DEFICIENCY

2. The loss on realization is allocated to the partners on the basis of their income ratios. The entry is:

Account Titles and Explanation	Debit	Credit
(2)		
R. Arnet, Capital (\$18,000 X 3/6)	9,000	
P. Carey, Capital (\$18,000 X 2/6)	6,000	
W. Eaton, Capital (\$18,000 X 1/6)	3,000	
Loss on Realization (To allocate loss on realization to partners)		18,000

LIQUIDATION OF A PARTNERSHIP

CAPITAL DEFICIENCY

3. Partnership liabilities are paid. The entry is the same as in the previous example.

Account Titles and Explanation	Debit	Credit
(3)		
Notes Payable	15,000	
Accounts Payable	16,000	
Cash		31,000
(To record payment of partnership liabilities)		

LEDGER BALANCES BEFORE DISTRIBUTION OF CASH

4. After posting the 3 entries **2 accounts will have debit balances** – **Cash \$16,000** and **W. Eaton, Capital \$1,800** – and **2 accounts will have credit balances** – **R. Arnet, Capital \$6,000** and **P. Carey, Capital \$11,800**, as shown below. Eaton has a **capital deficiency of \$1,800** and therefore **owes the partnership \$1,800**. Arnet and Carey have a legally enforceable claim against Eaton’s personal assets. The distribution of cash is still made on the basis of capital balances, but the amount will vary depending on how the deficiency is settled.

Cash				R. Arnet, Capital				P. Carey, Capital				W. Eaton, Capital			
Bal.	5,000	(3)	31,000	(2)	9,000	Bal.	15,000	(2)	6,000	Bal.	17,800	(2)	3,000	Bal.	1,200
(1)	42,000														
Bal.	16,000					Bal.	6,000			Bal.	11,800	Bal.	1,800		

LEDGER BALANCES AFTER PAYING CAPITAL DEFICIENCY

**Partner with the capital deficiency pays the amount owed partnership.
Deficiency eliminated.**

Eaton pays \$1,800 to the partnership, the entry is:

Account Titles and Explanation	Debit	Credit
(a)		
Cash	1,800	
W. Eaton, Capital		1,800
(To record payment of capital deficiency by Eaton)		

Cash			R. Arnet, Capital			P. Carey, Capital			W. Eaton, Capital						
Bal.	5,000	(3)	31,000	(2)	9,000	Bal.	15,000	(2)	6,000	Bal.	17,800	(2)	3,000	Bal.	1,200
(1)	42,000													(a)	1,800
(a)	1,800														
Bal.	17,800					Bal.	6,000			Bal.	11,800			Bal.	-0-

LIQUIDATION OF A PARTNERSHIP

CAPITAL DEFICIENCY

The cash balance of **\$17,800** is now equal to the credit balances in the capital accounts (**Arnet \$6,000 + Carey \$11,800**), and cash is distributed on the basis of these balances. The entry (shown below) – once it is posted – will cause all accounts to have **zero balances**.

Account Titles and Explanation	Debit	Credit
R. Arnet, Capital	6,000	
P. Carey, Capital	11,800	
Cash		17,800
(To record distribution of cash to the partners)		

LEDGER BALANCES AFTER NONPAYMENT OF CAPITAL DEFICIENCY

Partner with the capital deficiency unable to pay the amount owed.

Partners with credit balances must absorb the loss.

Allocated on the basis of pre-existing ratios of partners with credit balances. Income ratios of Arnet and Carey are $3/5$ and $2/5$, respectively.

Entry is made to remove Eaton's capital deficiency.

Account Titles and Explanation	Debit	Credit
(a)		
R. Arnet, Capital ($\$1,800 \times 3/5$)	1,080	
P. Carey, Capital ($\$1,800 \times 2/5$)	720	
W. Eaton, Capital (To record write-off of capital deficiency)		1,800

After posting this entry, the cash and capital accounts will have the following balances:

Cash			R. Arnet, Capital		P. Carey, Capital		W. Eaton, Capital				
Bal.	5,000	(3) 31,000	(2) 9,000	Bal.	15,000	(2) 6,000	Bal.	17,800	(2) 3,000	Bal.	1,200
(1)	42,000		(a) 1,080			(a) 720				(a)	1,800
Bal.	16,000			Bal.	4,920		Bal.	11,080		Bal.	-0-

LIQUIDATION OF A PARTNERSHIP

CAPITAL DEFICIENCY

The cash balance of **\$16,000** now equals the credit balances in the capital accounts (**Arnet \$4,920 + Carey \$11,080**). The entry (shown below) – once it is posted – will cause all accounts to have **zero balances**.

Account Titles and Explanation	Debit	Credit
R. Arnet, Capital	4,920	
P. Carey, Capital	11,080	
Cash		16,000
(To record distribution of cash to the partners)		

APPENDIX

ADMISSION AND WITHDRAWAL OF PARTNERS

ADMISSION OF A PARTNER

STUDY OBJECTIVE 6

- **The admission of a new partner**
 - results in legal dissolution of the existing partnership and the beginning a new one
- **To recognize economic effects**
 - it is necessary only to open a capital account for each new partner.
- **A new partner may be admitted either by:**
 - 1) Purchasing the interest of an existing partner or**
 - 2) Investing assets in a partnership.**

PROCEDURES IN ADDING PARTNERS

I. Purchase of a Partner's Interest

The **admission** of a partner **by purchase of an interest** in the firm is a personal transaction between one or more existing partners and the new partner. The price paid is negotiated and determined by the individuals involved; it may be equal to or different from the capital equity acquired. Any money or other consideration exchanged is the personal property of the participants and not the property of the partnership.

PROCEDURES IN ADDING PARTNERS

I. Investment of Assets in Partnership

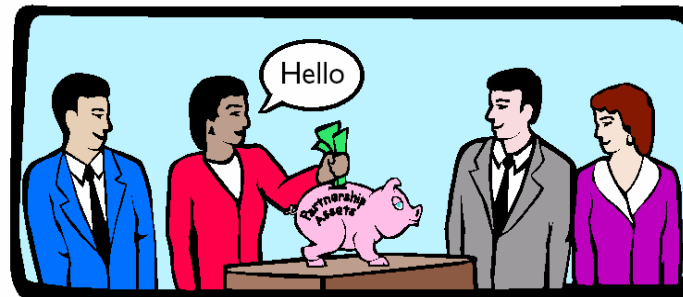
When a partner is **admitted by investment**, both the **total net assets and the total partnership capital change**. When the new partner's investment differs from the capital equity acquired, the difference is considered a bonus either to: **1) The existing (old) partners** or **2) The new partner**.

PROCEDURES IN ADDING PARTNERS

Admission of Partner through:



1. Purchase of a Partner's Interest



2. Investment of Assets in Partnership

LEDGER BALANCES AFTER PURCHASE OF A PARTNER'S INTEREST

L. Carson agrees to pay **\$10,000** each to C. Ames and D. Barker for 1/3 of their interest in the Ames-Barker partnership. At the time of the admission of Carson, each partner has a **\$30,000** capital balance. Both partners therefore give up **\$10,000** of their capital equity. The entry to record the admission of Carson is shown.

Account Titles and Explanation	Debit	Credit
C. Ames, Capital	10,000	
D. Barker, Capital	10,000	
L. Carson, Capital (To record admission of Carson by purchase)		20,000

Net Assets		C. Ames, Capital	
60,000		10,000	30,000
			Balance 20,000
D. Barker, Capital		L. Carson, Capital	
10,000	30,000		20,000
	Balance 20,000		

LEDGER BALANCES AFTER INVESTMENT OF ASSETS

Assume that instead of purchasing an interest, Carson invests **\$30,000** in cash in the Ames-Barker partnership for a 1/3 capital interest. In such a case, the entry would be as shown. The effects of this transaction on the partnership accounts are shown in the t-accounts.

Account Titles and Explanation	Debit	Credit
Cash	30,000	
L. Carson, Capital		30,000
(To record admission of Carson by investment)		

Net Assets		C. Ames, Capital	
60,000			30,000
30,000			
Balance 90,000			
D. Barker, Capital		L. Carson, Capital	
	30,000		30,000

COMPARISON OF PURCHASE OF AN INTEREST AND ADMISSION BY INVESTMENT

The different effects of the **purchase of an interest** and **admission by investment** are shown in the comparison of **net assets** and **capital balances**. When **an interest is purchased**, the **total net assets** and **total capital** of the partnership **do not change**. On the other hand, when **a partner is admitted by investment**, both the **total net assets** and the **total capital change**.

For an admission by investment, when the **new partner's investment** and the **capital equity acquired** are **different**, the difference is considered a bonus to

- 1) the **old partners** or
- 2) the **new partner**.

	Purchase of an Interest	Admission by Investment
Net Assets	\$ 60,000	\$ 90,000
Capital		
C. Ames	\$ 20,000	\$ 30,000
D. Barker	20,000	30,000
L. Carson	20,000	30,000
Total capital	\$ 60,000	\$ 90,000

BONUS TO OLD PARTNERS

Bonus to old partners-new partner's investment in the firm is greater than the credit to his capital account on the date of admittance.

To determine new partner's capital credit and the bonus to the old partners

- 1) Determine the total capital of the new partnership:**
 - **new partner's investment + capital of the old partnership.**
- 2) Determine the new partner's capital credit**
multiply the total capital of the new partnership by the new partner's ownership interest
- 3) Determine the amount of bonus:**
 - **subtract the new partner's capital credit from the new partner's investment**
- 4) Allocate the bonus to the old partners on the basis of their income ratios.**

BONUS TO OLD PARTNERS

Sam Bart and Tom Cohen with **total capital** of **\$120,000** agree to admit Lea Eden to the business. Lea acquires a **25% ownership interest** by making a **cash investment** of **\$80,000** in the partnership. The determination of Lea's capital credit and the bonus to the old partners is as follows:

- Determine the total capital of the new partnership** by adding the new partner's investment to the total capital of the old partnership. In this case, the total capital of the new firm is **\$200,000**, calculated as follows:

Total capital of existing partnership	\$ 120,000
Investment by new partner, Eden	80,000
Total capital of new partnership	<u><u>\$ 200,000</u></u>

- Determine the new partner's capital credit** by multiplying the total capital of the new partnership by the new partner's ownership interest. Eden's capital credit is **\$50,000** (**\$200,000 X 25%**).

BONUS TO OLD PARTNERS

3. Determine the amount of bonus by subtracting the new partner's capital credit from the new partner's investment. The bonus in this case is **\$30,000** (**\$80,000 – \$50,000**).

4. Allocate the bonus to the old partners on the basis of their income ratios. Assuming the ratios are **Bart, 60%** and **Cohen, 40%**, the allocation is: **Bart, \$18,000** (**\$30,000 X 60%**) and **Cohen, \$12,000** (**\$30,000 X 40%**).

The entry to record the admission is:

Account Titles and Explanation	Debit	Credit
Cash	80,000	
Sam Bart, Capital		18,000
Tom Cohen, Capital		12,000
Lea Eden, Capital		50,000
(To record admission of Eden and bonus to old partners)		

BONUS TO NEW PARTNER

- **A bonus to a new partner**
 - results when the new partner's investment is less than his or her capital credit in the firm.
 - capital balances of the old partners are decreased based on their income ratios before the admission of the new partner.



COMPUTATION OF CAPITAL CREDIT AND BONUS TO NEW PARTNER

Lea Eden invests **\$20,000** in cash for a **25%** ownership interest in the Bart-Cohen partnership. The calculations for Eden's capital credit and the bonus are as follows:

<p>1. Total capital of Bart-Cohen partnership \$ 120,000</p> <p>Investment by new partner, Eden <u>20,000</u></p> <p>Total capital of new partnership <u><u>\$ 140,000</u></u></p>	<p>3. Bonus to Eden (\$35,000 – \$20,000) <u><u>\$ 15,000</u></u></p>
<p>2. Eden's capital credit (25% X \$140,000) <u><u>\$ 35,000</u></u></p>	<p>4. Allocation of bonus:</p> <p style="padding-left: 20px;">Bart (\$15,000 X 60%) \$ 9,000</p> <p style="padding-left: 20px;">Cohen (\$15,000 X 40%) <u>6,000</u></p> <p style="text-align: right;"><u><u>\$ 15,000</u></u></p>

The entry to record the admission of Eden is as follows:

Account Titles and Explanation	Debit	Credit
Cash	20,000	
Sam Bart, Capital	9,000	
Tom Cohen, Capital	6,000	
Lea Eden, Capital (To record Eden's admission and bonus)		35,000

WITHDRAWAL OF A PARTNER

STUDY OBJECTIVE 6

- **A partner may withdraw**
 - **voluntarily** selling his or her equity
 - **involuntarily** by reaching mandatory retirement age or by dying
- **Withdrawal of a partner**
 - **payment from remaining partners' personal assets or**
 - **payment from partnership assets**



PROCEDURES IN PARTNERSHIP WITHDRAWAL

Withdrawal of Partner through:



1. Payment from Partners' Personal Assets



2. Payment from Partnership Assets

PAYMENT FROM PARTNERS' PERSONAL ASSETS

- **The withdrawal of a partner when payment made from partners' personal assets**
 - is the direct **opposite of admitting a new partner who purchases a partner's interest**
 - is a **personal transaction between the partners**



LEDGER BALANCES AFTER PAYMENT FROM PARTNERS' PERSONAL ASSETS

Anne Morz, Mary Nead, and Jill Odom have capital balances of **\$25,000**, **\$15,000**, and **\$10,000**, respectively, when Morz and Nead agree to buy out Odom's interest. Each of them agrees to pay Odom **\$8,000** in exchange for one-half of Odom's total interest of **\$10,000**. The entry to record the withdrawal is:

Account Titles and Explanation	Debit	Credit
Jill Odom, Capital	10,000	
Anne Morz, Capital		5,000
Mary Nead, Capital		5,000
(To record purchase of Odom's Interest)		

The effect of this entry on the partnership accounts is shown below:

Net Assets	Anne Morz, Capital	Mary Nead, Capital	Jill Odom, Capital
50,000	25,000	15,000	10,000
	5,000	5,000	
	Bal. 30,000	Bal. 20,000	Bal. -0-

PAYMENT FROM PARTNERSHIP ASSETS

Using partnership assets to pay for a withdrawing partner's interest decreases both total assets and total partnership capital.

In accounting for a withdrawal by payment from partnership assets:

- 1) **asset revaluations should not be recorded and**
- 2) **any difference between the amount paid and the withdrawing partner's capital balance should be considered a bonus to the retiring partner or a bonus to the remaining partners.**



BONUS TO RETIRING PARTNER

A bonus may be paid to a retiring partner when:

- 1 the **fair market value** of partnership assets is **greater than their book value**,
- 2 there is **unrecorded goodwill** resulting from the partnership's superior earnings record, or
- 3 the **remaining partners** are **anxious to remove the partner** from the firm.



BONUS TO RETIRING PARTNER

The bonus is deducted from the remaining partners' capital balances on the basis of their income ratios at the time of the withdrawal. Terk retires from the RST partnership and receives a cash payment of **\$25,000** from the firm. Terk has a capital balance of \$20,000. The procedure for determining the bonus to the retiring partner and the allocation of the bonus to the remaining partners is: **1) Determine the amount of the bonus** by subtracting the retiring partner's capital balance from the cash paid by the partnership. The bonus in this case is **\$5,000** ($\$25,000 - \$20,000$). **2) Allocate the bonus to the remaining partners on the basis of their income ratios.** The ratios of Roman and Sand are **3:2**, so the allocation of the **\$5,000** bonus is: Roman **\$3,000** ($\$5,000 \times 3/5$) and Sand **\$2,000** ($\$5,000 \times 2/5$). The appropriate entry is:

Account Titles and Explanation	Debit	Credit
Betty Terk, Capital	20,000	
Fred Roman, Capital	3,000	
Dee Sand, Capital	2,000	
Cash		25,000
(To record withdrawal of and bonus to Terk)		

BONUS TO REMAINING PARTNERS

The retiring partner may pay a bonus to the remaining partners when:

- 1 recorded **assets** are **overvalued**
- 2 the partnership has a **poor earnings record**
or
- 3 the **partner** is **anxious to leave** the
partnership



BONUS TO REMAINING PARTNERS

The bonus is allocated (credited) to the capital balances of the remaining partners on the basis of their income ratios. Assume that Terk is paid only **\$16,000** for her **\$20,000** equity upon withdrawing from the RST partnership. In such a case: **1) The bonus to remaining partners is \$4,000** ($\$20,000 - \$16,000$). **2) The allocation of the \$4,000 bonus is: Roman \$2,400** ($\$4,000 \times 3/5$) and **Sand \$1,600** ($\$4,000 \times 2/5$). The entry to record the withdrawal is:

Account Titles and Explanation	Debit	Credit
Betty Terk, Capital	20,000	
Fred Roman, Capital		2,400
Dee Sand, Capital		1,600
Cash		16,000
(To record withdrawal of Terk and bonus to remaining partners)		

DEATH OF A PARTNER

- **The death of a partner dissolves the partnership. But provision generally is made for the surviving partners to continue operations by purchasing the deceased partner's equity from their personal assets.**
- **When a partner dies it is necessary to determine the partner's equity at the date of death. This is done by:**
 - 1) determining the net income or loss for the year to date,**
 - 2) closing the books, and**
 - 3) preparing financial statements.**



DEATH OF A PARTNER

- **The surviving partners will agree to either**
 - 1) purchase the deceased partner's equity from their personal assets or**
 - 2) use partnership assets to settle with the deceased partner's estate.**
- **In both instances, the entries to record the withdrawal of the partner are similar to those presented earlier.**



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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 14

CORPORATIONS: Organization and Capital Stock Transactions

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CHAPTER 14

CORPORATIONS: ORGANIZATION AND CAPITAL STOCK TRANSACTIONS

After studying this chapter, you should be able to:

- 1 Identify the major characteristics of a corporation.**
- 2 Differentiate between paid-in capital and retained earnings.**
- 3 Record the issuance of common stock.**
- 4 Explain the accounting for treasury stock.**
- 5 Differentiate preferred stock from common stock.**
- 6 Prepare a stockholders' equity section.**
- 7 Compute book value per share.**

The Corporate Form of Organization

- **Corporation**
 - entity created by law
 - *separate and distinct* from its owners
 - continued existence is dependent upon the statutes of the state in which it is incorporated
- **Two common bases for classification of corporations are:**
 - 1) by purpose
 - 2) by ownership

Classifications of Corporations

- ***Purpose***
 - to earn a **profit**
 - or **nonprofit**
- Classification by ***ownership***
 - **publicly-held corporations**
 - **privately-held corporations**

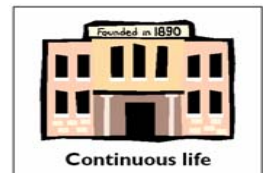
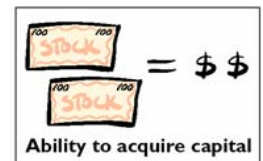
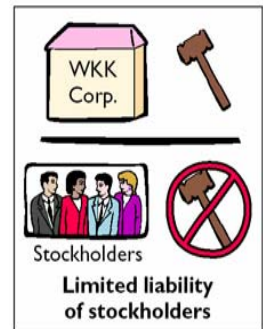
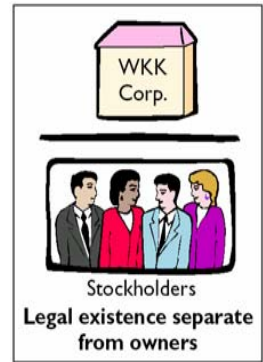
Classification of Corporations

- **Publicly-held corporations**
 - may have thousands of stockholders
 - stock is regularly traded on a national securities exchange.
- **Privately-held corporations**
 - often referred to as closely held corporations, usually have only a few stockholders
 - does not offer its stock for sale to the general public

Characteristics of a Corporation

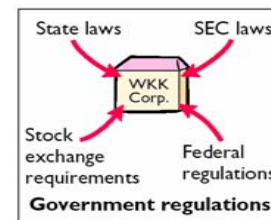
STUDY OBJECTIVE 1

- **Separate legal existence** from its owners
- Stockholders have **limited liability**
- Ownership held in shares of capital stock
 - **transferable units.**
- **Ability to acquire capital** through the issuance of stock
- **Continuous life**

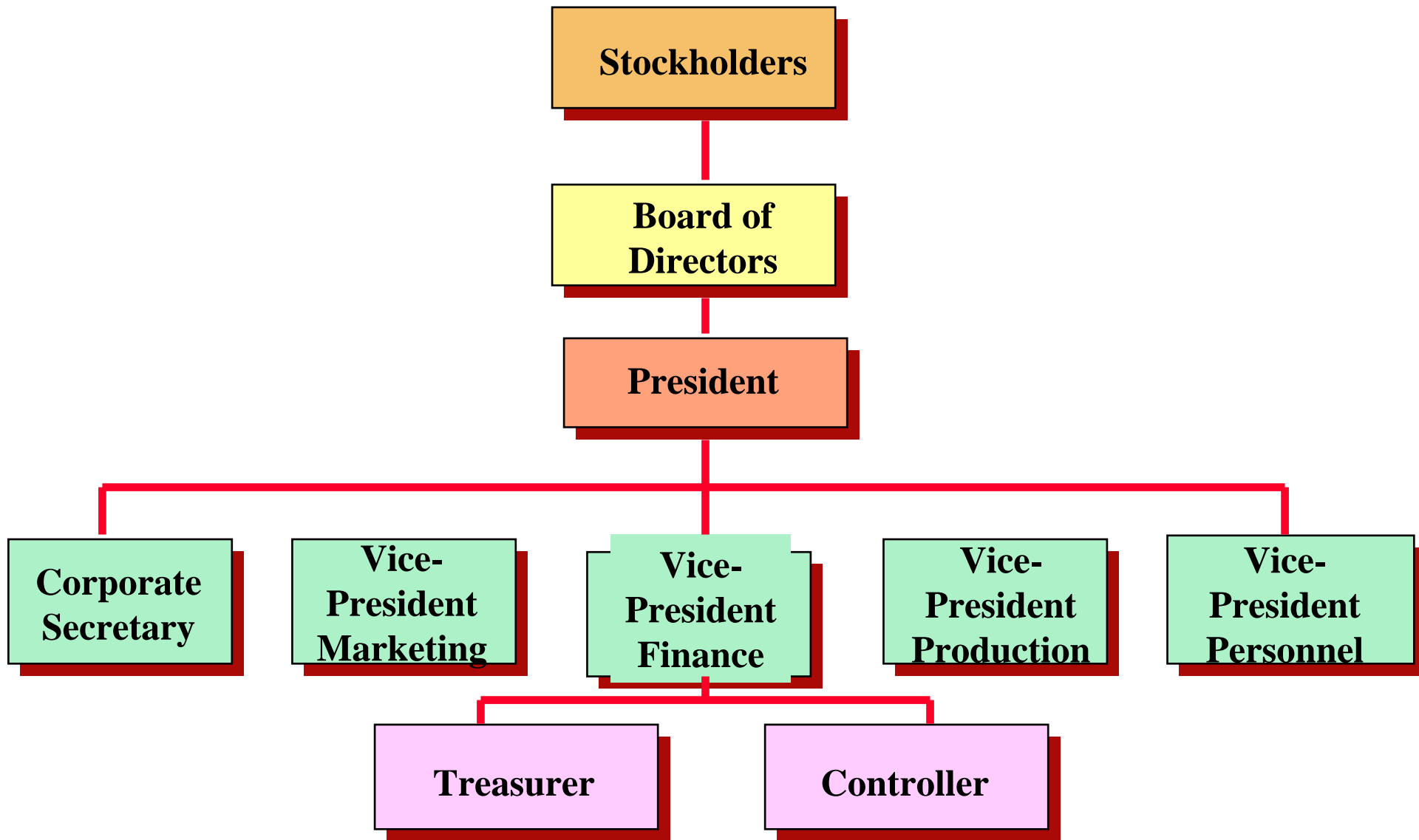


Characteristics of a Corporation

- **Corporate management**
 - is at the discretion of the board of directors who are elected by the stockholders
- Subject to numerous **government regulations**
- Must pay an income tax on its earnings
- Stockholders required to pay taxes on the dividends they receive: the result is **double taxation**



Corporation Organization Chart



Advantages and Disadvantages of a Corporation

Advantages

Separate legal existence
Limited liability of stockholders

Transferable ownership rights

Ability to acquire capital

Continuous life

Corporation management – professional managers

Disadvantages

Corporation management- separation of ownership and management

Government regulations

Additional taxes

Forming a Corporation

- 1) File application with the Secretary of State**
in the state in which incorporation is desired
- 2) Articles of Incorporation**
charter creates the corporation
- 3) By-laws**
establishes the internal rules and procedures
for conducting the affairs of the corporation and
indicates the powers of parties involved



Organization Costs

- **Costs incurred in forming a corporation**
- **Includes legal fees, state fees and promotional expenditures**
- ***Expensed as incurred* since it is so difficult to determine the amount and timing of future benefits.**



Ownership Rights of Stockholders

- 1) Vote**
- 2) Share in corporate earnings through the receipt of dividends**
- 3) Preemptive right**
maintain the same percentage ownership when additional shares of common
- 4) Residual claim**
Share in assets upon liquidation

Ownership Rights of Stockholders

Stockholders have the right to:

1. Vote in election of board of directors at annual meeting and vote on actions that require stockholder approval.



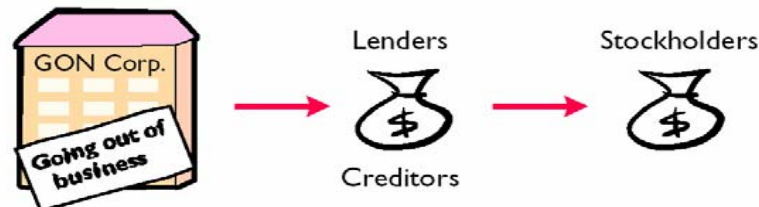
2. Share the corporate earnings through receipt of dividends.



3. Keep the same percentage ownership when new shares of stock are issued (**preemptive right**²).



4. Share in assets upon liquidation in proportion to their holdings. This is called a **residual claim** because owners are paid with assets that remain after all claims have been paid.



A Stock Certificate

30758 MAY 23 1994

CLASS A COMMON STOCK

PAR VALUE \$1 PER SHARE

NUMBER
A

CLASS A COMMON STOCK

PAR VALUE \$1 PER SHARE

SHARES

CUSIP 968223 20 6
SEE REVERSE FOR CERTAIN DEFINITIONS

JOHN WILEY & SONS, INC.
INCORPORATED UNDER THE LAWS OF THE STATE OF NEW YORK

This Certifies that

is the owner of

FULLY PAID AND NON-ASSESSABLE SHARES OF THE CLASS A COMMON STOCK OF

John Wiley & Sons, Inc., transferable on the books of the Corporation by the holder hereof in person or by duly authorized officer or person surrender of this certificate properly endorsed. This certificate is not valid unless countersigned by the Transfer Agent and registered by the Registrar.
Witness the seal of the Corporation and the signatures of its duly authorized officers.

DATED: 5-23-94

COUNTERSIGNED AND REGISTERED:
REGISTRAR AND TRANSFER COMPANY
BY: ABH SECOL SECRETARY

5-23-94
ABH SECOL

SEAL OF THE CORPORATION OF JOHN WILEY & SONS, INC. NEW YORK 1904

Stock Issue Considerations

Authorized Stock

Authorized stock

– amount of stock a corporation is allowed to sell as indicated by its charter

•The authorization of capital stock does not result in a formal accounting entry. This event has no immediate effect on either corporate assets or stockholders' equity.



Stock Issue Considerations

Issuance of Stock

A corporation can issue common stock *directly* to investors or *indirectly* through an investment banking firm (brokerage house).

- **Direct issue is typical in closely held companies.**
- **Indirect issue is customary for a publicly held corporation.**
 - **In an indirect issue, the investment banking firm may agree to *underwrite* the entire stock issue.**



Stock market price information

- **Publicly held companies**
 - traded on organized exchanges
 - dollar prices per share are established by the interaction between buyers and sellers
- **The prices set by the marketplace generally follow the trend of a company's earnings and dividends.**
- **A recent listing for PepsiCo is shown below:**

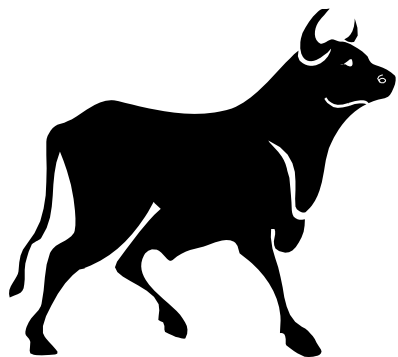
Stock	Volume	High	Low	Close	Net Change
PepsiCo	2,942.4m	48.88	47.31	47.5	-1.19

Par Value & No-Par Value Stock

- **Par value stock**
 - capital stock that *has been* assigned a value per share in the corporate charter
 - represents the **legal capital** per share that must be retained in the business for the protection of corporate creditors
- **No-par stock**
 - capital stock that *has not been* assigned a value in the corporate charter

In many states the board of directors can assign a **stated value** to the shares which then becomes the legal capital per share.

When there is no assigned stated value, the entire proceeds are considered to be legal capital.



Relationship of Par and No-par Value Stock to Legal Capital

Stock	Legal Capital per Share
Par value	Par value
No-par value with stated value	Stated value
No-par value without stated value	Entire proceeds

Corporate Capital

STUDY OBJECTIVE 2

- **Stockholders' equity, shareholders' equity, or corporate capital.**
 - Owner's equity in a corporation
- Stockholders' equity section of a corporation's balance sheet

Paid-in (contributed) capital –

Total amount of cash and other assets paid in to the corporation by stockholders in exchange for capital stock.

Retained earnings

Net income that is retained in a corporation.

Retained Earnings

Retained earnings is net income that is retained in the corporation. Net income is recorded in Retained Earnings by a closing entry in which Income Summary is debited and Retained Earnings is credited. For example, if net income for Delta Robotics is \$130,000 in its first year of operations, the closing entry is:

Account Titles and Explanation	Debit	Credit
Income Summary Retained Earnings (To close income summary and transfer net income to retained earnings)	130,000	130,000

Stockholders' Equity Section

If Delta Robotics has a balance of \$800,000 in common stock at the end of its first year, its stockholders' equity section is as follows:

Stockholders' equity		From previous slide
Paid-in capital		
Common stock	\$800,000	
Retained earnings	<u>130,000</u>	
Total Stockholders' equity	<u><u>\$930,000</u></u>	

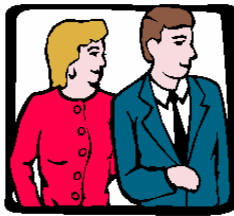
Comparison of Owners' Equity Accounts



Proprietorship

Able, Capital

Normal bal.



Partnership

Able, Capital

Normal bal.

Baker, Capital

Normal bal.



Corporation

Common Stock

Normal bal.

Retained Earnings

Normal bal.

Review

Stockholders have all of the following rights except to:

- a. Share corporate earnings through receipt of dividends.
- b. Vote for the corporate officers.
- c. Keep the same percentage ownership when new shares of stock are issued.
- d. Share in assets upon liquidation.

Review

Stockholders have all of the following rights except to:

- a. Share corporate earnings through receipt of dividends.
- b. **Vote for the corporate officers.**
- c. Keep the same percentage ownership when new shares of stock are issued.
- d. Share in assets upon liquidation.

Common Stock Issues

STUDY OBJECTIVE 3

The primary objectives in accounting for the issuance of common stock are:

- (1) to identify the specific sources of paid-in capital**
- (2) to maintain the distinction between paid-in capital and retained earnings.**



Issuing Par Value Common Stock for Cash

When the issuance of common stock for cash is recorded, and the issue price is the same as the par value of the stock, the par value of the shares is credited to Common Stock and debited to Cash.

If Hydro-Slide, Inc. issues 1,000 shares of \$1 par value common stock at par for cash, the entry to record this transaction is:

Account Titles and Explanation	Debit	Credit
Cash	1,000	
Common Stock		1,000
(To record issuance of 1,000 shares of \$1 par common stock at par)		

Issuing Par Value Common Stock for Cash

When the issuance of common stock for cash is recorded, and the par value of the shares is NOT the same as the cash price, the par value is credited to Common Stock, and the portion of the proceeds that is above or below par value is recorded in a separate paid-in-capital account.

Account Titles and Explanation	Debit	Credit
Cash	5,000	
Common Stock		1,000
Paid-in capital in Excess of Par Value		4,000
(To record issuance of 1,000 shares of \$1 par common stock in excess of par)		

Stockholders' Equity: Paid-in Capital in Excess of Par Value Balance Sheet Presentation

The total paid-in-capital from these transactions is \$6,000, and the legal capital is \$2,000. If Hydro-Slide, Inc. has retained earnings of \$27,000, the stockholders' equity section is as follows:

Hydro-Slide, Inc. Balance Sheet (partial)

Stockholders' equity	
Paid-in-capital	
Common Stock	\$2,000
Paid-in capital in excess of par	<u>4,000</u>
Total paid-in-capital	6,000
Retained earnings	<u>27,000</u>
Total stockholders' equity	<u>\$33,000</u>

Issuing No-Par Common Stock for Cash

When no-par common stock has a **stated value**, the stated value is credited to Common Stock. When the selling price exceeds the stated value, the excess is credited to Paid-in Capital in Excess of Stated Value.

Assume that instead of \$1 par value stock, Hydro-Slide Inc. has \$5 stated value no-par stock and the company issues 5,000 shares at \$8 per share for cash. The entry is:

Account Titles and Explanation	Debit	Credit
Cash	40,000	
Common Stock		25,000
Paid-in capital in Excess of Stated Value (To record issuance of 5,000 shares of \$5 stated value no-par stock)		15,000

Issuing No-Par Common Stock for Cash

When no-par stock does not have a stated value, the entire proceeds from the issue are credited to Common Stock.

If Hydro-Slide Inc. does not assign a stated value to its no-par stock, the issuance of the 5,000 shares at \$8 per share for cash is recorded as follows:

Account Titles and Explanation	Debit	Credit
Cash	40,000	
Common Stock (To record issuance of 5,000 shares of no-par stock)		40,000

Issuing Common Stock for Services or Noncash Assets

- **Issued for services**
 - Example: compensation to attorneys or consultants, or for noncash assets, such as land
- **Common stock issued for services or non-cash assets**
 - Cost is either the fair market value of the consideration *given up*, or the consideration *received*, whichever is more clearly determinable.



Issuing Common Stock for Services or Noncash Assets

Athletic Research Inc. is a publicly held corporation. Its \$5 par value is actively traded at \$8 per share. The company issues 10,000 shares of stock to acquire land recently advertised for sale at \$90,000. The most clearly evident value is the **MARKET VALUE** of the consideration given, which is \$80,000.

Account Titles and Explanation	Debit	Credit
Land	80,000	
Common Stock		50,000
Paid-in capital in Excess of Par Value (To record issuance of 10,000 shares of \$5 par value stock for land)		30,000

NOTE: The par value of the stock is **NEVER** a factor in determining the cost of the assets received.

Review

ABC Corporation issues 1,000 shares of \$10 par value common stock at \$12 per share. In recording the transaction, credits are made to:

- a. Common Stock \$10,000 and Paid-in Capital in Excess of Stated Value \$2,000.
- b. Common Stock \$12,000.
- c. Common Stock \$10,000 and Paid-in Capital in Excess of Par Value \$2,000.
- d. Common Stock \$10,000 and Retained Earnings \$2,000.

Review

ABC Corporation issues 1,000 shares of \$10 par value common stock at \$12 per share. In recording the transaction, credits are made to:

- a. Common Stock \$10,000 and Paid-in Capital in Excess of Stated Value \$2,000.
- b. Common Stock \$12,000.
- c. **Common Stock \$10,000 and Paid-in Capital in Excess of Par Value \$2,000.**
- d. Common Stock \$10,000 and Retained Earnings \$2,000.

Treasury Stock

STUDY OBJECTIVE 4

Corporation's own stock that has been issued, fully paid for, and *reacquired but not retired. Why???*

- 1) To reissue the shares to officers or employees**
- 2) To increase trading thereby enhancing market value**
- 3) To have additional shares available for use in acquisitions of other companies**

Treasury Stock

Continued:

- 4) To reduce the number of shares outstanding and thereby increase earnings per share**
- 5) To rid the company of disgruntled investors, perhaps to avoid a takeover**

Stockholders' Equity with No Treasury Stock

Before the purchase of the treasury stock, the stockholders' equity is as follows:

Mead, Inc. **Balance Sheet (partial)**

Stockholders' equity	
Paid-in capital	
Common stock, \$5 par, 100,000 shares Issued and outstanding	\$ 500,000
Retained earnings	200,000
Total stockholders' equity	<u>\$ 700,000</u>

Purchase of Treasury Stock

Under the cost method, Treasury Stock is debited for the price paid for the shares. The same amount is credited to Treasury Stock when the shares are disposed of.

If Mead, Inc. has 100,000 shares of \$5 par value common stock outstanding (all issued at par value) and it decides to acquire 4,000 shares of its stock at \$8 per share, the entry is:

Account Titles and Explanation	Debit	Credit
Treasury Stock	32,000	
Cash		32,000
(To record purchase of 4,000 shares of treasury stock at \$8 per share)		

Stockholders' Equity With Treasury Stock

The stockholders' equity section of Mead, Inc. after purchase of treasury stock is as follows:

Mead, Inc.	
Balance Sheet (partial)	
Stockholders' equity	
Paid-in capital	
Common stock, \$5 par, 100,000 shares issued and 96,000 shares outstanding	\$500,000
Retained earnings	<u>200,000</u>
Total paid-in capital and retained earnings	700,000
Less: Treasury stock (4,000 shares)	<u>32,000</u>
Total stockholders' equity	\$668,000

The acquisition of treasury stock **REDUCES** stockholders' equity.

Disposal of Treasury Stock

Treasury Stock resold

- Selling price of the shares is greater than cost
 - the difference is *credited* to **Paid-in Capital from Treasury Stock**
- Selling price is less than cost
 - the excess of cost over selling price is usually *debited* to **Paid-in Capital From Treasury Stock**
- When there is no remaining balance in Paid-in Capital From Treasury Stock, the remainder is *debited* to **Retained Earnings**.

Sale of Treasury Stock Above Cost

Assume that 1,000 shares of treasury stock of Mead, Inc., previously acquired at \$8 per share, are sold at \$10 per share on July 1. The entry is:

Account Titles and Explanation	Debit	Credit
Cash	10,000	
Treasury Stock		8,000
Paid-in capital from Treasury Stock (To record sale of 1,000 shares of treasury stock above cost)		2,000

Note: The \$2,000 credit in the entry would not be considered a **Gain on Sale of Treasury Stock**.

Sale of Treasury Stock Below Cost

Assume instead that Mead, Inc. sells an additional 800 shares of treasury stock on October 1 at \$7 per share, the entry is:

Date	Account Titles and Explanation	Debit	Credit
Oct. 1	Cash Paid-in Capital from Treasury Stock Treasury Stock (To record sale of 800 shares of treasury stock below cost)	5,600 800	6,400

When treasury stock is sold *below* its cost, the excess of cost over selling price is usually debited to **Paid-in Capital from Treasury Stock**.

Preferred Stock

STUDY OBJECTIVE 5

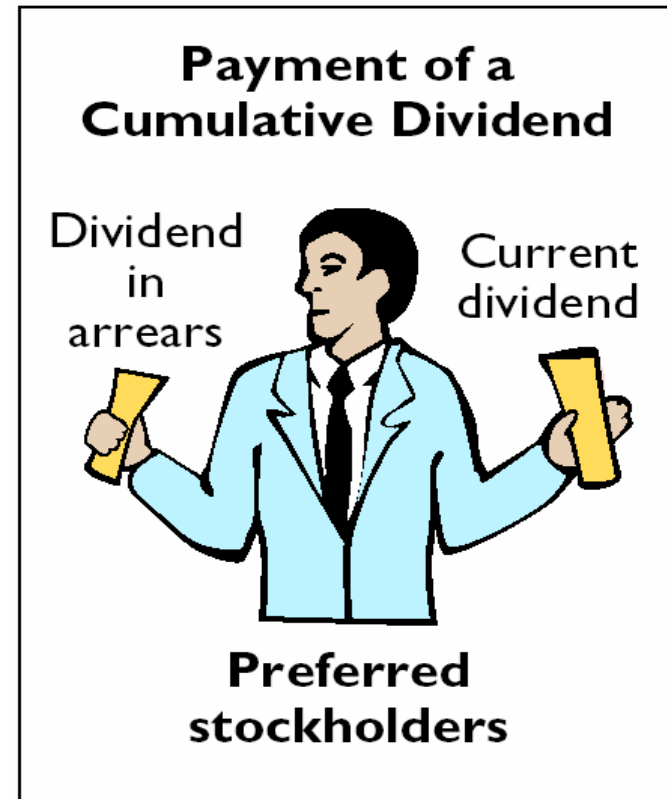
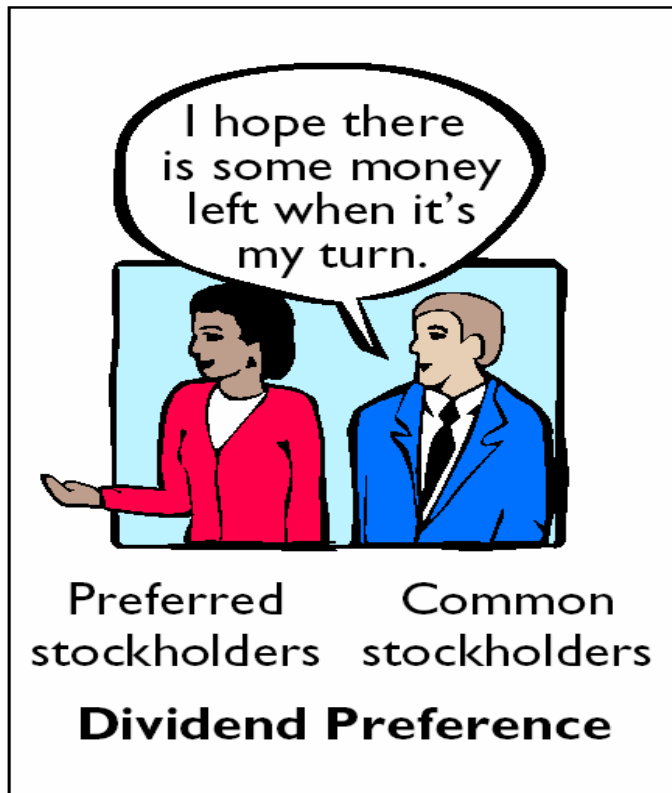
- **Contractual provisions give it priority over common stock in certain areas:**
 - 1) distribution of earnings**
 - 2) assets in the event of liquidation.**
- **usually do not have voting rights**
- **shown first in the stockholders' equity section**
- **identified separately from other stock and paid-in capital accounts.**

Dividend Preferences

Cumulative Dividend

- **Cumulative dividend**
 - preferred stockholders must be paid *both current and prior year dividends* before common stockholders receive any dividends
- **Dividends in arrears**
 - preferred dividends not declared in a given period
 - not considered a liability, but the amount of the dividends in arrears should be disclosed in the notes to the financial statements

Dividend Preferences



Computation of Total Dividends to Preferred Stock

If Scientific-Leasing has 5,000 shares of 7%, \$100 par value cumulative preferred stock outstanding, then the annual dividend is \$ 35,000 (5,000 shares x \$7 per share). If dividends were two years in arrears, preferred stockholders are entitled to receive the following before any dividends are paid to common stockholders.

Dividends in arrears ($\$35,000 \times 2$)	\$ 70,000
Current-year dividends	<u>35,000</u>
Total preferred dividends	<u><u>\$105,000</u></u>

Stockholders' Equity Presentation and Analysis

STUDY OBJECTIVE 6

- **Stockholders' equity section of the balance sheet**
 - **paid-in capital and retained earnings are reported**
 - **specific sources of paid-in capital are identified**
- **Paid-in capital**
 - **Capital stock**
 - **Additional paid-in capital**
- **Paid-in capital is sometimes called contributed capital.**

Stockholders' Equity Presentation

Connally Inc. Balance Sheet (partial)

Stockholders' equity

Paid-in capital

Capital Stock

*9% preferred stock, \$100 par value, callable at \$120, cumulative,
10,000 shares authorized, 6,000 shares issued and outstanding*

\$ 600,000

*Common Stock, no par, \$5 stated value, 500,000 shares authorized,
400,000 shares issued, and 390,000 outstanding*

2,000,000

Additional paid-in capital

In excess of par value-preferred stock

\$ 30,000

In excess of par value-common stock

860,000

From treasury stock

140,000

Total additional paid-in capital

1,030,000

Total paid-in capital

3,630,000

Retained Earnings

1,058,000

Total paid-in capital and retained earnings

4,688,000

Less: Treasury stock-common (10,000 shares at cost)

80,000

Total stockholders' equity

\$4,608,000

Published Stockholders' Equity Section

KELLOGG COMPANY
Balance Sheet (partial)
(in millions, except per share data)

Stockholders' equity

Common stock \$.0.25 par value, 1,000,00,000,000 shares authorized	
Issued: 415,343 shares	\$ 104.1
Capital in excess of par value	49.9
Retained earnings	1,873.0
Treasury stock, at cost	
7,598,923 shares	(278.2)
Accumulated other comprehensive income	(853.4)
Total stockholders' equity	<u>\$ 895.4</u>

Book Value Per Share Formula

STUDY OBJECTIVE 7

- Represents the *equity a common stockholder has in the net assets of the corporation* from owning one share of stock
- Formula for computing book value per share
 - *If corporation has only one class of stock is:*

$$\begin{array}{|c|} \hline \text{Total} \\ \text{Stockholders' Equity} \\ \hline \end{array} \quad / \quad \begin{array}{|c|} \hline \text{Number of} \\ \text{Common} \\ \text{Shares} \\ \text{Outstanding} \\ \hline \end{array} \quad = \quad \begin{array}{|c|} \hline \text{Book} \\ \text{Value} \\ \text{per Share} \\ \hline \end{array}$$

Book Value *versus* Market Value

- **Book value per share**
 - based on recorded costs
- **Market value per share**
 - reflects subjective judgments of thousands of stockholders and prospective investors about the company's potential for future earnings and dividends
 - may exceed book value per share, but that fact does not necessarily mean that the stock is overpriced

Book and Market Values Compared

The correlation between book value and the annual range of a company's market value per share is often remote, as indicated by the following data:

<u>Company</u>	<u>Book Value</u> <u>(year-end)</u>	<u>Market Range</u> <u>(for year)</u>
Limited, Inc.	\$8.25	\$22.34-\$12.53
HJ Heinz Company	\$5.25	\$43.48-\$29.60
Cisco Systems	\$3.92	\$21.84-\$12.24
Wal-Mart Stores	\$9.10	\$63.90-\$43.70

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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 15

CORPORATIONS: Dividends, Retained Earnings, and Income Reporting

Prepared by Naomi Karolinski
Monroe Community College

and

Marianne Bradford
Bryant College

CHAPTER 15

CORPORATIONS: DIVIDENDS, RETAINED EARNINGS, AND INCOME REPORTING

After studying this chapter, you should be able to:

- 1 Prepare the entries for cash dividends and stock dividends.**
- 2 Identify the items that are reported in a retained earnings statement.**
- 3 Prepare and analyze a comprehensive stockholders' equity section.**
- 4 Describe the form and content of corporation income statements.**
- 5 Compute earnings per share.**

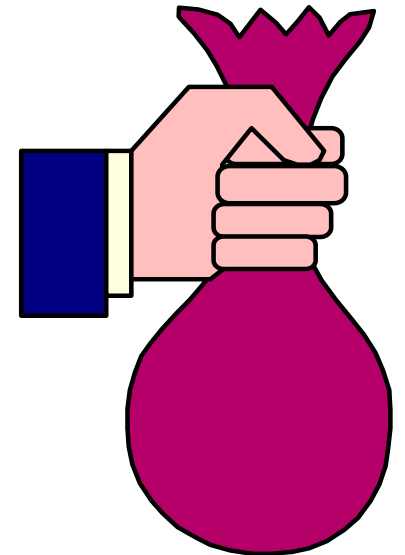
Dividends

STUDY OBJECTIVE 1

- **Distribution by a corporation to its stockholders on a pro rata (proportional) basis**
- **May be in the form of cash, property, scrip (promissory note to pay cash), or stock**
- **May be expressed in one of two ways:**
 1. **as a percentage of the par or stated value of the stock**
 2. **as a dollar amount per share**

Cash Dividends

- For a corporation to pay a cash dividend it must have:
 - (a) retained earnings**
 - (b) adequate cash**
 - (c) a declaration of dividends**



Entries for Cash Dividends

Three important dates in connection with dividends:

- **Declaration date**

Board of Directors formally declares a cash dividend and a liability is recorded.

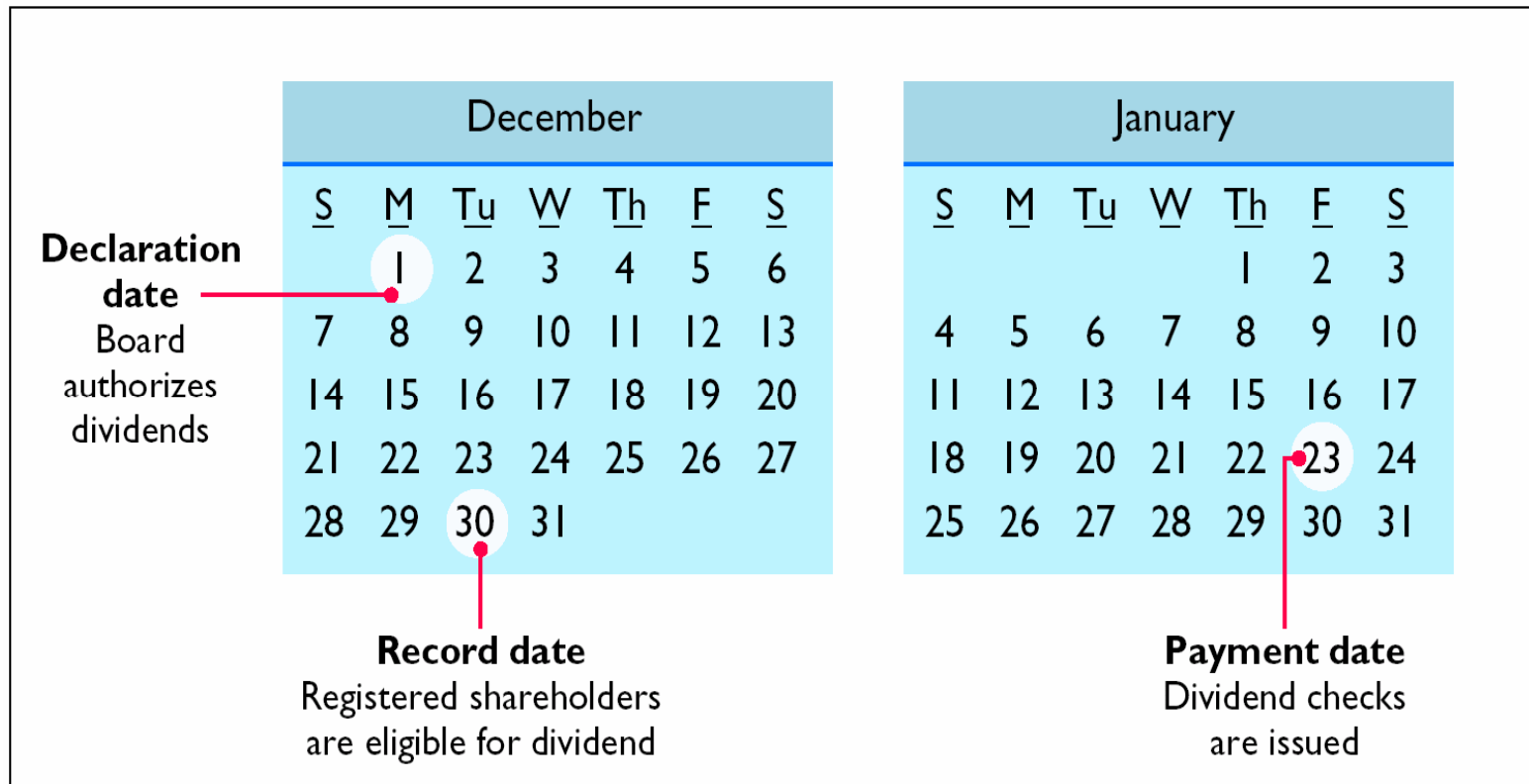
- **Record date**

Marks the time when ownership of outstanding shares is determined from the records maintained by the corporation.

- **Payment date**

Date dividend checks are mailed to the stockholders and the payment of the dividend is recorded.

Key Dividend Dates



Declaration Date

Assume that on December 1, 2005, the directors of Media General declare a 50 cents per share cash dividend on 100,000 shares of \$10 par value common stock. The dividend is \$50,000 (100,000 x 50 cents) and the entry to record the declaration is:

Dec. 1	Retained Earnings	50,000	
	Dividends Payable		50,000
	(To record declaration of cash dividend)		

A	=	L	+	SE
		+50,000		-50,000 Div

Cash Flows

no effect

Record Date

The purpose of the record date is to identify the persons or entities that will receive the dividend, not to determine the dividend liability. For Media General, the record date is December 22. No entry is required on this date because the corporation's liability recognized on the declaration date is unchanged.

Dec. 22

No entry necessary

Payment Date

Assuming the payment date is January 20 for Media General, the entry on that date is:

Jan. 20	Dividends Payable	50,000	
	Cash		50,000
	(To record payment of cash dividend)		

A	=	L	+	SE
-50,000		-50,000		

Cash Flows

-50,000



Payment of the dividend **REDUCES** both current assets and current liabilities but has no effect on stockholders' equity.

Allocating Cash Dividends Between Preferred and Common Stock

- **Cash dividends**
 - Must be paid first to preferred stockholders *before* any common stockholders are paid.
- ***Cumulative* preferred stock**
 - Any dividends in arrears and the current year dividend must be paid to preferred stockholders before allocating any dividends to common stockholders.
- **Preferred stock is *not cumulative***
 - Only the current year's dividend must be paid to preferred stockholders before paying any dividends to common stockholders.

Allocating Cash Dividends Between Preferred and Common Stock

Assume that IBR Inc. has 1,000 shares of 8%, \$100 par value cumulative preferred stock and 50,000 shares of \$10 par value common stock outstanding at December 31, 2005. If the Board of Directors declares a \$6,000 cash dividend on December 31, the entire \$6,000 will go to preferred stockholders because their annual dividend is \$8,000, (1,000 shares x \$8) .

Dec. 31	Retained Earnings		6,000	
	Dividends Payable			6,000
	(To record \$6 per share cash dividend to preferred stockholders)			

\$2,000 has gone into arrears for preferred stockholders

A	=	L	+	SE
		+6,000		-6,000 Div

Cash Flows
no effect

Allocating Cash Dividends Between Preferred and Common Stock

Total dividend		\$50,000
Allocated to preferred stock		
Dividend in arrears, 2005 (1,000 x \$2)	\$2,000	
2006 dividend (1,000 x \$8)	<u>8,000</u>	<u>10,000</u>
Remainder allocated to common stock		<u><u>\$40,000</u></u>

At December 31, 2005, IBR declares a \$50,000 cash dividend. The allocation of the dividend to the two classes of stock is shown above. If the preferred stock was NON-cumulative, preferred stockholders would have received only \$8,000 in dividends in 2006 and common stockholders would have received \$42,000.

Review

The date a cash dividend becomes a binding legal obligation to a corporation is the

- a. declaration date.
- b. earnings date.
- c. payment date.
- d. record date.

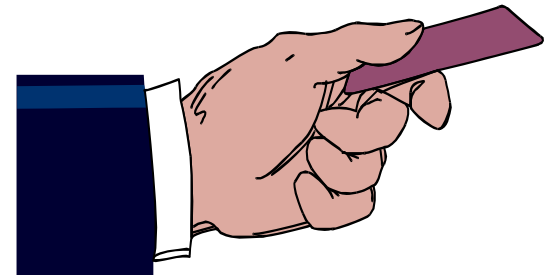
Review

The date a cash dividend becomes a binding legal obligation to a corporation is the

- a. declaration date.
- b. earnings date.
- c. payment date.
- d. record date.

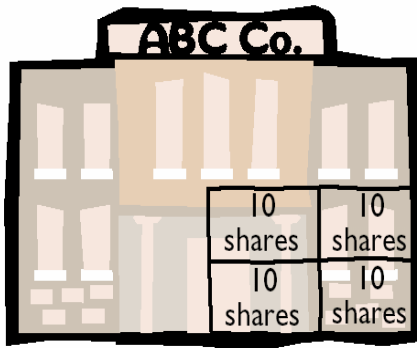
Stock Dividends

- **Pro rata distribution to stockholders of the corporation's own stock**
 - results in a *decrease* in retained earnings and an *increase* in paid-in capital
 - at a minimum, the par or stated value must be assigned to the dividend shares; in most cases, however, **fair market value is used**
- **A stock dividend does NOT decrease Total Assets or Total Stockholders' Equity.**

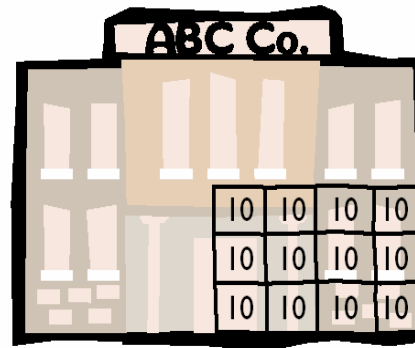


Stock Dividends

Before stock dividend



After stock dividend



Number of shares owned increases, but percentage of company owned remains the same.



Disclosure

Rally would present the information in the following Format.

Rally Inc. Income Statement (partial)	
Net income	<u>\$211,000</u>
Earnings per share	<u>\$2.00</u>

Earnings per Share

The formula to compute earnings per share when there is no preferred stock is as follows:

$$\begin{array}{c} \text{Net} \\ \text{Income} \end{array} \quad / \quad \begin{array}{c} \text{Weighted} \\ \text{Average} \\ \text{Common} \\ \text{Shares} \\ \text{Outstanding} \end{array} \quad = \quad \begin{array}{c} \text{Earnings} \\ \text{per} \\ \text{Share} \end{array}$$

Purposes and Benefits of a Stock Dividend

Corporations issue stock dividends generally for one or more of the following reasons:

- 1) To satisfy stockholders' dividend expectations without spending cash**
- 2) To increase the marketability of stock by increasing the number of shares**
- 3) To emphasize that a portion of stockholders' equity has been permanently reinvested in the business and unavailable for cash dividends**



Stock Dividends Distinguished

- **SMALL** stock dividend
 - less than 20-25% of the corporation's issued stock
 - assign fair market value to **SMALL** stock dividends
 - assumption that a small stock dividend will have little effect on the market price of the shares previously outstanding.
- **LARGE** stock dividend
 - greater than 20-25% of the corporation's issued stock
 - par or stated value per share is normally assigned



Entries for Stock Dividends

Assume that Medland Corporation has a balance of \$300,000 in retained earnings and declares a 10% stock dividend on its 50,000 shares of \$10 par value common stock. The current fair value of its stock is \$15 per share and the number of shares to be issued is 5,000 (10% of 50,000). The amount to be debited to Retained Earnings is \$75,000 (5,000 x \$15).

Retained Earnings	75,000	
Common Stock Dividends Distributable		50,000
Paid-in Capital in Excess of Par Value		25,000
(To record declaration of 10% stock dividend)		

A	=	L	+	SE
				- 75,000 Div
				+ 50,000 CS
				+ 25,000 CS

Cash Flows
no effect

NOTE !

Retained Earnings is debited for the fair market value of the stock issued because this is a SMALL stock dividend. Common Stock Dividends Distributable is credited for the par value of the dividend shares (5,000 x \$10), and the excess is credited to Paid-in Capital.

Statement Presentation of Common Stock Dividends Distributable

Common Stock Dividends Distributable is a stockholders' equity account; it is not a liability because assets will NOT be used to pay the dividend. If a balance sheet is prepared before the dividend shares are issued, the distributable account is reported in paid-in capital as an addition to common stock.

Paid-in capital

Common Stock	\$ 500,000	
Common Stock dividends distributable	<u>50,000</u>	\$550,000

When the dividend shares are issued, Common Stock Dividends Distributable is *debited* and Common Stock is *credited*.

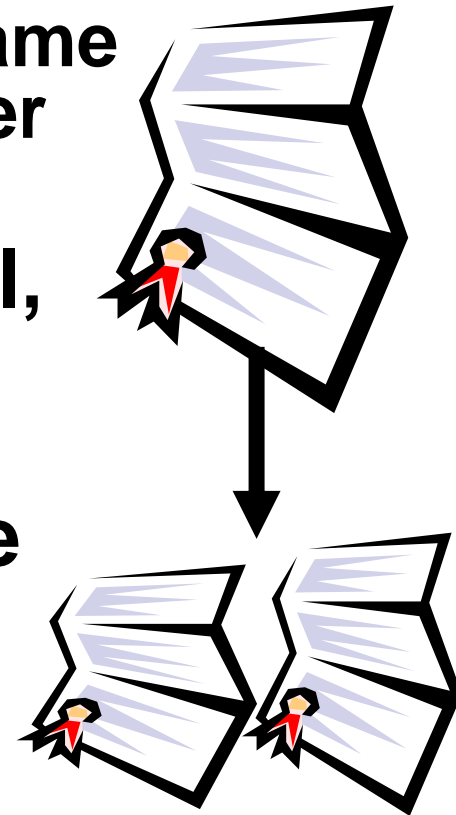
Stock Dividend Effects

	<u>Before Dividend</u>	<u>After Dividend</u>
Stockholders' equity		
Paid-in capital		
Common stock, \$10 par	\$500,000	\$550,000
Paid-in capital in excess of par value	—	25,000
Total paid-in capital	<u>500,000</u>	<u>575,000</u>
Retained earnings	<u>300,000</u>	<u>225,000</u>
Total stockholders' equity	<u><u>\$800,000</u></u>	<u><u>\$800,000</u></u>
Outstanding shares	<u><u>50,000</u></u>	<u><u>55,000</u></u>
Book value per share	<u><u>\$16.00</u></u>	<u><u>\$14.55</u></u>

Stock dividends change the composition of stockholders' equity because a portion of retained earnings is *transferred* to paid-in capital. However, *total* stockholders' equity and the par or stated value per share remain the same.

Stock Splits

- **The issuance of additional shares to stockholders according to their percentage ownership**
 - *number* of shares increased in the same proportion that par or stated value per share is decreased
- **Has *no effect* on total paid-in capital, retained earnings, and total stockholders' equity.**
- **Not necessary to formally journalize a stock split**



Stock Split Effects

Assume instead of a 10% dividend, Medland Corporation splits its 50,000 shares of common stock on a 2-for-1 basis. This means that one share of \$10 par value stock is exchanged for two shares of \$5 par value stock. **A stock split DOES NOT have any effect on total paid-in capital, retained earnings, and total stockholders' equity. However, number of shares increases and book value per share decreases.**

	<u>Before Stock Split</u>	<u>After Stock Split</u>
Stockholders' equity		
Paid-in capital		
Common stock	\$500,000	\$500,000
Paid-in capital in excess of par value	<u>-0-</u>	<u>-0-</u>
Total paid-in capital	500,000	500,000
Retained earnings	<u>300,000</u>	<u>300,000</u>
Total stockholders' equity	<u><u>\$800,000</u></u>	<u><u>\$800,000</u></u>
Outstanding shares	<u><u>50,000</u></u>	<u><u>100,000</u></u>
Book value per share	<u><u>\$16.00</u></u>	<u><u>\$8.00</u></u>

Differences Between the Effects of Stock Splits and Stock Dividends

<i>Item</i>	<i>Stock Split</i>	<i>Stock Dividend</i>
Total paid-in capital	No change	Increase
Total retained earnings	No change	Decrease
Total par value (common stock)	No change	Increase
Par value per share	Decrease	No change

Retained Earnings

STUDY OBJECTIVE 2

- **Net income retained in the business.**
- **Balance in retained earnings is part of the stockholders' claim on the total assets of the corporation.**
 - A **net loss** is recorded in Retained Earnings by a closing entry in which *Retained Earnings* is debited and *Income Summary* is credited.



Stockholders' Equity with Deficit

Balance Sheet (partial)

Stockholders' equity	
Paid-in capital	
Common stock	\$800,000
Retained earnings (deficit)	<u>(50,000)</u>
Total stockholders' equity	<u><u>\$750,000</u></u>

A debit balance in retained earnings is identified as a DEFICIT. It is reported as a deduction in the stockholders' equity section, as shown above.

Retained Earnings Restrictions

- **Portion of the balance currently *unavailable* for dividends.**
 - 1) Legal**

states may require that corporations restrict RE for the cost of treasury stock purchased.
 - 2) Contractual**

long term debt contracts may restrict RE as a condition for a loan.
 - 3) Voluntary**

the Board of Directors may voluntarily restrict RE for specific purposes such as future plant expansion.

Disclosure of Unrestricted Retained Earnings

- **The balance in retained earnings is generally available for dividend declarations. Some companies state this fact.**
- **In the notes to its financial statements, Martin Lockheed Corporation states:**



LOCKHEED MARTIN CORPORATION
Notes to the Financial Statements

At December 31, retained earnings were unrestricted and available for dividend payments.

Disclosure of Restriction

Tektronix Inc. Notes to the Financial Statements

Certain of the Company's debt agreements require compliance with debt covenants. Management believes that the Company is in compliance with such requirements for the fiscal year ended May 26, 2001. The Company had unrestricted retained earnings of \$223.8 million after meeting those requirements.

Retained earnings restrictions are generally disclosed in the notes to the financial statements. For example, Tektronix had the above note in a recent financial statement.

Prior Period Adjustments

Correction of a *material* error in reporting net income in a previously issued financial statement.

- 1) made directly to Retained Earnings.**
- 2) reported in the current year's retained earnings statement as an adjustment of the beginning balance of Retained Earnings.**



Prior Period Adjustments

Assume that General Microwave discovers in 2005 that it understated depreciation expense in 2004 by \$300,000 as a result of computational errors. These errors overstated net income for 2004, and the current balance in retained earnings is also overstated. The entry for the prior period adjustment, assuming all tax effects are ignored, is as follows:

Retained Earnings	300,000	
Accumulated Depreciation		300,000
(To adjust for understatement of depreciation in a prior period)		

A	=	L	+	SE
-300,000				-300,000 RE

Cash Flows
no effect

NOTE!

A DEBIT TO AN INCOME STATEMENT ACCOUNT IN 2005 WOULD BE INCORRECT BECAUSE THE ERROR PERTAINS TO A PRIOR PERIOD

Statement Presentation of Prior Period Adjustments

Assuming that General Microwave has a beginning balance of \$800,000 in retained earnings, the prior period adjustment is reported as follows:

GENERAL MICROWAVE

Retained Earnings Statement (partial)

Balance, January 1, as reported	\$800,000
Correction for overstatement of net income in prior period (depreciation error)	<u>(300,000)</u>
Balance, January 1, as adjusted	\$500,000

NOTE!

REPORTING THE CORRECTION IN THE CURRENT YEAR'S INCOME STATEMENT WOULD BE INCORRECT BECAUSE IT APPLIES TO A PRIOR YEAR'S INCOME STATEMENT.

Debits and Credits to Retained Earnings

Retained Earnings

1. Net Loss
2. Prior period adjustments for overstatement of net income
3. Cash dividends and stock dividends
4. Some disposals of treasury stock

1. Net income
2. Prior period adjustment for understatement of net income

Many corporations prepare a retained earnings statement to explain the changes in retained earnings during the year.

Comprehensive Stockholders' Equity Section

STUDY OBJECTIVE 3

- **Common Stock Dividends Distributable**
 - shown under capital stock in paid-in-capital
- **Retained Earnings restrictions**
 - disclosed in the notes to the financial statements

Corporation Income Statements

STUDY OBJECTIVE 4

- **Includes essentially the same sections as in a proprietorship or a partnership except for the reporting of income taxes**
- **For tax purposes, corporations are considered to be a separate legal entity.**
- **Income tax expense**
 - **Reported in a separate section of the corporation income statement before net income**



Income Statement with Income Taxes

LEADS INC.

Income Statement

For the Year Ended December 31, 2005

Sales	\$800,000
Cost of goods sold	<u>600,000</u>
Gross profit	200,000
Operating expenses	<u>50,000</u>
Income from operations	150,000
Other revenues and gains	10,000
Other expenses and losses	<u>(4,000)</u>
Income before income taxes	156,000
Income tax expense	<u>46,800</u>
Net income	<u><u>\$109,200</u></u>

Income Tax Expense

Using the preceding Income Statement, the adjusting entry for income tax expense at December 31, 2005, would be as follows:

Income Tax Expense	46,800	
Income Taxes Payable		46,800
(To record income taxes for 2005)		

$$\begin{array}{r} \text{A} = \text{L} + \text{SE} \\ +46,800 \quad -46,800 \quad \text{Exp} \end{array}$$

Cash Flows
no effect

Earnings per Share

Study Objective 5

- **Frequently reported in the financial press**
- **Used by stockholders and investors to evaluate profitability**
- **Indicates the net income earned by **each** share of outstanding common stock**

EPS and Preferred Stock Dividends

When a corporation has both preferred and common stock, the current year's dividend declared on preferred stock is subtracted from net income to arrive at income available to common stockholders. Assume that Rally Inc. reports net income of \$211,000 on its 102,500 weighted average common shares. During the year it also declares a \$6,000 dividend on its preferred stock.

$$\begin{array}{ccc} \begin{array}{|c|} \hline \text{Net Income} \\ \text{Minus} \\ \text{Preferred} \\ \text{Dividends} \\ \hline \end{array} & / & \begin{array}{|c|} \hline \text{Weighted} \\ \text{Average} \\ \text{of Common} \\ \text{Shares} \\ \text{Outstanding} \\ \hline \end{array} & = & \begin{array}{|c|} \hline \text{Earnings} \\ \text{per} \\ \text{Share} \\ \hline \end{array} \\ \\ (\$211,000 - \$6,000) / 102,500 & = & \$2 \text{ EPS} \end{array}$$

Therefore, Rally has \$205,000 (\$211,000 - \$6,000) available for common stock dividends. EPS is \$2 (\$205,000 / 102,500).

Review

The income statement for Nadeen, Inc. shows income before income taxes \$700,000, income tax expense \$210,000, and net income \$490,000. If Nadeen has 100,000 shares of common stock outstanding throughout the year, earnings per share is:

- a. \$7.00.
- b. \$4.90.
- c. \$2.10.
- d. No correct answer is given.

Review

The income statement for Nadeen, Inc. shows income before income taxes \$700,000, income tax expense \$210,000, and net income \$490,000. If Nadeen has 100,000 shares of common stock outstanding throughout the year, earnings per share is:

- a. \$7.00.
- b. **\$4.90.**
- c. \$2.10.
- d. No correct answer is given.

CHAPTER 15

Corporations: Dividends, Retained Earnings, and Income Reporting



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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 16

LONG-TERM LIABILITIES

Prepared by Naomi Karolinski
Monroe Community College

and

Marianne Bradford
Bryant College

CHAPTER 16

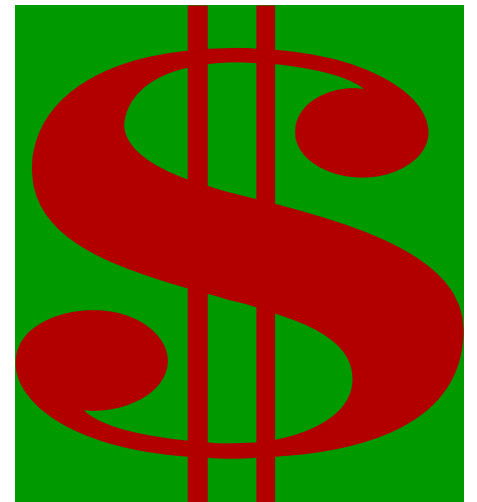
LONG-TERM LIABILITIES

After studying this chapter, you should be able to:

- 1 Explain why bonds are issued.**
- 2 Prepare the entries for the issuance of bonds and interest expense.**
- 3 Describe the entries when bonds are redeemed or converted.**
- 4 Describe the accounting for long-term notes payable.**
- 5 Contrast the accounting for operating and capital leases.**
- 6 Identify the methods for the presentation and analysis of long-term liabilities.**

Long-Term Liabilities

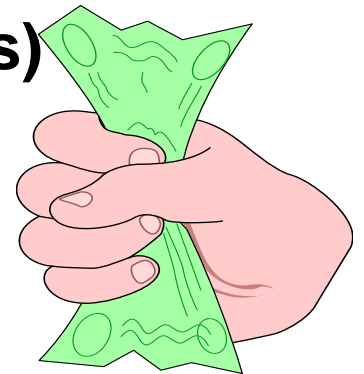
- Obligations that are expected to be paid after one year
- Include bonds, long-term notes, and lease obligations



Bond Basics

STUDY OBJECTIVE 1

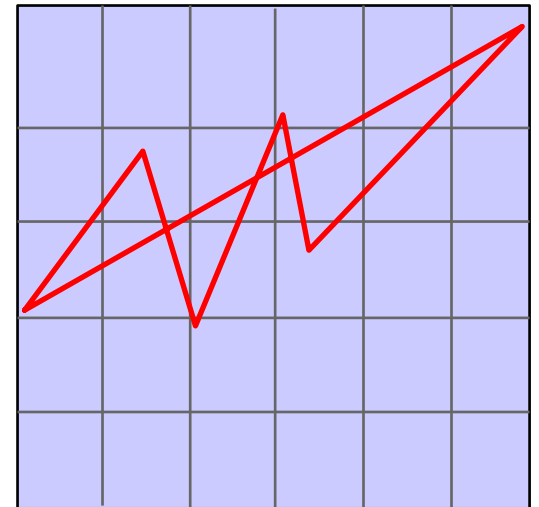
- **Bonds**
 - interest-bearing notes payable
 - issued by corporations, universities, and governmental agencies
 - like common stock, can be sold in small denominations (usually a thousand dollars)
 - attract many investors
- To obtain **large amounts of long-term capital**, corporate management usually must decide whether to issue bonds or to use equity financing (common stock).



Why Issue Bonds?

Long-term financing, bonds, offer the following advantages over common stock:

- 1) Stockholder control not affected
- 2) Tax savings
- 3) Earnings per share may be higher



Disadvantages of Bonds

- 1) Interest must be paid on a periodic basis**
- 2) Principal (face value) must be repaid at maturity**

Types of Bonds

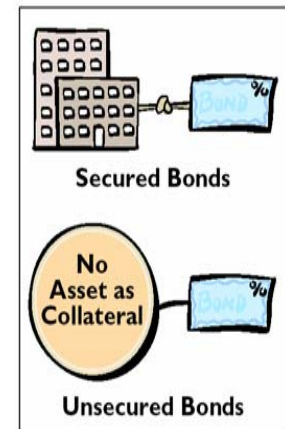
Secured and Unsecured

1) Secured bonds

Specific assets of the issuer pledged as collateral for the bonds(a mortgage bond is secured by real estate)

2) Unsecured bonds

Issued against the general credit of the borrower; they are also called **debenture bonds**.



Types of Bonds:

Term and Serial Bonds

3) Term bonds

- bonds that mature at a single specified future date



2005 2006 2007 2008



4) Serial bonds

- bonds that mature in installments



2005

2006

2007

2008



Types of Bonds: Registered and Bearer

5) Registered bonds

- issued in the name of the owner and have interest payments made by check to bondholders of record



Pay to: Joe Smith

6) Bearer or coupon bonds

- not registered; thus bondholders must send in coupons to receive interest payments

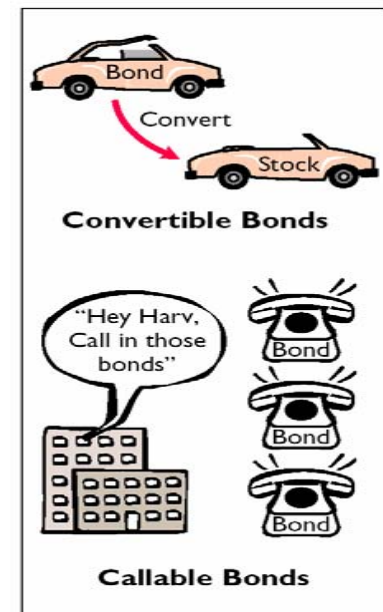


Pay to: Bearer

Types of Bonds

Convertible and Callable

- **Convertible**
 - **convert the bonds into common stock at holder's option**
- **Callable**
 - **subject to call and retirement at a stated dollar amount prior to maturity at the option of the issuer**



Authorizing a Bond Issue

- **State laws grant corporations the power to issue bonds**
 - approval by both the Board of Directors and stockholders is usually required
- **Board of Directors stipulate the number of bonds to be authorized, total face value, and contractual interest rate**



Issuing Procedures

- **Face value**
 - amount of principal the issuer must pay at the maturity date
- **Contractual interest rate, or *stated rate***
 - rate used to determine the amount of cash interest the borrower pays and the investor receives
- **Bond indenture**
 - terms of the bond issue are set forth in a formal legal document
- **Bond certificates**
 - Printed document providing information such as name of issuer and maturity date

Bond Certificate

Issuer of bonds

Maturity date

No. **\$5000**

INTERNATIONAL MINERALS & CHEMICAL CORPORATION
11.875% SINKING FUND DEBENTURE DUE MAY 1, 2008

INTERNATIONAL MINERALS & CHEMICAL CORPORATION, a New York corporation (herein referred to as the "Company"), for value received, hereby promises to pay to

CUSIP 459884 AC 6

SEE REVERSE FOR CERTAIN DEFINITIONS

11.875%
DUE 2008

or registered assigns,
the principal sum of

11.875%
DUE 2008

SPECIMEN

FIVE THOUSAND DOLLARS

on May 1, 2008, in such coin or currency of the United States of America which at the time of payment is legal tender for public and private debts, upon presentation and surrender of this Debenture, at the option of the registered owner, either at the office or agency of the Company in the Borough of Manhattan, New York, or at the office or agency of the Company in the City of Chicago, Illinois, and to pay the principal sum in like coin or currency, at the rate per annum specified in the title of this Debenture, at such office or agency, from May 1, 1984, or from the next consecutive date to which interest has been paid or otherwise provided for, semi-annually on May 1 and November 1 in each year until payment in full has been made or duly provided for. The interest so payable on any May 1 or November 1 shall be paid to the person in whose name this Debenture (or any Debenture evidencing all or a portion of the same debt) was registered at the close of business on the fifteenth day of the calendar month preceding such May 1 or November 1, or if such day is not a business day, at the close of business on the next preceding business day. Interest on this Debenture may be paid at the option of the Company by check mailed to the registered address of the person entitled to such interest as such address shall appear on the registry books on the record date for such interest payment.

The provisions of this Debenture are continued on the reverse hereof and such continued provisions shall for all purposes have the same effect as though fully set forth in this place.

This Debenture shall not be valid or become obligatory for any purpose until the certificate of authentication hereon shall have been signed by the Trustee or any Authenticating Agent under the Indenture.

IN WITNESS WHEREOF, INTERNATIONAL MINERALS & CHEMICAL CORPORATION has caused this Debenture to be signed in its corporate name by its Chairman of the Board, its President, one of its Vice Presidents or its Treasurer by his signature, or a facsimile thereof, and has caused a facsimile of its corporate seal to be affixed hereunto or imprinted hereon and to be attested by its Secretary or an Assistant Secretary by his signature, or a facsimile thereof.

Date: _____

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

By: *Richard L. Loom* Secretary By: *Richard L. Loom* Chairman of the Board

CERTIFICATE OF AUTHENTICATION
This is one of the Debentures described in the within-mentioned Indenture.
THE FIRST NATIONAL BANK OF CHICAGO,
Trustee.
By: _____
Authorized Officer

Face or par value

Contractual interest rate

Bond Trading

- **Corporate bonds**
 - traded on national securities exchanges
 - bondholders have the opportunity to convert their holdings into cash by selling the bonds at the current market price
- **Bond prices are quoted as a percentage of the face value of the bond (usually \$1,000).**
- **Transactions between a bondholder and other investors are not journalized by the issuing corporation.**
- **A corporation only makes journal entries when it issues or buys back bonds, and when bondholders convert bonds into common stock.**



Determining the Market Value of Bonds

The market value (present value)

of a bond is determined by:

- 1) the dollar amounts to be received**
 - 2) the length of time until the amounts are received**
 - 3) the market rate of interest, which is the rate investors demand for loaning funds.**
- The process of finding the present value is referred to as *discounting* the future amounts.**

Accounting for Bond Issues

Issuing Bonds at Face Value

STUDY OBJECTIVE 2

Bonds may be issued at face value, below face value (at a discount), or above face value (at a premium). They also are sometimes issued between interest dates. Assume that Devor Corporation issues 1,000, 10-year, 9% \$1,000 bonds dated January 1, 2005, at 100 (100% of face value). The entry to record the sale is:

Cash	1,000,000	
Bonds Payable		1,000,000
(To record sale of		
bonds at face value)		

Bonds payable are reported in the long-term liability section of the balance sheet because the maturity date is more than one year away.

Accounting for Bond Issues

Issuing Bonds at Face Value

Assuming that interest is payable semiannually on January 1 and July 1 on the bonds, interest of \$45,000 ($\$1,000,000 \times 9\% \times 6/12$) must be paid on July 1, 2005. The entry for the payment is:

July 1	Bond Interest Expense	45,000	
	Cash		45,000
	(To record payment		
	of bond interest)		

Accounting for Bond Issues

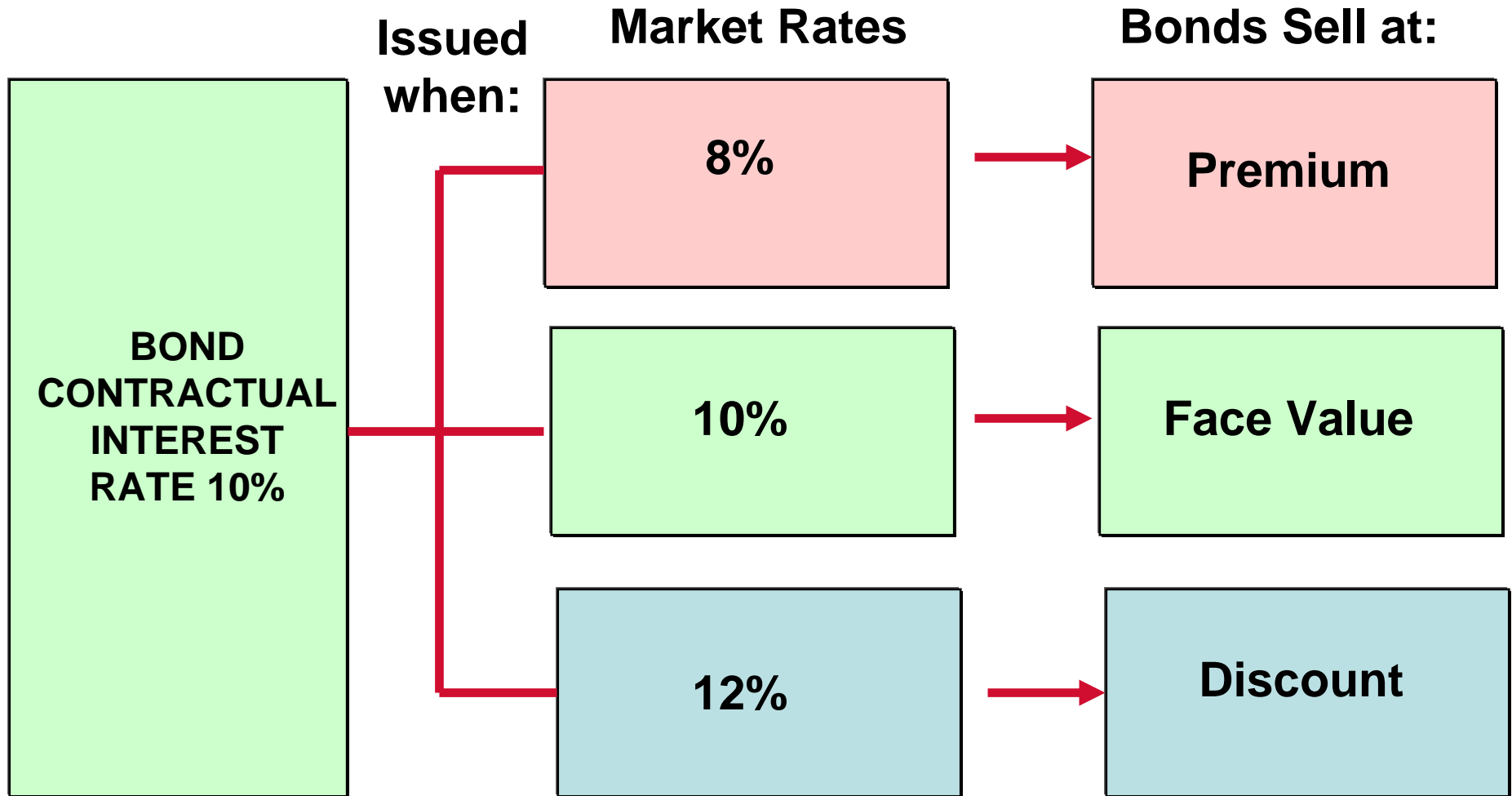
Issuing Bonds at Face Value

At December 31, an adjusting entry is required to recognize the \$45,000 of interest expense incurred since July 1. The entry is:

Dec. 31	Bond Interest Expense	45,000	
	Bond Interest Payable		45,000
	(To accrue bond		
	interest)		

Bond interest payable is classified as a current liability, because it is scheduled for payment within the next year. When interest is paid on January 1, 2006, Bond Interest Payable is debited, and Cash is credited for \$45,000 in order to eliminate the liability.

Interest Rates and Bond Prices



Accounting for Bond Issues

Discount or Premium on Bonds

- Bonds may be issued **below** or **above** face value.
- Market (effective) rate of interest is **higher** than the contractual (stated) rate
 - the bonds will sell at less than face value, or at a **discount**
- Market rate of interest is **less** than the contractual rate
 - the bonds will sell above face value, or at a **premium**

Issuing Bonds at a Discount

Assume that on January 1, 2005, Candlestick, Inc. sells \$100,000, 5-year, 10% bonds for \$92,639 (92.639% of face value) with interest payable on July 1 and January 1. The entry to record the issuance is:

Jan. 1	Cash	92,639	
	Discount on Bonds Payable	7,361	
	Bonds Payable		100,000
	(To record sale of bonds at a discount)		

Statement Presentation of Discount on Bonds Payable

Although Discount on Bonds Payable has a debit balance, it is NOT an asset. Rather, it is a contra account, which is **deducted from bonds payable** on the balance sheet, as illustrated below:

CANDLESTICK, INC. Balance Sheet (partial)

<u>Long-term liabilities</u>		
Bonds payable	\$100,000	
Less: Discount on bonds payable	\$7,361	\$92,639

The \$92,639 represents the **carrying (or book) value** of the bonds. On the date of issue this amount equals the market price of the bonds.

Total Cost of Borrowing - Bonds Issued at Discount

- The difference between the issuance price and face value of the bonds-the discount-is **an additional cost of borrowing that should be recorded as bond interest expense over the life of the bonds.**
- The total cost of borrowing, \$92,639 for Candlestick, Inc., is \$57,361, as computed as follows:

Bonds Issued at a Discount	
Semiannual Interest Payments	
(\$100,000*10%*.5= \$5,000; \$5,000*10)	\$50,000
Add: Bond Discount (\$100,000-\$92,639)	<u>\$7,361</u>
Total Cost of Borrowing	<u>\$57,361</u>

Alternative Computation of Total Cost of Borrowing - Bonds Issued at a Discount

Alternatively, the total cost of borrowing can be computed as follows:

Bonds Issued at a Discount	
Principal at maturity	\$100,000
Semiannual interest payments (\$5,000*10)	\$50,000
Cash to be paid to bondholders	\$150,000
Cash received from bondholders	\$92,639

Total cost of borrowing

\$57,361

Issuing Bonds at a Premium

We now assume the Candlestick, Inc. bonds described in the previous slides are sold for \$108,111 (108.111% of face value) rather than for \$ 92,639.

Jan. 1	Cash	108,111	
	Bonds Payable		100,000
	Premium on Bonds Payable		8,111
	(To record sale of bonds at a premium)		

Statement Presentation of Bond Premium

Premium on bonds payable is **added to bonds payable** on the balance sheet, as shown below:

CANDLESTICK, INC.		
Balance Sheet (partial)		
<u>Long-term liabilities</u>		
Bonds payable	\$100,000	
Add: Premium on bonds payable	<u>8,111</u>	\$108,111

Total Cost of Borrowing - Bonds Issued at a Premium

The sale of bonds above face value causes the total cost of borrowing to be less than the bond interest paid. The premium is considered to be a reduction in the cost of borrowing that should be credited to Bond Interest Expense over the life of the bonds.

Bonds Issued at a Premium	
Semiannual Interest Payments	
(\$100,000*10%*.5=\$5,000; \$5,000*10)	\$50,000
Less: Bond Premium (\$108,111-\$100,000)	<u>\$8,111</u>
Total Cost of Borrowing	<u>\$41,889</u>

Alternative Computation of Total Cost of Borrowing - Bonds Issued at a Premium

Alternatively, the total cost of borrowing can be determined as follows:

Bonds Issued at a Premium	
Principal at maturity	\$100,000
Semiannual interest payments (\$5,000* 10)	\$50,000
Cash to be paid to bondholders	\$150,000
Cash received from bondholders	\$108,111
Total cost of borrowing	<u>\$41,889</u>

Redeeming Bonds at Maturity

STUDY OBJECTIVE 3

Regardless of the issue price of bonds, the book value of the bonds at maturity will equal their face value. Assuming that the interest for the last interest period is paid and recorded separately, the entry to record the redemption of the Candlestick bonds at maturity is:

Bond Payable	1,000,000	
Cash		1,000,000
(To record redemption of bonds at maturity)		

Bond Retirements

- **Company decides to reduce interest cost and remove debt from its balance sheet.**
- 1) Eliminate the carrying value of the bonds at the redemption date.**
 - 2) Record the cash paid.**
 - 3) Recognize the gain or loss on redemption.**



Redeeming Bonds Before Maturity

Assume that at the end of the eighth period, Candlestick, Inc. retires its bonds at 103 after paying the semiannual interest. The carrying value of the bonds at the redemption date is \$101,623. The entry to record the redemption at the end of the eighth interest period (January 1, 2009) is:

Jan. 1	Bonds Payable	100,000	
	Premium on Bonds Payable	1,623	
	Loss on Bond Redemption	1,377	
	Cash		103,000
	(To record redemption of bonds at 103)		

Review

The term used for bonds that are unsecured is:

- a. callable bonds.
- b. indenture bonds.
- c. debenture bonds.
- d. bearer bonds.

Review

The term used for bonds that are unsecured is:

- a. callable bonds.
- b. indenture bonds.
- c. debenture bonds.
- d. bearer bonds.

Converting Bonds into Common Stock

In recording the conversion of bonds into common stock the current market prices of the bonds and the stock are ignored. Instead, the carrying value of the bonds is transferred to **paid-in capital accounts**. **No gain or loss is recognized.**

Assume that on July 1 Saunders Associates converts \$100,000 bonds sold at face value into 2,000 shares of \$10 par value common stock. Both the bonds and the common stock have a market value of \$130,000. The entry to record the conversion is:

July 1	Bonds Payable	100,000	
	Common Stock		20,000
	Paid-in Capital in Excess of Par Value		80,000
	(To record bond conversion)		

Other Long-Term Liabilities

Study Objective 4

- **Long-term notes payable**
 - similar to short-term interest-bearing notes payable except that the term of the note exceeds one year.
- **Mortgage notes payable**
 - long-term note may be secured by a **mortgage** that pledges title to specific assets as security for a loan
 - are widely used by individuals to purchase homes and to acquire plant assets by many small and some large companies
 - recorded initially at face value
 - subsequent entries are required for each installment payment



Mortgage Installment Payment Schedule

To illustrate, assume that Porter Technology Inc. issues a **\$500,000, 12%, 20-year mortgage note** on December 31, 2005, to obtain needed financing for the construction of a new research laboratory. The terms provide for semiannual installment payment of **\$33,231**. The installment payment schedule for the first year is shown below:

Semiannual Interest Period	(A) Cash Payment	(B) Interest Expense (D) x 6%	(C) Reduction Of Principal (A) – (B)	(D) Principal Balance (D) – (C)
Issue date				\$500,000
1	\$33,231	\$30,000	\$3,231	496,769
2	\$33,231	29,806	3,425	493,344

Long-term Notes Payable

Entries

The entries to record the mortgage loan and first installment payment (per schedule on previous slide) are as follows:

Dec. 31	Cash	500,000	
	Mortgage Notes Payable		500,000
	(To record mortgage loan)		

June 30	Interest Expense	30,000	
	Mortgage Notes Payable	3,231	
	Cash		33,231
	(To record semiannual payment on mortgage)		

Operating Leases

STUDY OBJECTIVE 5

Operating lease

- intent is temporary use of the property by the lessee
- lessor continues to own the property
- lease (or rental) payments are recorded as **an expense** by the lessee and as **revenue** by the lessor

Car rental
is an example
of an
operating
lease



Capital Leases

- **The present value of the cash payments for the lease are capitalized and recorded as an asset.**
- **Capital lease is in substance an installment purchase by the lessee.**

Capital Leases

- Lessee records the lease as **an asset** (a capital lease) if any one of the following conditions exist:
 - a) Lease transfers ownership of the property to the lessee.
 - b) Lease contains a bargain purchase option.
 - c) Lease term is equal to 75% or more of the economic life of the leased property.
 - d) Present value of the lease payments equals or exceeds 90% of the fair market value of the leased property.

Capital Lease Entries

Assume that Gonzalez Company decides to lease new equipment. The lease period is 4 years; the economic life of the leased equipment is estimated to be 5 years. The present value of the lease payments is \$190,000, which is equal to the fair market value of the equipment. There is no transfer of ownership during the lease term, nor is there any bargain purchase option.

IN THIS EXAMPLE, GONZALEZ HAS ESSENTIALLY PURCHASED THE EQUIPMENT BECAUSE CONDITIONS (c) AND (d) HAVE BEEN MET (SEE PREVIOUS SLIDE).

Leased Asset-Equipment	190,000	
Lease Liability		190,000
(To record leased asset and lease liability)		

Review

The renting of an apartment is an example of a(n):

- a. capital lease.
- b. lease liability.
- c. operating lease.
- d. lessor lease.

Review

The renting of an apartment is an example of a(n):

- a. capital lease.
- b. lease liability.
- c. operating lease.
- d. lessor lease.

Presentation and Analysis of Long-Term Liabilities

STUDY OBJECTIVE 6

Long-term debt

- **reported in the balance sheet or in schedules in the notes accompanying the statements**
- **current maturities of long-term debt**
 - **reported under current liabilities if they are to be paid from current assets**
- **reported in a separate section of the balance sheet immediately following current liabilities**

Balance Sheet Presentation of Long-term Liabilities

**The long-term liabilities for
LAX Corporation are shown below:**

LAX Corporation Balance Sheet (partial)		
Long-term liabilities		
Bonds payable 10% due in 2009	\$1,000,000	
Less: Discount on bonds payable	<u>80,000</u>	\$920,000
Mortgage notes payable, 11%, due in 2015 and secured by plant assets		500,000
Lease liability		<u>540,000</u>
Total long-term liabilities		<u><u>\$1,960,000</u></u>

Debt to Total Assets

The **debt to total assets ratio** measures the percentage of total assets provided by creditors, indicating the degree of leverage utilized. It is calculated by dividing **total debt** by **total assets**. **Johnson & Johnson's** 2005 annual reported total debt of \$17,859 million and total assets of \$40,566 million. Their debt to total assets ratio is calculated below:

$$\text{DEBT TO TOTAL ASSETS} = \frac{\text{TOTAL DEBT}}{\text{TOTAL ASSETS}}$$

$$44\% = \$17,859 \div \$40,566$$

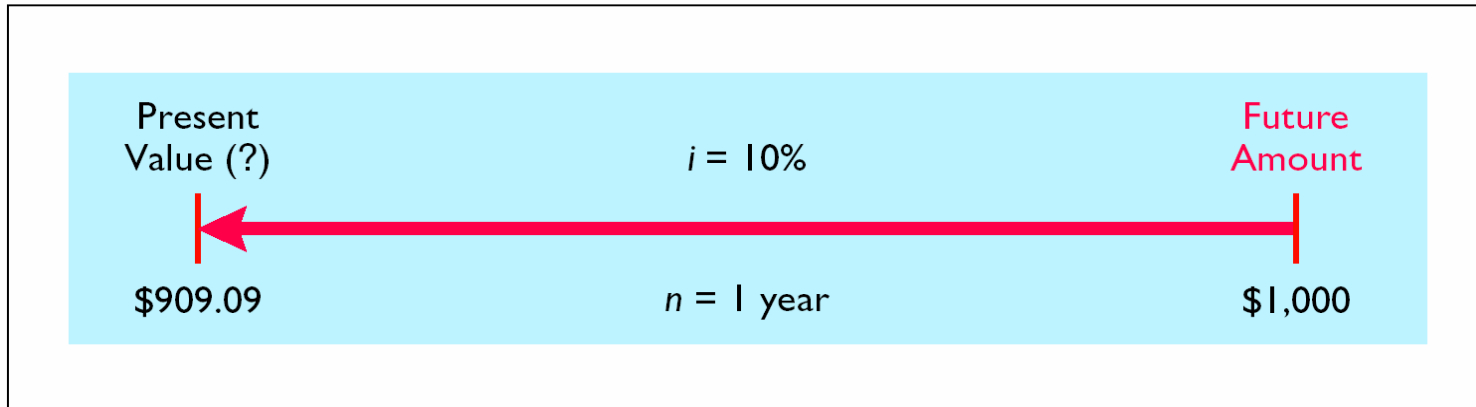
Times Interest Earned Ratio

The **times interest earned ratio** indicates the company's ability to meet interest payments as they come due. It is computed by dividing **income before income taxes and interest expense** by **interest expense**. **Johnson & Johnson's** annual report disclosed interest expense \$160 million, income taxes of \$2,694 , and net income of \$6,597 million. The times interest earned ratio is computed below:

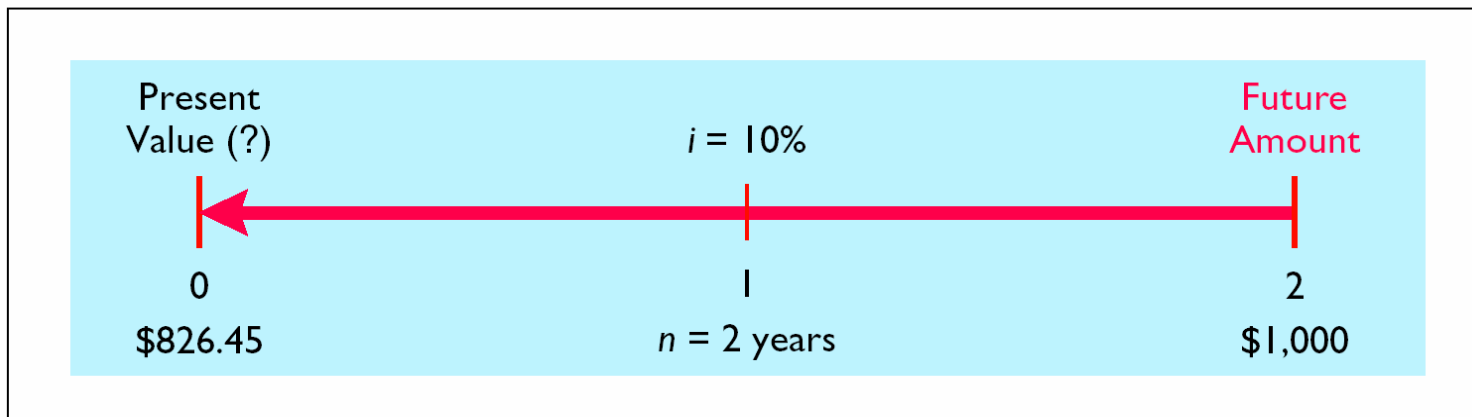
$$\text{TIMES INTEREST EARNED} = \frac{\text{INCOME BEFORE INCOME TAXES AND INTEREST EXPENSE}}{\text{INTEREST EXPENSE}}$$

$$59.1 \text{ times} = (\$6,597 + \$2,694 + \$160) \div \$160$$

Appendix 16A Present Value Concepts Related to Bond Pricing



Present Value – One Period Discount



Present Value – Two Period Discount

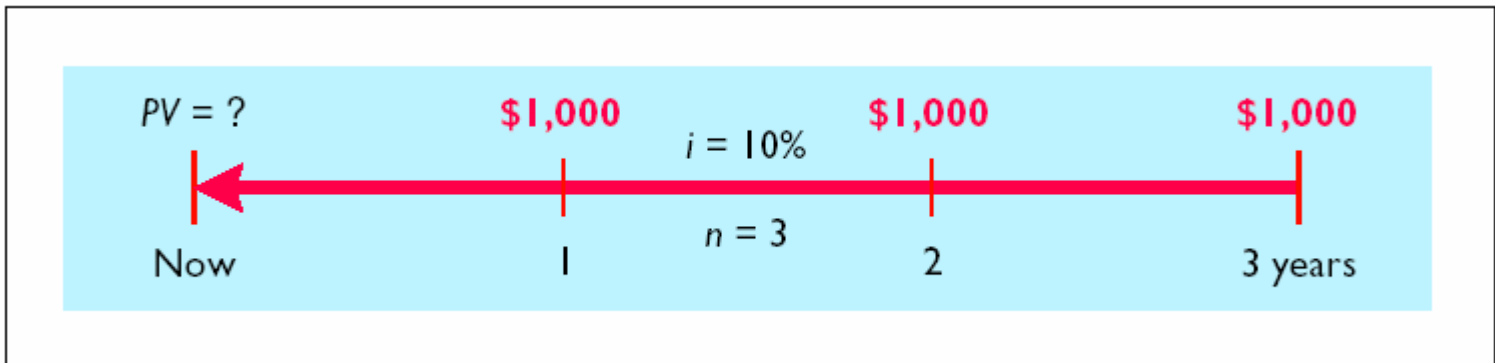
Present Value of Face Value

You have just won the state lottery! Are you better off receiving \$10,000,000 three years from now or receiving a check for \$7,000,000 today if the appropriate discount rate is 9%?

TABLE 16A-1 Present Value of 1									
(n) Periods	4%	5%	6%	8%	9%	10%	11%	12%	15%
1	.96154	.95238	.94340	.92593	.91743	.90909	.90090	.89286	.86957
2	.92456	.90703	.89000	.85734	.84168	.82645	.81162	.79719	.75614
3	.88900	.86384	.83962	.79383	.77218	.75132	.73119	.71178	.65752
4	.85480	.82270	.79209	.73503	.70843	.68301	.65873	.63552	.57175
5	.82193	.78353	.74726	.68058	.64993	.62092	.59345	.56743	.49718
6	.79031	.74622	.70496	.63017	.59627	.56447	.53464	.50663	.43233
7	.75992	.71068	.66506	.58349	.54703	.51316	.48166	.45235	.37594
8	.73069	.67684	.62741	.54027	.50187	.46651	.43393	.40388	.32690
9	.70259	.64461	.59190	.50025	.46043	.42410	.39092	.36061	.28426
10	.67556	.61391	.55839	.46319	.42241	.38554	.35218	.32197	.24719

\$10,000,000 X PV of 1 due in 3 years at 9% = \$10,000,000 X .77218 (Table 16A-1)	\$7,721,800
Amount to be received from winning state lottery immediately	7,000,000
Difference	\$ 721,800

Present Value of Interest Payments (Annuities)



<u>Future Amount</u>	×	<u>Present Value of 1 Factor at 10%</u>	=	<u>Present Value</u>
\$1,000 (1 year away)		.90909		\$ 909.09
1,000 (2 years away)		.82645		826.45
1,000 (3 years away)		.75132		751.32
		<u>2.48686</u>		<u>\$2,486.86</u>

Present Value of Interest Payments (Annuities)

TABLE 16A-2
Present Value of an Annuity of 1

(n) Periods	4%	5%	6%	8%	9%	10%	11%	12%	15%
1	.96154	.95238	.94340	.92593	.91743	.90909	.90090	.89286	.86957
2	1.88609	1.85941	1.83339	1.78326	1.75911	1.73554	1.71252	1.69005	1.62571
3	2.77509	2.72325	2.67301	2.57710	2.53130	2.48685	2.44371	2.40183	2.28323
4	3.62990	3.54595	3.46511	3.31213	3.23972	3.16986	3.10245	3.03735	2.85498
5	4.45182	4.32948	4.21236	3.99271	3.88965	3.79079	3.69590	3.60478	3.35216
6	5.24214	5.07569	4.91732	4.62288	4.48592	4.35526	4.23054	4.11141	3.78448
7	6.00205	5.78637	5.58238	5.20637	5.03295	4.86842	4.71220	4.56376	4.16042
8	6.73274	6.46321	6.20979	5.74664	5.53482	5.33493	5.14612	4.96764	4.48732
9	7.43533	7.10782	6.80169	6.24689	5.99525	5.75902	5.53705	5.32825	4.77158
10	8.11090	7.72173	7.36009	6.71008	6.41766	6.14457	5.88923	5.65022	5.01877

Present Value of a Bond

Diagram for Principal

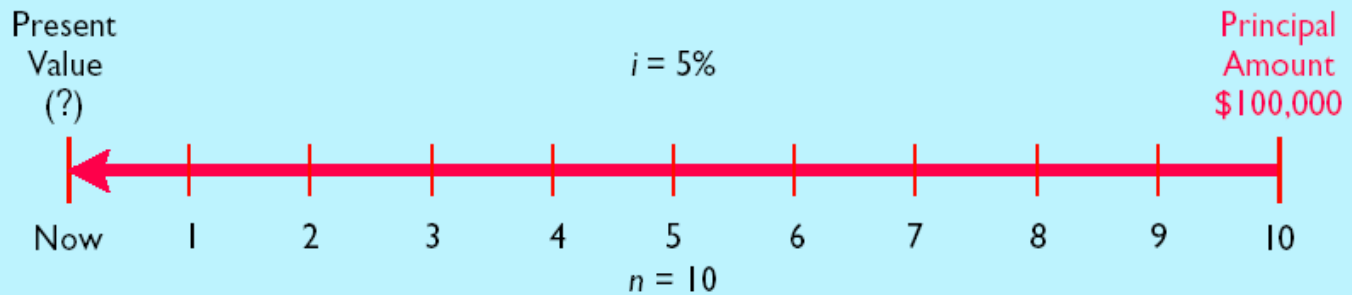
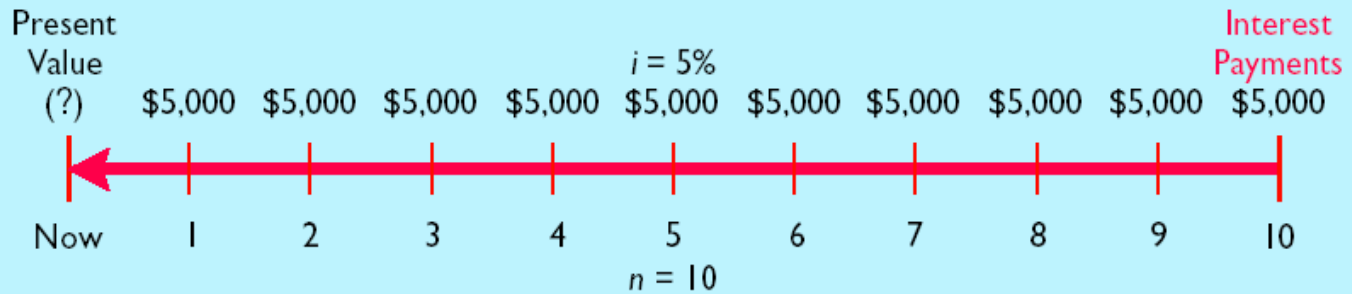


Diagram for Interest



APPENDIX:

16 B Effective-Interest Amortization

- **An alternative to straight-line amortization**
- **Both methods result in the same total amount of interest expense over the term of the bonds.**
- **If materially different**
 - **the effective-interest method is required under GAAP**

Computation of Amortization - Effective-Interest Method

- **Bond interest expense**
 - computed by multiplying the carrying value of the bonds at the beginning of the interest period by the effective-interest rate
- **Bond discount or premium amortization**
 - computed by determining the difference between the bond interest expense and the bond interest paid

(1)
Bond Interest Expense
Carrying value
of Bonds X Effective
at Beginning Interest
of Period Rate

—

(2)
Bond Interest Paid
Face Contractual
Amount X Interest
of Bonds Rate

=

**Amortization
Amount**

Illustration 16B-3

Bond Discount Amortization Schedule

Candlestick Inc. issues \$100,000 of 10%, 5-year bonds on January 1, 2005, with interest payable each July 1 and January 1. The bonds will sell for \$92,639 with an effective interest rate of 12%; Therefore, the bond discount is \$7,361 (\$100,000 - \$92,639). The schedule below facilitates recording of interest expense and discount amortization.

NOTE: TABLE WILL CONTINUE FOR 10 SEMIANNUAL PERIODS

Semiannual Interest Period	(A) Interest To be paid (5% x 100,000)	(B) Interest Expense (6% x preceding bond carrying value)	(C) Discount Amortization	(D) Unamortized Discount (D) – (C)	(E) Bond Carrying Value (\$100,000 – D)
Issue date				\$7,361	\$92,639
1	\$5,000	\$5,558	\$ 558	6,803	93,197
2	\$5,000	5,592	592	6,211	93,789

Illustration 16B-4

Bond Premium Amortization Schedule

Candlestick Inc. issues \$100,000 of 10%, 5-year bonds on January 1, 2005, with interest payable each July 1 and January 1. The bonds will sell for \$108,111 with an effective interest rate of 8%; therefore, the bond premium is \$8,111 (\$108,111-\$100,000). The schedule below facilitates recording of interest expense and premium amortization.

NOTE: TABLE WILL CONTINUE FOR 10 SEMIANNUAL PERIODS

Semiannual Interest Period	(A) Interest To be paid (5% x 100,000)	(B) Interest Expense (4% x preceding bond carrying value)	(C) Premium Amortization	(D) Unamortized Premium (D) – (C)	(E) Bond Carrying Value (\$100,000 + D)
Issue date				\$8,111	\$108,111
1	\$5,000	\$4,324	\$676	7,435	107,435
2	5,000	4,297	703	6,732	106,732

Appendix 16C

Straight-Line Amortization

- **Matching principle**
 - bond discount allocated systematically to each accounting period that benefits from the use of the cash proceeds
- **Straight-line method of amortization.**
 - allocates the same amount to interest expense each interest period
- **The amount is determined as follows:**

$$\begin{array}{|c|} \hline \text{Bond} \\ \text{Discount} \\ \hline \end{array} \quad / \quad \begin{array}{|c|} \hline \text{Number} \\ \text{of Interest} \\ \text{Periods} \\ \hline \end{array} \quad = \quad \begin{array}{|c|} \hline \text{Bond} \\ \text{Discount} \\ \text{Amortization} \\ \hline \end{array}$$

Amortizing Bond Discount

In the previous example, the bond discount amortization is \$736 ($\$7,361 / 10$ periods). The entry to record the payment of bond interest and the amortization of bond discount on the first interest date (July 1, 2005) is:

July 1	Bond Interest Expense	5,736	
	Discount on Bonds Payable		736
	Cash		5,000
	(To record accrued bond interest and amortization of bond discount)		

Amortizing Bond Discount - Entries

At December 31, the adjusting entry is:

Dec. 31	Bond Interest Expense	5,736	
	Discount on Bonds Payable		736
	Bond Interest Payable		5,000
	(To record accrued bond interest and amortization of bond discount)		

Over the term of the bonds, the balance in **Discount on Bonds Payable** will decrease annually by the same amount until it has a zero balance at maturity. Thus, the carrying value of the bonds at maturity will be equal to the face value.

Formula for Straight-Line Method of Bond Premium Amortization

- The formula for determining bond premium amortization under the straight-line method is:

$$\text{Bond Premium} \div \text{Number of Interest Periods} = \text{Bond Premium Amortization}$$

Amortizing Bond Premium

The premium amortization for each interest period is \$811 ($\$8,111 / 10$). The entry to record the first payment of interest on July 1 is:

July 1	Bond Interest Expense	4,189	
	Premium on Bonds Payable	811	
	Cash		5,000
	(To record payment of bond interest and amortization of bond premium)		

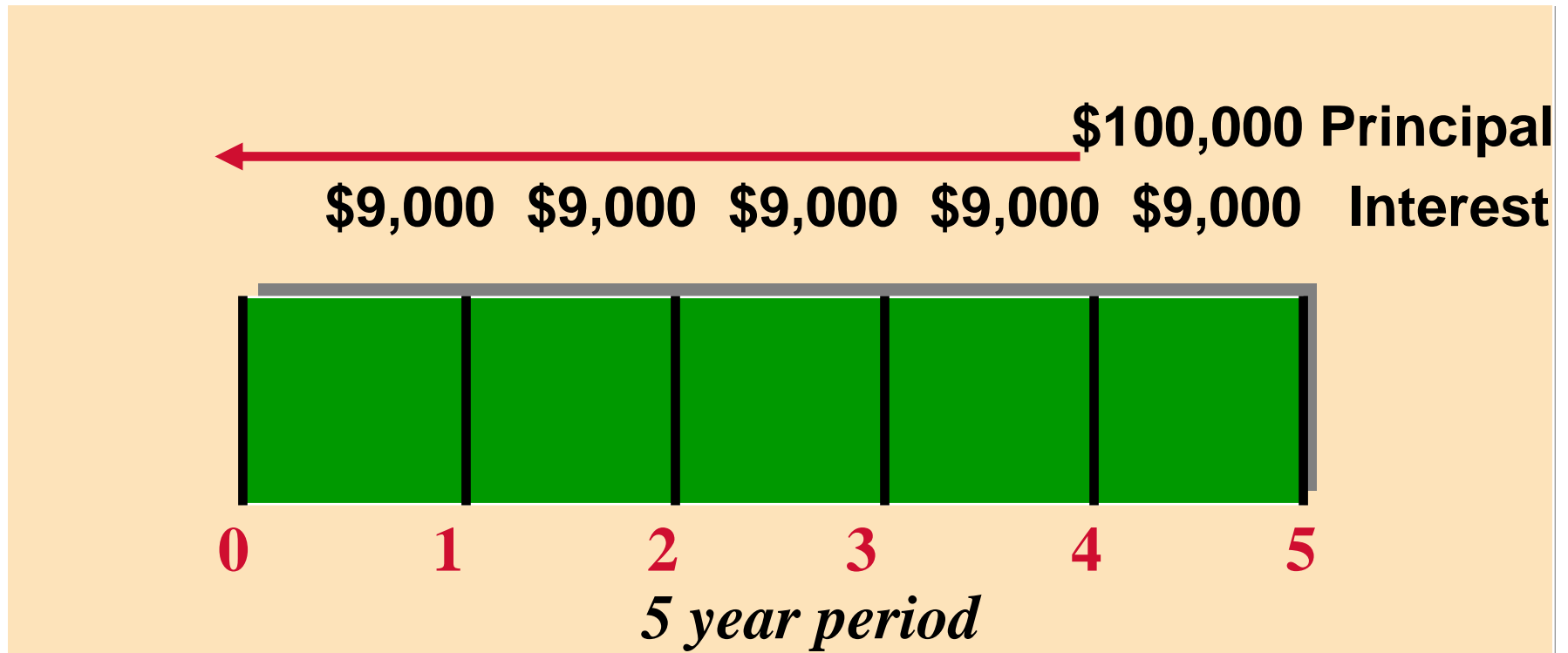
Amortizing Bond Premium

At December 31, the adjusting entry is:

Dec. 31	Bond Interest Expense	4,189	
	Premium on Bonds Payable	811	
	Bond Interest Payable		5,000
	(To record accrued bond interest and amortization of bond premium)		

Over the term of the bonds, the balance in Premium on Bonds Payable will decrease annually by the same amount until it has a zero balance at maturity date of the bonds.

Time Diagram Depicting Cash Flows



Assume that Kell Company on January 1, 2005, issues \$100,000 of 9% bonds, due in 5 years, with interest payable annually at year-end. The purchaser of the bonds would receive two cash payments: 1) principal of \$100,000 to be paid at maturity, and 2) five \$9,000 interest payments ($\$100,000 \times 9\%$) over the term of the bond.

Computing the Market Price of Bonds

The market value of a bond is equal to the present value of all the future cash payments promised by the bond. The present values of these amounts are shown below:

Present value of \$100,000 received in 5 years	\$ 64,993
Present value of \$ 9,000 received annually for 5 years	35,007
Market price of bonds	\$100,000

Issuing Bonds Between Interest Dates

When bonds are issued between interest payment dates, the issuer requires the investor to pay the market price for the bonds plus accrued interest since the last interest date.

To illustrate, assume that Deer Corporation sells \$1,000,000, 9% bonds at face value plus accrued interest on March 1. Interest is payable semiannually on July 1 and January 1. The accrued interest is \$15,000 ($\$1,000,000 \times 9\% \times 2/12$). The total proceeds on the sale of the bonds, therefore, are \$1,015,000. The entry to record the sale is:

Mar. 1	Cash	1,015,000	
	Bonds Payable		1,000,000
	Bond Interest Payable		15,000
	(To record sale of bonds at face value plus accrued interest)		

Issuing Bonds Between Interest Dates

At the first interest date, it is necessary to (1) eliminate the bond interest payable balance and (2) recognize interest expense for the 4 months (March 1 - June 30) the bonds have been outstanding. Interest expense is \$30,000 ($\$1,000,000 \times 9\% \times 4/12$). The entry on July 1 for the \$45,000 interest payment is:

July 1	Bond Interest Payable	15,000	
	Bond Interest Expense	30,000	
	Cash		45,000
	(To record payment of bond interest)		

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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 17

Investments

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Monroe Community College

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CHAPTER 17

INVESTMENTS

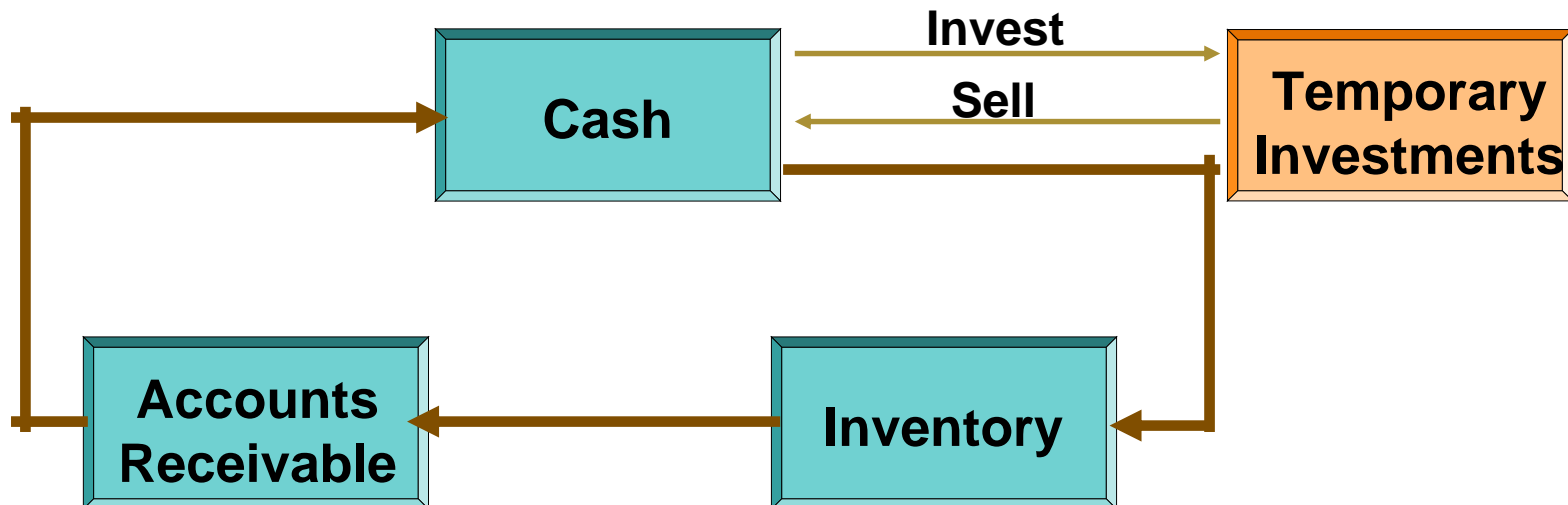
After studying this chapter, you should be able to:

- 1 Discuss why corporations invest in debt and stock securities.**
- 2 Explain the accounting for debt investments.**
- 3 Explain the accounting for stock investments.**
- 4 Describe the use of consolidated financial statements.**
- 5 Indicate how debt and stock investments are valued and reported on the financial statements.**
- 6 Distinguish between short-term and long-term investments.**

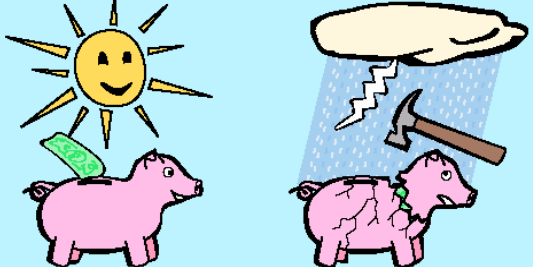
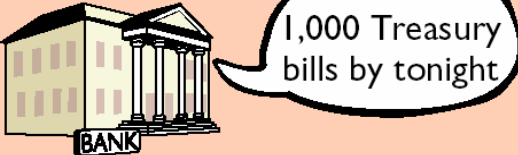
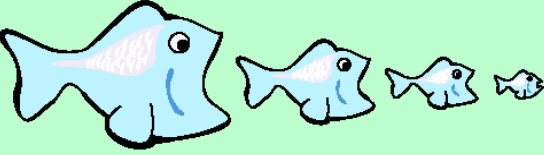
TEMPORARY INVESTMENTS AND THE OPERATING CYCLE

STUDY OBJECTIVE 1

- **At the end of the operating cycle**
 - temporary idle cash on hand available until the start of the next operating cycle.
 - invest the excess funds to earn a greater return.
- **The relationship of temporary investments to the operating cycle is depicted below.**



WHY CORPORATIONS INVEST

Reason	Typical Investment
<p>To house excess cash until needed</p>  <p>The illustration shows two piggy banks. The one on the left is pink and healthy, with a smiling sun and a green banknote above it. The one on the right is cracked and broken, with a grey cloud, rain, and a hammer hitting it.</p>	<p>Low-risk, high-liquidity, short-term securities such as government-issued securities</p>
<p>To generate earnings</p>  <p>The illustration shows a classical bank building with columns and a sign that says 'BANK'. A speech bubble next to it says 'I need 1,000 Treasury bills by tonight'.</p>	<p>Debt securities (banks and other financial institutions); and stock securities (mutual funds and pension funds)</p>
<p>To meet strategic goals</p>  <p>The illustration shows a large blue fish on the left and three smaller blue fish of decreasing size to its right, representing a strategic investment or growth.</p>	<p>Stocks of companies in a related industry or in an unrelated industry that the company wishes to enter</p>

ACCOUNTING FOR DEBT INVESTMENTS

RECORDING ACQUISITION OF BONDS

STUDY OBJECTIVE 2

Debt investments are investments in government and corporation bonds. Three entries required:

- 1) acquisition-** the cost principle applies
- 2) interest revenue**
- 3) sale**

Kuhl Corporation acquires **50 Doan Inc. 8%, 10-year, \$1,000 bonds** on January 1, 2005, for **\$54,000**, including brokerage fees of \$1,000.

The entry to record the investment is:

Date	Account Titles and Explanation	Debit	Credit
Jan. 1	Debt Investments	54,000	
	Cash		54,000
	(To record purchase of 50 Doan Inc. bonds)		

ACCOUNTING FOR DEBT INVESTMENTS

RECORDING BOND INTEREST

The bonds pay \$3,000 interest on July 1 and January 1 (\$50,000 x 8% x 1/2). The July 1 entry is:

Date	Account Titles and Explanation	Debit	Credit
July 1	Cash Interest Revenue (To record receipt of interest on Doan Inc. bonds)	2,000	2,000

It is necessary to accrue \$2,000 interest earned since July 1 at year-end. The December 31 entry is:

Date	Account Titles and Explanation	Debit	Credit
Dec. 31	Interest Receivable Interest Revenue (To accrue interest on Doan Inc. bonds)	2,000	2,000

ACCOUNTING FOR DEBT INVESTMENTS

RECORDING BOND INTEREST

When the interest is received on January 1, the entry is:

Date	Account Titles and Explanation	Debit	Credit
Jan. 1	Cash	2,000	
	Interest Receivable		2,000
	(To record receipt of accrued interest)		

ACCOUNTING FOR DEBT INVESTMENTS RECORDING SALE OF BONDS

Any difference between the net proceeds from the sale (sales price less brokerage fees) and the cost of the bonds is recorded as a gain or loss.

Kuhl Corporation receives net proceeds of \$58,000 on the sale of the Doan Inc. bonds on January 1, 2006, after receiving the interest due. Since the securities cost \$54,000, a gain of \$4,000 has been realized.

Date	Account Titles and Explanation	Debit	Credit
Jan. 1	Cash	58,000	
	Debt Investments		54,000
	Gain on Sale of Debt Investments		4,000
	(To record sale of Doan Inc. bonds)		

Review

Debt investments are initially recorded at:

- a. cost.
- b. cost plus accrued interest.
- c. fair value.
- d. None of the above.

Review




Debt investments are initially recorded at:

- a. cost.
- b. cost plus accrued interest.
- c. fair value.
- d. None of the above.

ACCOUNTING GUIDELINES FOR STOCK INVESTMENTS

STUDY OBJECTIVE 3

Stock investments are investments in the capital stock of corporations.

Investor's Ownership Interest in Investee's Common Stock	Presumed Influence on Investee	Accounting Guidelines
 Less than 20%	Insignificant	Cost method
 Between 20% and 50%	Significant	Equity method
 More than 50%	Controlling	Consolidated financial statements

RECORDING STOCK INVESTMENTS HOLDINGS LESS THAN 20%

Cost Method: Stock investments of less than 20%

- investment recorded at cost
- revenue recognized only when cash dividends are received

On July 1, 2005, Sanchez Corporation acquires 1,000 shares (10% ownership) of Beal Corporation common stock. Sanchez pays \$40 per share plus brokerage fees of \$500. The entry for the purchase is:

Date	Account Titles and Explanation	Debit	Credit
July 1	Stock Investments	40,500	
	Cash		40,500
	(To record purchase of 1,000 shares of Beal Corporation common stock)		

RECORDING STOCK INVESTMENTS HOLDINGS LESS THAN 20%

Entries are required for any **cash dividends received** during the time the stock is held. If a **\$2 per share** dividend is received by Sanchez Corporation on **December 31**, the entry is:

Date	Account Titles and Explanation	Debit	Credit
Dec. 31	Cash (1,000 x \$2) Dividend Revenue (To record receipt of a cash dividend)	2,000	2,000

Dividend Revenue is reported under **Other Revenue and Gains** in the income statement. Since dividends do not accrue, adjusting entries are not made to accrue dividends.

RECORDING STOCK INVESTMENTS HOLDINGS LESS THAN 20%

- **Stock is sold**
 - difference between the **net proceeds** from the sale and the **cost of the stock** is recognized as a **gain or loss**.
- **Sanchez Corporation receives net proceeds of \$39,500 on the sale of its Beal Corporation common stock on February 10, 2006.**
- **Because the stock cost \$40,500, a loss of \$1,000 has been incurred. The entry to record the sale is:**

Date	Account Titles and Explanation	Debit	Credit
Feb. 10	Cash	39,500	
	Loss on Sale of Stock Investments	1,000	
	Stock Investments		40,500
	(To record sale of Beal common stock)		

ACCOUNTING FOR STOCK INVESTMENTS HOLDINGS BETWEEN 20% AND 50%

- Investor has **significant influence** over the financial and operating activities of the investee.
- **Equity method**
 - investment in common stock is recorded at cost
 - investment account adjusted annually to show the investor's equity in the investee
- **The investor**
 - 1) **debits the investment account and credits revenue for its share of the investee's net income**
 - 2) **credits dividends received to the investment account**

ACCOUNTING FOR STOCK INVESTMENTS HOLDINGS BETWEEN 20% AND 50%

Milar Corporation acquires 30% of the common stock of Beck Company for \$120,000 on January 1, 2005. The entry to record this transaction is:

Date	Account Titles and Explanation	Debit	Credit
Jan. 1	Stock Investments Cash (To record purchase of Beck common stock)	120,000	120,000

ACCOUNTING FOR STOCK INVESTMENTS HOLDINGS BETWEEN 20% AND 50%

Beck reports **2005 net income of \$100,000** and declares and pays a **\$40,000 cash dividend**. Milar is required to record:

- 1) its share of Beck's net income, **\$30,000 (30% X \$100,000)**
- 2) and the reduction in the investment account for the dividends received, **\$12,000 (\$40,000 X 30%)**. The entries are:

Date	Account Titles and Explanation	Debit	Credit
Dec. 31	Stock Investments Revenue from Investment in Beck Company (To record 30% equity in Beck's 2005 net income)	30,000	30,000

Date	Account Titles and Explanation	Debit	Credit
Dec. 31	Cash Stock Investments (To record dividends received)	12,000	12,000

INVESTMENT AND REVENUE ACCOUNTS AFTER POSTING

Stock Investments			
January 1	120,000	December 31	12,000
December 31	30,000		
December 31 Balance	138,000		
Revenue from Investment in Beck Company			
		December 31	30,000

Investment and revenue accounts will show the above results. The investment account has increased by \$18,000 which represents Milar's **30% equity in the \$60,000 increase in Beck's retained earnings (\$100,000 - \$40,000)**. Milar will also report **\$30,000** of revenue from its investment, which is 30% of Beck's net income of \$100,000. Milar would report only **\$12,000 (30% X \$40,000)** of dividend revenue if the cost method were used.

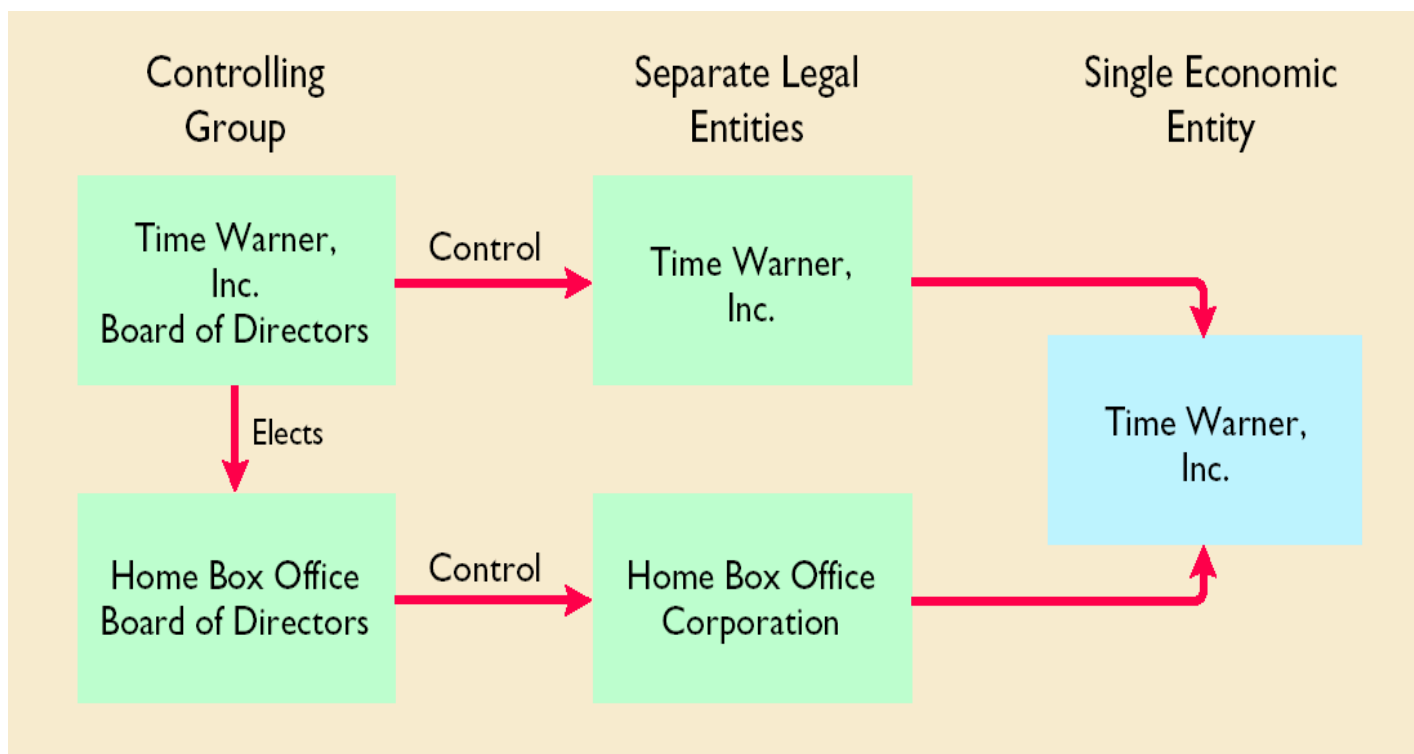
RECORDING STOCK INVESTMENTS HOLDINGS OF MORE THAN 50%

STUDY OBJECTIVE 4

- **Company owns more than 50% of the common stock of another entity**
 - is known as a **parent company**
- **Entity whose stock is owned by the parent company**
 - is the **subsidiary (affiliated) company**
- **The parent company**
 - **controlling interest** in the subsidiary due to its stock ownership
 - prepares **consolidated financial statements**

RECORDING STOCK INVESTMENTS MANAGEMENT PERSPECTIVE

Time Warner, Inc. own 100% of the common stock of Home Box Office (HBO). The common stockholders of Time Warner elect the board of directors of the company, who, in turn, select the officers and managers of the company. The Board of Directors controls the property owned by the corporation, which includes the common stock of HBO.



VALUATION GUIDELINES

STUDY OBJECTIVE 5

Fair value is the amount for which a security could be sold in a normal market and offers the best approach at investment valuation since it represents the expected cash realizable value of the securities.

Trading	Available-for-sale	Held-to-maturity
		
At fair value with changes reported in net income	At fair value with changes reported in the stockholders' equity section	At amortized cost

CATEGORIES OF SECURITIES

- **Trading securities**
bought and held primarily for sale in the near term to generate income on short-term price differences
- **Available-for-sale securities**
may be sold in the future
- **Held-to-maturity securities**
debt securities that the investor has intent and ability to hold to maturity

VALUATION OF TRADING SECURITIES

- **Trading securities** (generally less than a month)
 - reported at fair value, and changes from cost are reported as part of net income.
- Changes reported as unrealized gains or losses since the securities have not been sold
 - difference between the total cost of trading securities and their total fair value.
- Pace Corporation has the following costs and fair values for its investments classified as trading securities:

Trading Securities, December 31, 2005

Investments	Cost	Fair Value	Unrealized Gain (Loss)
Yorkville Company bonds	\$ 50,000	\$ 48,000	\$ (2,000)
Kodak Company stock	90,000	99,000	9,000
Total	<u>\$ 140,000</u>	<u>\$ 147,000</u>	<u>\$ 7,000</u>

VALUATION AND REPORTING OF INVESTMENTS — TRADING SECURITIES

- **Unrealized gain of \$7,000**
 - **total fair value (\$147,000) is \$7,000 greater than total cost (\$140,000)**
- **Fair value and the unrealized gain or loss**
 - **adjusting entry at the time financial statements are prepared**
- **Valuation allowance account-**Market Adjustment–Trading****
 - **records the difference between the total cost and the total fair value of the securities**

Date	Account Titles and Explanation	Debit	Credit
Dec. 31	Market Adjustment — Trading Unrealized Gain — Income (To record unrealized gain on trading securities)	7,000	7,000

VALUATION AND REPORTING OF INVESTMENTS — TRADING SECURITIES

1 Fair value

- **On the balance sheet**

2 Unrealized gain

- **Income statement**

3 Unrealized loss

- **Income statement**

VALUATION OF AVAILABLE-FOR-SALE SECURITIES

- **Available-for-sale securities** (the intention of selling them in the near future is not for certain)
 - reported at fair value, and changes from cost are reported as part of stockholders' equity.
- **Changes reported as unrealized gains or losses since the securities have not been sold.**
 - The unrealized gain or loss is the difference between the total cost of the securities in the category and their total fair value.
- **Elbert Corporation has the following costs and fair values for its investments classified as available-for-sale securities:**

Available-for-Sale Securities, December 31, 2005

Investments	Cost	Fair Value	Unrealized Gain (Loss)
Campbell Soup Corporation 8% bonds	\$ 93,537	\$ 103,600	\$ 10,063
Hersey Corporation stock	200,000	180,400	(19,600)
Total	\$ 293,537	\$ 284,000	\$ (9,537)

VALUATION AND REPORTING OF INVESTMENTS AVAILABLE-FOR-SALE SECURITIES

Elbert Corporation has an unrealized loss of \$9,537, total fair value of \$284,000 - total cost of \$293,537.

Fair value and the unrealized gain or loss

- recorded through an adjusting entry at the time financial statements are prepared

The adjusting entry for Elbert Corporation is:

Date	Account Titles and Explanation	Debit	Credit
Dec. 31	Unrealized Loss — Equity Market Adjustment — Available-for-Sale (To record unrealized loss on available-for-sale securities)	9,537	9,537

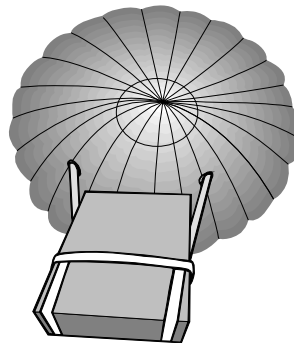
VALUATION AND REPORTING OF INVESTMENTS AVAILABLE-FOR-SALE SECURITIES

1 Fair value of the securities

- **reported on the balance sheet**

2 Unrealized gain or loss

- **reported as a separate component of stockholders' equity**



SHORT-TERM INVESTMENTS

STUDY OBJECTIVE 5

Securities held by a company

(1) readily marketable

- **can be sold easily when the need for cash arises**

(2) intended to be converted into cash within the next year or operating cycle, whichever is longer

- **intent to sell the investment within the next year or operating cycle, whichever is longer**

PRESENTATION OF SHORT-TERM INVESTMENTS

Short-Term Investments

- listed immediately below cash in the current asset section of the balance sheet
- reported at **fair value**

PACE CORPORATION Balance Sheet (partial)	
Current assets	
Cash	\$ 21,000
Short-term Investments at fair value	147,000

NONOPERATING ITEMS RELATED TO INVESTMENTS

- **Long-term investments** are reported in a separate section of the balance sheet **immediately below current assets**
- The items below are reported in the **nonoperating section of the income statement:**

Other Revenues and Gains

Interest Revenue
Dividend Revenue
Gain on Sale of Investments
Unrealized Gain – Income

Other Expenses and Losses

Loss on Sale of Investments
Unrealized Loss – Income

UNREALIZED LOSS IN STOCKHOLDERS' EQUITY SECTION

- An unrealized gain or loss on available-for-sale securities is reported as a separate component of stockholders' equity.
- Dawson Inc. has common stock of \$3,000,000, retained earnings of \$1,500,000, and an unrealized loss on available-for-sale securities of \$100,000.
- The statement presentation of the unrealized loss is shown below.

DAWSON INC. Partial Balance Sheet	
Stockholders' equity	
Common stock	\$ 3,000,000
Retained earnings	1,500,000
Total paid-in capital and retained earnings	<u>4,500,000</u>
Less: Unrealized loss on available-for-sale securities	(100,000)
Total stockholders' equity	<u><u>\$ 4,400,000</u></u>

COMPREHENSIVE BALANCE SHEET

The comprehensive balance sheet for Pace Corporation includes the following assets:

- 1 Short-term Investments,
- 2 Investments of less than 20%, and
- 3 Investments of 20% - 50%.

PACE CORPORATION			
Balance Sheet			
December 31, 2005			
	<u>Assets</u>		
Current assets			
Cash			\$ 21,000
Short-term investments, at fair value			147,000
Accounts receivable	\$ 84,000		
Less: Allowance for doubtful accounts		4,000	80,000
Merchandise inventory, at FIFO cost			43,000
Prepaid insurance			23,000
Total current assets			<u>314,000</u>
Investments			
Investments in stock of less than 20% owned companies, at fair value			50,000
Investment in stock of 20–50% owned company, at equity			150,000
Total investments			<u>200,000</u>
Property, plant, and equipment			
Land		200,000	
Buildings	\$800,000		
Less: Accumulated depreciation		200,000	600,000
Equipment		180,000	
Less: Accumulated depreciation		54,000	126,000
Total property, plant, and equipment			<u>926,000</u>
Intangible assets			
Goodwill			270,000
Total assets			<u><u>\$1,710,000</u></u>

COMPREHENSIVE BALANCE SHEET

The comprehensive balance sheet for Pace Corporation includes the following element of stockholders' equity: **Unrealized Gain on Available-for-Sale Securities.**

		<u>Liabilities and Stockholders' Equity</u>
Current liabilities		
Accounts payable		\$185,000
Federal income taxes payable		60,000
Bond interest payable		<u>10,000</u>
Total current liabilities		255,000
Long-term liabilities		
Bonds payable, 10%, due 2016	\$ 300,000	
Less: Discount on bonds	<u>10,000</u>	
Total long-term liabilities		<u>290,000</u>
Total liabilities		545,000
Stockholders' equity		
Paid-in capital		
Common stock, \$10 par value, 200,000 shares authorized, 80,000 shares issued and outstanding	800,000	
Paid-in capital in excess of par value	<u>100,000</u>	
Total paid-in capital	900,000	
Retained earnings (Note 1)	<u>255,000</u>	
Total paid-in capital and retained earnings	1,155,000	
Add: Unrealized gain on available-for-sale securities	<u>10,000</u>	
Total stockholders' equity		<u>1,165,000</u>
Total liabilities and stockholders' equity		<u><u>\$1,710,000</u></u>

Note 1. Retained earnings of \$100,000 is restricted for plant expansion.

Review

In the balance sheet, a debit balance in Unrealized Gain or Loss – Equity is reported as a:

- a. contra asset account.
- b. contra stockholders' equity account.
- c. loss in the income statement.
- d. loss in the retained earnings statement.

Review

In the balance sheet, a debit balance in Unrealized Gain or Loss – Equity is reported as a:

- a. contra asset account.
- b. contra stockholders' equity account.**
- c. loss in the income statement.
- d. loss in the retained earnings statement.

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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 18

The Statement of Cash Flows

Prepared by Naomi Karolinski
Monroe Community College

and

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Bryant College

CHAPTER 18

THE STATEMENT OF CASH FLOWS

After studying this chapter, you should be able to:

- 1 Indicate the usefulness of the statement of cash flows.**
- 2 Distinguish among operating, investing, and financing activities.**
- 3 Prepare a statement of cash flows using the indirect method.**
- 4 Prepare a statement of cash flows using the direct method.**
- 5 Analyze the statement of cash flows.**

THE STATEMENT OF CASH FLOWS

STUDY OBJECTIVE 1

- **Provides information about an entity's cash receipts and cash payments during a period.**
 - 1) Where did the cash come from during the period?**
 - 2) What was the cash used for during the period?**
 - 3) What was the change in the cash balance during the period?**

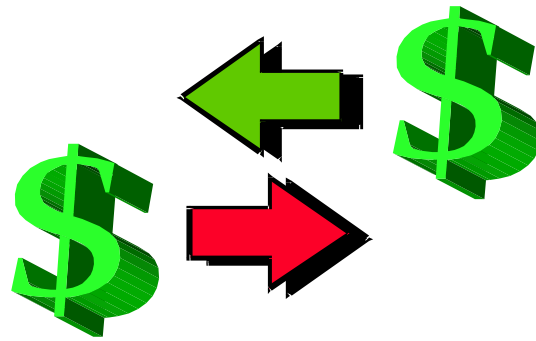
MEANING OF CASH FLOWS

STUDY OBJECTIVE 2

Prepared using cash and cash equivalents as its basis.

Cash equivalents - short-term, highly liquid investments that are both:

- 1) readily convertible to known amounts of cash**
- 2) so near to their maturity that their market value is relatively insensitive to changes in interest rates.**



Types of Cash Flows - Operating Activities

- **Cash inflows:**
 - From sale of goods or services
 - From return on loans (interest received) and on equity securities (dividends received)
- **Cash outflows:**
 - To suppliers for inventory
 - To employees for services
 - To government for taxes
 - To lenders for interest
 - To others for expenses



Types of Cash Flows - Investing Activities

- **Cash inflows:**
 - From sale of property, plant, and equipment
 - From sale of debt or equity securities of other entities
 - From collection of principal on loans to other entities
- **Cash outflows:**
 - To purchase property, plant, and equipment
 - To purchase debt or equity securities of other entities
 - To make loans to other entities



Types of Cash Flows - Financing Activities

- **Cash inflows:**
 - From sale of equity securities (company's own stock)
 - From issuance of debt (bonds and notes)
- **Cash outflows:**
 - To stockholders as dividends
 - To redeem long-term debt or reacquire capital stock



Types of Cash Inflows and Outflows

Operating activities—Income statement items

Cash inflows:

From sale of goods or services.

From returns on loans (interest received) and on equity securities (dividends received).

Cash outflows:

To suppliers for inventory.

To employees for services.

To government for taxes.

To lenders for interest.

To others for expenses.

Investing activities—Changes in investments and long-term assets

Cash inflows:

From sale of property, plant, and equipment.

From sale of debt or equity securities of other entities.

From collection of principal on loans to other entities.

Cash outflows:

To purchase property, plant, and equipment.

To purchase debt or equity securities of other entities.

To make loans to other entities.

Financing activities—Changes in long-term liabilities and stockholders' equity

Cash inflows:

From sale of common stock.

From issuance of debt (bonds and notes).

Cash outflows:

To stockholders as dividends.

To redeem long-term debt or reacquire capital stock.

Significant Noncash Activities...

- That do **NOT** affect cash are **NOT** reported in the body of the statement of cash flows.
- Are reported:
 - **In a separate schedule at the bottom of the statement of cash flows or**
 - **In a separate note or supplementary schedule to the financial statements.**

Significant Noncash Activities...

- 1. Issuance of common stock to purchase assets.**
- 2. Conversion of bonds into common stock.**
- 3. Issuance of debt to purchase assets.**
- 4. Exchanges of plant assets.**

FORMAT OF STATEMENT OF CASH FLOWS

The general format of the SCF: Is the **3** activities previously discussed – **operating, investing, and financing** – plus the **significant noncash investing and financing activities.**

COMPANY NAME Statement of Cash Flows Period Covered		
Cash flows from operating activities		
(List of individual items)	<u>XX</u>	
Net cash provided (used) by operating activities		XXX
Cash flows from investing activities		
(List of individual inflows and outflows)	<u>XX</u>	
Net cash provided (used) by investing activities		XXX
Cash flows from financing activities		
(List of individual inflows and outflows)	<u>XX</u>	
Net cash provided (used) by financing activities		<u>XXX</u>
Net increase (decrease) in cash		<u>XXX</u>
Cash at beginning of period		<u>XXX</u>
Cash at end of period		<u><u>XXX</u></u>
Noncash investing and financing activities		
(List of individual noncash transactions)		<u><u>XXX</u></u>

USEFULNESS OF THE STATEMENT OF CASH FLOWS

- 1) Ability to generate future cash flows.**
- 2) Ability to pay dividends and meet obligations.**
- 3) Reasons for the difference between net income and net cash provided (used) by operating activities.**
- 4) Cash invested and financing transactions during the period.**

PREPARING THE STATEMENT OF CASH FLOWS

Information to prepare this statement usually comes from 3 sources:

- 1) Comparative balance sheet.**
- 2) Current income statement.**
- 3) Additional information.**

The SCF deals with cash receipts and payments, so the accrual concept is not used in the preparation of the SCF.

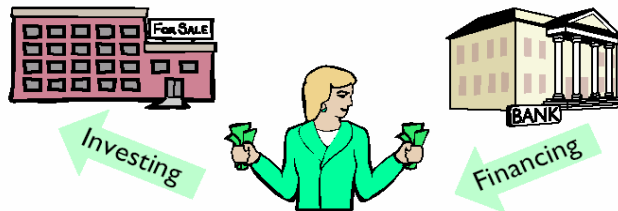
THREE MAJOR STEPS IN PREPARING THE STATEMENT OF CASH FLOWS

Step 1: Determine net cash provided/used by operating activities by converting net income from an accrual basis to a cash basis.



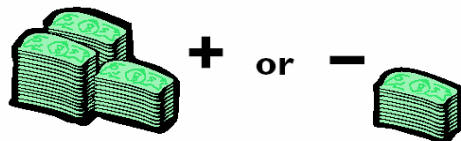
This step involves analyzing not only the current year's income statement but also comparative balance sheets and selected additional data.

Step 2: Analyze changes in noncurrent asset and liability accounts and record as investing and financing activities, or as significant noncash transactions.



This step involves analyzing comparative balance sheet data and selected additional information for their effects on cash.

Step 3: Compare the net change in cash on the statement of cash flows with the change in the cash account reported on the balance sheet to make sure the amounts agree.



The difference between the beginning and ending cash balances can be easily computed from comparative balance sheets.

USAGE OF INDIRECT AND DIRECT METHODS

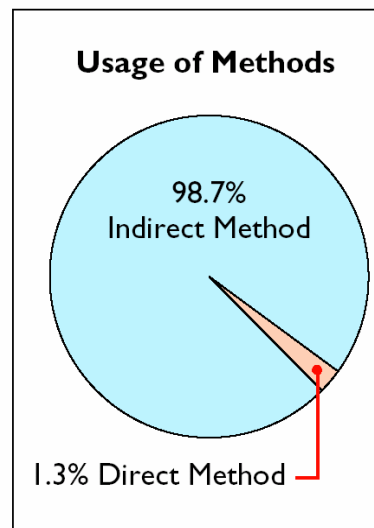
In order to determine net cash provided/used by operating activities, the operating activities section must be converted from accrual basis to cash basis. This conversion may be accomplished by :

- 1) the indirect method or
- 2) the direct method.

The indirect method is used extensively in practice, as shown below.

The indirect is favored by companies for 2 reasons:

- it is easier to prepare and
- it focuses on the differences between net income and net cash flow from operating activities.



COMPARATIVE BALANCE SHEET, 2005, WITH INCREASES AND DECREASES

Study Objective 3

The comparative balance sheets at the beginning and end of 2005 – showing increases and decreases – are shown to the right.

COMPUTER SERVICES COMPANY			
Comparative Balance Sheets			
December 31			
<u>Assets</u>	<u>2005</u>	<u>2004</u>	<u>Change in Account Balance Increase/Decrease</u>
Current assets			
Cash	\$ 55,000	\$ 33,000	\$ 22,000 Increase
Accounts receivable	20,000	30,000	10,000 Decrease
Merchandise inventory	15,000	10,000	5,000 Increase
Prepaid expenses	5,000	1,000	4,000 Increase
Property, plant, and equipment			
Land	130,000	20,000	110,000 Increase
Building	160,000	40,000	120,000 Increase
Accumulated depreciation—building	(11,000)	(5,000)	6,000 Increase
Equipment	27,000	10,000	17,000 Increase
Accumulated depreciation—equipment	(3,000)	(1,000)	2,000 Increase
Total	<u>\$398,000</u>	<u>\$138,000</u>	
<u>Liabilities and Stockholders' Equity</u>			
Current liabilities			
Accounts payable	\$ 28,000	\$ 12,000	\$ 16,000 Increase
Income tax payable	6,000	8,000	2,000 Decrease
Long-term liabilities			
Bonds payable	130,000	20,000	110,000 Increase
Stockholders' equity			
Common stock	70,000	50,000	20,000 Increase
Retained earnings	164,000	48,000	116,000 Increase
Total liabilities and stockholders' equity	<u>\$398,000</u>	<u>\$138,000</u>	

INCOME STATEMENT AND ADDITIONAL INFORMATION, 2005

The income statement and additional information for 2005 for Computer Services Company are shown to the right.

COMPUTER SERVICES COMPANY

Income Statement

For the Year Ended December 31, 2005

Revenues		\$507,000
Cost of goods sold	\$150,000	
Operating expenses (excluding depreciation)	111,000	
Depreciation	9,000	
Interest expense	42,000	
Loss on sale of equipment	<u>3,000</u>	<u>315,000</u>
Income before income taxes		192,000
Income tax expense		<u>47,000</u>
Net income		<u><u>\$145,000</u></u>

ANALYSIS OF ACCUMULATED DEPRECIATION — EQUIPMENT

- ★ The increase in **Accumulated Depreciation – Equipment** was **\$2,000**, which does not represent depreciation expense for the year since the account was debited **\$1,000** as a result a sale of some equipment.
- ★ Depreciation expense for 2005 was **\$3,000**.
- ★ This amount is added to net income to determine net cash provided by operating activities.
- ★ The T-account below provides information about the changes that occurred in this account in 2005.

ACCUMULATED DEPRECIATION — EQUIPMENT

Accumulated depreciation on equipment sold	1,000	1/1/05	Balance	1,000
			Depreciation expense	3,000
		12/31/05	Balance	3,000

PRESENTATION OF NET CASH PROVIDED BY
OPERATING ACTIVITIES, 2005 — INDIRECT
METHOD

**Net cash provided by operating activities
for 2005 is \$154,000 as calculated below.**

COMPUTER SERVICES COMPANY
Partial Statement of Cash Flows — Indirect Method
For the Year Ended December 31, 2005

Cash flows from operating activities

Net income	\$ 145,000
Adjustments to reconcile net income to net cash provided by operating activities:	
 Depreciation expense	<u>9,000</u>
Net cash provided by operating activities	<u><u>\$ 154,000</u></u>

ANALYSIS OF EQUIPMENT

Equipment increased **\$17,000**, which was a net increase that resulted from **2** transactions:

- 1) a purchase of equipment of \$25,000 and**
- 2) the sale of equipment costing \$8,000 for \$4,000.**

These transactions are classified as **investing activities** and each should be **reported separately**. The purchase of equipment should therefore be reported as an **outflow of cash for \$25,000** and the sale should be reported as an **inflow of cash for \$4,000**. The T-account below shows the reasons for the change in this account during the year.

EQUIPMENT				
1/1/05	Balance	10,000	Cost of old equipment	8,000
	Purchase of equipment	25,000		
12/31/05	Balance	27,000		

STATEMENT OF CASH FLOWS, 2005-INDIRECT METHOD

COMPUTER SERVICES COMPANY

Statement of Cash Flows

For the Year Ended December 31, 2005

Cash flows from operating activities		
Net income		\$145,000
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation expense	\$ 9,000	
Loss on sale of equipment	3,000	
Decrease in accounts receivable	10,000	
Increase in merchandise inventory	(5,000)	
Increase in prepaid expenses	(4,000)	
Increase in accounts payable	16,000	
Decrease in income tax payable	<u>(2,000)</u>	
Net cash provided by operating activities		<u>27,000</u> <u>\$172,000</u>

STATEMENT OF CASH FLOWS, 2005-INDIRECT METHOD

COMPUTER SERVICES COMPANY

Statement of Cash Flows

For the Year Ended December 31, 2005

Cash flows from investing activities		
Purchase of building	\$(120,000)	
Purchase of equipment	(25,000)	
Sale of equipment	<u>4,000</u>	
Net cash used by investment activities		\$(141,000)
Cash flows from financing activities		
Issuance of common stock	20,000	
Payment of cash dividends	<u>(29,000)</u>	
Net cash used by financing activities		<u>(9,000)</u>
Net increase in cash		22,000
Cash at beginning of period		<u>33,000</u>
Cash at end of period		<u>\$ 55,000</u>
Noncash investing and financial activities		
Issuance of bonds payable to purchase land		\$ 110,000

SECTION 2

STATEMENT OF CASH FLOWS

DIRECT METHOD

Study Objective 4

- **The transactions of Juarez Company for 2005 and 2004 are used to illustrate and explain the indirect method of preparing the SCF.**
- **1 Juarez Company started on January 1, 2003, when it issued 300,000 shares of \$1 par value common stock for \$300,000 cash.**
- **2 The company rented its office, sales space, and equipment.**



COMPARATIVE BALANCE SHEETS WITH INCREASES AND DECREASES

The comparative balance sheets at the end of 2005 and end of 2004 showing increases and decreases – are shown to the right.

JUAREZ COMPANY			
Comparative Balance Sheet			
<u>Assets</u>	<u>2005</u>	<u>2004</u>	<u>Change Increase/Decrease</u>
Cash	\$ 191,000	\$ 159,000	\$ 32,000 Increase
Accounts receivable	12,000	15,000	3,000 Decrease
Inventory	170,000	160,000	10,000 Increase
Prepaid expenses	6,000	8,000	2,000 Decrease
Land	140,000	80,000	60,000 Increase
Equipment	160,000	0	160,000 Increase
Accum. dep. –Equip.	<u>(16,000)</u>	<u>0</u>	16,000 Increase
Total	<u>\$ 663,000</u>	<u>\$ 422,000</u>	
<u>Liabilities and Stockholders' Equity</u>			
Accounts payable	\$ 52,000	\$ 60,000	\$ 8,000 Decrease
Accrued exp. payable	15,000	20,000	5,000 Decrease
Income taxes payable	12,000	–0–	12,000 Increase
Bonds payable	130,000	–0–	130,000 Increase
Common stock	360,000	300,000	60,000 Increase
	<u>94,000</u>	<u>42,000</u>	52,000 Increase
Total	<u>\$ 663,000</u>	<u>\$ 422,000</u>	

INCOME STATEMENT AND ADDITIONAL INFORMATION, 2005

JUAREZ COMPANY
Income Statement
For the Year Ended December 31, 2005

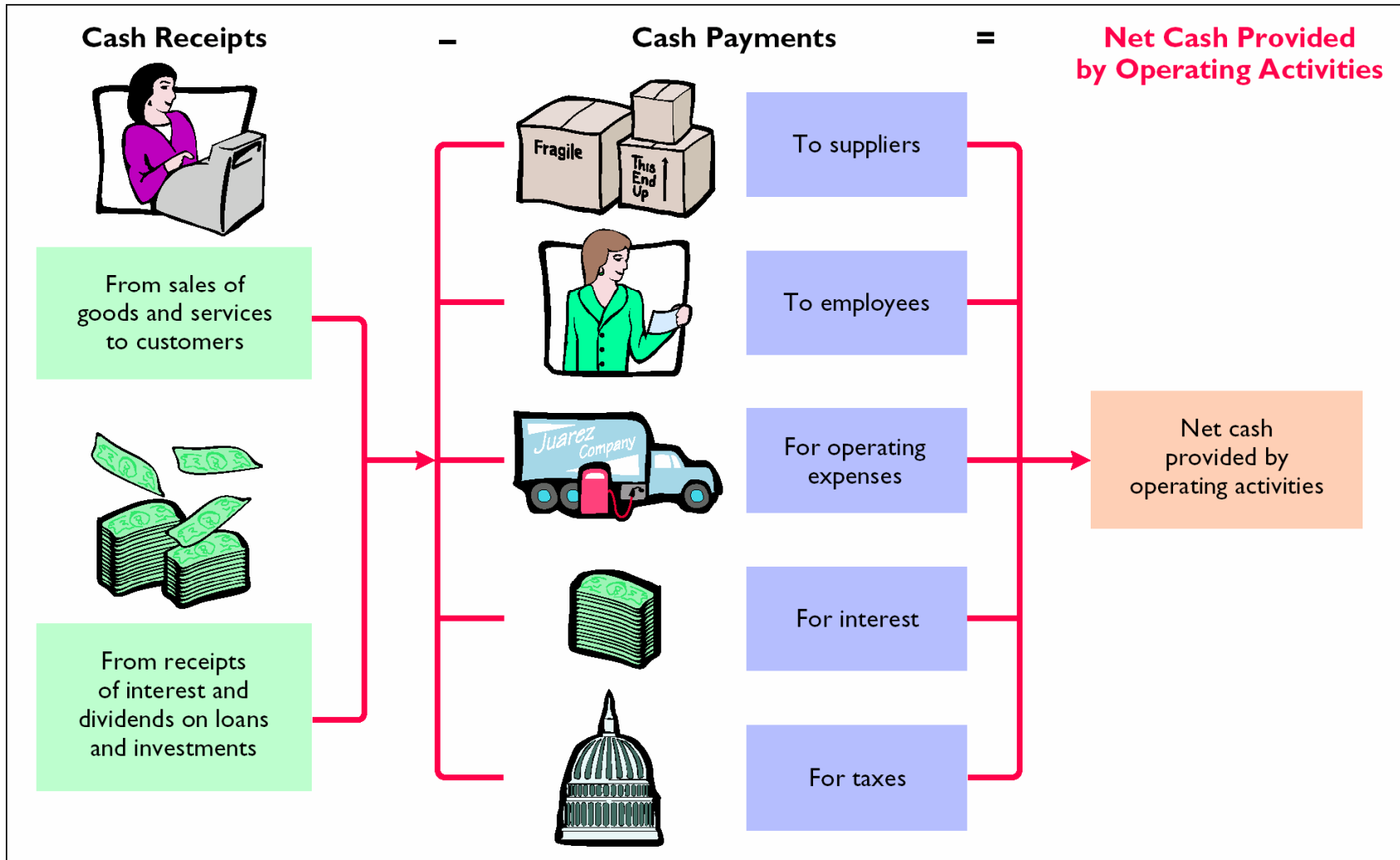
Revenues from sales		\$ 975,000
Cost of goods sold	\$ 660,000	
Operating expenses (excluding depreciation)	176,000	
Depreciation expense	18,000	
Loss on sale of store equipment	1,000	855,000
Income before income taxes		120,000
Income tax expense		36,000
Net income		84,000

**The income statement and
additional information for 2005
for Juarez Company are shown.**

Additional information:

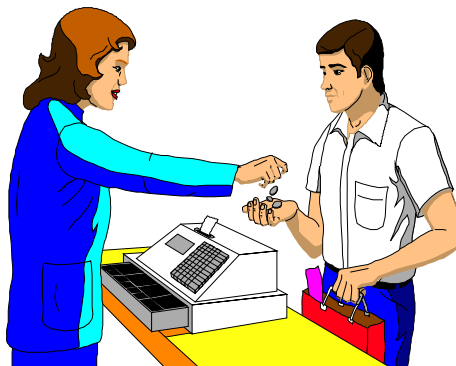
- (1) In 2005, the company declared and paid a \$2,000 cash dividend.
- (2) Bonds were issued at face value for \$130,000 in cash.
- (3) Equipment costing \$180,000 was purchased for cash.
- (4) Equipment costing \$20,000 was sold for \$17,000 cash when the book value of the Equipment was \$18,000.
- (5) Common stock of \$60,000 was issued to acquire land.

MAJOR CLASSES OF CASH RECEIPTS AND PAYMENTS



CASH RECEIPTS FROM CUSTOMERS

- The income statement for Juarez Company reported revenues from customers of **\$975,000**.
- To determine the amount of **cash receipts**, the **decrease in accounts receivable** is added to sales revenue.
- Conversely, an **increase in accounts receivable** is deducted from sales revenues.



COMPUTATION OF CASH RECEIPTS FROM CUSTOMERS

Revenues from sales were **\$975,000**. Cash receipts from customers were greater than sales revenues since accounts receivable decreased **\$3,000**. Cash receipts from customers were **\$978,000**, as calculated below.

Revenues from sales	\$ 975,000
Add: Decrease in accounts receivable	3,000
Cash receipts from customers	<u>\$ 978,000</u>

FORMULA TO COMPUTE CASH RECEIPTS FROM CUSTOMERS — DIRECT METHOD

The relationships among cash receipts from customers, revenues from sales, and changes in accounts receivable.

Cash receipts from customers

=

Revenues from sales

+ Decrease in accounts receivable
or
- Increase in accounts receivable

COMPUTATION OF PURCHASES

Juarez Company reported **cost of goods sold** on its income statement of **\$660,000**. To determine purchases, cost of goods sold must be adjusted for the change in inventory. An increase (decrease) in inventory is added to (deducted from) cost of goods sold to arrive at purchases. In **2005**, Juarez Company's inventory increased **\$10,000**. Purchases are calculated as follows.

Cost of goods sold	\$660,000
Add: Increase in inventory	<u>10,000</u>
Purchases	<u><u>\$670,000</u></u>

FORMULA TO COMPUTE CASH PAYMENTS TO SUPPLIERS — DIRECT METHOD

The relationship among cash payments to suppliers, cost of goods sold, changes in inventory, and changes in accounts payable is shown.

**Cash
payments
to suppliers**

=

**Cost of
goods sold**

+ Increase in inventory

or

– Decrease in inventory

+ Decrease in accounts payable

or

– Increase in accounts payable

COMPUTATION OF PURCHASES

Juarez Company reported **cost of goods sold** on its income statement of **\$660,000**. To determine cash paid for purchases, cost of goods sold must be adjusted for the change in inventory and the change in accounts payable. An increase (decrease) in inventory is added to (deducted from) cost of goods sold and an increase (decrease) in accounts payable is deducted from (added to) cost of goods sold to arrive at cash payments for purchases. In **2005**, Juarez Company's inventory increased **\$10,000**. Accounts payable decreased **\$8,000**. Cash payments for purchases are calculated as follows.

Cost of goods sold	\$660,000
Add: Increase in inventory	10,000
Add: Decrease in accounts payable	<u>8,000</u>
Cash paid for purchases	\$678,000

COMPUTATION OF CASH PAYMENTS FOR OPERATING EXPENSES

Operating expenses (exclusive of depreciation expense) was **\$176,000 for 2005**. The **\$2,000** decrease in prepaid expenses is deducted and the **\$5,000** decrease in accrued expenses payable is added in determining cash payments for operating expenses, as shown in **Illustration 18-23**.

Operating expenses, exclusive of depreciation	\$ 176,000
Deduct: Decrease in prepaid expenses	(2,000)
Add: Decrease in accrued expenses payable	5,000
Cash payments for operating expenses	\$ 179,000

FORMULA TO COMPUTE CASH PAYMENTS FOR INCOME TAXES — DIRECT METHOD

The relationships among **cash payments for income taxes, income tax expense, and changes in income taxes payable** are as follows.

$$\begin{array}{c} \text{Cash} \\ \text{payments for} \\ \text{income taxes} \end{array} = \begin{array}{c} \text{Income} \\ \text{tax} \\ \text{expense} \end{array} + \begin{array}{c} \text{Decrease in income taxes payable} \\ \text{or} \\ \text{Increase in income taxes payable} \end{array}$$

COMPUTATION OF CASH PAYMENTS FOR INCOME TAXES

Juarez Company reported income tax expense of \$36,000. Income taxes payable increased \$12,000. Cash payments for income taxes are calculated as follows.

Income tax expense	\$36,000
Less: Increase in income taxes payable	<u>12,000</u>
Cash paid for income tax expense	\$24,000

OPERATING ACTIVITIES SECTION — DIRECT METHOD

- ★ All of the **revenues and expenses** in the **2005 income statement** have now been adjusted to cash basis.
- ★ The **operating activities section** of the **SCF** is shown below.

JUAREZ COMPANY
Partial Statement of Cash Flows — Direct Method
For the Year Ended December 31, 2005

Cash flows from operating activities		
Cash receipts from customers		\$ 978,000
Cash payments:		
To suppliers	\$ 678,000	
For operating expenses	179,000	
For income taxes	24,000	881,000
Net cash provided by operating activities		<u><u>\$ 97,000</u></u>

STATEMENT OF CASH FLOWS

2005 — DIRECT METHOD

JUAREZ COMPANY

Statement of Cash Flows—Direct Method
For the Year Ended December 31, 2005

Cash flows from operating activities		
Cash receipts from customers		\$ 978,000
Cash payments:		
To suppliers	\$ 678,000	
For operating expenses	179,000	
For income taxes	<u>24,000</u>	<u>881,000</u>
Net cash provided by operating activities		97,000
Cash flows from investing activities		
Purchase of equipment	(180,000)	
Sale of equipment	<u>17,000</u>	
Net cash used by investing activities		(163,000)
Cash flows from financing activities		
Issuance of bonds payable	130,000	
Payment of cash dividends	<u>(32,000)</u>	
Net cash provided by financing activities		<u>98,000</u>
Net increase in cash		32,000
Cash at beginning of period		<u>159,000</u>
Cash at end of period		<u><u>\$ 191,000</u></u>
Noncash investing and financing activities		
Issuance of common stock to purchase land		<u><u>\$ 60,000</u></u>

FREE CASH FLOW

Study Objective 5

Free Cash Flow – Cash provided by operating activities adjusted for capital expenditures and dividends paid.

$$\text{Free Cash Flow} = \text{Cash Provided by Operations} - \text{Capital Expenditures} - \text{Cash Dividends}$$

Review

Which of the following items is reported on a cash flow statement prepared by the direct method?

- a. Loss on sale of building.
- b. Increase in accounts receivable.
- c. Depreciation expense.
- d. Cash payments to suppliers.

Review

Which of the following items is reported on a cash flow statement prepared by the direct method?

- a. Loss on sale of building.
- b. Increase in accounts receivable.
- c. Depreciation expense.
- d. Cash payments to suppliers.**

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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 19

Financial Statement Analysis

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CHAPTER 19

FINANCIAL STATEMENT ANALYSIS

After studying this chapter, you should be able to:

- 1 Discuss the need for comparative analysis.**
- 2 Identify the tools of financial statement analysis.**
- 3 Explain and apply horizontal analysis.**
- 4 Describe and apply vertical analysis.**

CHAPTER 19

FINANCIAL STATEMENT ANALYSIS

After studying this chapter, you should be able to:

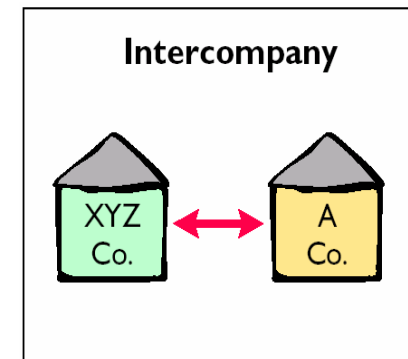
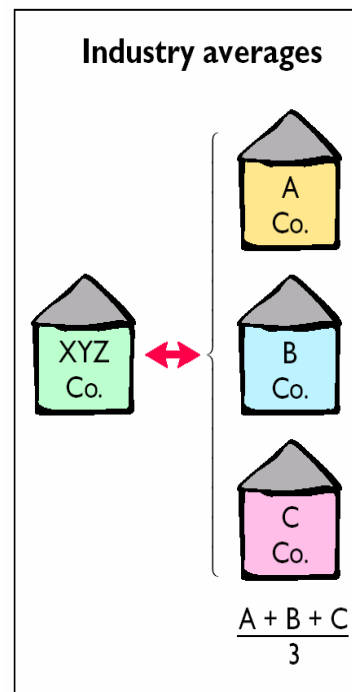
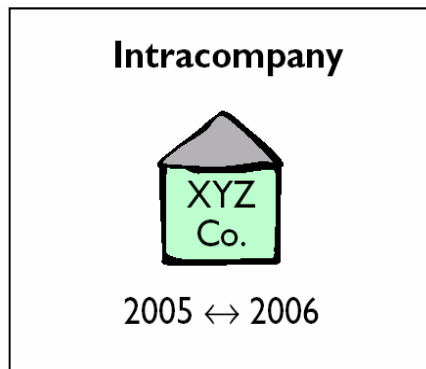
- 5 Identify and compute ratios and describe their purpose and use in analyzing a firm's liquidity, profitability, and solvency.**
- 6 Understand the concept of earning power; and indicate how material items not typical of regular operations are presented.**
- 7 Recognize the limitations of financial statement analysis.**

BASICS OF FINANCIAL STATEMENT ANALYSIS

STUDY OBJECTIVE 1

- **Three characteristics of a company:**
 - 1) liquidity
 - 2) profitability
 - 3) solvency
- **In order to obtain information as to whether the amount:**
 - 1) represents an increase over prior years **or**
 - 2) is adequate in relation to the company's need for cash, **or**
 - 3) the amount of cash must be compared with other financial statement data.

COMPARATIVE ANALYSIS



TOOLS OF FINANCIAL STATEMENT ANALYSIS

STUDY OBJECTIVE 2

Three commonly used tools are utilized to evaluate the significance of financial statement data.

- 1) Horizontal analysis (trend analysis)** evaluates a series of financial statement data over a period of time.
- 2) Vertical analysis** evaluates financial statement data expressing each item in a financial statement as a percent of a base amount.
- 3) Ratio analysis** expresses the relationship among selected items of financial statement data.

SEARS, ROEBUCK'S NET SALES

STUDY OBJECTIVE 3

SEARS, ROEBUCK AND CO. (Net Sales in Millions)

2002	2001	2000
41,366	40,990	40.848

The purpose of **horizontal analysis** is to determine the increase or decrease that has taken place. This change may be expressed as either an amount or a percentage. The recent **net sales figures of Sears, Roebuck and Co.** are shown above.

FORMULA FOR HORIZONTAL ANALYSIS OF CHANGES SINCE BASE PERIOD

Given that **2000** is the **base year**, we can measure all percentage increases or decreases from this base period amount as shown below.

Change
since base
period

=

Current year amount — Base year amount

Base year amount

FORMULA FOR HORIZONTAL ANALYSIS OF CURRENT YEAR

Alternatively, we can express **current year sales** as a **percentage of the base period**. This is done by dividing the **current year amount by the base year amount**, as shown below.

Current results in relation to base period

=

Current year amount

—————
Base year amount

HORIZONTAL ANALYSIS OF A BALANCE SHEET

- The **two-year condensed balance sheet** of **Quality Department Store Inc.** for **2002 and 2001** showing dollar and percentage changes is displayed in **Illustration 19-5**.
- In the asset section, **plant assets (net)** increased **\$167,500** or **26.5%**.
- In the liabilities section, **current liabilities** increased **\$41,500** or **13.7%**.
- In the stockholders' equity section, **retained earnings** increased **\$202,600** or **38.6%**.
- It appears the company expanded its asset base during **2002** and financed the expansion by retaining income in the firm.

HORIZONTAL ANALYSIS OF INCOME STATEMENTS

The two-year comparative income statements of Quality Department Store Inc. for 2002 and 2001 is shown in condensed form on Illustration 19-6. Horizontal analysis of the comparative income statement shows the following changes:

- 1) Net sales increased \$260,000, or 14.2%
(\$260,000 ÷ \$1,837,000).**
- 2) Cost of goods sold increased \$141,000, or 12.4%
(\$141,000 ÷ \$1,140,000).**
- 3) Total operating expenses increased \$37,000, or 11.6%
(\$37,000 ÷ \$320,000).**

HORIZONTAL ANALYSIS OF RETAINED EARNINGS STATEMENTS

Analyzed horizontally:

- 1) Net income increased \$55,300, or 26.5%.**
- 2) Common dividends increased only \$1,200, or 2%.**
- 3) Ending retained earnings increased 38.6%.**

**QUALITY DEPARTMENT STORE INC.
Retained Earnings Statement
For the Years Ended December 31**

	2002	2001	Increase or (Decrease) during 1999	
			Amount	Percentage
Retained earnings, January 1	\$ 525,000	\$ 376,500	\$ 148,500	39.4%
Add: Net income	263,800	208,500	55,300	26.5%
	788,800	585,000	203,800	
Deduct: Dividends	61,200	60,000	1,200	2.0%
Retained earnings, December 31	\$ 727,600	\$ 525,000	\$ 202,600	38.6%

Review

In horizontal analysis, each item is expressed as a percentage of the:

- a. net income amount.
- b. stockholders' equity amount.
- c. total assets amount.
- d. base year amount.

Review

In horizontal analysis, each item is expressed as a percentage of the:

- a. net income amount.
- b. stockholders' equity amount.
- c. total assets amount.
- d. base year amount.

VERTICAL ANALYSIS OF BALANCE SHEETS

STUDY OBJECTIVE 4

Presented on the next slide is the **two-year comparative balance sheet** of Quality Department Store Inc. for **2002 and 2001**.

- 1 Current assets increased \$75,000 from 2001 to 2002, they decreased from 59.2% to 55.6% of total assets.**
- 2 Plant assets (net) increased from 39.7% to 43.6% of total assets, and**
- 3 Retained earnings increased from 32.9% to 39.7% of total liabilities and stockholders' equity.**

These results reinforce earlier observations that Quality is financing its growth through retention of earnings rather than from issuing additional debt.

VERTICAL ANALYSIS OF BALANCE SHEETS

QUALITY DEPARTMENT STORE INC. Condensed Balance Sheets December 31

	2002		2001	
	Amount	Percent	Amount	Percent
Assets				
Current assets	\$ 1,020,000	55.6%	\$ 945,000	59.2%
Plant assets (net)	800,000	43.6%	632,500	39.7%
Intangible assets	15,000	0.8%	17,500	1.1%
Total assets	\$ 1,835,000	100.0%	\$ 1,595,000	100.0%
Liabilities				
Current liabilities	\$ 344,500	18.8%	\$ 303,000	19.0%
Long-term liabilities	487,500	26.5%	497,000	31.2%
Total liabilities	832,000	45.3%	800,000	50.2%
Stockholders' Equity				
Common stock, \$1 par	275,400	15.0%	270,000	16.9%
Retained earnings	727,600	39.7%	525,000	32.9%
Total stockholders' equity	1,003,000	54.7%	795,000	49.8%
Total liabilities and stockholders' equity	\$ 1,835,000	100.0%	\$ 1,595,000	100.0%

VERTICAL ANALYSIS OF INCOME STATEMENTS

Vertical analysis of the two-year comparative income statement of Quality Department Store Inc. for 2002 and 2001 is shown on the next slide.

- 1) Cost of goods sold as a percentage of net sales declined 1% (62.1% versus 61.1%).**
- 2) Total operating expenses declined 0.4% (17.4% versus 17.0%).**
- 3) Net income as a percent of net sales therefore increased from 11.4% to 12.6%.**

Quality appears to be a profitable enterprise that is becoming more successful.

VERTICAL ANALYSIS OF INCOME STATEMENTS

QUALITY DEPARTMENT STORE INC. Condensed Income Statements For the Years Ended December 31

	2002		2001	
	Amount	Percent	Amount	Percent
Sales	\$ 2,195,000	104.7%	\$ 1,960,000	106.7%
Sales returns and allowances	98,000	4.7%	123,000	6.7%
Net sales	2,097,000	100.0%	1,837,000	100.0%
Cost of goods sold	1,281,000	61.1%	1,140,000	62.1%
Gross profit	816,000	38.9%	697,000	37.9%
Selling expenses	253,000	12.0%	211,500	11.5%
Administrative expenses	104,000	5.0%	108,500	5.9%
Total operating expenses	357,000	17.0%	320,000	17.4%
Income from operations	459,000	21.9%	377,000	20.5%
Other revenues and gains				
Interest and dividends	9,000	0.4%	11,000	0.6%
Other expenses and losses				
Interest expense	36,000	1.7%	40,500	2.2%
Income before income taxes	432,000	20.6%	347,500	18.9%
Income tax expense	168,200	8.0%	139,000	7.5%
Net income	\$263,800	12.6%	\$208,500	11.4%

INTERCOMPANY INCOME STATEMENT COMPARISON

Vertical analysis enables you to compare companies of different sizes. Quantity's major competitor is a Sears, Roebuck store in a nearby town. Using vertical analysis, the small Quality Department Store Inc. can be meaningfully compared to the much larger Sears.

- 1 Gross profit rates** were somewhat comparable at **38.9%** and **38.0%**.
- 2 Income from operations percentages** were significantly different at **21.9%** and **5.0%**.
- 3 Quality's selling and administrative expenses percentage** was much lower than Sears' (**17% to 33%.**)
- 4 Sears' net income as a percentage of sales** was much lower than Quality's (**3.3% to 12.6%.**)

Review

In vertical analysis, the base amount for depreciation expense is generally:

- a. net sales.
- b. depreciation expense in a previous year.
- c. gross profit.
- d. fixed assets.

Review

In vertical analysis, the base amount for depreciation expense is generally:

- a. net sales.
- b. depreciation expense in a previous year.
- c. gross profit.
- d. fixed assets.

RATIO ANALYSIS

STUDY OBJECTIVE 5

- **Ratio analysis** expresses the relationship among selected items of financial statement data.
- A **ratio** expresses the mathematical relationship between one quantity and another.
- A single ratio by itself is not very meaningful, in the upcoming illustrations we will use:
 - 1) **Intracompany comparisons** for two years for the Quality Department Store.
 - 2) **Industry average comparisons** based on median ratios for department stores from Dun & Bradstreet and Robert Morris Associates' median ratios.
 - 3) **Intercompany comparisons** based on the Sears, Roebuck and Co., as Quality Department Store's principal competitor.

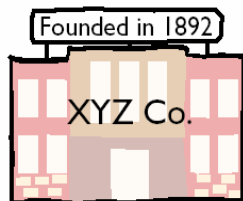
FINANCIAL RATIO CLASSIFICATIONS



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Liquidity Ratios

Measures of short-term ability of the enterprise to pay its maturing obligations and to meet unexpected needs for cash

Profitability Ratios

Measures of the income or operating success of an enterprise for a given period of time

Solvency Ratios

Measures of the ability of the enterprise to survive over a long period of time

CURRENT RATIO

- **The current ratio (working capital ratio) is a widely used measure for evaluating a company's liquidity and short-term debt-paying ability.**
- **It is computed by dividing current assets by current liabilities and is a more dependable indicator of liquidity than working capital.**
- **The current ratios for Quality Department Store and comparative data are shown below.**

$$\text{CURRENT RATIO} = \frac{\text{CURRENT ASSETS}}{\text{CURRENT LIABILITIES}}$$

CURRENT RATIO

Quality Department Store

<u>2002</u>	<u>2001</u>
$\frac{\$1,020,000}{\$344,500} = 2.96:1$	$\frac{\$945,000}{\$303,000} = 3.12:1$

<u>Industry average</u> 1.28:1	<u>Sears, Roebuck and Co.</u> 2.19:1
-----------------------------------	---

CURRENT ASSETS OF QUALITY DEPARTMENT STORE

Quality Department Store Balance Sheet (partial)

	<u>2002</u>	<u>2001</u>
Current assets		
Cash	\$ 100,000	\$ 155,000
Marketable securities	20,000	70,000
Receivables (net)	230,000	180,000
Inventory	620,000	500,000
Prepaid expenses	50,000	40,000
Total current assets	<u><u>\$ 1,020,000</u></u>	<u><u>\$ 945,000</u></u>

ACID-TEST RATIO

- **The acid-test ratio (quick ratio) is a measure of a company's short-term liquidity.**
- **It is computed by dividing the sum of cash, marketable securities, and net receivables by current liabilities.**
- **The acid-test ratios for Quality Department Store and comparative data are on the next slide.**

$$\text{ACID-TEST RATIO} = \frac{\text{CASH} + \text{MARKETABLE SECURITIES} + \text{RECEIVABLES (NET)}}{\text{CURRENT LIABILITIES}}$$

ACID-TEST RATIO

Quality Department Store

2002	2001
$\frac{\$100,000 + \$20,000 + \$230,000}{\$344,500} = 1.0:1$	$\frac{\$155,000 + \$70,000 + \$180,000}{\$303,000} = 1.3:1$

$\frac{\text{Industry average}}{0.33:1}$	$\frac{\text{Sears, Roebuck and Co.}}{1.81:1}$
--	--

RECEIVABLES TURNOVER

- The **receivables turnover ratio** is used to assess the liquidity of the receivables.
- It measures the **number of times, on average, receivables are collected during the period.**
- The ratio is computed by dividing **net credit sales** by **average net receivables.**

$$\text{RECEIVABLES TURNOVER} = \frac{\text{NET CREDIT SALES}}{\text{AVERAGE NET RECEIVABLES}}$$

RECEIVABLES TURNOVER

Quality Department Store

2002	2001
$\frac{\$2,097,000}{\left[\frac{\$180,000 + \$230,000}{2} \right]} = 10.2 \text{ times}$	$\frac{\$1,837,000}{\left[\frac{\$200,000 + \$180,000}{2} \right]} = 9.7 \text{ times}$

$\frac{\text{Industry average}}{10.8 \text{ times}}$	$\frac{\text{Sears, Roebuck and Co.}}{1.4 \text{ times}}$
--	---

INVENTORY TURNOVER

- **The inventory turnover ratio measures the number of times, on average, the inventory is sold during the period.**
- **Its purpose is to measure the liquidity of the inventory. It is computed by dividing cost of goods sold by average inventory during the year.**

$$\text{INVENTORY TURNOVER} = \frac{\text{COST OF GOODS SOLD}}{\text{AVERAGE INVENTORY}}$$

INVENTORY TURNOVER

Quality Department Store

2002	2001
$\frac{\$1,281,000}{\$500,000 + \$620,000} = 2.3 \text{ times}$	$\frac{\$1,140,000}{\$450,000 + \$500,000} = 2.4 \text{ times}$
$\frac{\quad}{2}$	$\frac{\quad}{2}$

Industry average

6.7 times

Sears, Roebuck and Co.

4.6 times

PROFIT MARGIN

- **The profit margin ratio is a measure of the percentage of each dollar of sales that results in net income.**
- **It is computed by dividing net income by net sales.**

$$\text{PROFIT MARGIN ON SALES} = \frac{\text{NET INCOME}}{\text{NET SALES}}$$

PROFIT MARGIN RATIO

Quality Department Store

<u>2002</u>	<u>2001</u>
$\frac{\$263,800}{\$2,097,000} = 12.6\%$	$\frac{\$208,500}{\$1,837,000} = 11.4\%$

<u>Industry average</u>	<u>Sears, Roebuck and Co.</u>
3.57%	3.65%

ASSET TURNOVER

- **Asset turnover measures how efficiently a company uses its assets to generate sales.**
- **It is determined by dividing net sales by average assets.**

$$\text{ASSET TURNOVER} = \frac{\text{NET SALES}}{\text{AVERAGE ASSETS}}$$

ASSET TURNOVER

Quality Department Store

2002	2001
$\frac{\$2,097,000}{\frac{\$1,595,000 + \$1,835,000}{2}} = 1.2 \text{ times}$	$\frac{\$1,837,000}{\frac{\$1,446,000 + \$1,595,000}{2}} = 1.2 \text{ times}$

Industry average
2.37 times

Sears, Roebuck and Co.
0.86 times

RETURN ON ASSETS

An overall measure of profitability is return on assets. It is computed by dividing net income by average assets for the period.

$$\text{RETURN ON ASSETS} = \frac{\text{NET INCOME}}{\text{AVERAGE ASSETS}}$$

RETURN ON ASSETS

Quality Department Store

2002	2001
$\frac{\$263,800}{\frac{\$1,595,000 + \$1,835,000}{2}} = 15.4\%$	$\frac{\$208,500}{\frac{\$1,446,000 + \$1,595,000}{2}} = 13.7\%$

$\frac{\text{Industry average}}{8.29\%}$	$\frac{\text{Sears, Roebuck and Co.}}{3.13\%}$
--	--

RETURN ON COMMON STOCKHOLDERS' EQUITY

- A ratio that measures profitability from the viewpoint of the common stockholder is **return on common stockholders' equity**.
- It is computed by dividing **net income** by **average common stockholders' equity**.

$$\text{RETURN ON COMMON STOCKHOLDERS' EQUITY} = \frac{\text{NET INCOME}}{\text{AVERAGE COMMON STOCKHOLDERS' EQUITY}}$$

RETURN ON COMMON STOCKHOLDERS' EQUITY

Quality Department Store

2002	2001
$\frac{\$263,800}{\left[\frac{\$795,000 + \$1,003,000}{2} \right]} = 29.3\%$	$\frac{\$208,500}{\left[\frac{\$667,000 + \$795,000}{2} \right]} = 28.5\%$

$\frac{\text{Industry average}}{20.5\%}$	$\frac{\text{Sears, Roebuck and Co.}}{22.9\%}$
--	--

RETURN ON COMMON STOCKHOLDERS' EQUITY WITH PREFERRED STOCK

- When preferred stock is present, preferred dividend requirements are deducted from net income to compute income available to common stockholders.
- The par value of preferred stock (or call price – if applicable) must be deducted from total stockholders' equity to determine the amount of common stockholders' equity used in this ratio. The ratio then appears as shown below.

RATE OF RETURN ON COMMON STOCKHOLDERS' EQUITY

$$= \frac{\text{NET INCOME} - \text{PREFERRED DIVIDENDS}}{\text{AVERAGE COMMON STOCKHOLDERS' EQUITY}}$$

EARNINGS PER SHARE

- **Earnings per share (EPS)** is a measure of net income earned on each share of common stock.
- It is calculated by dividing **net income** by the number of **weighted average common shares outstanding during the year**.

$$\text{EARNINGS PER SHARE} = \frac{\text{NET INCOME}}{\text{WEIGHTED AVERAGE COMMON SHARES OUTSTANDING}}$$

EARNINGS PER SHARE

Quality Department Store

2002	2001
$\frac{\$263,000}{\left[\frac{270,000 + 275,400}{2} \right]} = \0.96	$\frac{\$208,500}{270,000} = \0.77

PRICE-EARNINGS RATIO

- The **price-earnings (PE) ratio** measures the ratio of the market price of each share of common stock to the earnings per share.
- It is computed by dividing the **market price per share of common stock** by **earnings per share**.

$$\text{PRICE-EARNINGS RATIO} = \frac{\text{MARKET PRICE PER SHARE OF COMMON STOCK}}{\text{EARNINGS PER SHARE}}$$

PRICE-EARNINGS RATIO

Quality Department Store

<u>2002</u>	<u>2001</u>
$\frac{\$12.00}{\$.96} = 12.5 \text{ times}$	$\frac{\$ 8.00}{\$.77} = 10.4 \text{ times}$

<u>Industry average</u>	<u>Sears, Roebuck and Co.</u>
26 times	7 times

PAYOUT RATIO

The **payout ratio** measures the percentage of earnings distributed in the form of cash dividends. It is computed by dividing **cash dividends** by **net income**.

$$\text{PAYOUT RATIO} = \frac{\text{CASH DIVIDENDS}}{\text{NET INCOME}}$$

PAYOUT RATIO

Quality Department Store

$$\frac{\$61,200}{\$263,800} = 23.2\%$$

$$\frac{\$60,000}{\$208,500} = 28.8\%$$

Industry average

16.0%

Sears, Roebuck and Co.

20%

DEBT TO TOTAL ASSETS

- The **debt to total assets ratio** measures the percentage of total assets provided by creditors.
- It is computed by dividing **total debt** by **total assets**.

$$\text{DEBT TO TOTAL ASSETS} = \frac{\text{TOTAL DEBT}}{\text{TOTAL ASSETS}}$$

DEBT TO TOTAL ASSETS RATIO

Quality Department Store

2002			2001	
\$832,000	= 45.30%		\$800,000	= 50.20%
\$1,835,000			\$1,595,000	

Industry average

40.1%

Sears, Roebuck and Co.

76.1%

TIMES INTEREST EARNED

Times interest earned provides an indication of the company's ability to meet interest payments as they come due. It is computed by dividing **income before income taxes and interest expense** by **interest expense**.

$$\text{TIMES INTEREST EARNED} = \frac{\text{INCOME BEFORE INCOME TAXES AND INTEREST EXPENSE}}{\text{INTEREST EXPENSE}}$$

TIMES INTEREST EARNED

Quality Department Store

2002

\$468,000

————— = 13 times

\$36,000

2001

\$388,000

————— = 9.6 times

\$40,500

Industry average

—————

11.98 times

Sears, Roebuck and Co.

—————

2.8 times

IRREGULAR OPERATIONS

STUDY OBJECTIVE 6

Three types of “Irregular” items:

- 1) Discontinued operations**
- 2) Extraordinary items**
- 3) Changes in accounting principle**

DISCONTINUED OPERATIONS

- The disposal of a **significant segment** of the business.
 - The income or (loss) from discontinued operations consists of two parts:
 - The income or (loss) from operations and
 - The gain or (loss) on the disposal of the segment
 - The results are shown **“net of tax”**.

STATEMENT PRESENTATION OF DISCONTINUED OPERATIONS

ACRO ENERGY INC.

Income Statement (partial)

For the Year Ended December 31, 2005

Income before income taxes		\$800,000
Income tax expense		<u>240,000</u>
Income from continuing operations		560,000
Discontinued operations		
Loss from operations of chemical division, net of \$60,000 income tax saving	\$140,000	
Loss from disposal of chemical division, net of \$30,000 income tax saving	<u>70,000</u>	<u>210,000</u>
Net income		<u><u>\$350,000</u></u>

EXTRAORDINARY ITEMS

- Extraordinary items are events and transactions that meet two conditions:
 - unusual in nature and
 - infrequent in occurrence

- The results are shown “net of tax”.

STATEMENT PRESENTATION OF EXTRAORDINARY ITEMS

ACRO ENERGY INC.

Income Statement (partial)

For the Year Ended December 31, 2005

Income before income taxes		\$800,000
Income tax expense		<u>240,000</u>
Income from continuing operations		560,000
Discontinued operations		
Loss from operations of chemical division, net of \$60,000 income tax saving	\$140,000	
Loss from disposal of chemical division, net of \$30,000 income tax saving	<u>70,000</u>	<u>210,000</u>
Income before extraordinary item		350,000
Extraordinary item		
Expropriation of investment, net of \$21,000 income tax saving		<u>49,000</u>
Net income		<u><u>\$301,000</u></u>

EXAMPLES OF EXTRAORDINARY AND ORDINARY ITEMS

Extraordinary items

1. Effects of major casualties (acts of God), if rare in the area.



2. Expropriation (takeover) of property by a foreign government.



3. Effects of a newly enacted law or regulation, such as a condemnation action.



Ordinary items

1. Effects of major casualties (acts of God), not uncommon in the area.



2. Write-down of inventories or write-off of receivables.



3. Losses attributable to labor strikes.



4. Gains or losses from sales of property, plant, or equipment.



CHANGE IN ACCOUNTING PRINCIPLE

- A change in accounting principle occurs when the principle used in the current year is different from the one used the preceding year. When this occurs:
 - The new principle is used to report the results of operations for the current year.
 - The cumulative effect of the change on all prior year income statements should be disclosed “net of tax”.

STATEMENT PRESENTATION OF CHANGE IN ACCOUNTING PRINCIPLE

ACRO ENERGY INC.

Income Statement (partial)

For the Year Ended December 31, 2005

Income before income taxes		\$800,000
Income tax expense		<u>240,000</u>
Income from continuing operations		560,000
Discontinued operations		
Loss from operations of chemical division, net of \$60,000 income tax saving	\$140,000	
Loss from disposal of chemical division, net of \$30,000 income tax saving	<u>70,000</u>	<u>210,000</u>
Income before extraordinary item and cumulative effect of change in accounting principle		350,000
Extraordinary item		
Expropriation of investment, net of \$21,000 income tax saving		49,000
Cumulative effect of change in accounting principle		
Effect on prior years of change in depreciation method, net of \$7,200 income tax saving		<u>16,800</u>
Net income		<u><u>\$284,200</u></u>

LIMITATIONS OF FINANCIAL ANALYSIS

STUDY OBJECTIVE 7

You should be aware of some of the limitations of the three analytical tools illustrated in the chapter and of the financial statements on which they are based.

- 1) Estimates:** Financial statements contain numerous estimates; to the extent that these estimates are inaccurate, the financial ratios and percentages are inaccurate.
- 2) Cost:** Traditional financial statements are based on cost and are not adjusted for price-level changes. Comparisons of unadjusted financial data from different periods may be rendered invalid by significant inflation or deflation.

LIMITATIONS OF FINANCIAL ANALYSIS

3) Alternative Accounting Methods: Variations among companies in the application of GAAP may hamper comparability.

Differences in accounting methods might be detectable from reading the notes to the financial statements, adjusting the financial data to compensate for the different methods is difficult, if not impossible, in some cases.

LIMITATIONS OF FINANCIAL ANALYSIS

- 4) Atypical Data:** Fiscal year-end data may not be typical of the financial condition during the year. Firms often establish a fiscal year-end that coincides with the low point in operating activity or in inventory levels. Thus, certain account balances may not be representative of the account balances during the year.
- 5) Diversification of Firms:** Diversification in U.S. industries also restricts the usefulness of financial analysis. Many firms today are too diversified to be classified by industry, while others appear to be comparable when they are not.

Review

Which of the following is generally not considered to be a limitation of financial analysis?

- a. Use of estimates.
- b. Use of ratio analysis.
- c. Use of cost.
- d. Use of alternative accounting methods.

Review

Which of the following is generally not considered to be a limitation of financial analysis?

a. Use of estimates.

b. Use of ratio analysis.

c. Use of cost.

d. Use of alternative accounting methods.

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Accounting Principles

7th Edition

Weygandt • Kieso • Kimmel

Chapter 20

Managerial Accounting

Prepared by Naomi Karolinski
Monroe Community College

and

Marianne Bradford
Bryant College

CHAPTER 20

MANAGERIAL ACCOUNTING

After studying this chapter, you should be able to:

- 1. Explain the distinguishing features of managerial accounting.**
- 2. Identify the three broad functions of management.**
- 3. Define the three classes of manufacturing costs.**
- 4. Distinguish between product and period costs.**
- 5. Explain the difference between a merchandising and a manufacturing income statement.**

CHAPTER 20

MANAGERIAL ACCOUNTING

After studying this chapter, you should be able to:

- 6. Indicate how cost of goods manufactured is determined.**
- 7. Explain the difference between a merchandising and a manufacturing balance sheet.**



MANAGERIAL ACCOUNTING

BASICS

STUDY OBJECTIVE 1

Management Accounting

- **A field of accounting that provides economic and financial information for managers and other internal users.**

MANAGERIAL ACCOUNTING

BASICS

Activities include:

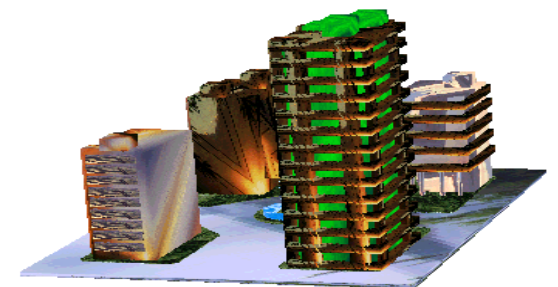
- **Explaining manufacturing and nonmanufacturing costs and how they are reported in the financial statements**
- **Computing the cost of providing a service or manufacturing a product**
- **Determining the behavior of costs and expenses as activity levels change**
- **Analyzing cost-volume profit relationships within a company**

MANAGERIAL ACCOUNTING

BASICS

Activities include (continued):

- **Assisting management in profit planning and budgeting**
- **Providing a basis for controlling costs and expenses by comparing actual results with planned objectives and standard costs**
- **Accumulating and presenting relevant data for management decision making**



COMPARING MANAGERIAL AND FINANCIAL ACCOUNTING

Financial Accounting

- External users: stockholders, creditors, and regulators.
- Financial statements.
- Quarterly and annually.
- General-purpose.
- Pertains to business as a whole.
- Highly aggregated (condensed).
- Limited to double-entry accounting and cost data.
- Generally accepted accounting principles.
- Audit by CPA.



Primary Users of Reports

Types and Frequency of Reports

Purpose of Reports

Content of Reports

Verification Process

Managerial Accounting

- Internal users: officers and managers.
- Internal reports.
- As frequently as needed.
- Special-purpose for specific decisions.
- Pertains to subunits of the business.
- Very detailed.
- Extends beyond double-entry accounting to any relevant data.
- Standard is relevance to decisions.
- No independent audits.



ETHICAL STANDARDS FOR MANAGERIAL ACCOUNTANTS

- **Managerial Accountants have an ethical obligation to their companies and the public.**
- **The Institute of Management Accountants (IMA) developed a code of ethical standards which divides the managerial accountant's responsibilities into 4 areas:**
 - **Competence**
 - **Confidentiality**
 - **Integrity**
 - **Objectivity**

MANAGEMENT FUNCTIONS

STUDY OBJECTIVE 2

- 1. Planning**
- 2. Motivating and Directing**
- 3. Controlling**



PLANNING

Planning requires management to:

- **Look ahead**
- **Establish objectives**
- **Add value to the business under its control (as measured by company's stock price or its potential selling price)**

DIRECTING AND MOTIVATING

Directing and Motivating requires management to:

- **Coordinate a company's activities**
- **Implement planned objectives**
- **Select and train employees**
- **Prepare organization charts**

CONTROLLING

Controlling requires management to:

- **Keep the firm's activities on track**
- **Determine whether planned goals are being met**
- **Decide what changes are needed if goals are not met**

MANAGERIAL COST CONCEPTS

Managers need information related to costs, such as:

- **What costs are involved in making the product or providing a service?**
- **If production volume is decreased, will costs decrease?**
- **What impact will automation have on total costs?**
- **How can costs best be controlled?**

MANAGERIAL COST CONCEPTS

- **Manufacturing:** Activities and processes that convert raw materials into finished goods.
- **Manufacturing Costs include:**
 - Direct materials
 - Direct labor
 - Manufacturing overhead

Review

Managerial accounting:

- a. is governed by generally accepted accounting principles.
- b. places emphasis on special-purpose information.
- c. pertains to the entity as a whole and is highly aggregated.
- d. is limited to cost data.

Review

Managerial accounting:

- a. is governed by generally accepted accounting principles.
- b. places emphasis on special-purpose information.
- c. pertains to the entity as a whole and is highly aggregated.
- d. is limited to cost data.

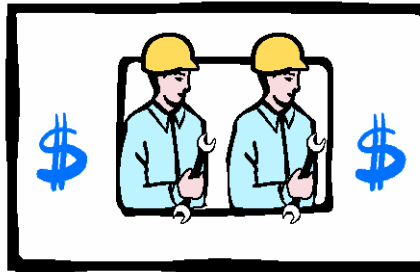
CLASSIFICATIONS OF MANUFACTURING COSTS

STUDY OBJECTIVE 3

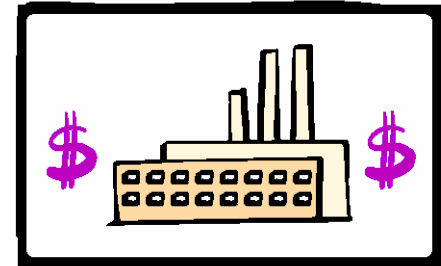
Manufacturing Costs



Direct Materials



Direct Labor



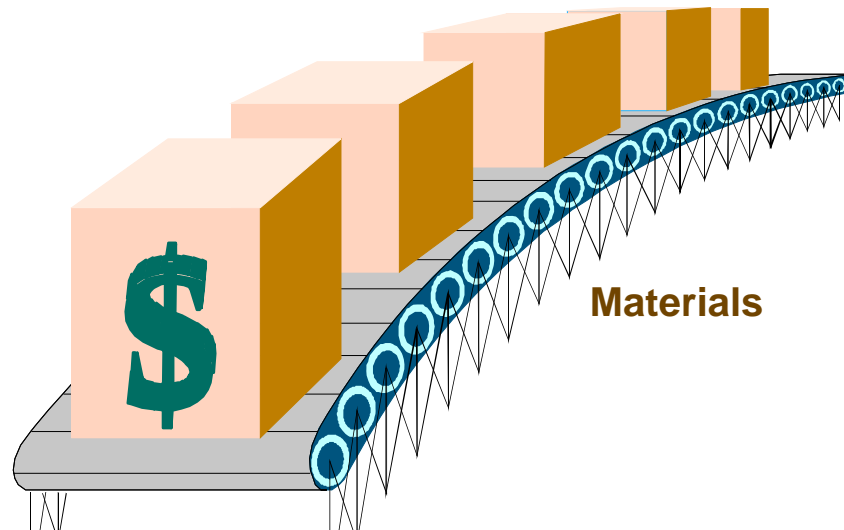
Manufacturing
Overhead

MANUFACTURING COSTS

DIRECT MATERIALS

Raw materials

- The basic materials and parts that are used in the manufacturing process
- Raw materials physically and directly associated with the finished product are called **direct materials**



INDIRECT MATERIALS

- **Indirect Materials are raw materials which cannot be easily associated with the finished product.**
 - Not physically part of the finished product
 - Cannot be traced because their physical association with the finished product is too small in terms of cost
- **Accounted for as part of Manufacturing Overhead**

LABOR

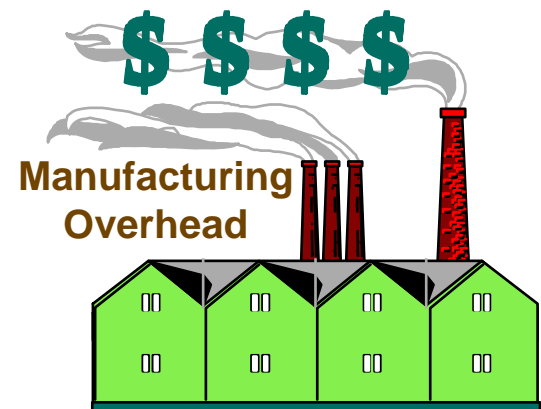
- **Direct Labor**: The work of factory employees which is physically and directly associated with converting raw materials into finished goods.
- **Indirect Labor**: Efforts which have no physical association with the finished product or it's impractical to trace the costs.
- **Indirect Labor**: Classified as Manufacturing Overhead

Factory
Labor



MANUFACTURING OVERHEAD

- **Consists of costs that are indirectly associated with manufacturing the finished product.**
- **Includes:**
 - **Indirect materials**
 - **Indirect labor**
 - **Depreciation on factory buildings and machines**
 - **Insurance, taxes, maintenance on factory facilities**



PRODUCT COSTS *VERSUS* PERIOD COSTS

STUDY OBJECTIVE 4

Product costs:

- **include each of the manufacturing cost elements (direct materials, direct labor, and manufacturing overhead)**
- **are a necessary and integral part of producing the finished product**
- **are recorded as inventory and not expensed to cost of goods sold until the time of sale**

PRODUCT COSTS *VERSUS* PERIOD COSTS

Period costs:

- **are identifiable with a specific time period**
- **are nonmanufacturing costs**
- **are not included in inventory**
- **include selling and administrative expenses**
- **are deducted from revenues in the period incurred**

PRODUCT *VERSUS* PERIOD COSTS

Product Costs

Direct Materials

Direct Labor

Manufacturing
Overhead

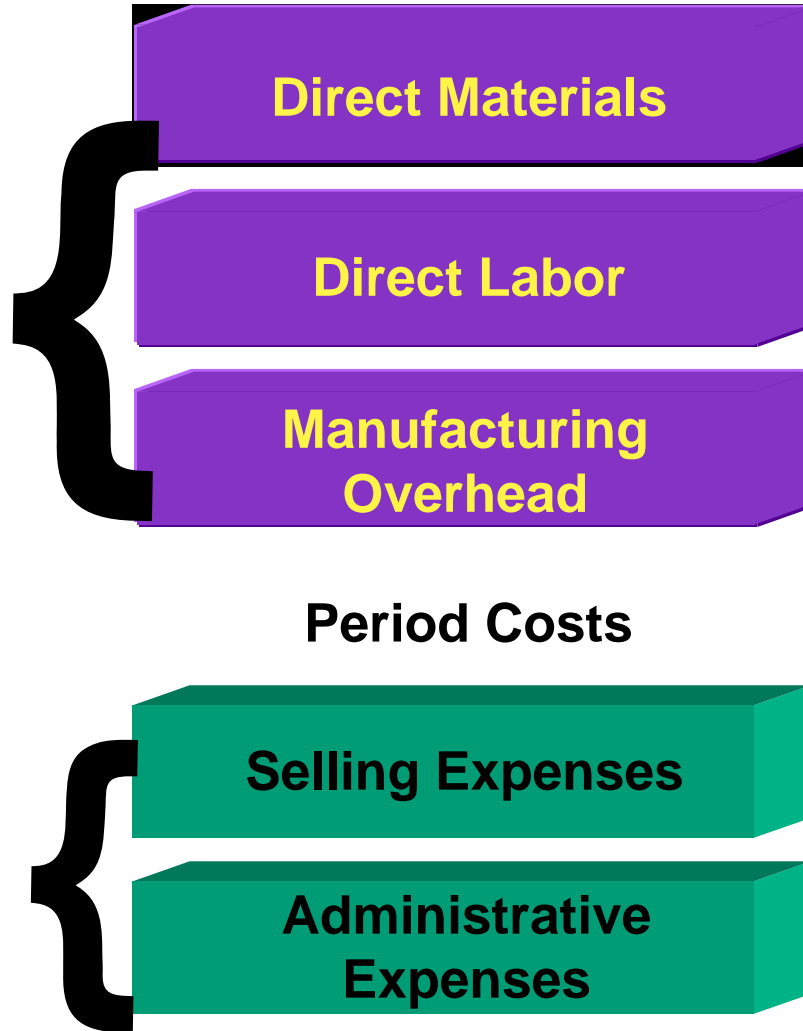
Manufacturing
Costs

Period Costs

Selling Expenses

Administrative
Expenses

Nonmanufacturing
Costs



Merchandising versus Manufacturing Income Statement

STUDY OBJECTIVE 5

The income statement for a manufacturer is similar to that of a merchandiser except the ***cost of goods sold*** section.

COST OF GOODS SOLD SECTION OF A MERCHANDISING COMPANY

The **cost of goods sold sections** for merchandising company includes cost of goods purchased:

MERCHANDISE COMPANY Partial Income Statement For the Year Ended December 31, 2005

Cost of goods sold	
Merchandise inventory, January 1	\$ 70,000
Cost of goods purchased	650,000
Cost of goods available for sale	<u>720,000</u>
Merchandise inventory, December 31	<u>400,000</u>
Cost of goods sold	<u><u>\$ 320,000</u></u>

COST OF GOODS SOLD SECTION OF A MANUFACTURING COMPANY

The cost of goods sold sections for manufacturing company includes cost of goods manufactured:

MANUFACTURING COMPANY Partial Income Statement For the Year Ended December 31, 2005

Cost of goods sold	
Finished goods inventory, January 1	\$ 90,000
Cost of goods manufactured	370,000
Cost of goods available for sale	<u>460,000</u>
Finished goods inventory, December 31	80,000
Cost of goods sold	<u><u>\$ 380,000</u></u>

COST OF GOODS SOLD COMPONENTS

Merchandiser

Beginning
Merchandise
Inventory

+

Cost of Goods
Purchased

-

Ending
Merchandise
Inventory

=

Cost of
Goods Sold

Manufacturer

Beginning
Finished Goods
Inventory

+

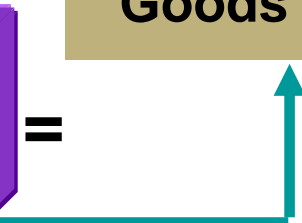
Cost of Goods
Manufactured

-

Ending
Finished Goods
Inventory

=

Cost of
Goods Sold



COST OF GOODS MANUFACTURED

FORMULA

STUDY OBJECTIVE 6



COST OF GOODS MANUFACTURED SCHEDULE

The Cost of Goods Manufactured Schedule – as shown on the right is an internal financial schedule that shows each of the cost elements.

OLSEN MANUFACTURING COMPANY Cost of Goods Manufactured Schedule For the Year Ended December 31, 2005

Work in process, January 1		\$ 18,400
Direct materials		
Raw materials inventory, January 1	\$ 16,700	
Raw materials purchases	152,500	
Total raw materials available for use	169,200	
Less: Raw materials inventory, Dec. 31	22,800	
Direct materials used		\$ 146,400
Direct labor		175,600
Manufacturing overhead		
Indirect labor	14,300	
Factory repairs	12,600	
Factory utilities	10,100	
Factory depreciation	9,440	
Factory insurance	8,360	
Total manufacturing overhead		54,800
Total manufacturing costs		376,800
Total cost of work in process		395,200
Less: Work in process, December 31		25,200
Cost of goods manufactured		\$ 370,000

Review

The sum of the direct materials costs, direct labor costs, and manufacturing overhead incurred is the:

- a. cost of goods manufactured.
- b. total manufacturing overhead.
- c. total manufacturing costs.
- d. total cost of work in process.

Review

The sum of the direct materials costs, direct labor costs, and manufacturing overhead incurred is the:

- a. cost of goods manufactured.
- b. total manufacturing overhead.
- c. **total manufacturing costs.**
- d. total cost of work in process.

CURRENT ASSETS SECTIONS

MERCHANDISING AND MANUFACTURING

BALANCE SHEETS

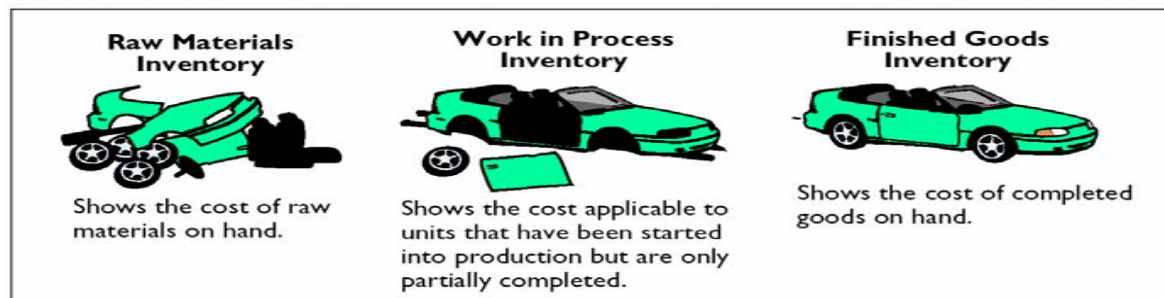
STUDY OBJECTIVE 7

Merchandiser

- One inventory category

Manufacturer

- Three inventory accounts:
 - Finished Goods Inventory
 - Work in Process Inventory
 - Raw Materials Inventory

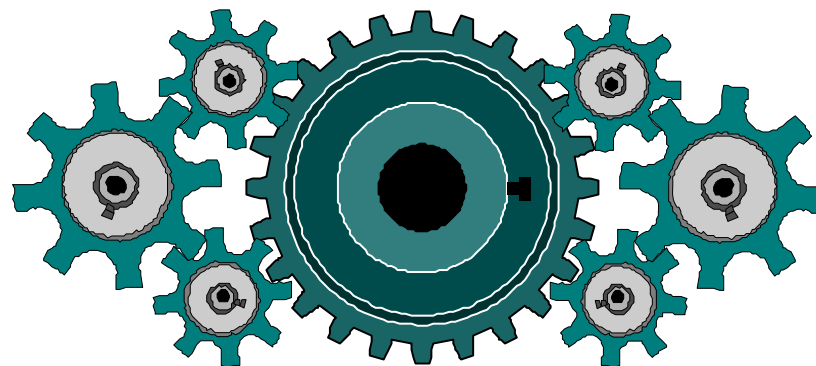


CURRENT ASSETS SECTIONS OF MERCHANDISING AND MANUFACTURING BALANCE SHEETS

Merchandising Company Balance Sheet December 31, 2005

Current assets

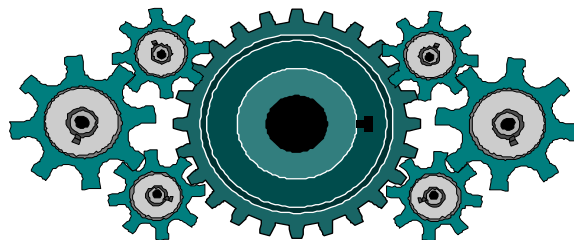
Cash	\$ 100,000
Receivables (net)	210,000
Merchandise inventory	400,000
Prepaid expenses	22,000
Total current assets	<u><u>\$ 732,000</u></u>



CURRENT ASSETS SECTIONS OF MERCHANDISING AND MANUFACTURING BALANCE SHEETS

Manufacturing Company Balance Sheet December 31, 2005

Current assets		
Cash		\$ 180,000
Receivables (net)		210,000
Inventories:		
Finished goods	\$ 80,000	
Work in process	25,200	
Raw materials	22,800	128,000
	<hr/>	
Prepaid expenses		18,000
		<hr/>
Total current assets		\$ 536,000
		<hr/> <hr/>



ASSIGNMENT OF COSTS TO COST CATEGORIES

The manufacturing and selling costs can be assigned to the various categories shown below.

Cost Item	Product Costs			Period Costs
	Direct Materials	Direct Labor	Manufacturing Overhead	
1. Material cost (\$10 per door)	X			
2. Labor costs (\$8 per door)		X		
3. Depreciation on new equipment (\$25,000 per year)			X	
4. Property taxes (\$6,000 per year)			X	
5. Advertising costs (\$30,000 per year)				X
6. Sales commissions (\$4 per door)				X
7. Maintenance salaries (\$28,000 per year)			X	
8. Salary of plant manager (\$70,000)			X	
9. Cost of shipping pre-hung doors (\$12 per door)				X

COMPUTATION OF TOTAL MANUFACTURING COSTS

Total manufacturing costs are the sum of the product costs – **direct materials**, **direct labor**, and **manufacturing overhead** costs. Northridge Company produces 10,000 pre-hung wooden doors the first year. The total manufacturing costs are:

Cost Number and Item	Manufacturing Cost
1. Material cost (\$10 X 10,000)	\$ 100,000
2. Labor cost (\$8 X 10,000)	80,000
3. Depreciation on new equipment	25,000
4. Property taxes	6,000
7. Maintenance salaries	28,000
8. Salary of plant manager	70,000
Total manufacturing costs	\$ 309,000

CONTEMPORARY DEVELOPMENTS IN MANAGERIAL ACCOUNTING

Contemporary business managers demand different and better information than they needed just a few years ago. Managerial accountants will need to address:

- **Service industry trends**
- **Value chain management**



SERVICE INDUSTRY TRENDS

Managers of service companies look to managerial accountants to answer questions such as:

- **Transportation: Service a new route?**
- **Package delivery services: What fee structure to use?**
- **Telecommunications: Invest in a new satellite?**
- **Professional services: How productive are staff members?**
- **Financial institutions: Build a new branch?**
- **Health Care: Invest in new equipment?**



VALUE CHAIN MANAGEMENT

- **Value chain** consists of all activities associated with providing a product or service
- Each activity must add value to the product or service and include:
 - Research and development
 - Ordering raw materials
 - Manufacturing
 - Marketing
 - Delivery
 - Customer relations
- **Supply chain** consists of all activities from receipt of an order to product or service delivery

VALUE CHAIN AND SUPPLY CHAIN MANAGEMENT

Managing the value chain and supply chain requires:

- **Technological changes such as enterprise resource planning (ERP) to centralize and integrate information**
- **Just-in-time inventory methods to deliver goods just in time for use, lowering inventory costs**



VALUE CHAIN AND SUPPLY CHAIN MANAGEMENT

Managing the value chain and supply chain requires (continued):

- **Total Quality Management (TQM) to reduce defects in finished products**
- **Activity Based Costing (ABC) to focus on activities that produce costs, and to then scrutinize and control those costs**

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Accounting Principles

7th Edition

Weygandt • Kieso • Kimmel

Job Order Cost System

Chapter 21

Prepared by Naomi Karolinski
Monroe Community College

and

Marianne Bradford
Bryant College

CHAPTER 21

JOB ORDER COST ACCOUNTING

After studying this chapter, you should be able to:

- 1 Explain the characteristics and purposes of cost accounting.**
- 2 Describe flow of costs in a job order cost accounting system.**
- 3 Explain the nature and importance of a job cost sheet.**



CHAPTER 21

JOB ORDER COST ACCOUNTING

After studying this chapter, you should be able to:

- 4 Indicate how the predetermined overhead rate is determined and used.**
- 5 Prepare entries for jobs completed and sold.**
- 6 Distinguish between under- and overapplied manufacturing overhead.**



COST ACCOUNTING

SYSTEMS

STUDY OBJECTIVE 1

- **Cost accounting**
 - **The measuring, recording, and reporting of product costs.**
- **Both the total cost and the unit cost of each product is determined from the accumulated data.**
- **A cost accounting system consists of accounts for the various manufacturing costs. These accounts are fully integrated into the general ledger of a company.**

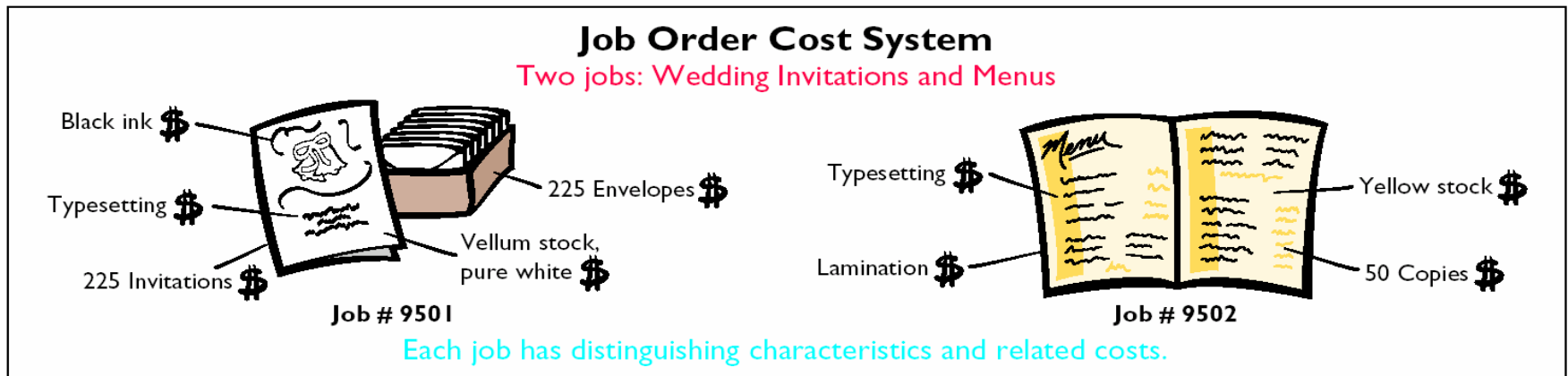
COST ACCOUNTING SYSTEMS

- **An important feature of a cost accounting system is the use of a perpetual inventory system. Such a system provides immediate, up-to-date information on the cost of a product.**
- **There are 2 basic types of cost accounting systems:**
 - 1) a job order cost system**
 - 2) a process cost system**

COST ACCOUNTING SYSTEMS

- **Under a job order cost system, costs are assigned to each job.**
- **An example of a job would be the manufacture of a high-speed drilling machine.**
- **An example of a batch would be the printing of 225 wedding invitations.**
- **The objective is to calculate the cost per job.**

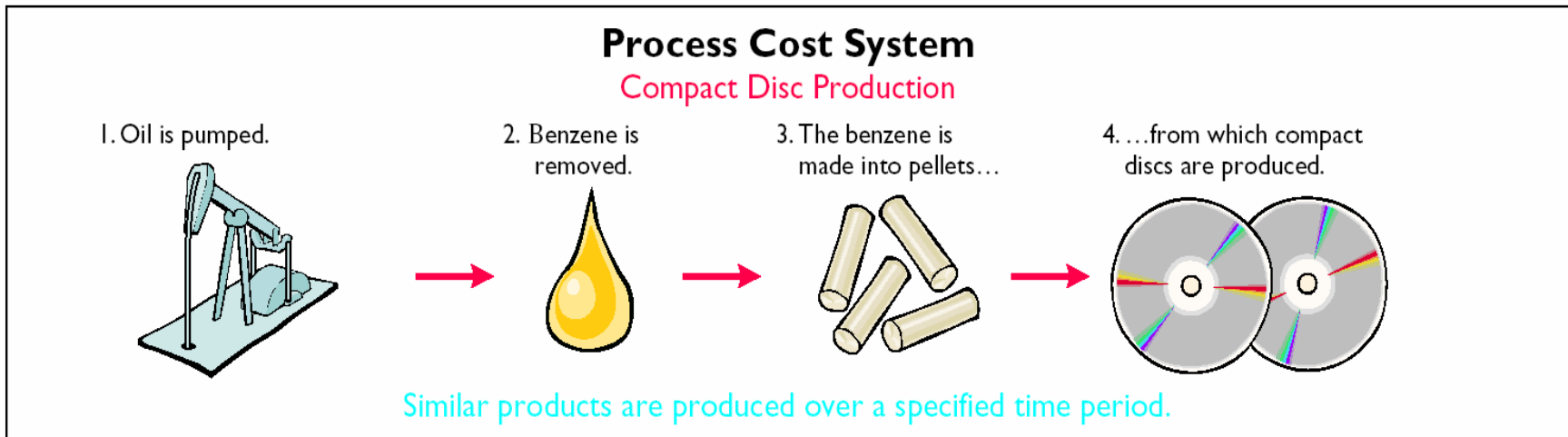
Job Order Cost System



COST ACCOUNTING SYSTEMS

- **Process costing accounts for and accumulates product-related costs for a period of time.**
- **A process cost system is used when a series of connected manufacturing processes or departments produce a large volume of similar products.**

PROCESS COST SYSTEMS



Review

Cost accounting involves the measuring, recording, and reporting of:

- a. product costs.
- b. future costs.
- c. manufacturing processes.
- d. managerial accounting decisions.

Review

Cost accounting involves the measuring, recording, and reporting of:

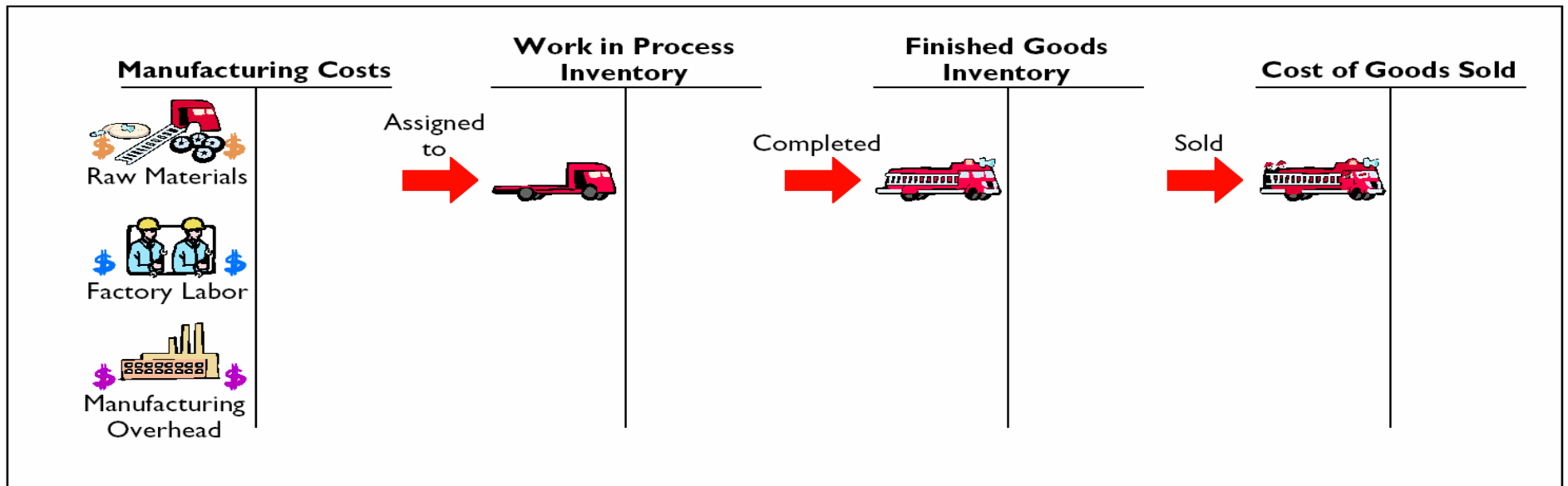
- a. **product costs.**
- b. future costs.
- c. manufacturing processes.
- d. managerial accounting decisions.

JOB ORDER COST FLOW

STUDY OBJECTIVE 2

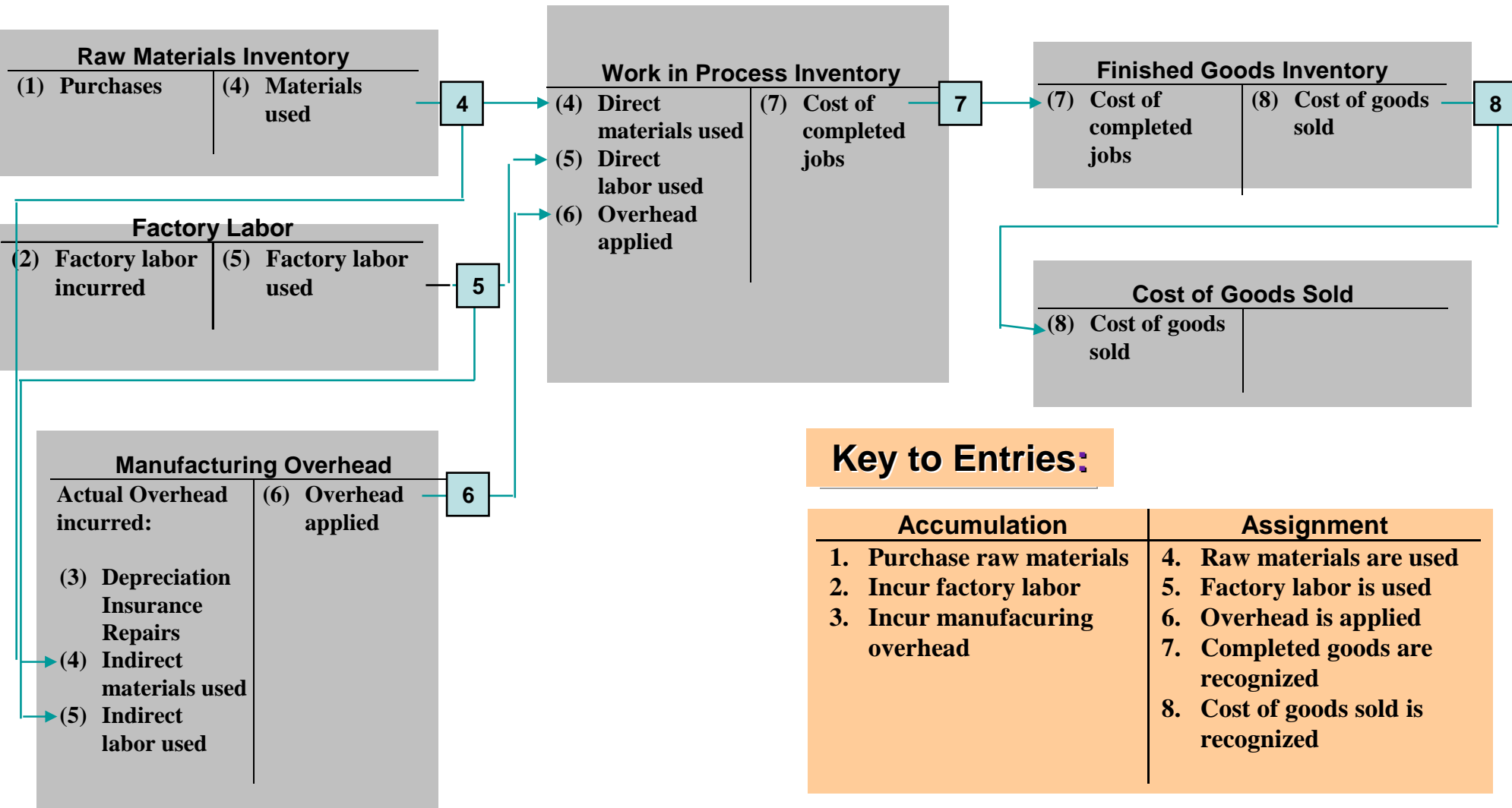
- **The flow of costs in job order cost accounting parallels the physical flow of the materials as they are converted into finished goods.**
- **There are 2 major steps in the flow of costs:**
 - 1) accumulating the manufacturing costs incurred**
 - 2) assigning the accumulated costs to the work done**

FLOW OF COSTS IN JOB ORDER COST ACCOUNTING



JOB ORDER COST ACCOUNTING SYSTEM

Job Order Cost Accounting



JOB ORDER COST FLOW

- In a **job order cost system**, manufacturing costs are recorded in the period in which they are incurred.
- The costs of raw materials purchased are **debited to Raw Materials Inventory** when the materials are received.
- No effort is made at this point to **associate the cost of materials with specific jobs or orders**.
- On January 4, Wallace Products Inc. purchases **2,000 handles at \$5 per unit (\$10,000)** and **800 modules at \$40 per unit (\$32,000)** for a **total cost of \$42,000**.

Date	Account Titles and Explanation	Debit	Credit
Jan. 4	(1) Raw Materials Inventory Accounts Payable (Purchase of raw materials on account)	42,000	42,000

MATERIALS INVENTORY CARD

- **Raw Materials Inventory is a control account. The subsidiary ledger consists of individual records – in the form of:**
 - 1) mechanically or manually prepared accounts or cards or
 - 2) data files maintained electronically on **disks** or **magnetic tape**

The **card** for **Stock No. AA2746** following the purchase is shown below.

Item: Handles							Part No: AA2746		
	Receipts			Issues			Balance		
Date	Units	Cost	Total	Units	Cost	Total	Units	Cost	Total
1/4	2,000	\$5	\$10,000				2,000	\$5	\$10,000

JOB ORDER COST FLOW

- In a manufacturing company, the cost of factory labor consists of
 - 1) gross earnings of factory workers
 - 2) employer payroll taxes on such earnings
 - 3) fringe benefits incurred by the employer
- Labor costs are debited to **Factory Labor** when they are incurred.
- Wallace Products incurs **\$32,000** of factory labor costs, of which **\$27,000** relates to wages payable and **\$5,000** relates to payroll taxes payable in January. The entry is:

Date	Account Titles and Explanation	Debit	Credit
Jan. 31	(2) Factory Labor Factory Wages Payable Employer Payroll Taxes Payable (To record factory labor costs)	32,000	27,000 5,000

JOB ORDER COST FLOW

- Overhead costs may be recognized **daily**, as in the case of **machinery repairs** and the use of **indirect materials** and **indirect labor**.
- Overhead costs may also be recorded **periodically** through adjusting entries. **Property taxes**, **depreciation**, and **insurance** are recorded periodically.
- A summary entry for January overhead for Wallace Products Company is:

Date	Account Titles and Explanation	Debit	Credit
Jan. 31	<p style="text-align: right;">(3)</p> Manufacturing Overhead Utilities Payable Prepaid Insurance Accounts Payable (for repairs) Accumulated Depreciation Property Taxes Payable (To record overhead costs)	13,800	4,800 2,000 2,600 3,000 1,400

JOB COST SHEET

STUDY OBJECTIVE 3

A **job cost sheet** is a form used to record the costs chargeable to a specific job and to determine the total and unit cost of the completed job. Postings to job cost sheets are made **daily**.

Job Cost Sheet			
Job No. _____	Quantity _____		
Item _____	Date Requested _____		
For _____	Date Completed _____		
Date	Direct Materials	Direct Labor	Manufacturing Overhead
Cost of completed job			
Direct materials			\$ _____
Direct labor			_____
Manufacturing overhead			_____
Total cost			\$ _____
Unit cost (total dollars ÷ quantity)			\$ _____

MATERIALS REQUISITION SLIP

The authorization for issuing raw materials is made on a prenumbered **materials requisition slip**. As shown below, the requisition should indicate whether (1) the quantity and type of materials (direct or indirect) withdrawn and (2) the amount to be charged.

Wallace Manufacturing Company Materials Requisition Slip				
Deliver to:	<u>Assembly Department</u>		Req. No.	<u>R247</u>
Charge to:	<u>Work in Process – Job No. 101</u>		Date	<u>1/6/02</u>
Quantity	Description	Stock No.	Cost Per Unit	Total
200	Handles	AA2746	\$5.00	\$1,000
Requested by: _____		Received by: _____		
Approved by: _____		Costed by: _____		

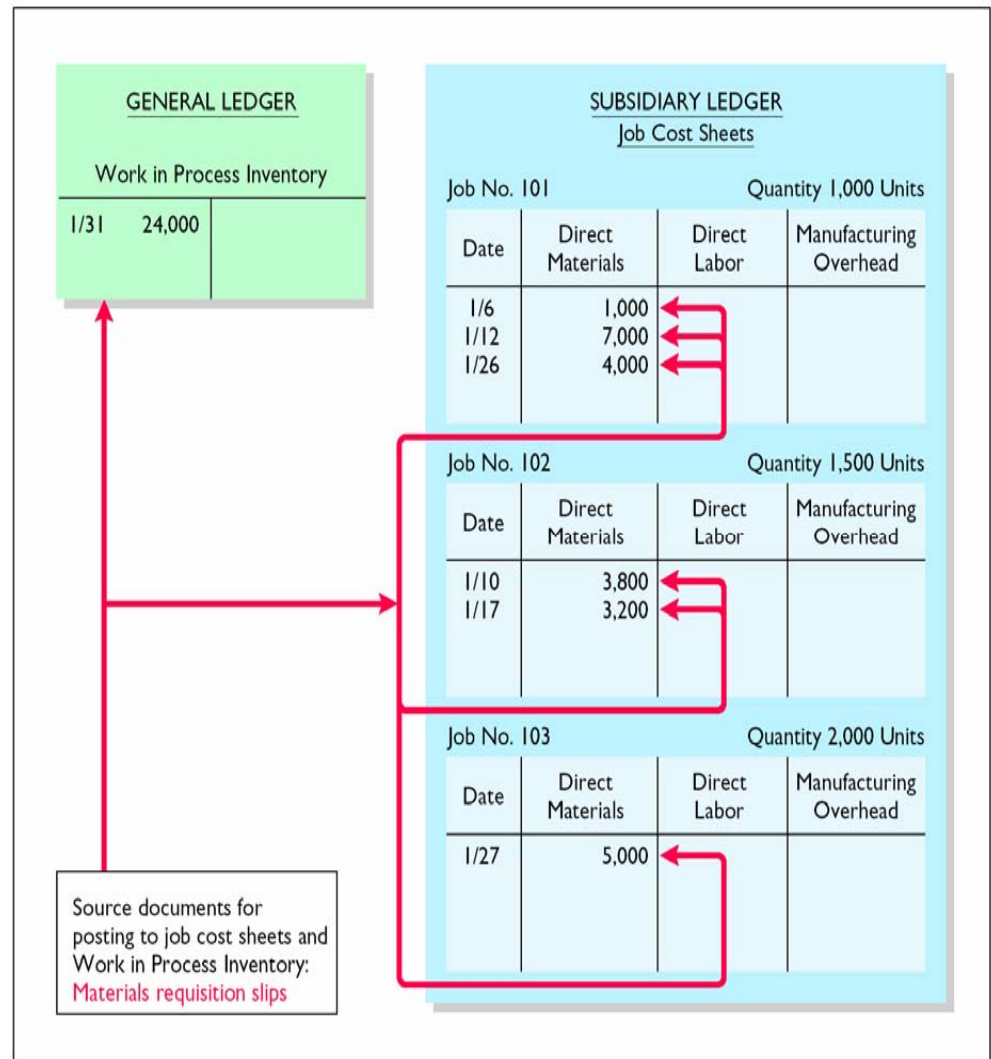
JOB ORDER COST FLOW

- The requisition is prepared in **duplicate**. A copy is retained in the storeroom as evidence of the materials released; the original is sent to accounting, where the cost per unit and total cost of the materials used are determined.
- If **\$24,000** of **direct materials** and **\$6,000** of **indirect materials** are used in Wallace Products in January, the entry is as shown below.

Date	Account Titles and Explanation	Debit	Credit
Jan. 31	<p style="text-align: right;">(4)</p> Work in Process Inventory Manufacturing Overhead Raw Materials Inventory (To assign materials to jobs and overhead)	24,000 6,000	30,000

JOB COST SHEETS- DIRECT MATERIALS

The requisition slips show total direct materials costs of \$12,000 for Job No. 101, \$7,000 for Job No. 102, and \$5,000 for Job No. 103. The posting of requisition slip R247 and other postings to the job cost sheets are shown in this illustration.



MATERIALS INVENTORY CARD FOLLOWING ISSUANCES

The materials inventory record for Part No. AA2746, shows the posting of requisition slip R247 and an assumed requisition slip for 760 handles costing \$3,800 on January 10 for Job 102, is shown below.

Item: Handles

Part No: AA2746

Date	Receipts			Issues			Balance		
	Units	Cost	Total	Units	Cost	Total	Units	Cost	Total
1/4	2,000	\$5	\$10,000				2,000	\$5	\$10,000
1/6				200	\$5	\$1,000	1,800	\$5	9,000
1/10				760	\$5	3,800	1,040	\$5	5,200

TIME TICKET

Factory labor costs are assigned to jobs on the basis of **time tickets** prepared when the work is performed. The **time ticket** should indicate **the employee, the hours worked, the account and job to be charged, and the total labor cost**. Work in Process Inventory is debited for direct labor and Manufacturing Overhead is debited for indirect labor.

Wallace Manufacturing Company Time Ticket

Date: 1/6/05

Employee John Nash
Charge to: Work in Process

Employee No. 124
Job No. 101

Time			Hourly Rate	Total Cost
Start	Stop	Total Hours		
0800	1200	4	10.00	40.00

Approved by Bob Kadler

Costed by M. Cher

JOB ORDER COST FLOW

If the **\$32,000** total factory labor cost incurred in January consists of **\$28,000** of direct labor and **\$4,000** of indirect labor, the entry is as shown below.

Date	Account Titles and Explanation	Debit	Credit
Jan. 31	(5) Work in Process Inventory Manufacturing Overhead Factory Labor (To assign labor to jobs and overhead)	28,000 4,000	32,000

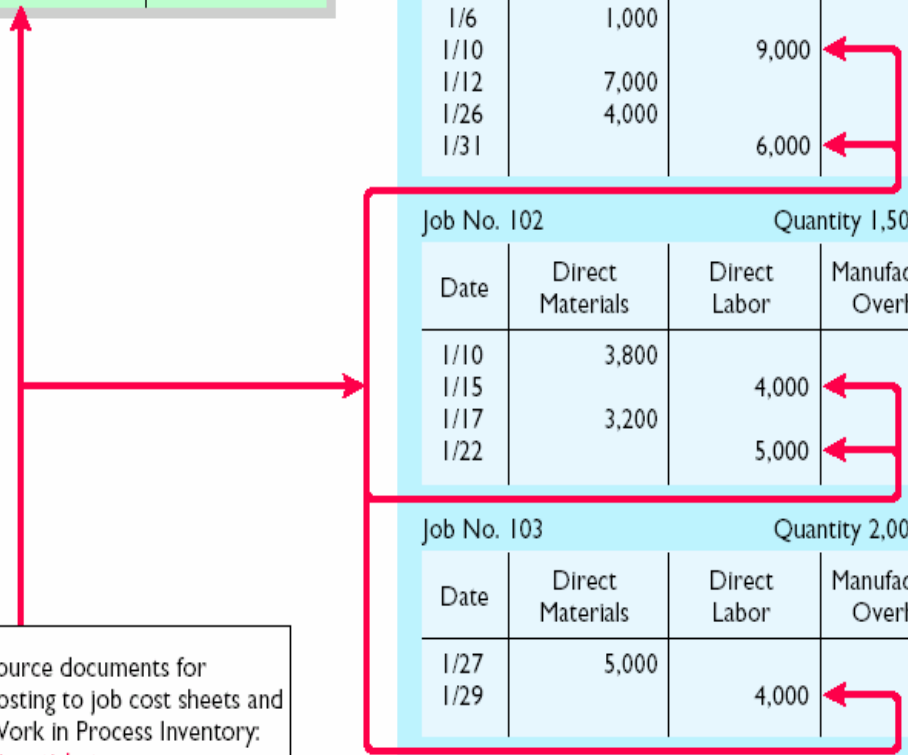
JOB COST SHEETS - DIRECT LABOR

The labor costs chargeable to the three jobs are **\$15,000**, **\$9,000**, and **\$4,000**. The postings to the **direct labor columns** of the **job cost sheets** should equal the **posting of direct labor to Work in Process Inventory**.

GENERAL LEDGER	
Work in Process Inventory	
1/31	24,000
1/31	28,000

SUBSIDIARY LEDGER			
Job Cost Sheets			
Job No. 101		Quantity 1,000 Units	
Date	Direct Materials	Direct Labor	Manufacturing Overhead
1/6	1,000		
1/10		9,000	
1/12	7,000		
1/26	4,000		
1/31		6,000	
Job No. 102		Quantity 1,500 Units	
Date	Direct Materials	Direct Labor	Manufacturing Overhead
1/10	3,800		
1/15		4,000	
1/17	3,200		
1/22		5,000	
Job No. 103		Quantity 2,000 Units	
Date	Direct Materials	Direct Labor	Manufacturing Overhead
1/27	5,000		
1/29		4,000	

Source documents for posting to job cost sheets and Work in Process Inventory:
Time tickets



FORMULA FOR PREDETERMINED OVERHEAD RATE

Study Objective 4

- **Manufacturing overhead is estimated and assigned to work in process and to specific jobs on an estimated bases through a predetermined overhead rate.**
- **This rate is established by the beginning of the year and is based on the relationship between estimated annual overhead costs and expected annual operating activity.**
- **This relationship is expressed in terms of a common activity base such as direct labor costs, direct labor hours, machine hours, or any other measure that will provide an equitable basis for applying overhead costs to jobs.**
- **The formula for the predetermined overhead rate is shown below.**

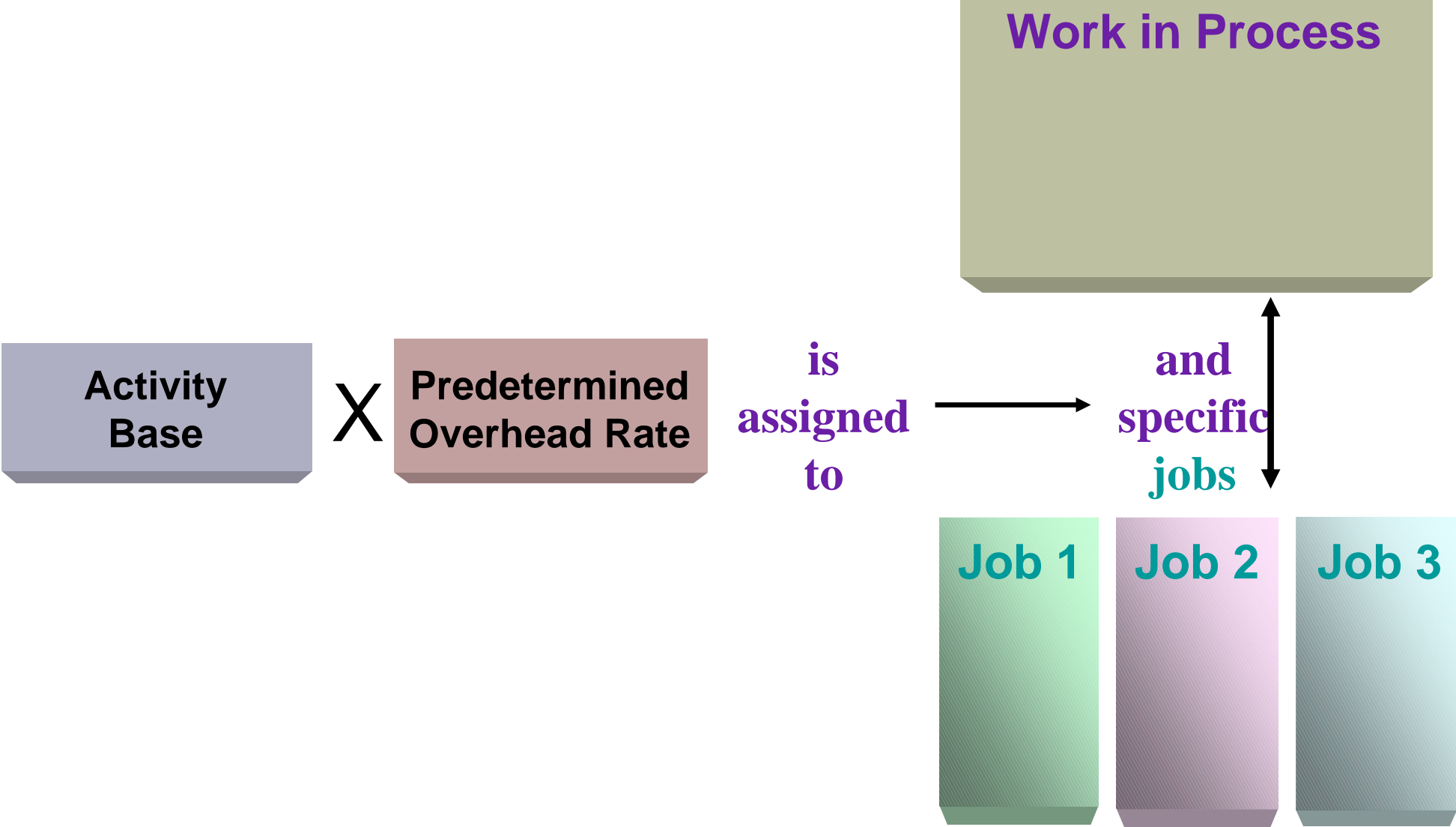
$$\begin{array}{|c|} \hline \text{Estimated Annual} \\ \text{Overhead Costs} \\ \hline \end{array} \div \begin{array}{|c|} \hline \text{Expected Annual} \\ \text{Operating Activity} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Predetermined} \\ \text{Overhead Rate} \\ \hline \end{array}$$

JOB ORDER COST FLOW

- At Wallace Products, **direct labor cost** is the **activity base**.
- Annual **overhead costs** are expected to be **\$280,000** and **\$350,000** of **direct labor costs** are anticipated.
- The **overhead rate** is **80%** ($\$280,000 \div \$350,000$).
- **Overhead applied for January** is **\$22,400** ($\$28,000 \times 80\%$) This application is recorded through the entry below.

Date	Account Titles and Explanation	Debit	Credit
Jan. 31	<div style="text-align: right;">(6)</div> Work in Process Inventory Manufacturing Overhead (To assign overhead to jobs)	22,400	22,400

USING PREDETERMINED OVERHEAD RATES



JOB COST SHEETS

MANUFACTURING OVERHEAD APPLIED

GENERAL LEDGER	
Work in Process Inventory	
1/31	24,000
1/31	28,000
1/31	22,400

SUBSIDIARY LEDGER			
Job Cost Sheets			
Job No. 101		Quantity 1,000 Units	
Date	Direct Materials	Direct Labor	Manufacturing Overhead
1/6	1,000		
1/10		9,000	7,200
1/12	7,000		
1/26	4,000		
1/31		6,000	4,800
Job No. 102		Quantity 1,500 Units	
Date	Direct Materials	Direct Labor	Manufacturing Overhead
1/10	3,800		
1/15		4,000	3,200
1/17	3,200		
1/22		5,000	4,000
Job No. 103		Quantity 2,000 Units	
Date	Direct Materials	Direct Labor	Manufacturing Overhead
1/27	5,000		
1/29		4,000	3,200

Source documents for posting to job cost sheets:
 Predetermined overhead rate
 (80% of direct labor cost)

The debit of \$22,400 to Work in Process Inventory equals the sum of the overhead assigned to jobs:

- Job 101 \$12,000**
- Job 102 \$7,200**
- Job 103 \$3,200.**

PROOF OF JOB COST SHEETS TO WORK IN PROCESS INVENTORY

- At the end of each month, the balance in **Work in Process Inventory** should equal the sum of the costs shown on the job cost sheets of unfinished jobs.
- Assuming that all jobs are unfinished, proof of the agreement of the control and subsidiary accounts in Wallace Products is shown below.

<u>Work in Process Inventory</u>		<u>Job Cost Sheets</u>	
Jan. 31	24,000	No. 101	\$ 39,000
Jan. 31	28,000	102	23,200
Jan. 31	22,400	103	12,200
	<u>74,400</u>		<u>\$ 74,400</u>



COMPLETED JOB COST SHEET

STUDY OBJECTIVE 5

When a job is completed, the costs are summarized and the lower portion of the applicable **job cost sheet** is completed.

If **Job No. 101** is completed on **January 31**, the **job cost sheet** will show the following:

Job Cost Sheet			
Job No.	<u>101</u>	Quantity	<u>1,000</u>
Item	<u>Magnetic Sensors</u>	Date Requested	<u>February 5</u>
For	<u>Tanner Company</u>	Date Completed	<u>January 31</u>
Date	Direct Materials	Direct Labor	Manufacturing Overhead
1/8	\$ 1,000		
1/10		\$ 9,000	\$ 7,200
1/12	7,000		
1/26	4,000		
1/31		6,000	4,800
	\$ 12,000	\$ 15,000	\$ 12,000
Cost of completed job			
Direct materials			\$ 12,000
Direct labor			15,000
Manufacturing overhead			12,000
Total cost			\$ 39,000
Unit cost (\$39,000 ÷ 1,000)			\$ 39.00

JOB ORDER COST FLOW

When a job is finished, an entry is made to transfer its total cost to **Finished Goods Inventory.
The entry for Wallace Products on January 31 is:**

Date	Account Titles and Explanation	Debit	Credit
Jan. 31	(7) Finished Goods Inventory Work in Process Inventory (To record completion of Job No. 101)	39,000	39,000

FINISHED GOODS RECORD

- Finished Goods Inventory is a control account. It controls individual finished goods records in a finished goods subsidiary ledger.
- Postings to the receipts columns are made directly from completed job cost sheets.
- The finished goods inventory record for Job No. 101 is shown below.

Item: Magnetic Sensors							Job No: 101		
Receipts				Issues			Balance		
Date	Units	Cost	Total	Units	Cost	Total	Units	Cost	Total
1/31	1,000	\$39	\$39,000				1,000	\$39	\$39,000

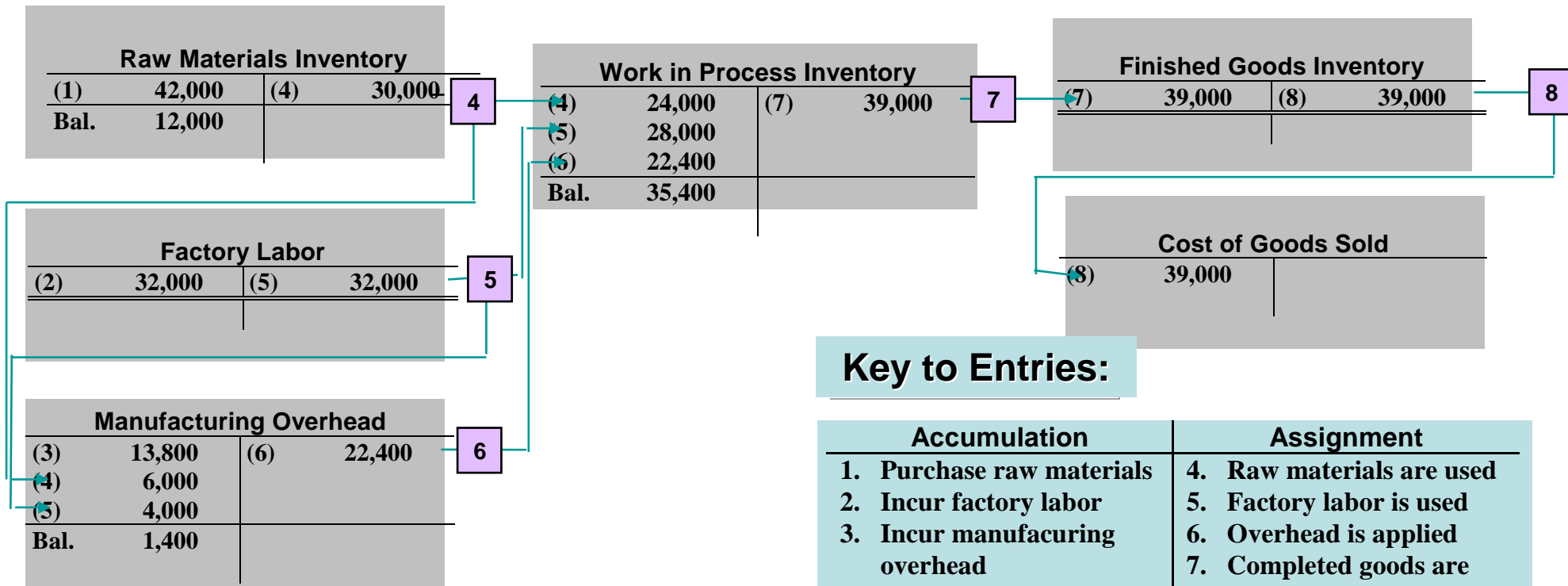
ASSIGNING COSTS TO COST OF GOODS SOLD

- Recognition of the **cost of goods sold** is made when **each sale occurs**.
- On January 31 Wallace Products sells **Job No. 101**, costing **\$39,000**, for **\$50,000**. The entries are:

Date	Account Titles and Explanation (8)	Debit	Credit
Jan. 31	Accounts Receivable Sales (To record sale of Job No. 101)		50,000
31	Cost of Goods Sold Finished Goods Inventory (To record cost of Job No. 101)		50,000
		39,000	39,000

JOB ORDER COST SYSTEM FLOW OF COSTS

Flow of Costs

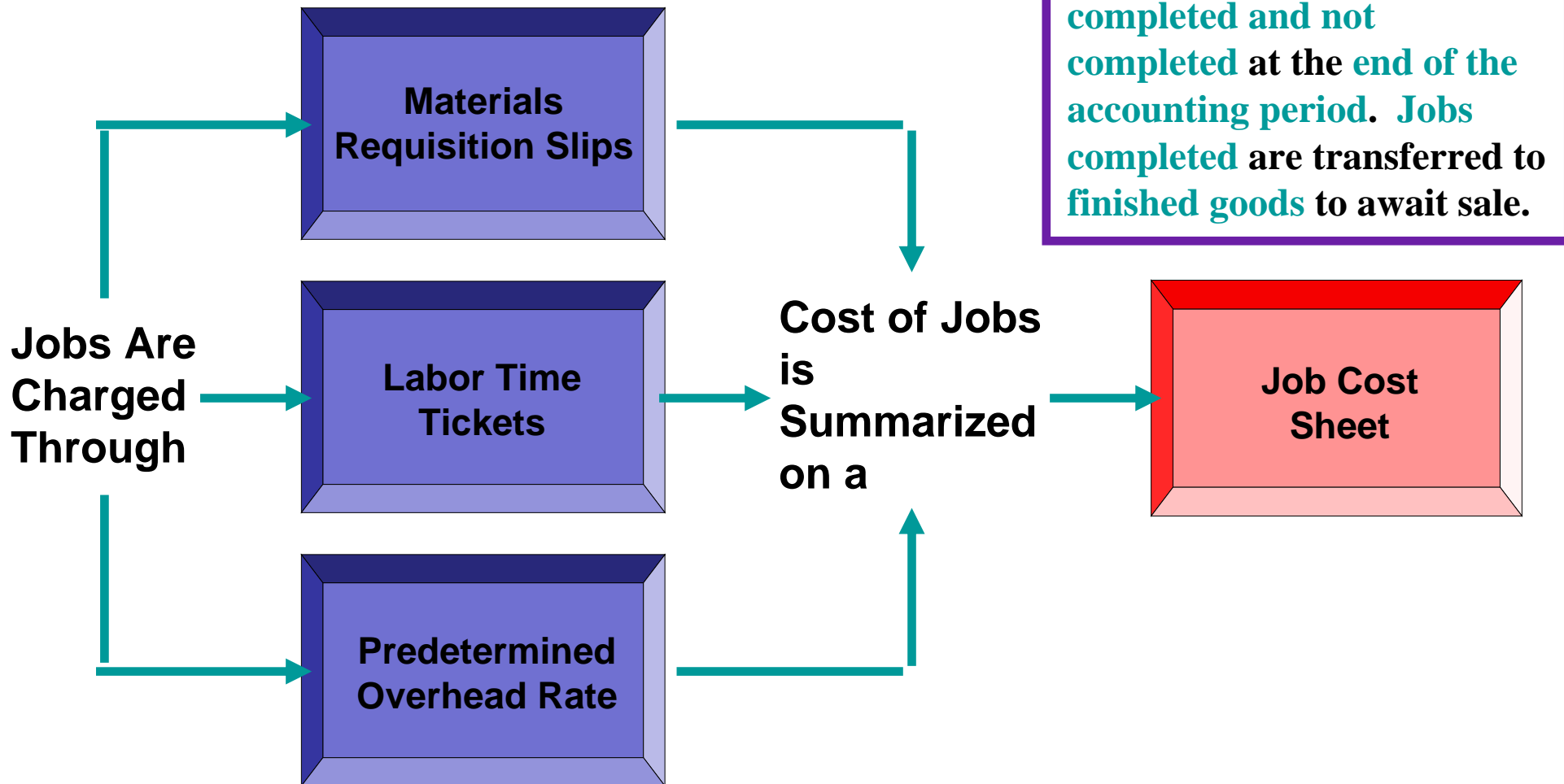


Key to Entries:

Accumulation	Assignment
1. Purchase raw materials	4. Raw materials are used
2. Incur factory labor	5. Factory labor is used
3. Incur manufacturing overhead	6. Overhead is applied
	7. Completed goods are recognized
	8. Cost of goods sold is recognized

FLOW OF DOCUMENTS IN A JOB ORDER COST SYSTEM

Flow of Documents



COST OF GOODS MANUFACTURED SCHEDULE

WALLACE MANUFACTURING COMPANY
Cost of Goods Manufactured Schedule
For the Month Ended January 31, 2005

Work in process inventory, January 1		\$ —
Direct materials used	\$ 24,000	
Direct labor	28,000	
Manufacturing overhead applied	22,400	
Total manufacturing costs		74,400
Total cost of work in process		74,400
Less: Work in process inventory, January 31		35,400
Cost of goods manufactured		\$ 39,000

The **cost of goods manufactured schedule in job order costing** is the same as in **Chapter 20** with **one exception**: **Manufacturing overhead applied**, rather than actual overhead costs, is added to direct materials and direct labor to determine **total manufacturing costs**. The schedule is prepared directly from the **Work in Process Inventory** account.

PARTIAL INCOME STATEMENT

WALLACE PRODUCTS INC.
Income Statement
For the Month Ended January 31, 2005

Sales		\$ 50,000
Less: Cost of goods sold		
Finished goods inventory, January 1	\$ -0-	
Cost of goods manufactured	39,000	
	<hr/>	
Cost of goods available for sale	39,000	
Finished goods inventory, January 31	-0-	
	<hr/>	
Cost of goods sold		39,000
		<hr/>
Gross profit		\$ 11,000
		<hr/> <hr/>

The **cost of goods manufactured (\$39,000)** agrees with the amount transferred from **Work in Process Inventory** to **Finished Goods Inventory** in **journal entry No. 7** in **Illustration 21-18**.

UNDER- OR OVERAPPLIED MANUFACTURING OVERHEAD

STUDY OBJECTIVE 6

- **Underapplied overhead means that**
 - 1) **manufacturing overhead has a debit balance.**
 - 2) **the overhead assigned to work in process is less than the overhead incurred.**
- **Overapplied overhead means that**
 - 1) **manufacturing overhead has a credit balance.**
 - 2) **the overhead assigned to work in process is greater than the overhead incurred.**

UNDER- OR OVERAPPLIED MANUFACTURING OVERHEAD

- **The existence of under- or overapplied overhead at the end of a month usually does not require corrective action by management.**
- **Under- or overapplied overhead is on the monthly balance sheet:**
 - 1) underapplied overhead is a prepaid expense (current asset).**
 - 2) overapplied overhead is unearned revenue (current liability).**

UNDER- OR OVERAPPLIED OVERHEAD



<u>Manufacturing Overhead</u>	
Actual (Costs incurred)	Applied (Costs assigned)

If actual is **greater** than applied, manufacturing overhead is underapplied.

If actual is **less** than applied, manufacturing overhead is overapplied.

UNDER- OR OVERAPPLIED MANUFACTURING OVERHEAD

- Any year-end balance in Manufacturing Overhead is eliminated by an adjusting entry.
- Under- or overapplied overhead is usually considered to be an adjustment to cost of goods sold.
- Thus, underapplied overhead is debited to Cost of Goods Sold and overapplied overhead is credited to Cost of Goods Sold.
- Wallace Products has a \$2,500 credit balance in Manufacturing Overhead at December 31. The adjusting entry for the overapplied overhead is shown below.

Date	Account Titles and Explanation	Debit	Credit
Dec. 31	Manufacturing Overhead Cost of Goods Sold (To transfer overapplied overhead to cost of goods sold)	2,500	2,500

Review

Work in Process Inventory is debited for all of the following except:

- a. raw materials used.
- b. manufacturing overhead incurred.
- c. manufacturing overhead applied.
- d. factory labor used.

Review

Work in Process Inventory is debited for all of the following except:

- a. raw materials used.
- b. manufacturing overhead incurred.
- c. manufacturing overhead applied.
- d. factory labor used.

JOB ORDER COST ACCOUNTING



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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 22

Process Cost Accounting

Prepared by Naomi Karolinski
Monroe Community College

and

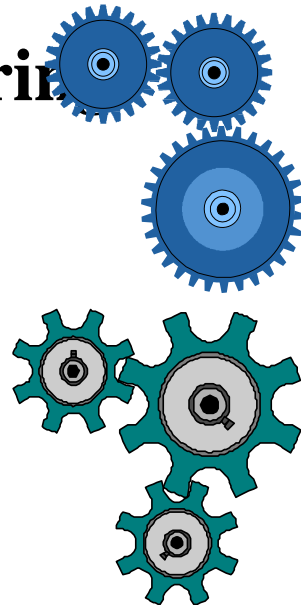
Marianne Bradford
Bryant College

CHAPTER 22

PROCESS COST ACCOUNTING

After studying this chapter, you should be able to:

- 1 Understand who uses process cost systems.**
- 2 Explain the similarities and differences between job order cost and process cost systems.**
- 3 Explain the flow of costs in a process cost system.**
- 4 Make the journal entries to assign manufacturing costs in a process cost system.**
- 5 Compute equivalent units.**

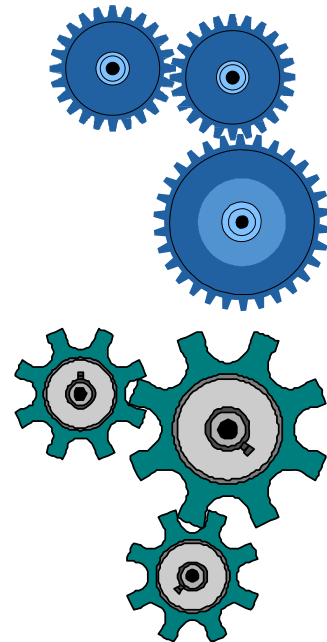


CHAPTER 22

PROCESS COST ACCOUNTING

After studying this chapter, you should be able to:

- 6** Explain the four steps necessary to prepare a production cost report.
- 7** Prepare a production cost report.
- 8** Explain just-in-time processing.
- 9** Explain activity-based-costing.



THE NATURE OF PROCESS COST SYSTEMS

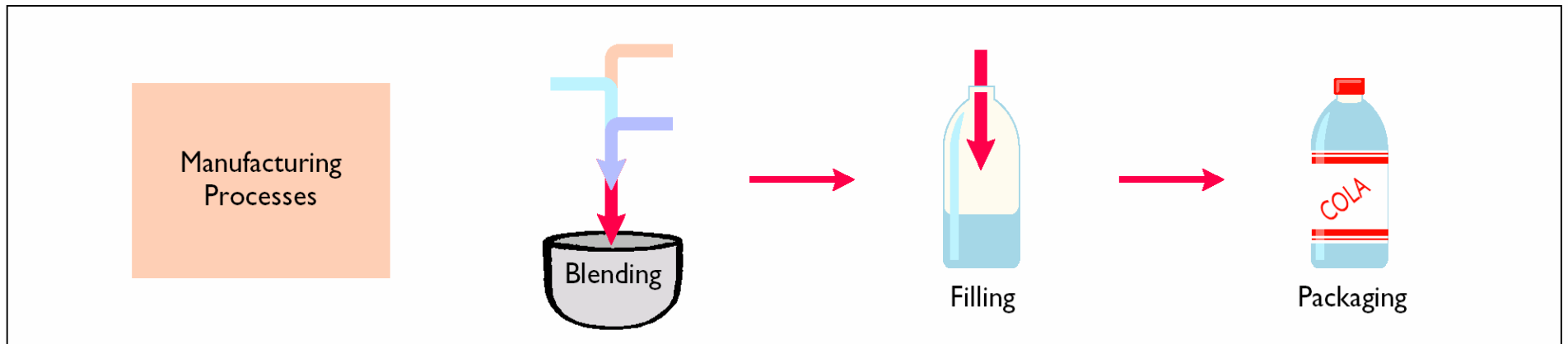
STUDY OBJECTIVE 1

Process cost systems

- **used to apply costs to similar products that are mass produced in a continuous fashion.**
- **tracked through a series of connected manufacturing processes or departments.**

MANUFACTURING PROCESSES

A **process cost accounting system** is used for continuous process manufacturing, and it is necessary to record both the **accumulation** and **assignment** of manufacturing costs. A distinctive feature of process cost accounting is that **individual Work in Process Inventory accounts are maintained for each production department or manufacturing process**. In a beverage company, there would be a **Work in Process Inventory** account for each of the manufacturing processes, as illustrated below:



Review

In a process cost system, costs are assigned only:

- a. to one work in process account.
- b. to work in process and finished goods inventory.
- c. to work in process, finished goods, and cost of goods sold.
- d. to work in process accounts.

Review

In a process cost system, costs are assigned only:

- a. to one work in process account.
- b. to work in process and finished goods inventory.
- c. to work in process, finished goods, and cost of goods sold.
- d. to work in process accounts.

SIMILARITIES BETWEEN JOB ORDER COST AND PROCESS COST SYSTEMS

STUDY OBJECTIVE 2

Job order and process cost systems are similar in three ways:









- 1. Manufacturing cost elements**
- 2. Accumulation of the costs of materials, labor, and overhead**
- 3. Flow of costs**
 - methods of assigning costs differ significantly**

DIFFERENCES BETWEEN JOB ORDER COST AND PROCESS COST SYSTEMS

Job order and **process cost systems** are *different* in four ways:

- 1. Number of work in process accounts used.**
- 2. Documents used.**
- 3. Point at which costs are totaled.**
- 4. Unit cost computations.**

DIFFERENCES BETWEEN JOB ORDER COST AND PROCESS COST SYSTEMS

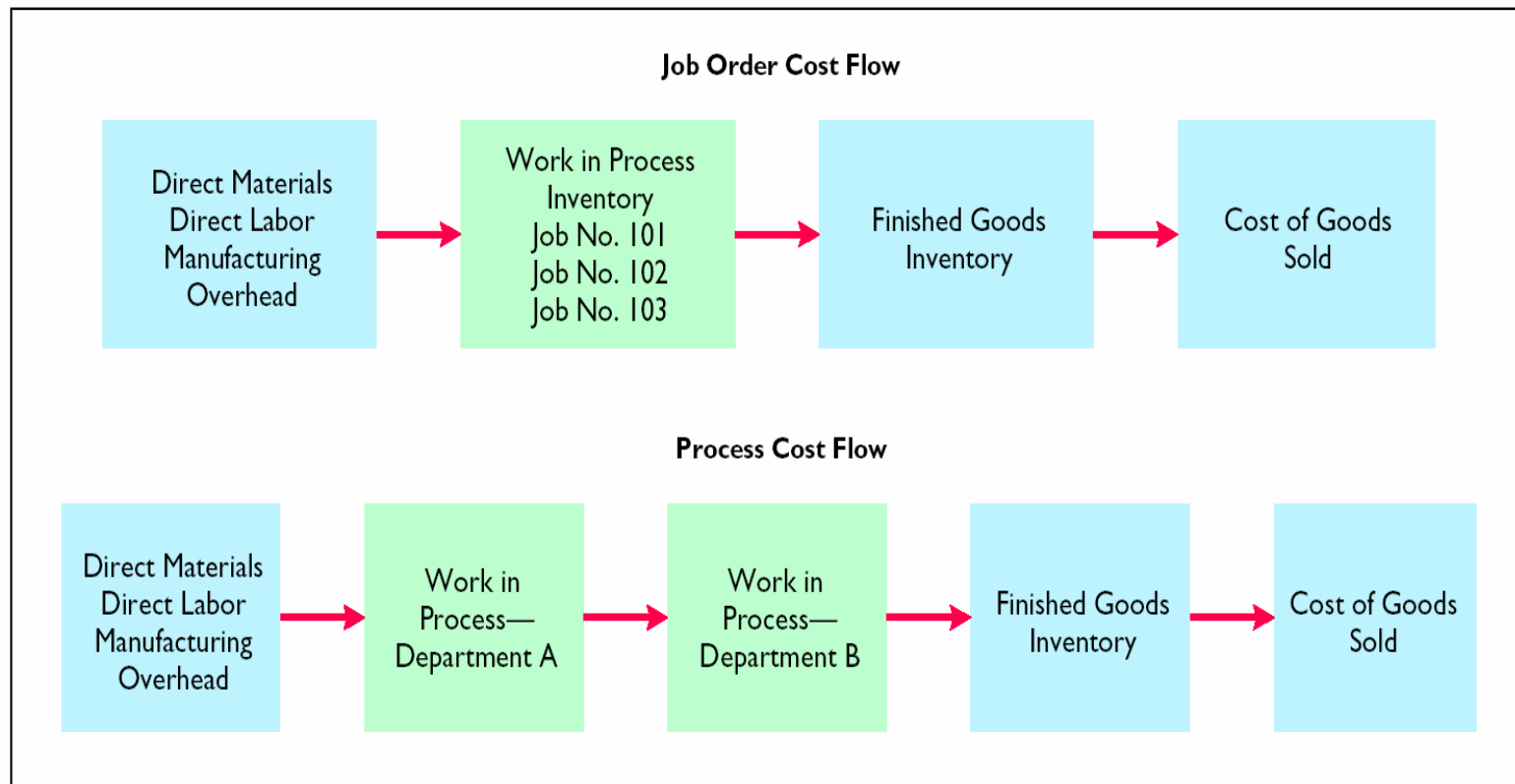
Process Cost System Company	Product	Job Order Cost System Company	Product
Coca-Cola, PepsiCo	Soft drinks 	Young & Rubicam, J. Walter Thompson	Advertising 
ExxonMobil, Shell Oil	Oil 	Walt Disney, Warner Brothers	Motion pictures 
Intel, Advanced Micro Devices	Computer chips 	Center Ice Consultants, Ice Pro	Ice rinks 
Dow Chemical, DuPont	Chemicals 	Kaiser, Mayo Clinic	Patient health care 

JOB ORDER VERSUS PROCESS COST ACCOUNTING

- A feature of process costing is that **costs charged to work in process** are summarized in **production cost reports**.
- **Unit costs** are calculated by dividing **total manufacturing costs for the period** by the **units produced during the period**.
- The major differences between job order cost accounting and process cost accounting are summarized below:

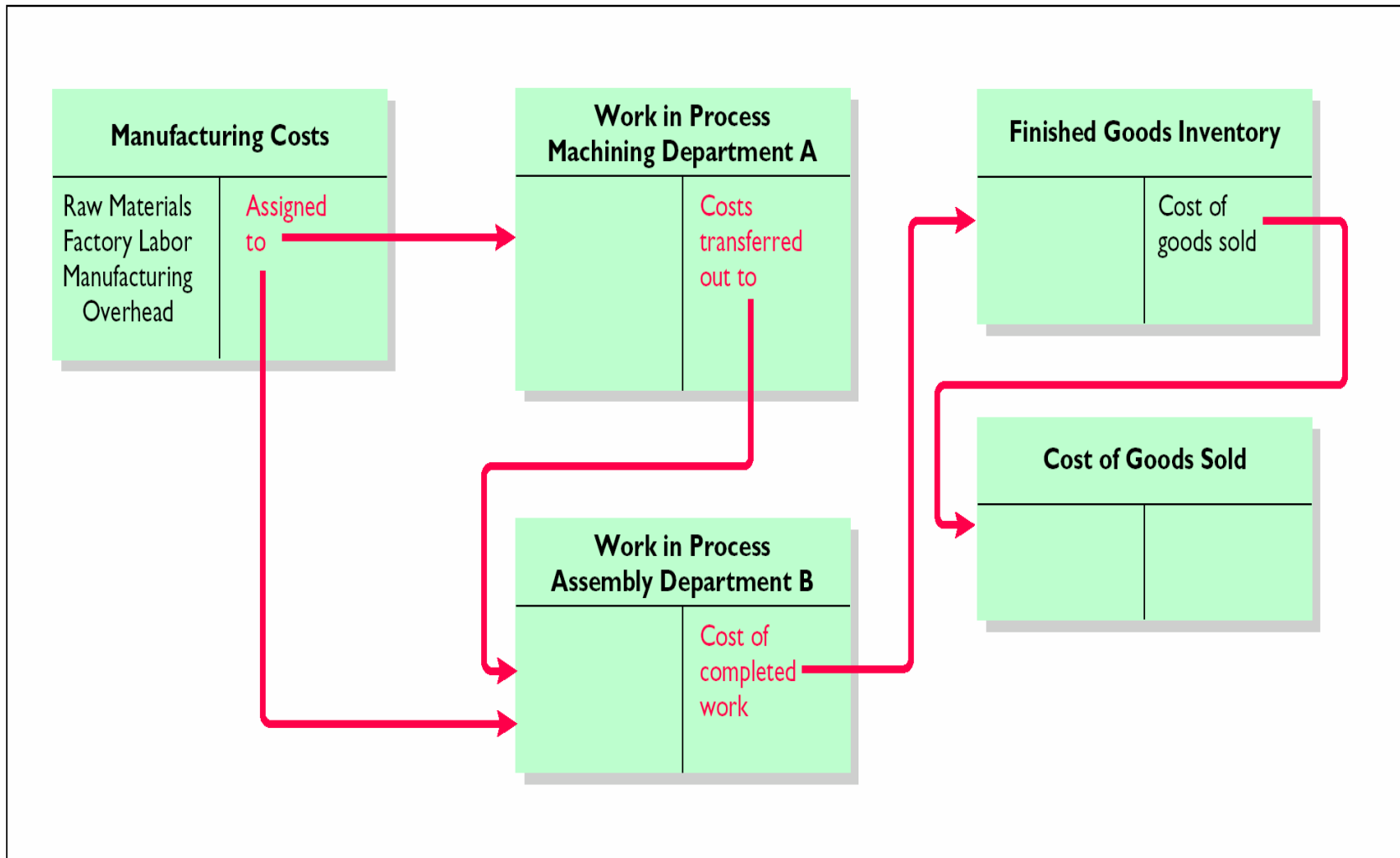
Feature	Job Order Cost Accounting	Process Cost Accounting
• Work in process accounts	One for each job	One for each process
• Summary of manufacturing costs	Job cost sheets	Production cost reports
• Determination of total manufacturing costs	Each job	Each period
• Unit cost computation	Cost of each job ÷ Units produced for the job	Total manufacturing costs ÷ Units produced during the period

JOB ORDER VERSUS PROCESS COST ACCOUNTING



FLOW OF COSTS IN PROCESS COST SYSTEMS

STUDY OBJECTIVE 3



PROCESS COST FLOW

ACCUMULATION OF MANUFACTURING COSTS

The accumulation of **materials** and **labor** costs is the **same in process costing** as in job order costing.

- All raw materials are debited to **Raw Materials Inventory** when the materials are purchased.
- All factory labor is debited to **Factory Labor** when the labor costs are incurred.

PROCESS COST FLOW

ASSIGNMENT OF MATERIAL COSTS

STUDY OBJECTIVE 4

- In a **process cost system**, **fewer materials requisition slips** are usually required than in a job order cost system, since **materials are used for processes** rather than for specific jobs.
- At Hershey, materials are entered at the beginning of each process.
- The entry to record the materials used during June is:

Date	Account Titles and Explanation	Debit	Credit
June 30	Work in Process – Machining Work in Process – Assembly Raw Materials Inventory (To record materials used)	XXXX XXXX	XXXX

PROCESS COST FLOW

ASSIGNMENT OF FACTORY LABOR COSTS

- In **process costing**, as in job order costing, **time tickets** may be used to determine the cost of labor assignable to the production departments.
- The labor cost chargeable to a process can be obtained from the **payroll register** or **departmental payroll summaries**.
- The entry to assign these costs for June is:

Date	Account Titles and Explanation	Debit	Credit
June 30	Work in Process – Machining	XXXX	
	Work in Process – Assembly	XXXX	
	Factory Labor		XXXX
	(To assign factory labor to production)		

PROCESS COST FLOW

ASSIGNMENT OF MANUFACTURING OVERHEAD COSTS

- In **process cost accounting**, the objective in assigning overhead is to allocate the overhead costs to the production departments on an **objective and equitable basis**.
- That basis is the activity that “drives” or causes the costs.
- A primary driver of overhead costs in continuous manufacturing operations is machine time used, not direct labor.
- The entry to allocate overhead for June to the **two processes** is:

Date	Account Titles and Explanation	Debit	Credit
June 30	Work in Process– Machining Work in Process– Assembly Manufacturing Overhead (To assign overhead to processes)	XXXX XXXX	XXXX

PROCESS COST FLOW

TRANSFER TO NEXT DEPARTMENT

- **At the end of June, an entry is needed to record the cost of the goods transferred out of the Machining Department.**
- **The transfer is to the Assembly Department and the following entry is made:**

Date	Account Titles and Explanation	Debit	Credit
June 30	Work in Process– Assembly Work in Process– Machining (To record transfer of units to the Assembly Department)	XXXX	XXXX

PROCESS COST FLOW

TRANSFER TO FINISHED GOODS

- **The units completed in the Assembly Department during June are transferred to the finished goods warehouse.**
- **The entry for this transfer is as follows:**

Date	Account Titles and Explanation	Debit	Credit
June 30	Finished Goods Inventory Work in Process- Assembly (To record transfer of units to finished goods)	XXXX	XXXX

PROCESS COST FLOW

TRANSFER TO COST OF GOODS SOLD

The entry to record the cost of goods sold during June is as follows:

Date	Account Titles and Explanation	Debit	Credit
June 30	Cost of Goods Sold Finished Goods Inventory (To record cost of units sold)	XXXX	XXXX

END-OF-PERIOD PROCEDURES MACHINING DEPARTMENT

- By the end of the period Hershey has accumulated the **materials, labor, and overhead** costs in each production department's **Work in Process** account.
- These accumulated costs must now be assigned to
 - the **units transferred out of each department** and
 - the **units in the ending Work in Process in each department**.
- The procedures used in calculating and assigning the costs present the most difficult challenge to your understanding of process cost accounting.

EQUIVALENT UNITS

STUDY OBJECTIVE 5

- **Equivalent units of production**
 - the work done during the period on the physical units of output, expressed in terms of fully completed units.
 - are determined by applying the percentage of work done to the physical units of output.
- **Equivalent units are the sum of the work performed to:**
 - **Finish the units of beginning work in process inventory.**
 - **Complete the units started into production during the period.**
 - **Start, but only partially complete, the units in ending work in process inventory.**

INFORMATION FOR FULL-TIME STUDENT EXAMPLE

- **Suppose you were asked to compute the cost of instruction at your college per full-time equivalent student. You are provided with the following information.**

Costs:			
Total cost of instruction			\$900,000
Student population:			
Full-time students			900
Part-time students			1,000

- **Part-time students take 60 percent of the classes of a full-time student during the year.**
- **To compute the number of full-time equivalent students per year, you would make the following computation:**

FULL-TIME EQUIVALENT UNIT COMPUTATION



$$900 + (60\% \times 1,000) = 1,500$$

The cost of instruction per full-time equivalent student is therefore the total cost of instruction (\$900,000) divided by the number of full-time equivalent students (1,500), which is **\$600** ($\$900,000/1,500$).

EQUIVALENT UNITS OF PRODUCTION FORMULA



The formula to compute equivalent units of production is shown above. This method of computing equivalent units is referred to as the **weighted average method**. It considers the degree of completion (weighting) of the units completed and transferred out and the ending work in process. It is the method most widely used in practice.

INFORMATION FOR MIXING DEPARTMENT

Mixing Department				
			<u>Percentage Complete</u>	
		<u>Physical Units</u>	<u>Materials</u>	<u>Conversion Costs</u>
Work In process, June 1		100,000	100%	70%
Started into production		<u>800,000</u>		
Total Units		<u>900,000</u>		
Units transferred out		700,000		
Work in process, June 30		<u>200,000</u>	100%	60%
Total Units		<u>900,000</u>		

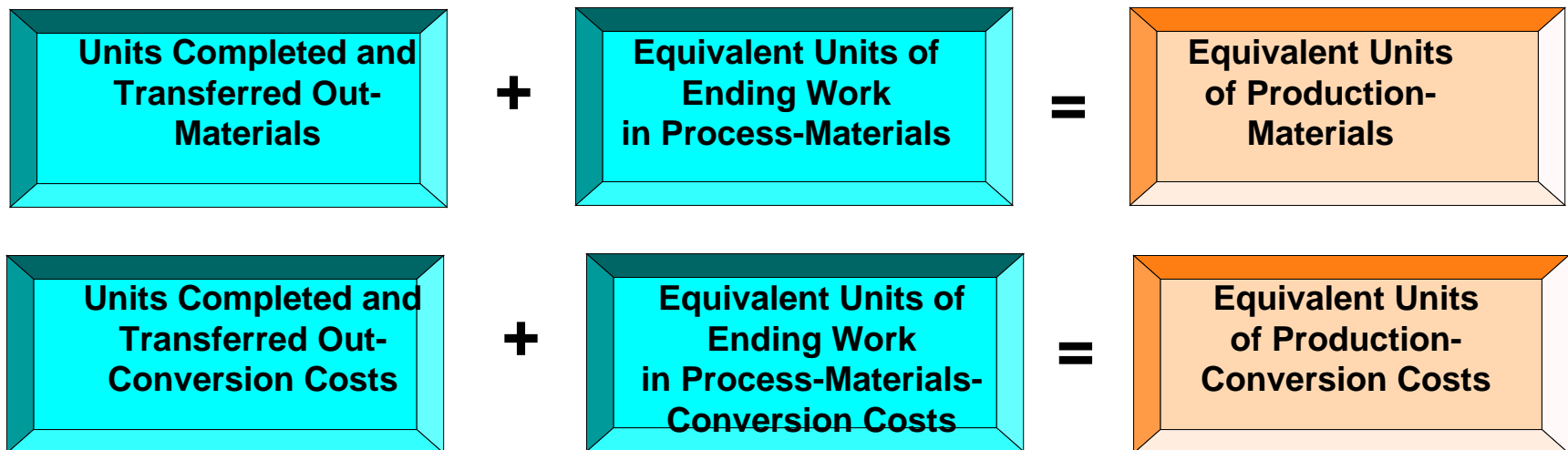
Assume the beginning work in process is 100% complete as to materials cost and 70% complete as to conversion costs. The ending work in process is 100% complete as to materials cost and 60% complete as to conversion cost.

COMPUTATION OF EQUIVALENT UNITS MIXING DEPARTMENT

	<u>Equivalent Units</u>		
	<u>Materials</u>	<u>Conversion Costs</u>	
Units transferred out	700,000	700,000	
Work in progress, June 30			
200,000 X 100%	200,000		
200,000 X 60%		120,000	
	<u>900,000</u>	<u>820,000</u>	

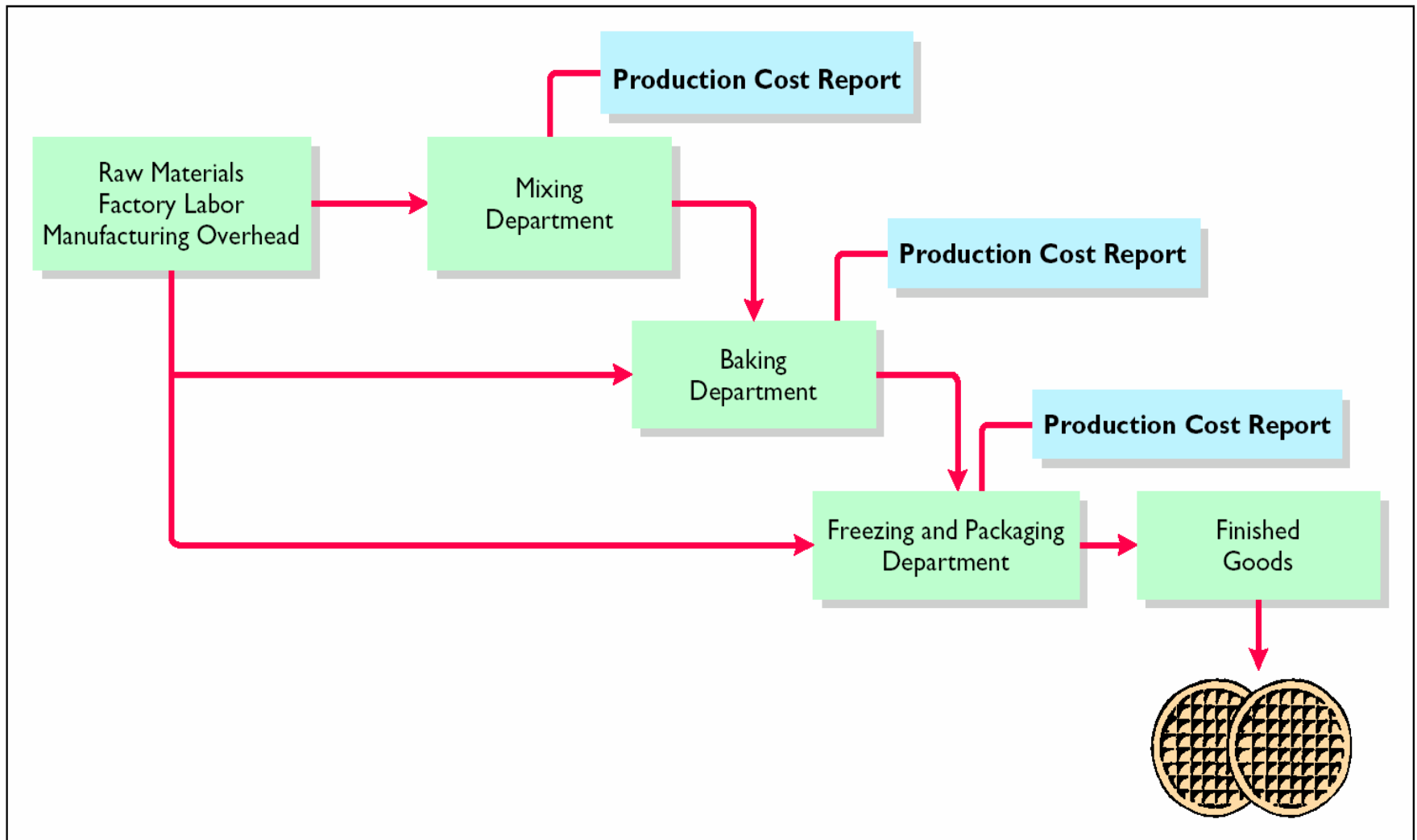
In computing equivalent units, the beginning work in process is not part of the equivalent units of production formula. The units transferred out to the Baking Department are fully complete as to both materials and conversion costs. The ending work in process is fully complete as to materials, but only 60% complete as to conversion costs. Two equivalent unit computations are therefore necessary.

REFINED EQUIVALENT UNITS OF PRODUCTION FORMULA



The earlier formula used to compute equivalent units of production can be refined to show the computations for materials and for conversion costs as shown above.

FLOW OF COSTS IN MAKING EGGO WAFFLES



END-OF-PERIOD PROCEDURES MACHINING DEPARTMENT

For each process, it is necessary to perform the following procedures at the end of the period:

- 1 Calculate the physical units.**
- 2 Calculate equivalent units of production.**
- 3 Calculate unit costs of production.**
- 4 Assign costs to the units transferred and in process.**
- 5 Prepare the production cost report.**



COMPREHENSIVE EXAMPLE OF PROCESS COSTING

STUDY OBJECTIVE 6

Data for the **Mixing Department** at Eggo Waffles for the month of June are shown on the next slide. The data will be used to complete a production cost report for the **Mixing Department**.

UNIT & COST DATA MIXING DEPARTMENT

<u>Mixing Department</u>			
Units :			
Work in process, June 1			100,000
Direct materials: 100% complete			
Conversion costs: 70% complete			
Units started into production in June			800,000
Units completed and transferred out to Baking Department			700,000
Work in process, June 30			200,000
Direct materials 100% complete			
Conversion costs 60% complete			
Costs :			
Work in process, June 1			
Direct materials: 100% complete			\$50,000
Conversion Costs: 70% complete			<u>\$35,000</u>
Cost of work in process, June 1			\$85,000
Costs incurred during production in June			
Direct Materials			\$400,000
Conversion Costs			<u>\$170,000</u>
Costs incurred in June			\$570,000

PHYSICAL UNIT FLOW- MIXING DEPARTMENT -STEP 1

Physical units are the actual units to be accounted for during a period, irrespective of any work performed. To keep track of these units, it is necessary to add the units started (or transferred) into production during the period to the units in process at the beginning of the period. This amount is referred to as the total units to be accounted for. In the **Mixing Department, 900,000 units must be accounted for.**

		<u>Mixing Department</u>	
			<u>Physical Units</u>
Units to be accounted for			
Work in process, June 1			100,000
Started (transferred) into production			<u>800,000</u>
Total Units			<u>900,000</u>
Units accounted for			
Completed and transfered out			700,000
Work in process, June 30			<u>200,000</u>
Total Units			<u>900,000</u>

COMPUTATION OF EQUIVALENT UNITS

MIXING DEPARTMENT-STEP 2

Once the physical flow of the units is established, it is necessary to measure the Mixing Department's productivity in terms of equivalent units of production. The equivalent unit computation is as follows:

	<u>Equivalent Units</u>		
	<u>Materials</u>	<u>Conversion Costs</u>	
Units transferred out	700,000	700,000	
Work in process, June 30			
200,000 X 100%	200,000		
200,000 X 60%		<u>120,000</u>	
Total equivalent Units	<u>900,000</u>	<u>820,000</u>	

MATERIALS COST COMPUTATION- STEP 3

Unit production costs are costs expressed in terms of equivalent units of production. When equivalent units of production are different for materials and conversion costs, three unit costs are computed: (1) materials, (2) conversion, and (3) total manufacturing. The computation for Eggo Waffles is as follows:

Work in process, June 1			\$50,000
Direct materials cost			
Costs added to production during June			
Direct materials cost			\$400,000
Total materials cost			<u>\$450,000</u>

CONVERSION COSTS COMPUTATION

The computation of total conversion costs is as follows:

Work in process, June 1		
Conversion costs		\$35,000
Costs added to production during June		
Conversion costs		\$170,000
Total conversion costs		<u>\$205,000</u>

COSTS CHARGED TO MIXING DEPARTMENT – STEP 4

The total costs that were charged to the Mixing Department in June are as follows:

Costs to be accounted for	
Work in process, June 1	\$85,000
Started into production	\$570,000
Total costs	<u>\$655,000</u>

PRODUCTION COST REPORT

STUDY OBJECTIVE 7

		Mixing Department Production Cost Report For the Month Ended June 30, 2005				
				<u>Equivalent Units</u>		
		<u>Physical Units</u>	<u>Materials</u>	<u>Conversion Costs</u>		
<u>Quantities</u>		Step 1	Step 2			
Units to be accounted for						
Work in process, June 1		100,000				
Started into production		<u>800,000</u>				
Total Units		<u>900,000</u>				
Units accounted for						
Transferred out		700,000	700,000	700,000		
Work in process, June 30		200,000	200,000	120,000	(200,000 X 60%)	
Total units		<u>900,000</u>	<u>900,000</u>	<u>820,000</u>		

PRODUCTION COST REPORT

Mixing Department Production Cost Report For the Month Ended June 30, 2005					
<u>Equivalent Units</u>					
<u>Costs</u>		<u>Materials</u>	<u>Conversion Costs</u>		<u>Total</u>
Unit costs Step 3					
Costs in June		(a) \$450,000	\$205,000		\$ 655,000
Equivalent Units		(b) 900,000	820,000		
Unit costs [(a) / (b)]		\$0.50	\$0.25		\$0.75
Costs to be accounted for					
Work in process, June 1					\$ 85,000
Started into production					\$ 570,000
Total costs					\$ 655,000

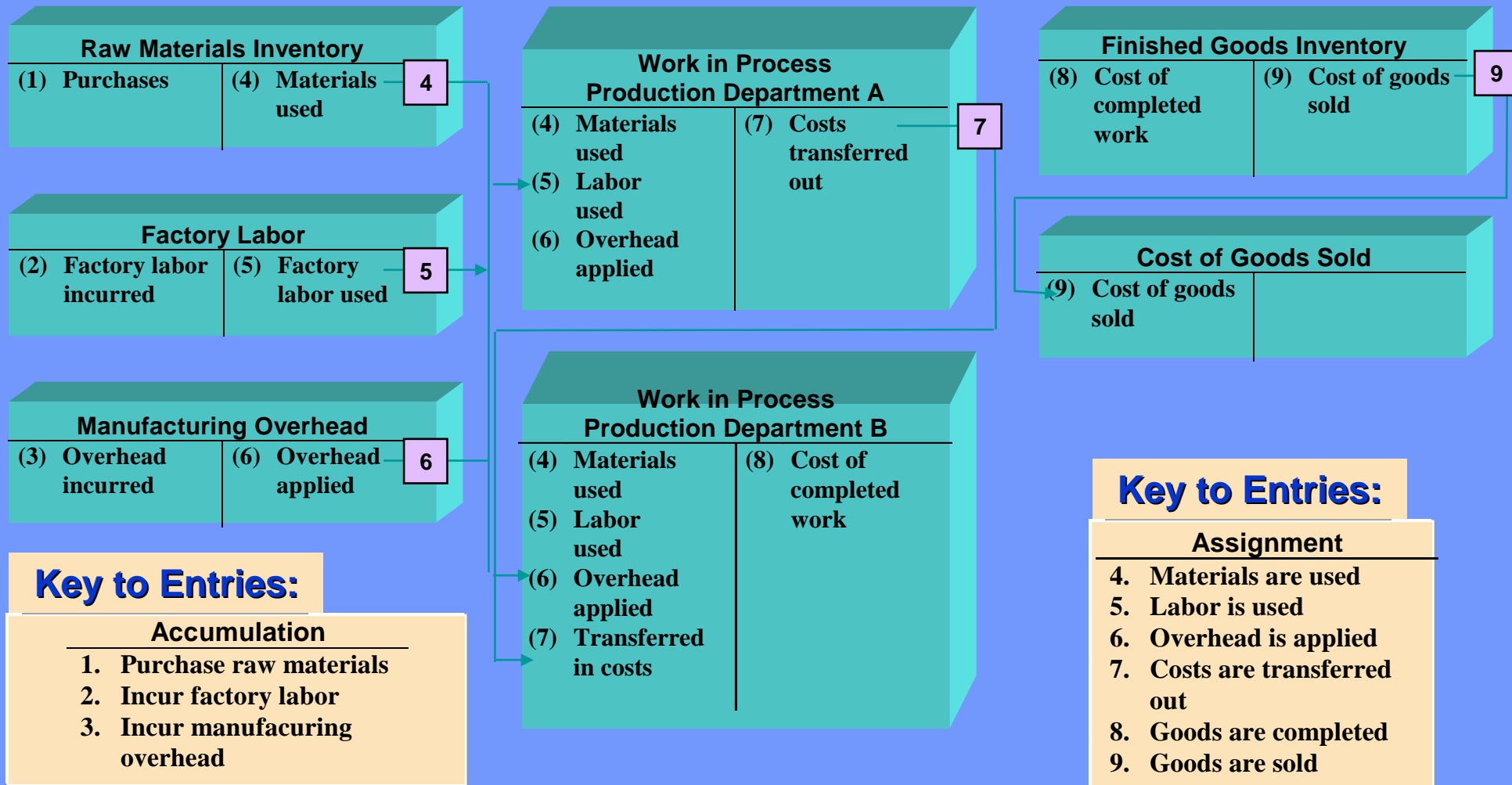
COST RECONCILIATION SCHEDULE MIXING DEPARTMENT

The total costs charged to the Mixing Department in June are therefore \$655,000. A cost reconciliation schedule is then prepared to assign the costs to (1) units transferred out to the Baking Department and (2) ending work in process.

Mixing Department			
Cost Reconciliation Schedule			
Costs accounted for			
Transferred out (700,000 X \$0.75)			\$525,000
Work in process, June 30			
Materials (200,000 X \$0.50)		\$100,000	
Conversion Costs (120,000 X \$0.25)		\$ 30,000	\$ 130,000
Total costs			\$655,000

FLOW OF COSTS IN PROCESS COST ACCOUNTING

Process Cost Accounting



Review

The cost reconciliation schedule shows that the total:

- a. units to be accounted for equal the total units accounted for.
- b. costs accounted for equal the total costs to be accounted for.
- c. units to be accounted for equal the total costs to be accounted for.
- d. costs accounted for equal the total units accounted for.

Review

The cost reconciliation schedule shows that the total:

- a. units to be accounted for equal the total units accounted for.
- b. costs accounted for equal the total costs to be accounted for.
- c. units to be accounted for equal the total costs to be accounted for.
- d. costs accounted for equal the total units accounted for.

CONTEMPORARY DEVELOPMENTS JUST-IN-TIME PROCESSING

STUDY OBJECTIVE 8

- **Primary objective:**

- **Eliminate all manufacturing inventories.**
- **Inventories can have an adverse effect on net income because of their high storage and maintenance costs.**

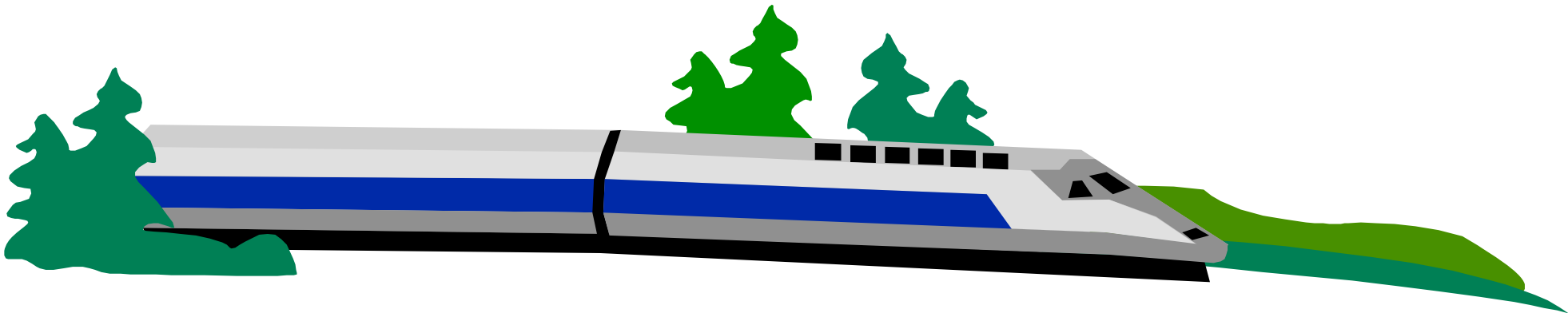
- **There are 3 important elements:**

- **Dependable suppliers**
- **Multi-skilled work force**
- **A total quality control system**

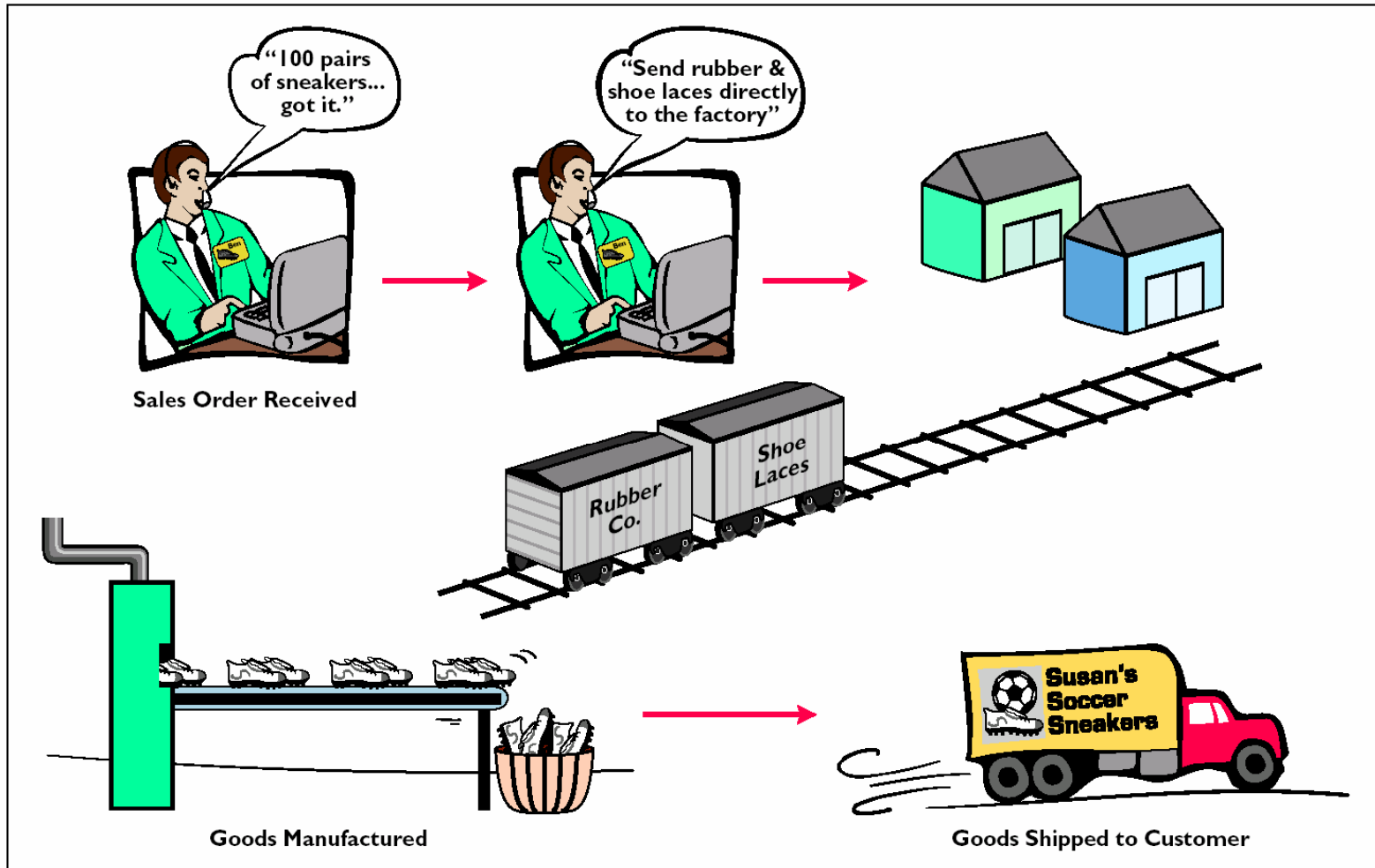
CONTEMPORARY DEVELOPMENTS JUST-IN-TIME PROCESSING

Major Benefits:

- **Manufacturing inventories significantly reduced or eliminated.**
- **Product quality enhanced.**
- **Rework costs and inventory storage costs reduced or eliminated.**
- **Production cost savings are realized from the improved flow of goods through the processes.**



JUST-IN-TIME PROCESSING



ACTIVITIES AND COST DRIVERS IN ABC

STUDY OBJECTIVE 9

Activity-based costing (ABC) focuses on the activities performed in producing a product. In **ABC**, the cost of a product is equal to the sum of the costs of all activities performed to manufacture it.

Activity	Cost Driver
Ordering raw materials	Ordering hours; number of orders
Receiving raw materials	Receiving hours; number of shipments
Materials handling	Number of requisitions; weight of materials; handling hours
Production scheduling	Number of orders
Machine setups	Setup hours; number of setups
Machining (fabricating, assembling, etc.)	Machine hours
Quality control inspections	Number of inspections
Factory supervision	Number of employees

CONTEMPORARY DEVELOPMENTS

ACTIVITY-BASED COSTING

Two important assumptions must be met in order to obtain accurate product costs under **ABC**:

- **All overhead costs related to the activity must be driven by the cost driver used to assign costs to products.**
- **All overhead costs related to the activity should respond proportionally to changes in the activity level of the cost driver.**

ABC

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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 23

Cost-Volume-Profit Relationships

Prepared by Naomi Karolinski
Monroe Community College

and

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Bryant College

CHAPTER 23

COST-VOLUME-PROFIT RELATIONSHIPS

After studying this chapter, you should be able to:

- 1 Distinguish between variable and fixed costs.**
- 2 Explain the significance of the relevant range.**
- 3 Explain the concept of mixed costs.**
- 4 List the five components of cost-volume-profit analysis.**
- 5 Indicate what contribution margin is and how it may be expressed.**

CHAPTER 23

COST-VOLUME-PROFIT RELATIONSHIPS

After studying this chapter, you should be able to:

- 6 Identify the three ways to determine the break-even point.**
- 7 Define margin of safety and give the formulas for computing it.**
- 8 Give the formulas for determining sales required to earn target net income.**
- 9 Describe the essential features of a cost-volume-profit income statement.**

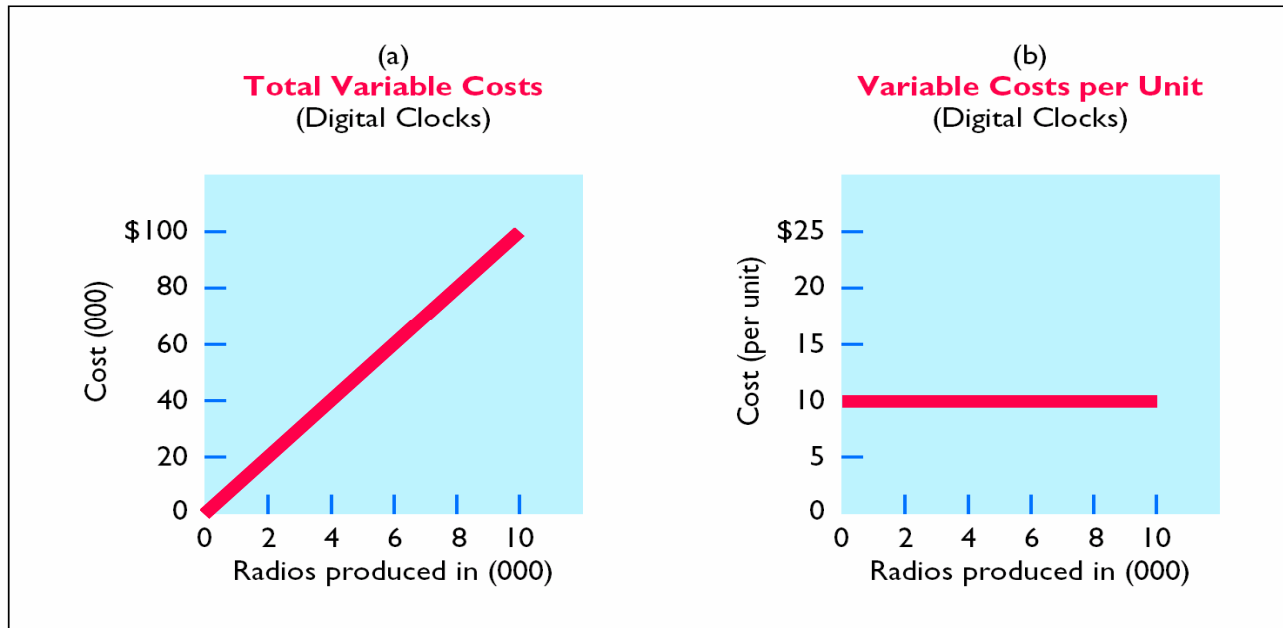
COST BEHAVIOR ANALYSIS

- **Cost behavior analysis** is the study of how specific costs respond to changes in the level of business activity.
- The **starting point** in cost behavior analysis is measuring the key business activities.
- Activity levels may be expressed in terms of
 - 1) **sales dollars** – in a **retail company**,
 - 2) **miles driven** – in a **trucking company**,
 - 3) **room occupancy** – in a **hotel**, or
 - 4) **number of customers called on** – by a **salesperson**.
- The **activity index** identifies the activity that causes changes in the behavior of costs.

BEHAVIOR OF TOTAL AND UNIT VARIABLE COSTS

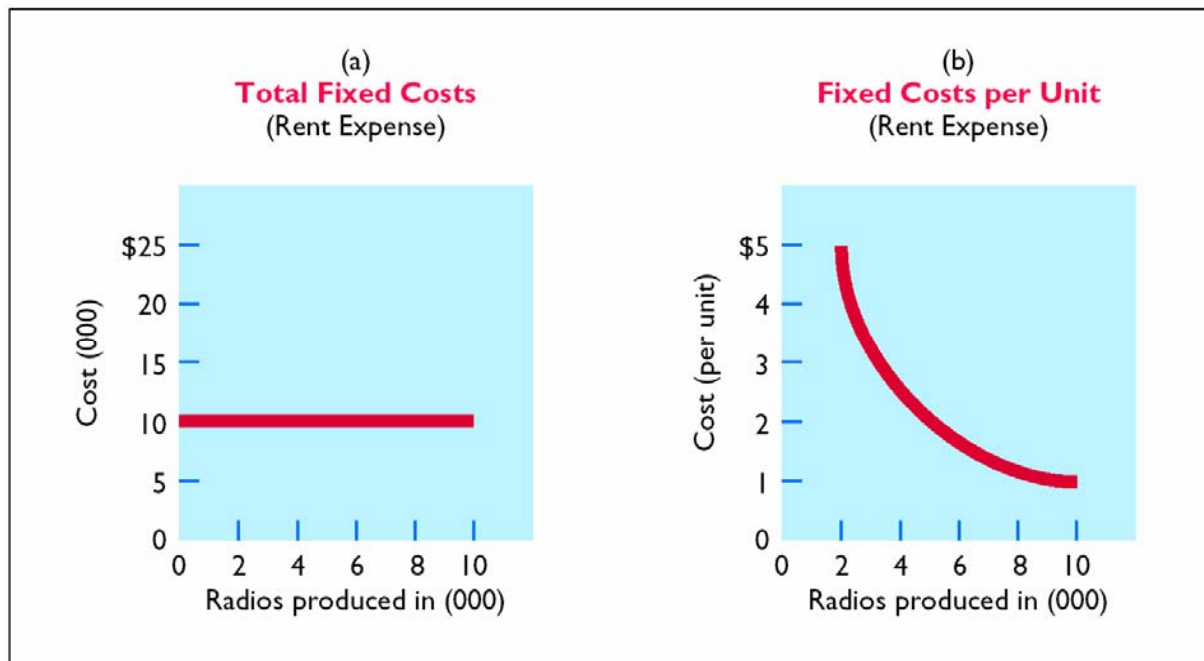
Study Objective 1

- **Variable costs** are costs that vary in total directly and proportionately with changes in the activity level. A variable cost may also be defined as a **cost that remains the same per unit at every level of activity**. Damon Company manufactures radios that contain a \$10 digital clock.
- The **activity index** is the **number of radios produced**. As each radio is manufactured, the total cost of the clocks increases by **\$10**.



BEHAVIOR OF TOTAL AND UNIT FIXED COSTS

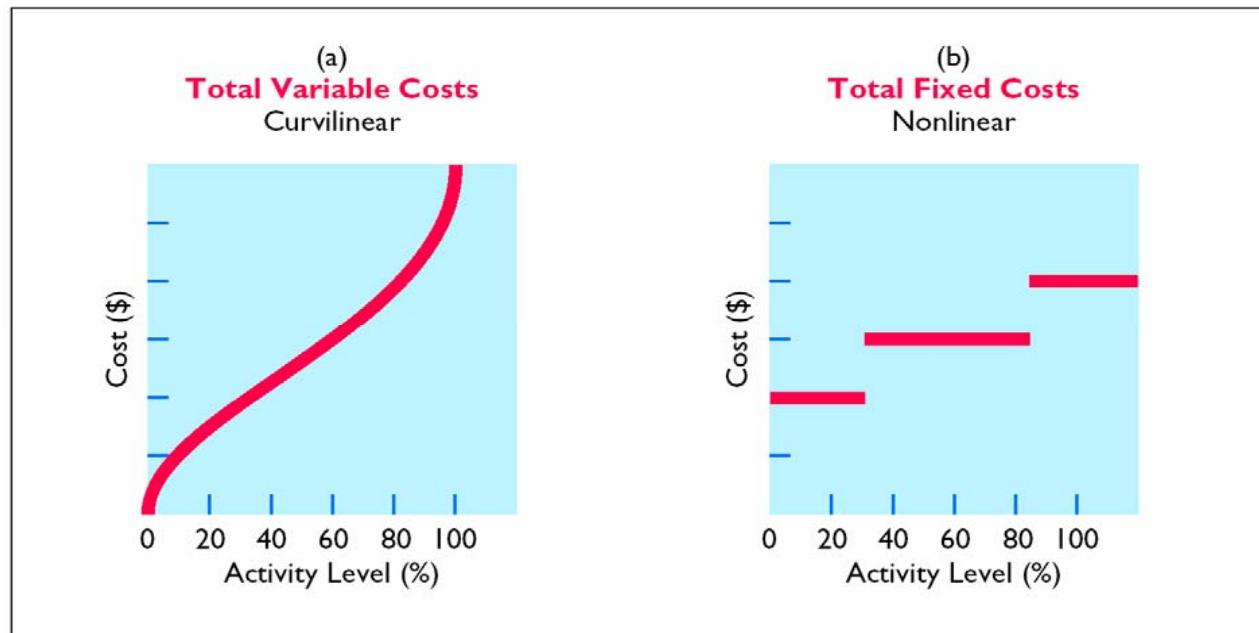
- **Fixed costs** are costs that remain the same in total regardless of changes in the activity level. Since fixed costs remain constant in total as activity changes, therefore **fixed costs per unit vary inversely with activity**.
- Damon Company leases all of its productive facilities at a cost of **\$10,000 per month**. Total fixed costs of the facilities will remain constant at every level of activity.



NONLINEAR BEHAVIOR OF VARIABLE AND FIXED COSTS

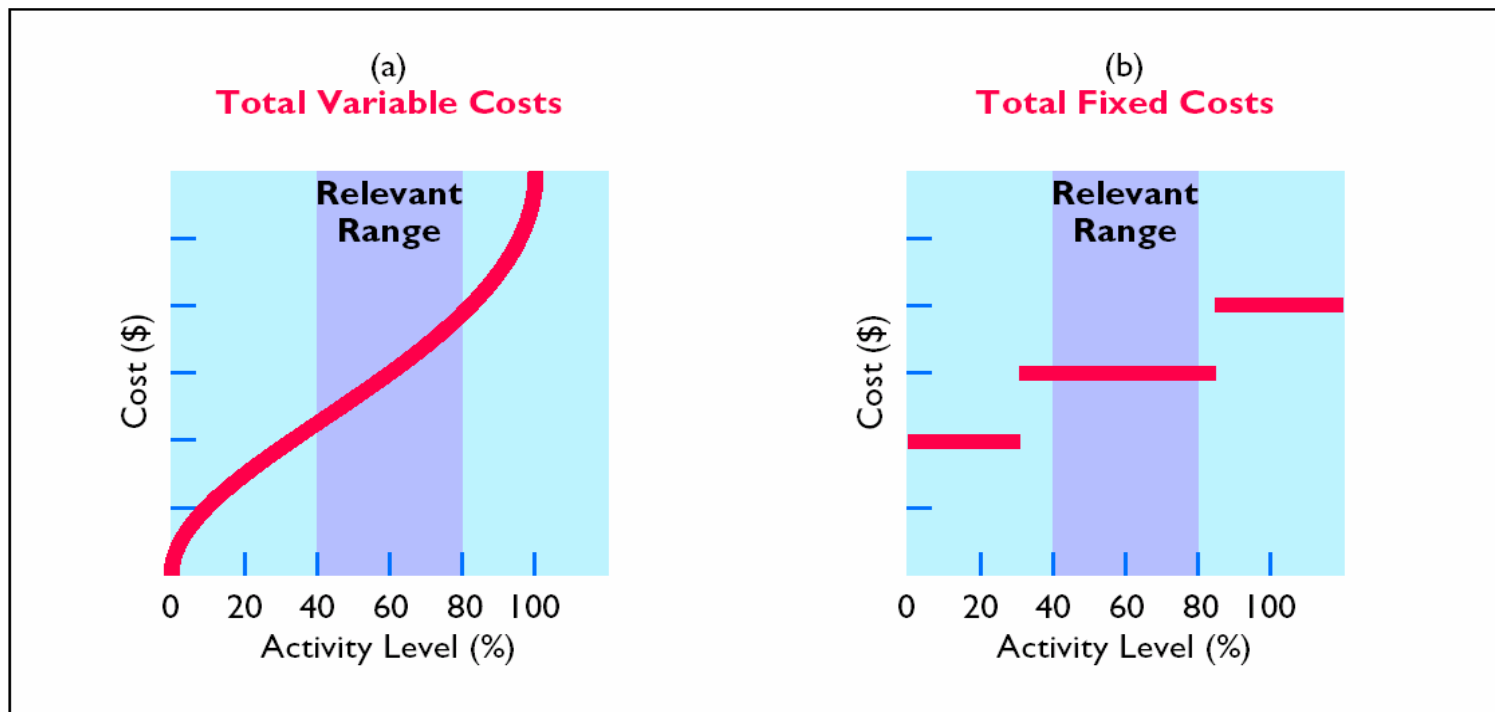
Study Objective 2

- A **straight-line relationship** does not usually exist for **variable costs** throughout the entire range of activity.
- In the real world, the relationship between variable cost behavior and change in the activity level is often **curvilinear**, as shown in **part a** on the left. The behavior of total fixed costs through all levels of activity is shown in **part b**.



LINEAR BEHAVIOR WITHIN RELEVANT RANGE

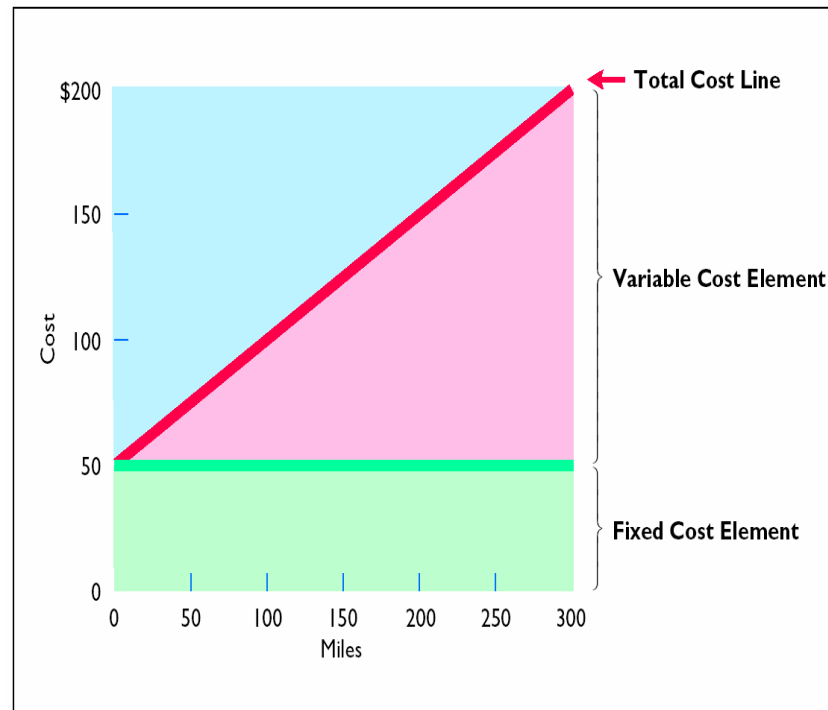
The **relevant range** of the activity index is the range over which a company expects to operate during a year. Within this range, a straight-line relationship normally exists for both fixed and variable costs.



BEHAVIOR OF A MIXED COST

Study Objective 3

Mixed costs contain both **variable** and **fixed cost elements**. Mixed (**semivariable**) costs change in total but not proportionately with changes in the activity level. Local rental terms for a 17-foot U-Haul truck, including insurance, are **\$50 per day plus \$.50 per mile**. The **per diem charge** is a **fixed cost** with respect to miles driven, while the **mileage charge** is a **variable cost**. The graphic presentation of the rental cost for a one-day rental is shown on the right.



FORMULA FOR VARIABLE COST PER UNIT USING HIGH-LOW METHOD

- In **CVP analysis**, it is assumed that mixed costs must be classified into their variable and fixed components.
- Firms usually ascertain variable and fixed costs on an **aggregate basis at the end of a time period**, using the company's past experience with the behavior of the mixed cost at various activity levels.
- The **high-low method** uses the total costs incurred at the high and low levels of activity.
- The steps in calculating fixed and variable costs under this method are as follows:
- **1) Determine variable cost per unit from the following formula:**

$$\begin{array}{|c|} \hline \text{Change in} \\ \text{Total Costs} \\ \hline \end{array} \div \begin{array}{|c|} \hline \text{High minus Low} \\ \text{Activity Level} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Variable Cost} \\ \text{per Unit} \\ \hline \end{array}$$

ASSUMED MAINTENANCE COSTS AND MILEAGE DATA

Assume that Metro Transit Company has the maintenance costs and mileage data for its fleet of buses over a 4-month period as shown below. The **high and low levels of activity** are **50,000 miles in April** and **20,000 miles in January**. The **maintenance costs at these 2 levels** are **\$63,000** and **\$30,000**, respectively. The **difference in maintenance costs** is **\$33,000** (**\$63,000 – \$30,000**) and the **difference in miles** is **30,000** (**50,000 – 20,000**). Therefore, **variable cost per unit** for Metro Transit Company is **\$1.10** (**\$33,000 / 30,000**).

<u>Month</u>	<u>Miles Driven</u>	<u>Total Cost</u>	<u>Month</u>	<u>Miles Driven</u>	<u>Total Cost</u>
January	20,000	\$ 30,000	March	35,000	\$ 49,000
February	40,000	48,000	April	50,000	63,000

HIGH-LOW METHOD COMPUTATION OF FIXED COSTS

Determine the fixed cost by subtracting the total variable cost at either the high or low activity level from the total cost at that activity level.

For Metro Transit Company, the calculations are as follows:

	Activity Level	
	High	Low
Total cost	\$ 63,000	\$ 30,000
Less: Variable costs		
50,000 X \$1.10	55,000	
20,000 X \$1.10		22,000
Total fixed costs	\$ 8,000	\$ 8,000

Review

Variable costs are costs that:

- a. vary in total directly and proportionately with changes in the activity level.
- b. remain the same per unit at every activity level.
- c. Neither of the above.
- d. Both (a) and (b) above.

Review

Variable costs are costs that:

- a. vary in total directly and proportionately with changes in the activity level.
- b. remain the same per unit at every activity level.
- c. Neither of the above.
- d. **Both (a) and (b) above.**

CVP ANALYSIS

Study Objective 4

- **Cost-volume-profit (CVP) analysis is the study of the effects of changes of costs and volume on a company's profits.**
- **Cost-volume-profit (CVP) analysis is important in profit planning.**
- **It also is a critical factor in management decisions.**

COMPONENTS OF CVP ANALYSIS

The following assumptions underlie each CVP analysis:

- 1. The behavior of both costs and revenues is linear throughout the relevant range of the activity level.**
- 2. All costs can be classified as either variable or fixed with reasonable accuracy.**
- 3. Changes in activity are the only factors that affect costs.**
- 4. All units produced are sold.**
- 5. When more than one type of product is sold, the sales mix will remain constant. Sales mix complicates CVP analysis because different products will have different cost relationships.**

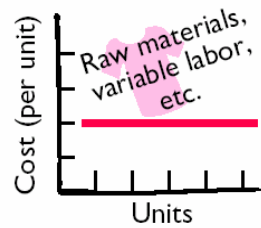
COMPONENTS OF CVP ANALYSIS



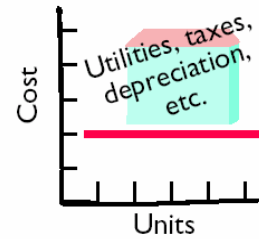
Volume or level of activity



Unit selling prices



Variable cost per unit



Total fixed costs

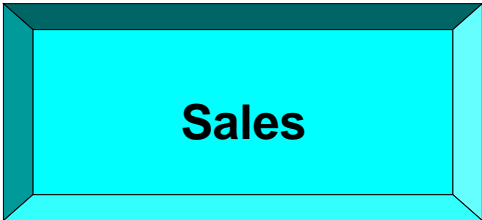
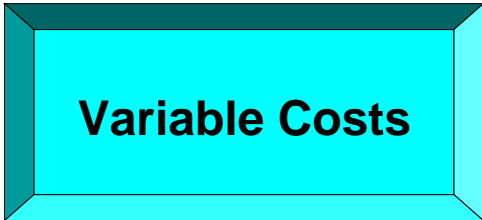
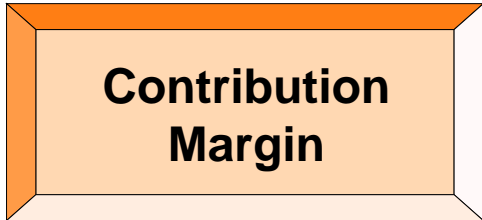


Sales mix

FORMULA FOR AND COMPUTATION OF CONTRIBUTION MARGIN

Study Objective 5

- **Contribution margin (CM)** is one of the key relationships in **CVP analysis** and is the **amount of revenue remaining after deducting variable costs**.
- **Vargo Video Company** sells **1,000 VCRs** in **one month**, sales are **\$500,000** (**1,000 X \$500**) and **variable costs** are **\$300,000** (**1,000 X \$300**).
- Thus, **CM is \$200,000** computed as follows:

	–		=	
\$500,000	–	\$300,000	=	\$200,000

ASSUMED SELLING PRICE AND COST DATA FOR VARGO VIDEO

- In **CVP analysis applications**, the term **cost** includes **manufacturing costs** plus **selling and administrative expenses**.
- Relevant data for the **videocassette recorders (VCRs)** made by Vargo Video Company are as follows:

Unit selling price	\$	500
Unit variable costs		300
Total monthly fixed costs		200,000

FORMULA FOR CONTRIBUTION MARGIN PER UNIT

- The **contribution margin** is then available to cover fixed costs and to contribute income for the company.
- The formula for **contribution margin per unit** is shown below.
- At Vargo Video Company, the **contribution margin per unit** is **\$200** (**\$500** – **\$300**).

The diagram illustrates the formula for Contribution Margin per Unit. It consists of three rectangular boxes arranged horizontally. The first box on the left is cyan and contains the text "Unit Selling Price". To its right is a minus sign. The second box is also cyan and contains the text "Unit Variable Costs". To its right is an equals sign. The third box on the right is orange and contains the text "Contribution Margin per Unit".

$$\text{Unit Selling Price} - \text{Unit Variable Costs} = \text{Contribution Margin per Unit}$$

FORMULA FOR CONTRIBUTION MARGIN RATIO

- Others prefer to use **contribution margin ratio**.
- The formula for **contribution margin ratio** is shown below.
- At Vargo Video Company, the **contribution margin ratio** is **40%** ($\$200 \div \500).

The diagram illustrates the formula for the Contribution Margin Ratio. It consists of three rectangular boxes arranged horizontally. The first box on the left is cyan and contains the text "Contribution Margin per Unit". To its right is a division symbol (÷). The second box is also cyan and contains the text "Unit Selling Price". To its right is an equals sign (=). The final box on the right is orange and contains the text "Contribution Margin Ratio".

$$\text{Contribution Margin per Unit} \div \text{Unit Selling Price} = \text{Contribution Margin Ratio}$$

BREAK-EVEN EQUATION

Study Objective 6

- The **break-even point** is the second key relationship in **CVP analysis** and is the level of activity at which **total revenues equal total costs** – both fixed and variable.
- The **break-even point** can be:
 - 1 Computed from a mathematical equation.
 - 2 Computed by using contribution margin.
 - 3 Derived from a cost-volume-profit (CVP) graph.
- The equation for **break-even sales** is:

The diagram illustrates the break-even equation using three rectangular boxes with 3D effects. The first box on the left is orange and contains the text "Break-even Sales". To its right is an equals sign (=). The second box is cyan and contains the text "Variable Costs". To its right is a plus sign (+). The third box is cyan and contains the text "Fixed Costs".

$$\text{Break-even Sales} = \text{Variable Costs} + \text{Fixed Costs}$$

COMPUTATION OF BREAK-EVEN POINT IN DOLLARS

- The **break-even point in dollars** can be determined by expressing **variable costs as a percentage of unit selling price**.
- For Vargo Video Company, the percentage is **60%** ($\$300 \div \500).
The calculation is:

$$X = .60X + \$200,000$$

$$.40X = \$200,000$$

$$X = \$500,000$$

Where: X = sales dollars at the break-even point

$.60X$ = variable costs as a percentage of unit selling price

$\$200,000$ = total fixed costs

Therefore, sales must be **$\$500,000$** for Vargo Video Company to break even.

COMPUTATION OF BREAK-EVEN POINT IN UNITS

The **break-even point in units** can be calculated directly from the mathematical equation by using **unit selling prices** and **unit variable costs**. The calculation is:

$$\$500X = \$300X + \$200,000$$

$$\$200X = \$200,000$$

$$X = 1,000 \text{ units}$$

Where: $\$500X$ = unit selling price x sales volume

$\$300X$ = variable cost per unit x sales volume

$\$200,000$ = total fixed costs

Thus, Vargo Video Company must sell **1,000 units** to break even.

BREAK-EVEN PROOF

The accuracy of the calculations can be proved as follows:

Sales (1,000 X \$500)		\$ 500,000
Total costs:		
Variable (1,000 X \$300)	\$ 300,000	
Fixed	200,000	500,000
	<hr/>	<hr/>
Net income		\$ -0-
		<hr/> <hr/>

FORMULA FOR BREAK-EVEN POINT IN UNITS USING CONTRIBUTION MARGIN

- Since **contribution margin** equals **total revenues less variable costs**, at the break-even point, **contribution margin must equal total fixed costs**.
- On the basis of this relationship, we can compute the break-even point by using either the **contribution margin per unit** or the **contribution margin ratio**.
- When the **contribution margin per unit** is used, the formula to calculate the **break-even point in units** is:

$$\boxed{\text{Fixed Costs}} \div \boxed{\text{Contribution Margin per Unit}} = \boxed{\text{Break-even Point in Units}}$$

FORMULA FOR BREAK-EVEN POINT IN DOLLARS USING CONTRIBUTION MARGIN RATIO

- For Vargo Video Company, the **contribution margin per unit** is **\$200**.
- Thus, the **break-even point in units** is calculated to be: **1,000 units** ($\$200,000 \div \200).
- When the **contribution margin ratio** is used, the formula to calculate the **break-even point in dollars** is shown below.
- Since Vargo Video Company's **contribution margin ratio** is **40%**, the **break-even point in dollars** is calculated to be **\$500,000** ($\$200,000 \div 40\%$).

The diagram illustrates the formula for calculating the break-even point in dollars. It consists of three rectangular boxes arranged horizontally. The first box on the left is cyan and contains the text "Fixed Costs". To its right is a cyan box containing "Contribution Margin Ratio". A division symbol (\div) is placed between these two boxes. To the right of the second box is an equals sign (=). The final box on the right is orange and contains the text "Break-even Point in Dollars".

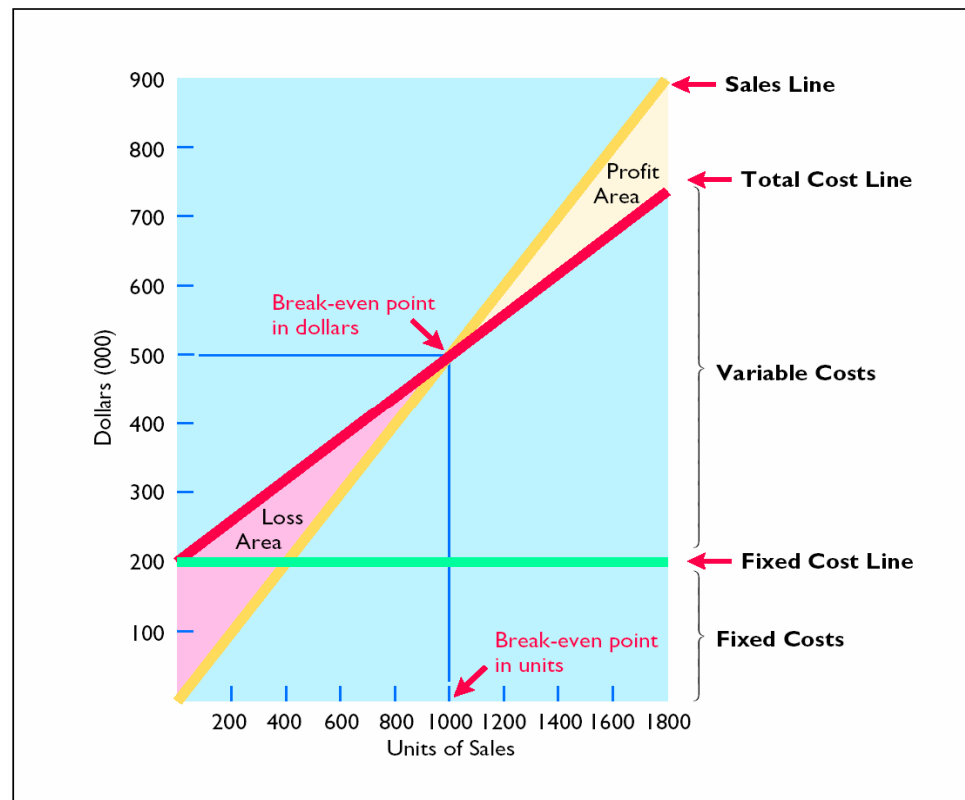
$$\text{Fixed Costs} \div \text{Contribution Margin Ratio} = \text{Break-even Point in Dollars}$$

GRAPHIC PRESENTATION

- An effective way to find the **break-even point** is to prepare a **break-even graph**.
- The graph is referred to as a **cost-volume-profit (CVP) graph** since it shows costs, volume, and profits.
- The construction of the graph, using the Vargo Video Company data, is as follows:
 - 1 Plot the total revenue line starting at the zero activity level.**
 - 2 Plot the total fixed cost by a horizontal line.**
 - 3 Plot the total cost line. This starts at the fixed cost line at zero activity.**
 - 4 Determine the break-even point from the intersection of the total cost line and the total revenue line.**

CVP GRAPH

In the graph below, **sales volume** is recorded along the **horizontal axis**. This axis needs to extend to the **maximum level of expected sales**. Both **total revenues (sales)** and **total costs (fixed plus variable)** are recorded on the **vertical axis**.



Review

The CVP income statement classifies costs and expenses:

- a. by function.
- b. as selling and administrative.
- c. as variable or fixed.
- d. as operating or nonoperating.

Review

The CVP income statement classifies costs and expenses:

- a. by function.
- b. as selling and administrative.
- c. **as variable or fixed.**
- d. as operating or nonoperating.

FORMULA FOR MARGIN OF SAFETY IN DOLLARS

Study Objective 7

- The **margin of safety** is another relationship that may be calculated in CVP analysis.
- It is the difference between actual or expected sales and sales at the break-even point.
- It may be expressed in **dollars** or as a **ratio**.
- The formula for determining the **margin of safety in dollars** is shown below.
- Given that Vargo Video Company's **actual (expected) sales** are **\$750,000**, the **margin of safety in dollars** is calculated to be **\$250,000** (**\$750,000 – \$500,000**).

$$\begin{array}{|c|} \hline \text{Actual (Expected)} \\ \hline \text{Sales} \\ \hline \end{array} - \begin{array}{|c|} \hline \text{Break-even} \\ \hline \text{Sales} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Margin of Safety} \\ \hline \text{in Dollars} \\ \hline \end{array}$$

FORMULA FOR MARGIN OF SAFETY RATIO

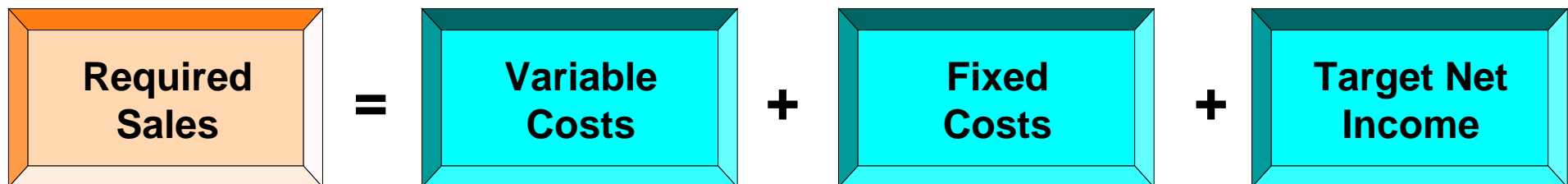
The formula and calculation for determining the **margin of safety ratio** are:

$$\begin{array}{ccccc} \text{Margin of Safety} & \div & \text{Actual (Expected)} & = & \text{Margin of Safety} \\ \text{in Dollars} & & \text{Sales} & & \text{Ratio} \\ \$250,000 & \div & \$750,000 & = & 33\% \end{array}$$

FORMULA FOR REQUIRED SALES TO MEET TARGET NET INCOME

Study Objective 8

- By adding a factor for **target net income** to the **break-even equation**, we obtain the formula below for determining **required sales**.
- **Required sales** may be expressed either in **sales dollars** or **sales units**.
- Assuming that **target net income** is **\$120,000** for Vargo Video Company, the **required sales dollars** are calculated to be **\$800,000** ($[\$200,000 + \$120,000] \div .40$).



FORMULA FOR REQUIRED SALES IN DOLLARS USING CONTRIBUTION MARGIN RATIO

- The **sales required to meet target income** can be calculated in either **dollars** or **units**.
- For Vargo Video Company, the **required sales dollars** are calculated to be: **\$800,000** (**\$320,000 ÷ 40%**).
- The **sales volume in units at the targeted income level** is **1,600 units** (**\$800,000 ÷ \$500**).

The diagram illustrates the formula for required sales in dollars. It consists of three rectangular boxes with a 3D effect. The first box on the left is cyan and contains the text "Fixed Costs + Target Net Income". To its right is a cyan box containing "Contribution Margin Ratio". A division symbol (÷) is placed between these two boxes. To the right of the second box is an equals sign (=). To the right of the equals sign is a third box, which is orange and contains the text "Required Sales".

$$\text{Fixed Costs + Target Net Income} \div \text{Contribution Margin Ratio} = \text{Required Sales}$$

ORIGINAL VCR SALES AND COST DATA

- **Business conditions change rapidly and management must respond intelligently to these changes. CVP analysis can help.**
- **The original VCR sales and cost data for Vargo Video Company are shown below.**

Unit selling price	\$ 500
Unit variable cost	\$ 300
Total fixed costs	\$200,000
Break-even sales	\$500,000 or 1,000 units

COMPUTATION OF BREAK-EVEN SALES IN UNITS

Case I. A competitor is offering a **10% discount on the selling price** of its VCRs. Management must decide whether or not to offer a similar discount.

Question: What effect will a **10% discount on selling price** have on the break-even point for VCRs?

Answer: A **10% discount on selling price** reduces the selling price per unit to **\$450** [**\$500 – (\$500 X 10%)**]. Variable cost per unit remains unchanged at **\$300**. Therefore, the **contribution margin per unit** is **\$150**. Assuming **no change in fixed costs**, **break-even sales** are **1,333 units**, calculated as follows:

Fixed Costs	÷	Contribution Margin per Unit	=	Break-even Sales
\$200,000	÷	\$150	=	1,333 units (rounded)

COMPUTATION OF BREAK-EVEN SALES IN UNITS

Case II. To meet the threat of foreign competition, management invests in new robotic equipment that will lower the amount of direct labor required to make the VCRs. It is estimated that **total fixed costs** will **increase 30%** and that **variable cost per unit** will **decrease 30%**.

Question: What effect will the new equipment have on the sales volume required to break even?

Answer: **Total fixed costs** become **\$260,000** [$\$200,000 + (\$200,000 \times 30\%)$], and **variable cost per unit** is now **\$210** [$\$300 - (\$300 \times 30\%)$].
The **new break-even point** is **897 units**:

Fixed costs	÷	Contribution Margin per Unit	=	Break-even Sales
\$260,000	÷	(\$500 - \$210)	=	897 units (rounded)

COMPUTATION OF REQUIRED SALES

Case III. An increase in the price of raw materials will **increase** the **unit variable cost of VCRs** by an estimated **\$25**. Management plans a cost-cutting program that will **save \$17,500 in fixed costs per month**. Vargo Video Company is currently realizing **monthly net income of \$80,000 on sales of 1,400 VCRs**.

Question: What increase in sales will be needed to to maintain the same level of net income?

Answer: The **variable cost per unit increases** to **\$325** ($\$300 + \25), and **fixed costs are reduced** to **\$182,500** ($\$200,000 - \$17,500$). Because of the change in variable cost, the **variable cost becomes 65% of sales** ($\$325 \div \500). Using the **equation for target net income**, **required sales** are calculated to be **\$750,000**, as follows:

Required Sales	=	Variable Costs	+	Fixed Costs	+	Target Net Income
----------------	---	----------------	---	-------------	---	-------------------

X	=	.65X	+	\$182,500	+	\$80,000
---	---	------	---	-----------	---	----------

.35X	=	\$262,500
------	---	-----------

ASSUMED COST AND EXPENSE DATA

Study Objective 9

- The **CVP income statement** classifies costs and expenses as variable or fixed and specifically reports contribution margin in the body of the statement.
- Assume that Vargo Video Company reaches its **target net income** of **\$120,000**.
- The following information is obtained on the **\$680,000** of **costs that were incurred in June**:

	Variable	Fixed	Total
Cost of goods sold	\$ 400,000	\$ 120,000	\$ 520,000
Selling expenses	60,000	40,000	100,000
Administrative expenses	20,000	40,000	60,000
	\$ 480,000	\$ 200,000	\$ 680,000

CVP INCOME STATEMENT

- **Net income is \$120,000 in both statements.**
- **The major difference is the format for the expenses.**

TRADITIONAL VERSUS CVP INCOME STATEMENT

VARGO VIDEO COMPANY Income Statement For the Month Ended June 30, 2005

Traditional Format	
Sales	\$ 800,000
Cost of goods sold	<u>520,000</u>
Gross profit	280,000
Operating expenses	
Selling expenses	\$ 100,000
Administrative expenses	<u>60,000</u>
Total operating expenses	160,000
Net income	<u><u>\$ 120,000</u></u>

CVP Format	
Sales	\$ 800,000
Variable expenses	
Cost of goods sold	\$ 400,000
Selling expenses	60,000
Administrative expenses	<u>20,000</u>
Total variable expenses	480,000
Contribution margin	<u>320,000</u>
Fixed expenses	
Cost of goods sold	120,000
Selling expenses	40,000
Administrative expenses	<u>40,000</u>
Total fixed expenses	200,000
Net income	<u><u>\$ 120,000</u></u>

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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 24

Budgetary Planning

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Monroe Community College

and

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Bryant College

CHAPTER 24

BUDGETARY PLANNING

After studying this chapter, you should be able to:

- 1** Indicate the benefits of budgeting.
- 2** State the essentials of effective budgeting.
- 3** Identify the budgets that comprise the master budget.
- 4** Describe the sources for preparing the budgeted income statement.
- 5** Explain the principal sections of a cash budget.
- 6** Indicate the applicability of budgeting in nonmanufacturing companies.

Budgeting Basics

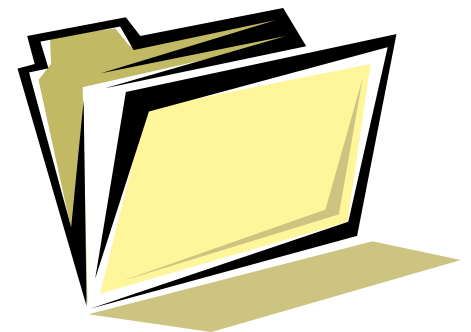
- **Budget**

- formal written statement of management's plans for a specified future time period, expressed in financial terms.

- a) provide historical data on revenues, costs, and expenses,

- b) express management's plans in financial terms, and

- c) prepare periodic budget reports.



Benefits of Budgeting

STUDY OBJECTIVE 1

- a) All levels of management **plan ahead**.
- b) **Definite objectives** for evaluating performance.
- c) **Early warning system** for potential problems.
- d) **Coordination of activities** within the business.
- e) **Management awareness** of the entity's overall operations.
- f) **Motivates personnel** throughout organization to meet planned objectives.

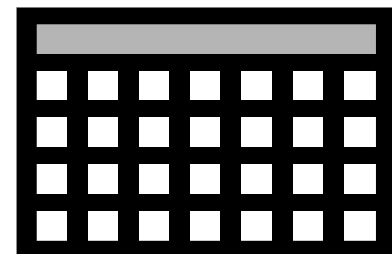
Essentials of Effective Budgeting

STUDY OBJECTIVE 2

- **Sound organizational structure**
 - authority and responsibility for all phases of operations are clearly defined.
- **Based on research and analysis**
 - realistic goals that will contribute to the growth and profitability of the company.
- **Directly related acceptance by all levels of management.**

Length of the Budget Period

- **Most common budget period**
 - one year
 - **budget may be prepared for any period of time**
- **A continuous twelve-month budget**
 - drops the month just ended and adds a future month
- **Annual budget**
 - supplemented by monthly and quarterly budgets

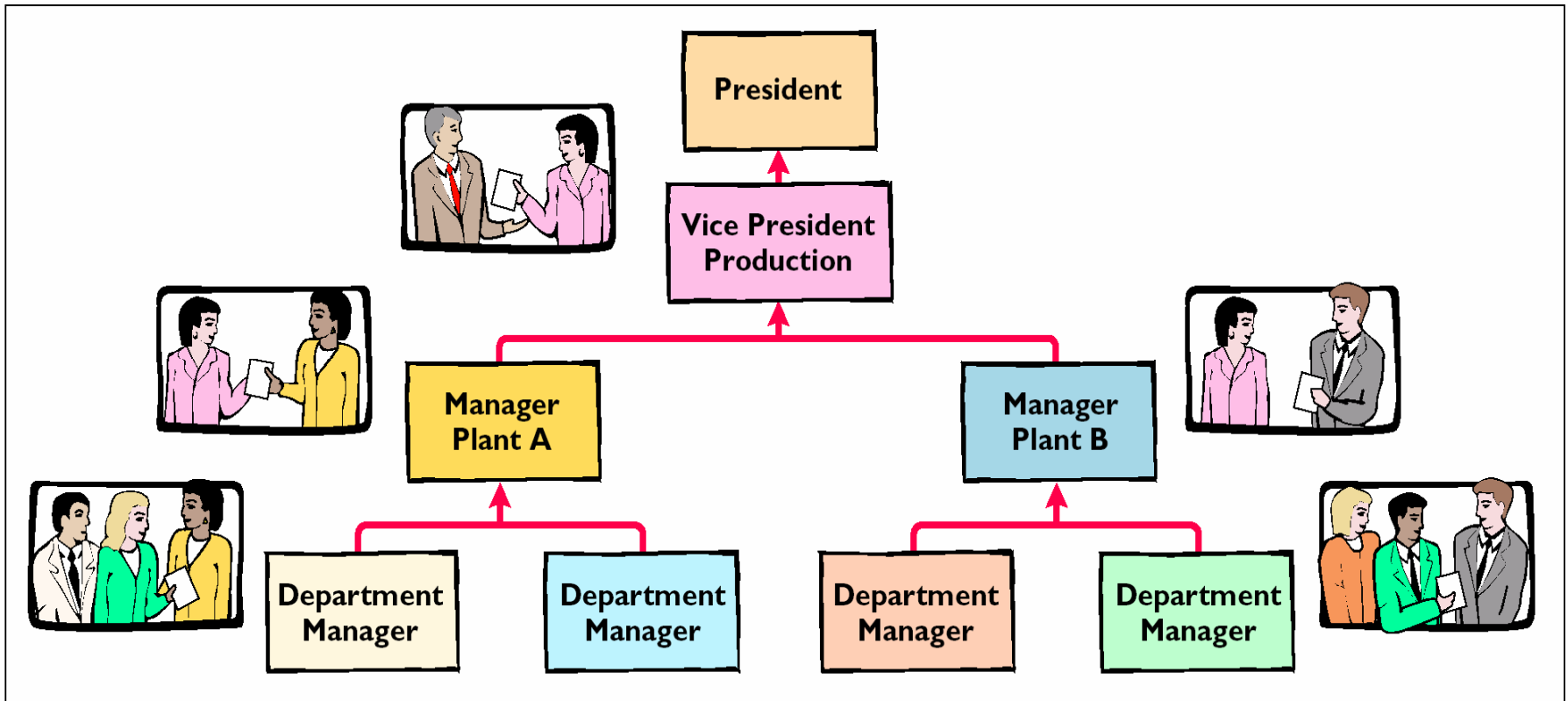


The Budgeting Process

Budget committee

- **Responsible for coordinating the preparation of the budget**
- **ordinarily includes**
 - **the president, treasurer, chief accountant (controller), and management personnel from each major area of the company**

Flow of Budget Data



Budgeting and Human Behavior

- **Strong positive influence on a manager when:**
 - **Each level of management is invited and encouraged to participate in developing the budget.**
 - **Criticism of a manager's performance is tempered with advice and assistance.**
 - **Top management is sensitive to the behavioral implications of its actions.**



Budgeting and Long-Range Plans

- **Budgeting**
 - the achievement of specific short-term goals
- **Long-range planning**
 - identifies and selects strategies to achieve goals and develop policies and plans to implement the strategies
- **Long-range plans**
 - contain less detail



Review

Compared to budgeting, long-range planning generally has the:

- a. same amount of detail.
- b. longer time period.
- c. same emphasis.
- d. same time period.

Review

Compared to budgeting, long-range planning generally has the:

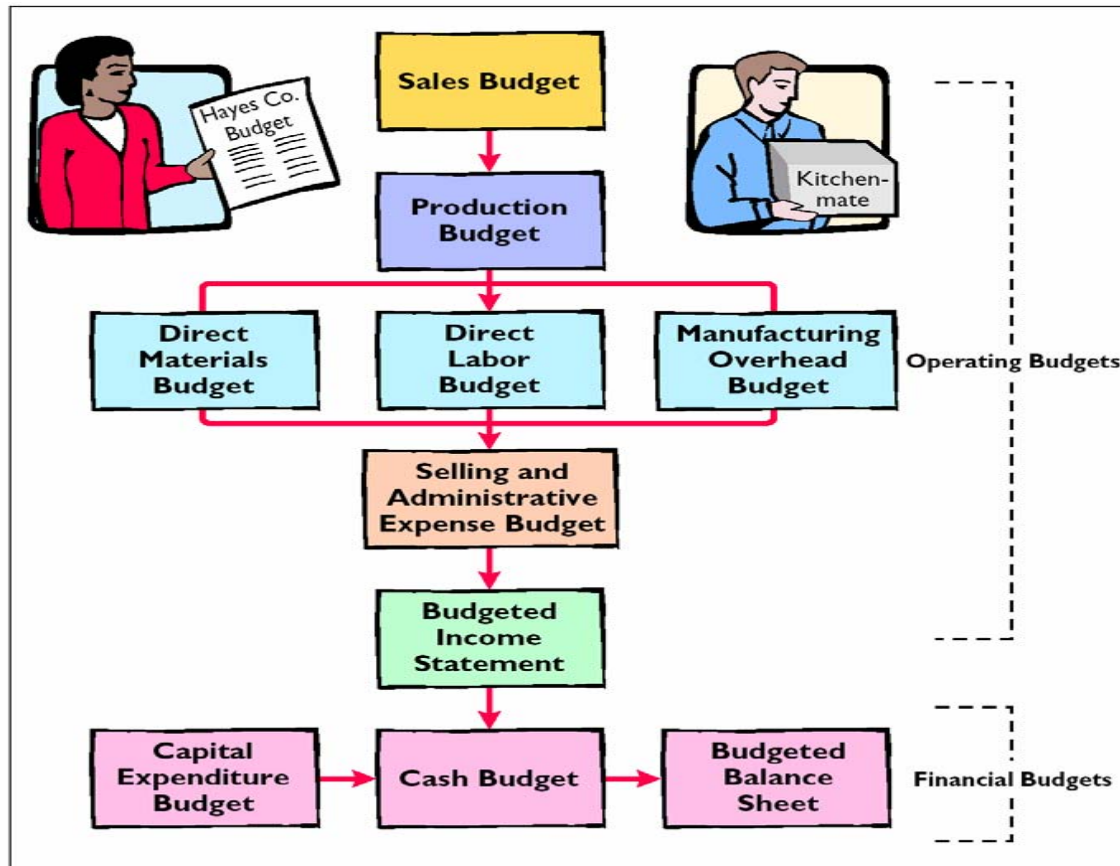
- a. same amount of detail.
- b. longer time period.**
- c. same emphasis.
- d. same time period.

The Master Budget

STUDY OBJECTIVE 3

- **A set of interrelated budgets that constitutes a plan of action for a specified time period.**
- **Developed within the framework of a sales forecast.**

Components of the Master Budget



Two Classes of Budgets in the Master Budget

- **Operating budgets**
 - the individual budgets that result in the preparation of the budgeted income statement
- **Financial budgets**
 - focus on the cash resources needed to fund expected operations and planned capital expenditures

Preparing the Operating Budgets:

Sales Budget

- **The first budget prepared.**
- **Each of the other budgets depends on the sales budget.**
- **It is derived from the sales forecast. It represents management's *best estimate* of sales revenue for the budget period.**



Sales Budget

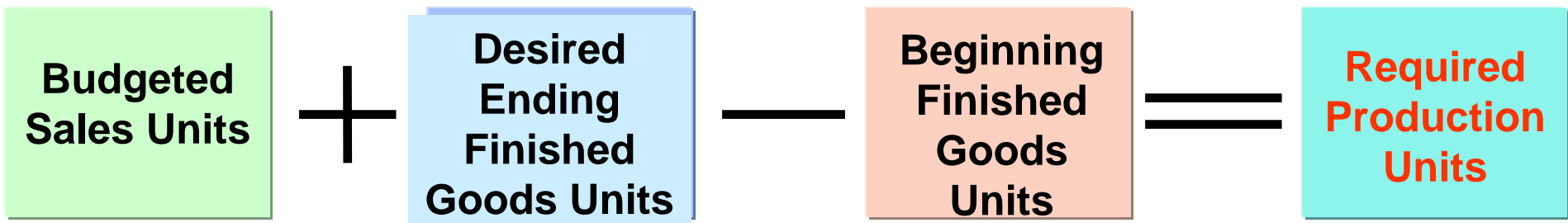
The **sales budget** is prepared by multiplying the expected unit sales volume for each product by its anticipated unit selling price.

For Hayes Company, sales volume is expected to be 3,000 units in the first quarter with 500-unit increments in each succeeding year. Based on a sales price of \$60 per unit, the sales budget for the year by quarters is shown below:

HAYES COMPANY					
Sales Budget					
For the Year Ending December 31, 2005					
	<u>Quarter</u>				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>Year</u>
Expected unit sales	3,000	3,500	4,000	4,500	15,000
Unit selling price	<u>\$60</u>	<u>\$60</u>	<u>\$60</u>	<u>\$60</u>	<u>\$60</u>
Total sales	\$180,000	\$210,000	\$240,000	\$270,000	\$900,000

Production Budget

- Shows the units that must be produced to meet anticipated sales.
- It is derived from the budgeted sales units (per sales budget) plus the desired ending finished goods less the beginning finished goods units.
- The production requirement formula is:



Production Budget

Hayes believes it can meet future sales requirements by maintaining an ending inventory equal to 20% of the next quarter's budgeted sales volume. The production budget is shown below.

HAYES COMPANY						
Production Budget						
For the Year Ending December 31, 2005						
<i>Per sales budget</i>		<u>Quarter</u>				
		<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>Year</u>
Expected unit sales		3,000	3,500	4,000	4,500	
Add: Desired ending finished good units		<u>700</u>	<u>800</u>	<u>900</u>	<u>1,000</u>	
Total required units		3,700	4,300	4,900	5,500	
Less: Beginning finished goods units		<u>600</u>	<u>700</u>	<u>800</u>	<u>900</u>	
Required production units		3,100	3,600	4,100	4,600	15,400

<i>20% of next quarter's sales</i>	
<i>Expected 2006 1st Q sales</i>	<i>5,000 units x 20%</i>

Direct Materials Budget

- Shows both the quantity and cost of direct materials to be purchased.
- It is derived from the direct materials units required for production (per production budget) plus the desired ending direct materials units less the beginning direct materials units.

Direct
Materials
Units
Required for
Production

+

Desired
Ending
Direct
Material
Units

—

Beginning
Direct
Materials
Units

=

Required
Direct
Materials
Purchases
Units

Direct Materials Budget

Hayes has found that an ending inventory of raw materials equal to 10% of the next quarter's production is sufficient. The manufacture of Kitchen-mate requires 2 pounds of raw materials and the expected cost per pound is \$4. Assume ending direct materials for the 4th quarter are 1,020 pounds. The direct materials budget is shown below:

<i>QUARTER</i>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>Year</u>
Units to be produced	3,100	3,600	4,100	4,600	
Direct materials per unit	X2	X 2	X 2	X 2	
Total pounds needed for production	6,200	7,200	8,200	9,200	
Add: Desired ending direct materials (pounds)	<u>720</u>	<u>820</u>	<u>920</u>	<u>1,020</u>	
Total materials required	6,920	8,020	9,120	10,220	
Less: Beginning direct materials (pounds)	<u>620</u>	<u>720</u>	<u>820</u>	<u>920</u>	
Direct materials purchases	6,300	7,300	8,300	9,300	
Cost per pound	<u>X \$4</u>	<u>X \$4</u>	<u>X \$4</u>	<u>X \$4</u>	
Total cost of direct materials purchases	\$25,200	\$29,200	\$33,200	\$37,200	\$124,800

 from production budget

Direct Labor Budget

At Hayes Company, two hours of direct labor are required to produce each unit of finished goods, and the anticipated hourly wage rate is \$10. The direct labor budget is shown below.

HAYES COMPANY					
Direct Labor Budget					
For the Year Ending December 31, 2005					
QUARTER	1	2	3	4	Year
Units to be produced (from Production Budget)	3,100	3,600	4,100	4,600	
Direct Labor time (hours) per unit	2	2	2	2	
Total required direct labor hours	6,200	7,200	8,200	9,200	
Direct labor cost per hour	\$10	\$10	\$10	\$10	
Total direct labor cost	\$62,000	\$72,000	\$82,000	\$92,000	\$308,000

Manufacturing Overhead and Selling and Administrative Budget

- **Manufacturing overhead budget**
 - expected manufacturing overhead costs
- **Selling and administrative expense budget**
 - projection of anticipated operating expenses
- **Both distinguish between fixed and variable costs.**



Manufacturing Overhead Budget

Hayes Company expects variable costs to fluctuate with production volume on the basis of the following rates per direct labor hour (as calculated in the Direct Labor Budget).

Indirect materials \$1.00/hr

Indirect labor \$1.40/hr

Utilities \$.40/hr

Maintenance \$.20/hr

HAYES COMPANY					
Manufacturing Overhead Budget (Variable portion)					
For the Year Ending December 31, 2005					
	<u>Quarter</u>				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>Year</u>
Variable costs					
Indirect materials	\$6,200	\$7,200	\$8,200	\$9,200	\$30,800
Indirect labor	8,680	10,080	11,480	12,880	43,120
Utilities	2,480	2,880	3,280	3,680	12,320
Maintenance	1,240	1,440	1,640	1,840	6,160
Total variable costs	\$18,600	\$21,600	\$24,600	\$27,600	\$ 92,400

Manufacturing Overhead Budget

Fixed costs complete the manufacturing overhead budget and the totals are used to calculate an overhead rate, which will be applied to production on the basis of direct labor hours.

HAYES COMPANY

Manufacturing Overhead Budget (Fixed portion and Totals) For the Year Ending December 31, 2005

	<u>Quarter</u>				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>Year</u>
Fixed Costs					
Supervisory salaries	20,000	20,000	20,000	20,000	80,000
Depreciation	3,800	3,800	3,800	3,800	15,200
Property taxes and insurance	9,000	9,000	9,000	9,000	36,000
Maintenance	5,700	5,700	5,700	5,700	22,800
Total fixed	38,500	38,500	38,500	38,500	154,000
Total manufacturing overhead	\$57,100	\$60,100	\$63,100	\$66,100	\$246,400
Direct labor hours	6,200	7,200	8,200	9,200	30,800

Manufacturing overhead rate per direct labor hour ($\$246,400 / 30,800$) = \$8.00

Selling and Administrative Expense Budget

Variable expenses are based on the unit sales projected in the sales budget. The rates per unit of sales are sales commissions \$3.00 and freight-out \$1.00. Fixed costs are based on assumed data and include \$1,000 of depreciation per quarter.

HAYES COMPANY

Selling and Administrative Expense Budget For the Year Ending December 31, 2005

	<u>Quarter</u>				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>Year</u>
Variable expenses					
Sales Commissions	\$9,000	\$10,500	\$12,000	\$13,500	\$45,000
Freight-out	3,000	3,500	4,000	4,500	15,000
Total variable	<u>12,000</u>	<u>14,000</u>	<u>16,000</u>	<u>18,000</u>	<u>60,000</u>
Fixed expenses	<u>30,000</u>	<u>30,000</u>	<u>30,000</u>	<u>30,000</u>	<u>120,000</u>
Total selling and adm. ex.	\$42,000	\$44,000	\$46,000	\$48,000	\$180,000

Budgeted Income Statement

STUDY OBJECTIVE 4

- **The important end-product of the *operating budgets*.**
 - indicates the expected profitability of operations
 - provides a basis for evaluating company performance
- **The budget is prepared from the:**
 - Sales budget
 - Production budget
 - Direct labor budget
 - Direct materials purchases budget
 - Manufacturing overhead budget
 - Selling and administrative expense budget

Computation of Total Unit Cost

To find cost of goods sold for the Budgeted Income Statement it is necessary to determine the **total unit cost of a finished product** using the direct materials, direct labor, and manufacturing overhead budgets.

Cost of One Kitchen-mate				
<u>Cost Element</u>	<u>Illustration</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Total</u>
Direct materials	24-7	2 pounds	\$4.00	\$8.00
Direct labor	24-8	2 hours	\$10.00	20.00
Manufacturing Overhead	24-9	2 hours	\$8.00	16.00
Total unit cost				\$44.00

Budgeted Income Statement

Cost of goods sold can then be determined by multiplying the units sold by the unit cost. All data for the statement are obtained from the operating budgets except: interest expense (\$100) and income taxes (\$12,000).

HAYES COMPANY	
Budgeted Income Statement	
For the Year Ending December 31, 2005	
Sales (From sales budget)	\$900,000
Cost of Goods Sold (15,000 x \$44)	<u>660,000</u>
Gross Profit	240,000
Selling and administrative expenses	<u>180,000</u>
Income from operations	60,000
Interest expense	<u>100</u>
Income before income taxes	59,900
Income tax expense	<u>12,000</u>
Net income	<u>\$ 47,900</u>

Preparing the Financial Budgets

STUDY OBJECTIVE 5

- **Cash budget**
 - anticipated cash flows
 - often considered to be the most important output in preparing **financial budgets**
- **The cash budget contains three sections:**
 - Cash receipts
 - Cash disbursements
 - Financing




Basic Form of a Cash Budget

ANY COMPANY Cash Budget	
Beginning cash balance	<u>\$X,xxx</u>
Add: Cash receipts (Itemized)	<u>X,xxx</u>
Total available cash	X,xxx
Less: Cash disbursements (Itemized)	<u>X,xxx</u>
Excess (deficiency) of available cash over cash disbursements	X,xxx
Financing	<u>X,xxx</u>
Ending cash balance	<u>\$X,xxx</u>

The cash receipts section includes expected receipts from the company's principal source(s) of revenue such as cash sales and collections from customers on credit sales.

Basic Form of a Cash Budget

ANY COMPANY Cash Budget	
Beginning cash balance	<u>\$X,xxx</u>
Add: Cash receipts (Itemized)	<u>X,xxx</u>
Total available cash	X,xxx
Less: Cash disbursements (Itemized)	<u>X,xxx</u>
Excess (deficiency) of available cash over cash disbursements	X,xxx
Financing	<u>X,xxx</u>
Ending cash balance	<u>\$X,xxx</u>



The **cash disbursements section** shows expected payments for direct materials, direct labor, manufacturing overhead, and selling and administrative expenses. This section also includes projected payments for income taxes, dividends, investments, and plant assets.

Basic Form of a Cash Budget

ANY COMPANY Cash Budget	
Beginning cash balance	<u>\$X,xxx</u>
Add: Cash receipts (Itemized)	<u>X,xxx</u>
Total available cash	X,xxx
Less: Cash disbursements (Itemized)	<u>X,xxx</u>
Excess (deficiency) of available cash over cash disbursements	X,xxx
Financing	<u>X,xxx</u>
Ending cash balance	<u>\$X,xxx</u>



The **financing section** shows expected borrowings and the repayment of the borrowed funds plus interest.

This section is needed when there is a cash deficiency or when the cash balance is below management's minimum required balance.

Collections from Customers

Preparing a **schedule of cash collections** from customers is useful in preparing a cash budget. Assuming that credit sales per the *Sales Budget* (amounts shown in parentheses below) are collected 60% in the quarter sold and 40% in the following quarter. Accounts Receivable of \$60,000 at December 31, 2004 are expected to be collected in full the first quarter of 2005.

Schedule of Expected Collections from Customers				
	Quarter			
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Accounts receivable, 12/31/01	\$ 60,000			
First quarter (\$180,000)	108,000	\$72,000		
Second quarter (\$210,000)		126,000	\$ 84,000	
Third quarter (\$240,000)			144,000	\$96,000
Fourth quarter (\$270,000)				162,000
Total collections	<u>\$168,000</u>	<u>\$198,000</u>	<u>\$228,000</u>	<u>\$258,000</u>

Payments for Direct Materials

A schedule of cash payments for direct materials is also useful in preparing a cash budget. Assume that 50% of direct materials purchased are paid for in the quarter purchased, 50% are paid in the following quarter, and an accounts payable balance of \$10,600 on December 31, 2004 is paid for in the first quarter of 2005. The schedule of cash payments will be as follows:

Amounts in parentheses taken from direct material purchases budget

Schedule of Expected Payments for Direct Materials

	Quarter			
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Accounts Payable, 12/31/04	\$10,600			
First quarter (\$25,200)	12,600	\$12,600		
Second quarter (\$29,200)		14,600	\$14,600	
Third quarter (\$33,200)			16,600	\$16,600
Fourth quarter (\$37,200)				18,600
Total payments	<u>\$23,200</u>	<u>\$27,200</u>	<u>\$31,200</u>	<u>\$35,200</u>



Cash Budget

Assume that ending cash is \$38,000 for 2004 and marketable securities are expected to be sold for \$2,000 cash in the first quarter. Collections from customers was calculated in [Illustration 24-14](#). The receipts section of the Hayes Company cash budget is shown below:

HAYES COMPANY				
Cash Budget				
For the Year Ending December 31, 2005				
	<u>Quarter</u>			
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Beginning cash balance	\$38,000	\$25,500	\$15,000	\$19,400
Add: Receipts				
Collections from customers	168,000	198,000	228,000	258,000
Sale of securities	<u>2,000</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total receipts	<u>170,000</u>	<u>198,000</u>	<u>228,000</u>	<u>258,000</u>
Total available cash	<u>208,000</u>	<u>223,500</u>	<u>243,000</u>	<u>277,400</u>

Cash Budget

- **Direct materials amounts:** taken from the schedule of payments for direct materials.
- **Direct labor amounts:** taken from direct labor budget-100% paid in quarter incurred.
- **Manufacturing overhead and selling and administrative expense amounts:** all items except depreciation are paid in the quarter incurred.
- Management plans to **purchase a new truck** in the second quarter for \$10,000.
- The company makes equal quarterly payments (\$3,000) of its **estimated annual income taxes**.

Cash Budget

HAYES COMPANY				
Cash Budget				
For the Year Ending December 31, 2005				
	<u>Quarter</u>			
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Less: Disbursements				
Direct materials	\$23,200	\$27,200	\$31,200	\$35,200
Direct labor	62,000	72,000	82,000	92,000
Manufacturing overhead	53,300	56,300	59,300	62,300
Selling and adm. expenses	41,000	43,000	45,000	47,000
Purchase of a truck	0	10,000	0	0
Income tax expense	<u>3,000</u>	<u>3,000</u>	<u>3,000</u>	<u>3,000</u>
Total disbursements	<u>182,500</u>	<u>211,500</u>	<u>220,500</u>	<u>239,500</u>

Disbursements will be subtracted from Receipts in order to determine Excess (deficiency) of available cash over disbursements.

Cash Budget

Assuming that a minimum cash balance of \$15,000 must be maintained, \$3,000 of financing will be needed in the 2nd quarter. Loans must be paid back the next quarter (if there is sufficient cash) with interest. Assume interest is \$100 on the \$3,000 borrowed the second quarter.

HAYES COMPANY				
Cash Budget				
For the Year Ending December 31, 2005				
	<u>Quarter</u>			
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Total available cash	208,000	223,500	243,000	277,400
Total disbursements	182,500	211,500	220,500	239,500
Excess (deficiency) of available cash over disbursements	25,500	12,000	22,500	37,900
Financing				
Borrowings	0	3,000	0	0
Repayments-plus \$100 interest	0	0	3,100	0
Ending cash balance	<u>\$25,500</u>	<u>\$15,000</u>	<u>\$19,400</u>	<u>\$37,900</u>

Budgeted Balance Sheet

- **A projection of financial position at the end of the budget period.**
- **Developed from the budgeted balance sheet for the preceding year and the budgets for the current year.**

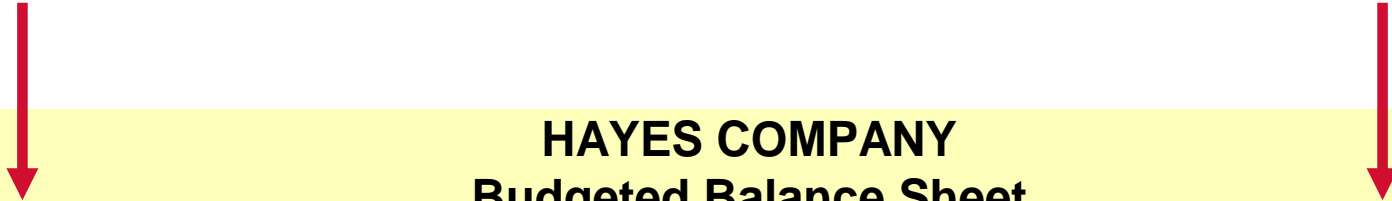
Beginning balances for 2005:

Building and equipment	\$182,000
Accumulated depreciation	\$28,800
Common Stock	\$225,000
Retained earnings	\$46,480



Budgeted Balance Sheet

Sources and computations of the amounts in the *Assets* section of the Budgeted Balance Sheet are shown below:



HAYES COMPANY
Budgeted Balance Sheet
December 31, 2005

<u>Assets</u>		
Cash	(Ending cash balance shown in cash budget)	\$ 37,900
Accounts Receivable	(Schedule of cash collections)	108,000
Finished goods inventory	(1,000 units x \$44 [production budget])	44,000
Raw materials inventory	(1,020 lbs x \$4 [direct materials budget])	4,080
Buildings and equipment	(\$182,000 + \$10,000 [new truck])	\$192,000
Less: Accumulated depreciation	(\$28,800 + \$15,200 MOH budget and \$4,000 S&A budget)	<u>48,000</u>
Total assets		<u>\$337,980</u>

Budgeted Balance Sheet

- (50% of 4th Q purchases of \$37,200 on schedule of expected payments)
- (Common Stock - Unchanged from beginning of year)
- (2004 balance of \$46,480 + net income \$47,900) found on Budgeted Income Statement

HAYES COMPANY
Budgeted Balance Sheet
December 31, 2005

Liabilities and Stockholders' Equity

Accounts payable	\$ 18,600
Common stock	225,000
Retained earnings	<u>94,380</u>
Total liabilities and stockholders' equity	<u>\$ 337,980</u>

Budgeting in Non-Manufacturing Companies

STUDY OBJECTIVE 6

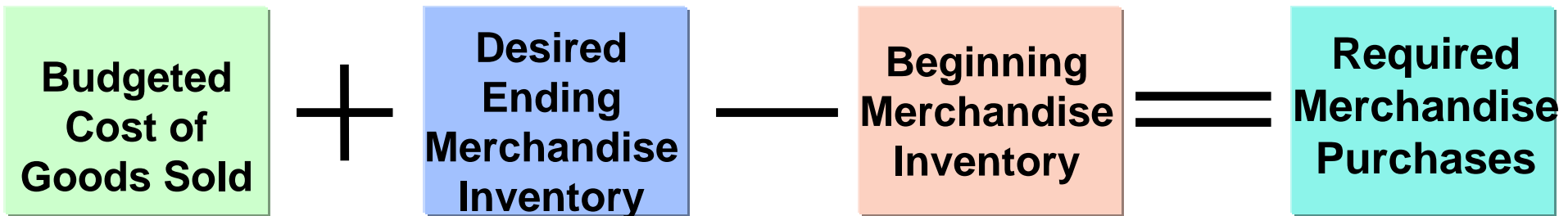
Budgets may also be used in by:

- **Merchandisers**
- **Service enterprises**
- **Not-for-profit organizations**

Merchandise Purchases Formula

The major differences between the budgets of a merchandiser and a manufacturer are that a merchandiser:

- Uses a merchandise purchases budget instead of a production budget.**
- Does not use the manufacturing budgets (direct materials, direct labor, and manufacturing overhead).**



Computation of Required Merchandise Purchases

- Lima Company's budgeted sales will be \$300,000 in July and \$320,000 in August. Cost of goods sold is expected to be 70% of sales, and the company's desired ending inventory is 30% of the following month's cost of goods sold. Required merchandise purchases for July are \$214,200, computed as follows:

Budgeted cost of goods sold (budgeted sales for July, $\$300,000 \times 70\%$)	\$210,000
Desired ending merchandise inventory (budgeted cost of goods sold for August, $(\$320,000 \times 70\% \times 30\%)$)	<u>67,200</u>
Total	277,200
Less: Beginning merchandise inventory (budgeted sales for July, $\$300,000 \times 70\% \times 30\%$)	<u>63,000</u>
Required merchandise purchase for July	<u>\$214,000</u>

Service Enterprises

- **Critical factor in budgeting**
 - coordinating professional staff needs with anticipated services.

If a firm is overstaffed:

- **Labor costs will be disproportionately high.**
- **Profits will be lower because of the additional salaries.**
- **Staff turnover will increase because of lack of challenging work.**

Service Enterprises

If an enterprise is understaffed,

- **Revenue may be lost because existing and prospective client needs for service cannot be met, and**
- **Professional staff may seek other jobs because of excessive work loads.**

Not-for-Profit Organizations

- **Budgeting is just as important for not-for-profit organizations as for profit-oriented enterprises.**
- **In most cases, not-for-profit entities budget on the basis of cash flows (expenditures and receipts), rather than on a revenue and expense basis.**
- **The starting point in the budgeting process is usually expenditures, not receipts.**



Review

A sales budget is:

- a. derived from the production budget.
- b. management's best estimate of sales revenue for the year.
- c. not the starting point for the master budget.
- d. prepared only for credit sales.

Review

A sales budget is:

- a. derived from the production budget.
- b. management's best estimate of sales revenue for the year.**
- c. not the starting point for the master budget.
- d. prepared only for credit sales.

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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 25

Budgetary Control and Responsibility Accounting

Prepared by Naomi Karolinski

Monroe Community College

and

Marianne Bradford

Bryant College

CHAPTER 25

Budgetary Control and Responsibility Accounting

After studying this chapter, you should be able to:

- 1 Describe the concept of budgetary control.**
- 2 Evaluate the usefulness of static budget reports.**
- 3 Explain the development of flexible budgets and the usefulness of flexible budget reports.**
- 4 Describe the concept of responsibility accounting.**
- 5 Indicate the features of responsibility reports for cost centers.**

After studying this chapter, you should be able to:

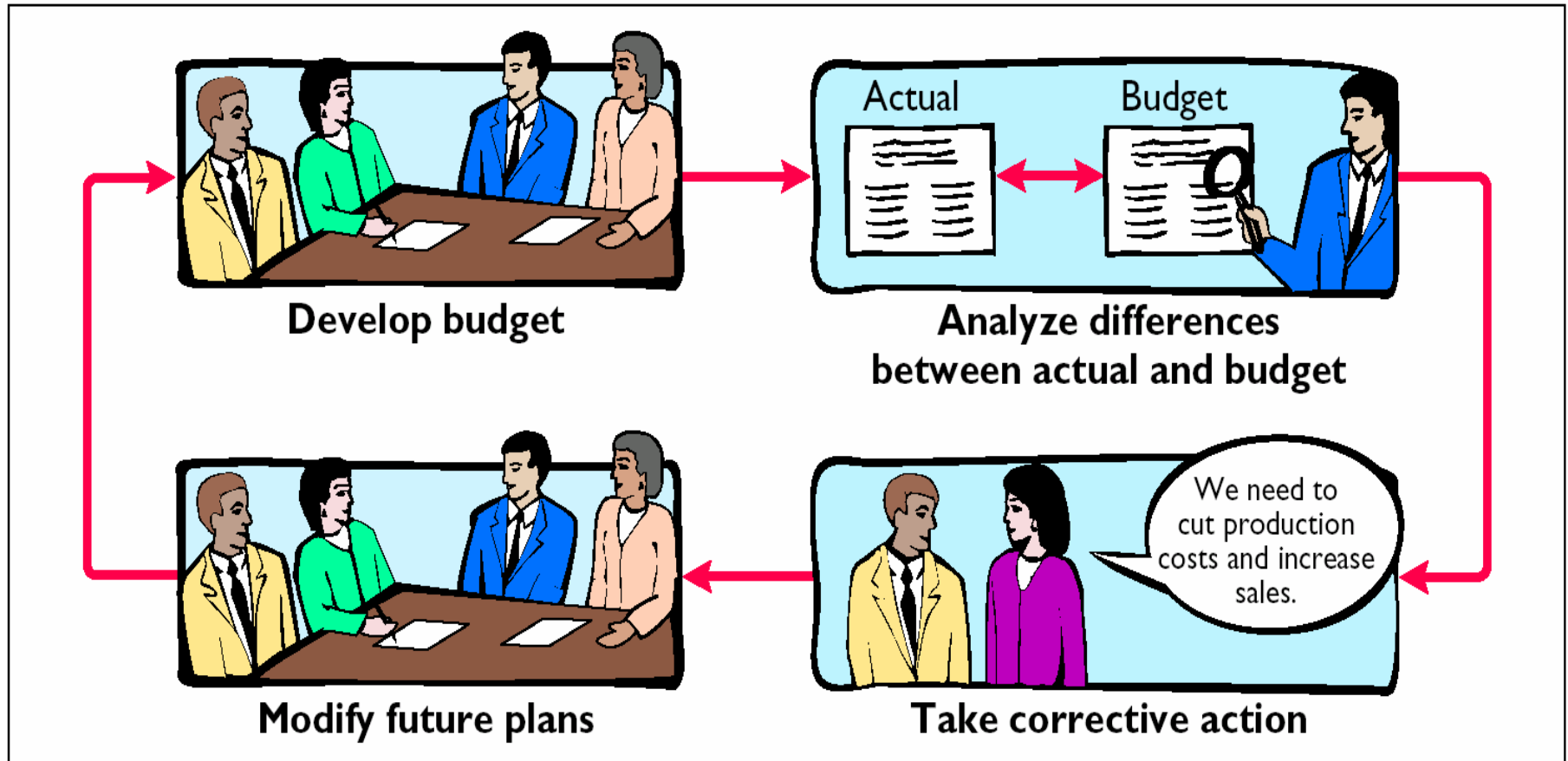
- 6 Identify the content of responsibility reports for profit centers.**
- 7 Explain the basis and formula used in evaluating performance in investment centers.**

Budgetary Control

STUDY OBJECTIVE 1

- ***Budget reports* compare actual results with planned objectives.**
- **Provides management with feedback on operations.**

Budgetary Control



Budgetary Control

A formalized reporting system should :

- **Identify the name of the budget report:**
 - such as the sales budget or the manufacturing overhead budget
- **Frequency of the report**
 - weekly or monthly
- **Purpose of the report**
- **Recipient(s) of the report**



Budgetary Control Reporting System

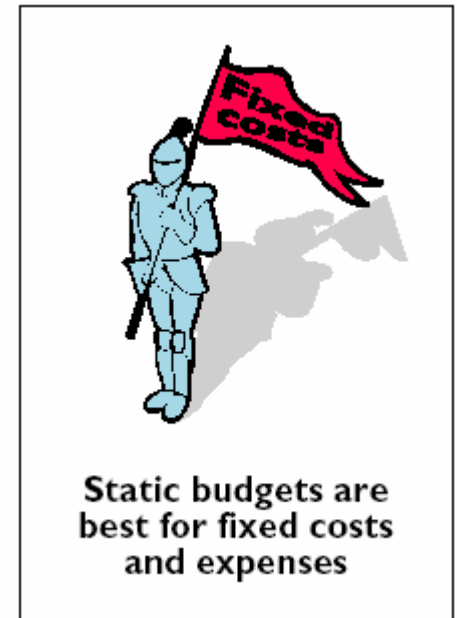
<u>Name of Report</u>	<u>Frequency</u>	<u>Purpose</u>	<u>Primary Recipient(s)</u>
Sales	Weekly	Determine whether sales goals are being met	Top management and sales manager
Labor	Weekly	Control direct and indirect labor costs	Vice president of production and production department managers
Scrap	Daily	Determine efficient use of materials	Production manager
Department Overhead costs	Monthly	Control overhead costs	Department manager
Selling expenses	Monthly	Control selling expenses	Sales manager
Income Statement	Monthly and quarterly	Determine whether income objectives are being met	Top manager

The schedule above illustrates a partial budgetary control system for a manufacturing company. Note the frequency of reports and their emphasis on control

Static Budget Reports

STUDY OBJECTIVE 2

- **Projection of budget data at one level of activity.**
- **Data for different levels of activity are ignored.**
- **Actual results are always compared with the budget data at the activity level in the master budget.**



Budget and Actual Sales Data

To illustrate the role of a static budget in budgetary control, we will use selected data for Hayes Company prepared in Chapter 24.

Budget and actual sales data for the Kitchen-mate product in the first and second quarters of 2005 are as follows:

Sales	First Quarter	Second Quarter	Total
Budgeted	\$180,000	\$210,000	\$390,000
Actual	179,000	199,500	378,500
<i>Difference</i>	<i>\$1,000</i>	<i>\$10,500</i>	<i>\$11,500</i>

Sales Budget Report: First Quarter

The sales budget report for Hayes Company's 1st quarter is shown below.


HAYES COMPANY			
Sales Budget Report			
For the Quarter Ended March 31, 2005			
			Difference
			Favorable F
Product Line	Budget	Actual	Unfavorable U
Kitchen-mate	\$180,000	\$179,000	\$1,000 U

The report shows that sales are \$1,000 under budget - an unfavorable result. This difference is less than 1% of budgeted sales ($\$1,000/\$180,000 = .0056$), we will assume that top management of Hayes Company will view the difference as immaterial and take no specific action.

Sales Budget Report: Second Quarter

HAYES COMPANY			
Sales Budget			
For the Quarter Ended June 30, 2005			
	Second Quarter		
			Difference
			Favorable F
Product Line	Budget	Actual	Unfavorable U
Kitchen-mate	\$210,000	\$199,500	\$10,500 U

The second quarter shows that sales were \$10,500 below budget, which is 5% of budgeted sales ($\$10,500/\$210,000$). Top management may conclude that the difference between budgeted and actual sales in the second quarter merits investigation and will begin by asking the sales manager the cause(s).



Uses and Limitations

A static budget evaluates a manager's effectiveness in controlling costs when:

- **Actual level of activity closely approximates the master budget activity level, and/or**
- **Behavior of the costs in response to changes in activity is fixed.**



Review

A static budget is useful in controlling costs when cost behavior is:

- a. mixed.
- b. fixed.
- c. variable.
- d. linear.

Review

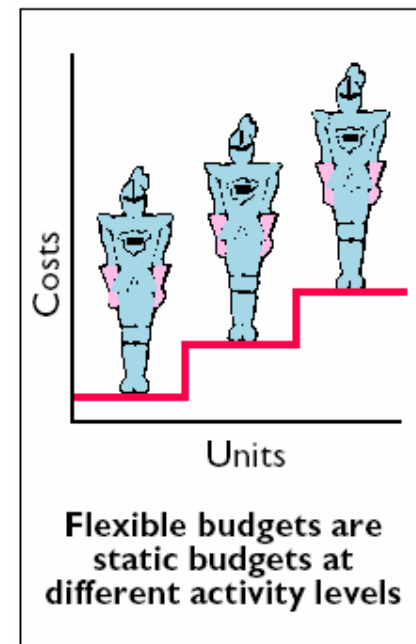
A static budget is useful in controlling costs when cost behavior is:

- a. mixed.
- b. fixed.**
- c. variable.
- d. linear.

Flexible Budgets

STUDY OBJECTIVE 3

- A **flexible budget** projects budget data for various levels of activity.
- The flexible budget recognizes that the budgetary process is more useful if it is adaptable to changed operating conditions.



Static Overhead Budget

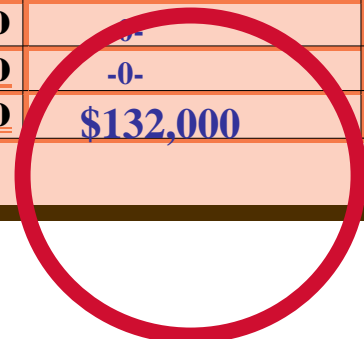
BARTON STEEL	
Manufacturing Overhead Budget (Static)	
Forging Department	
For the Year Ended December 31, 2005	
Budgeted production in units(steel ingots)	10,000
Budget costs	
Indirect material	\$ 250,000
Indirect labor	260,000
Utilities	190,000
Depreciation	280,000
Property taxes	70,000
Supervision	<u>50,000</u>
(Budget based on 10,000 units of production)	<u><u>\$1,100,000</u></u>

Barton Steel prepares the above static budget for manufacturing overhead based on a production volume of 10,000 units of steel ingots.

Static Overhead Budget Report

If demand for steel ingots has increased and 12,000 units are produced during the year, rather than 10,000, the budget report will show very large variances. This is because the comparison is based on budget data based on the original activity level (10,000 steel ingots). Variable budget allowances have increased with production.

BARTON STEEL			
Manufacturing Overhead Budget Report (Static)			
Forging department			
For the Year Ended December 31,2005			
			<u>Difference</u>
			Favorable F
	<u>Budget</u>	<u>Actual</u>	<u>Unfavorable U</u>
Production in units	<u>10,000</u>	<u>12,000</u>	
Costs			
Indirect materials	\$ 250,000	\$ 295,000	\$ 45,000 U
Indirect labor	260,000	312,000	52,000 U
Utilities	190,000	225,000	35,000 U
Depreciation	280,000	280,000	-0-
Property taxes	70,000	70,000	-0-
Supervision	50,000	50,000	-0-
	<u>\$1,100,000</u>	<u>\$1,232,000</u>	<u>\$132,000</u>



Variable Costs per Unit

<u>Item</u>	<u>Total Cost</u>	<u>Production</u>	<u>Per Unit</u>
Indirect material	\$250,000	/10,000 units	\$25
Indirect labor	260,000	/10,000 units	26
Utilities	<u>190,000</u>	<u>/10,000 units</u>	<u>19</u>
	<u>\$700,000</u>		<u>\$70</u>

Comparing actual variable costs with budgeted costs is meaningless (due to different levels of activity), variable per unit costs must be isolated, so the budget can be adjusted. An analysis of the budget data for these costs at 10,000 units produces the above per unit results:

Illustration 25-9

Budgeted Variable Costs (12,000 units)

<u>Item</u>	<u>Computation</u>	<u>Total</u>
Indirect material	\$25 X 12,000	\$300,000
Indirect labor	26 X 12,000	312,000
Utilities	19 X 12,000	<u>228,000</u>
		<u>\$840,000</u>

The budgeted variable costs at 12,000 units, therefore, are shown above. Because *FIXED* costs do not change in total as activity changes, the budgeted amounts for these costs remain the same.

Flexible Overhead Budget Report

This budget report based on the flexible budget for 12,000 units of production shows that the Forging Department is below budget- a favorable difference.

BARTON STEEL –Forging Department Manufacturing Overhead Budget Report (Flexible) For the Year Ended December 31,2005			
			<u>Difference</u>
			Favorable F
	<u>Budget</u>	<u>Actual</u>	<u>Unfavorable U</u>
Production in units	<u>12,000</u>	<u>12,000</u>	
Variable Costs			
Indirect materials	\$300,000	\$ 295,000	\$ 5,000 F
Indirect labor	312,000	312,000	-0-
Utilities	<u>228,000</u>	<u>225,000</u>	3,000 F
Total variable	<u>840,000</u>	<u>832,000</u>	<u>8,000 F</u>
Fixed Costs			
Depreciation	280,000	280,000	-0-
Property taxes	70,000	70,000	-0-
Supervision	<u>50,000</u>	<u>50,000</u>	-0-
Total fixed	<u>400,000</u>	<u>400,000</u>	<u>-0-</u>
Total costs	<u>\$1,240,000</u>	<u>\$1,232,000</u>	<u>\$8,000 F</u>

Developing the Flexible Budget

- **Identify the activity index and the relevant range of activity.**
- **Identify the variable costs, and determine the budgeted variable cost per unit of activity for each cost.**
- **Identify the fixed costs, and determine the budgeted amount for each cost.**
- **Prepare the budget for selected increments of activity within the relevant range.**

Flexible Budget -A Case Study

Master Budget Data

Fox Company wants to use a flexible budget for monthly comparisons of actual and budgeted manufacturing overhead costs. The master budget for the year ended December 31, 2005 is prepared using 120,000 direct labor hours and the following overhead costs.

<u>Variable Costs</u>		<u>Fixed Costs</u>	
Indirect material	\$180,000	Depreciation	\$180,000
Indirect labor	240,000	Supervision	120,000
Utilities	<u>60,000</u>	Property Taxes	<u>60,000</u>
Total	<u>\$480,000</u>	Total	<u>\$360,000</u>

STEP 1: Identify the activity index and the relevant range of activity:
The activity index is direct labor hours and management concludes that the relevant range is 8,000-12,000 direct labor hours.

Flexible Budget-A Case Study

Computation of variable costs per direct labor hour

STEP 2: Identify the variable costs and determine the budgeted variable cost per unit of activity for each cost.

There are 3 variable costs and the per unit variable cost is found by dividing each total budgeted cost by the direct labor hours used in preparing the master budget (120,000 hours).

<u>Variable Cost</u>	<u>Computation</u>	<u>Variable Cost per Direct Labor Hour</u>
Indirect material	$\$180,000/120,000$	\$1.50
Indirect labor	$240,000/120,000$	2.00
Utilities	$\underline{60,000/120,000}$	<u>.50</u>
Total		<u>\$4.00</u>

Flexible Budget

A Case Study

- **Step 3: Identify the fixed costs and determine the budgeted amount for each cost.**
- **There are three fixed costs and since Fox desires monthly budget data, the budgeted amount is found by dividing each annual budgeted cost by 12 ($\$180,000/12 = \$15,000$).**

<u>Variable</u>		<u>Fixed</u>	
Indirect material	\$180,000	Depreciation	\$15,000
Indirect labor	240,000	Supervision	10,000
Utilities	<u>60,000</u>	Property Taxes	<u>5,000</u>
	<u>\$480,000</u>		

Flexible Budget - *A Case Study*

Flexible Monthly Overhead Budget

FOX MANUFACTURING COMPANY Flexible Monthly Manufacturing Overhead Budget Finishing Department For the Year 2005					
Activity Level	<u>8,000</u>	<u>9,000</u>	<u>10,000</u>	<u>11,000</u>	<u>12,000</u>
Variable Costs					
Indirect materials	\$12,000	\$13,500	\$15,000	\$16,500	\$18,000
Indirect labor	16,000	18,000	20,000	22,000	24,000
Utilities	<u>4,000</u>	<u>4,500</u>	<u>5,000</u>	<u>5,500</u>	<u>6,000</u>
Total variable	<u>32,000</u>	<u>36,000</u>	<u>40,000</u>	<u>44,000</u>	<u>48,000</u>
Fixed Costs					
Depreciation	15,000	15,000	15,000	15,000	15,000
Property taxes	5,000	5,000	5,000	5,000	5,000
Supervision	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>
Total fixed	<u>30,000</u>	<u>30,000</u>	<u>30,000</u>	<u>30,000</u>	<u>30,000</u>
Total costs	<u>\$62,000</u>	<u>\$66,000</u>	<u>\$70,000</u>	<u>\$74,000</u>	<u>\$78,000</u>

Step 4: Prepare the budget for selected increments of activity within the relevant range.

Flexible Budget - *A Case Study*

Formula for Total Budgeted Costs

- From the budget, the following formula may be used to determine total budgeted costs at any level of activity.
- For Fox Manufacturing, fixed costs are \$30,000, and total variable costs per unit is \$4.00.
- Thus, at 8,622 direct labor hours, total budgeted costs are:

EXAMPLE

Fixed Costs \$30,000	+	Variable Costs \$4.00 x 8,622	=	Total Budgeted Costs \$64,488
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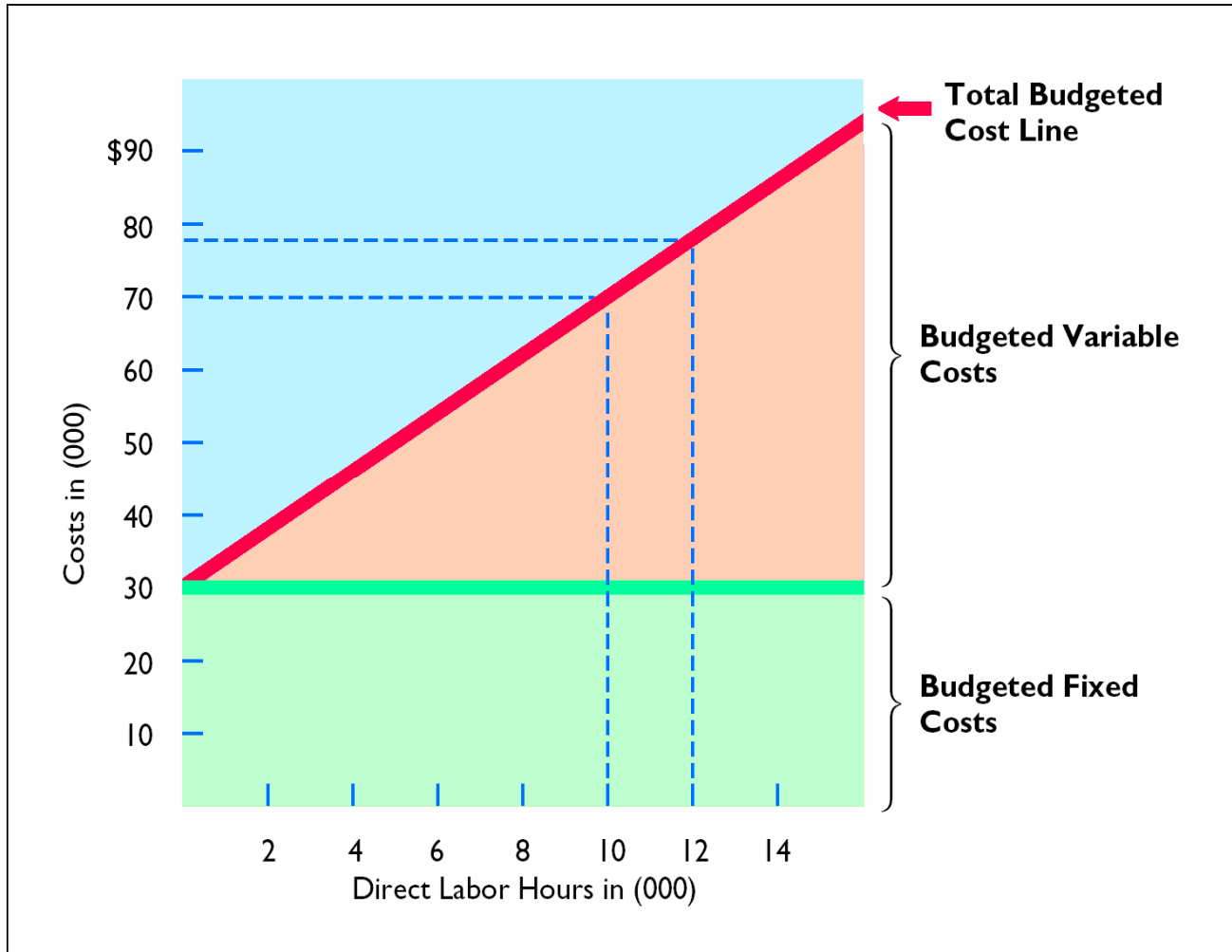
Flexible Budget Reports

Another type of internal report produced by managerial accounting. Two sections:

- **Production data such as direct labor hours**
- **Cost data for variable and fixed costs**

Flexible budgets are used to evaluate a manager's performance in production control and cost control.

Graphic Flexible Budget Data



Flexible Overhead Budget Report

FOX MANUFACTURING COMPANY
Flexible Manufacturing Overhead Budget Report
Finishing Department
For the Month Ended January 31, 2005

Direct labor hours (DLH)			Difference
Expected 8,800	Budget at	Actual Costs	Favorable F
Actual 9,000	<u>9,000 DLH</u>	<u>9,000 DLH</u>	<u>Unfavorable U</u>
Variable costs			
Indirect materials		\$14,000	\$500 U
Indirect labor		17,000	1,000 F
Utilities		<u>4,600</u>	<u>100 U</u>
Total variable		<u>35,600</u>	<u>400 F</u>
Fixed costs			
Depreciation		15,000	-0-
Supervision		10,000	-0-
Property taxes		<u>5,000</u>	<u>-0-</u>
Total fixed		<u>30,000</u>	<u>-0-</u>
Total costs		<u>\$65,600</u>	<u>\$ 400 F</u>

In this budget report, 8,800 DLH were expected but 9,000 hours were worked. Budget data are based on the flexible budget for 9,000 hours.

Management by Exception

Review of a budget report

- Focus on differences between actual results and planned objectives

Guidelines for identifying an exception.

- **Materiality**
 - expressed as a percentage difference from budget
- **Controllability**
 - more restrictive for controllable items than for items that are not controllable by the manager

The Concept of Responsibility Accounting

STUDY OBJECTIVE 4

- **Responsibility accounting involves accumulating and reporting costs (and revenues, where relevant) on the basis of the manager who has the authority to make the day-to-day decisions about the items.**
- **A manager's performance is evaluated on the matters directly under the manager's control.**

Responsibility Accounting

Used at every level of management in which the following conditions exist:

- **Costs and revenues associated with the specific level of management responsibility.**
- **The costs and revenues are controllable at the level of responsibility with which they are associated.**
- **Budget data can be developed for evaluating the manager's effectiveness in controlling the costs and revenues.**



Responsibility Accounting

- **Valuable in a decentralized company.**
- **Decentralization**
 - control of operations delegated to many managers throughout the organization
- **Segment**
 - an identified area of responsibility in decentralized operations



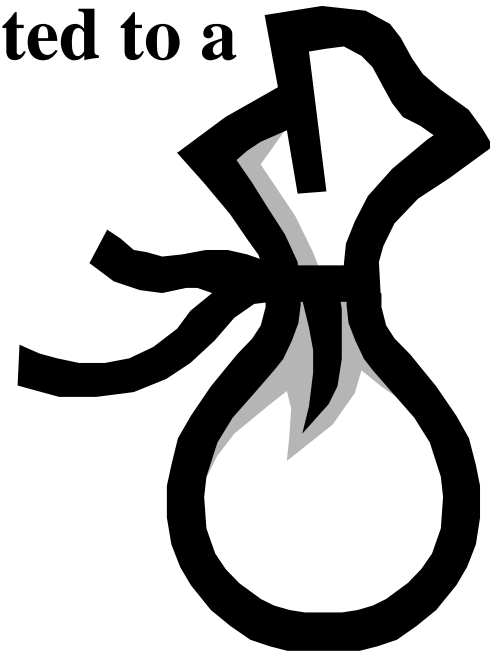
Responsibility Accounting vs. Budgetary Control

Responsibility accounting differs from budgeting in two respects:

- **Distinction between controllable and noncontrollable items**
- **Performance reports**
 - **either emphasize or include only items controllable by the individual manager**

Controllable versus Noncontrollable Revenues and Costs

- **Controllable**
 - **manager has the power to incur it within a given period of time.**
- **Noncontrollable**
 - **Costs incurred indirectly and allocated to a responsibility level.**

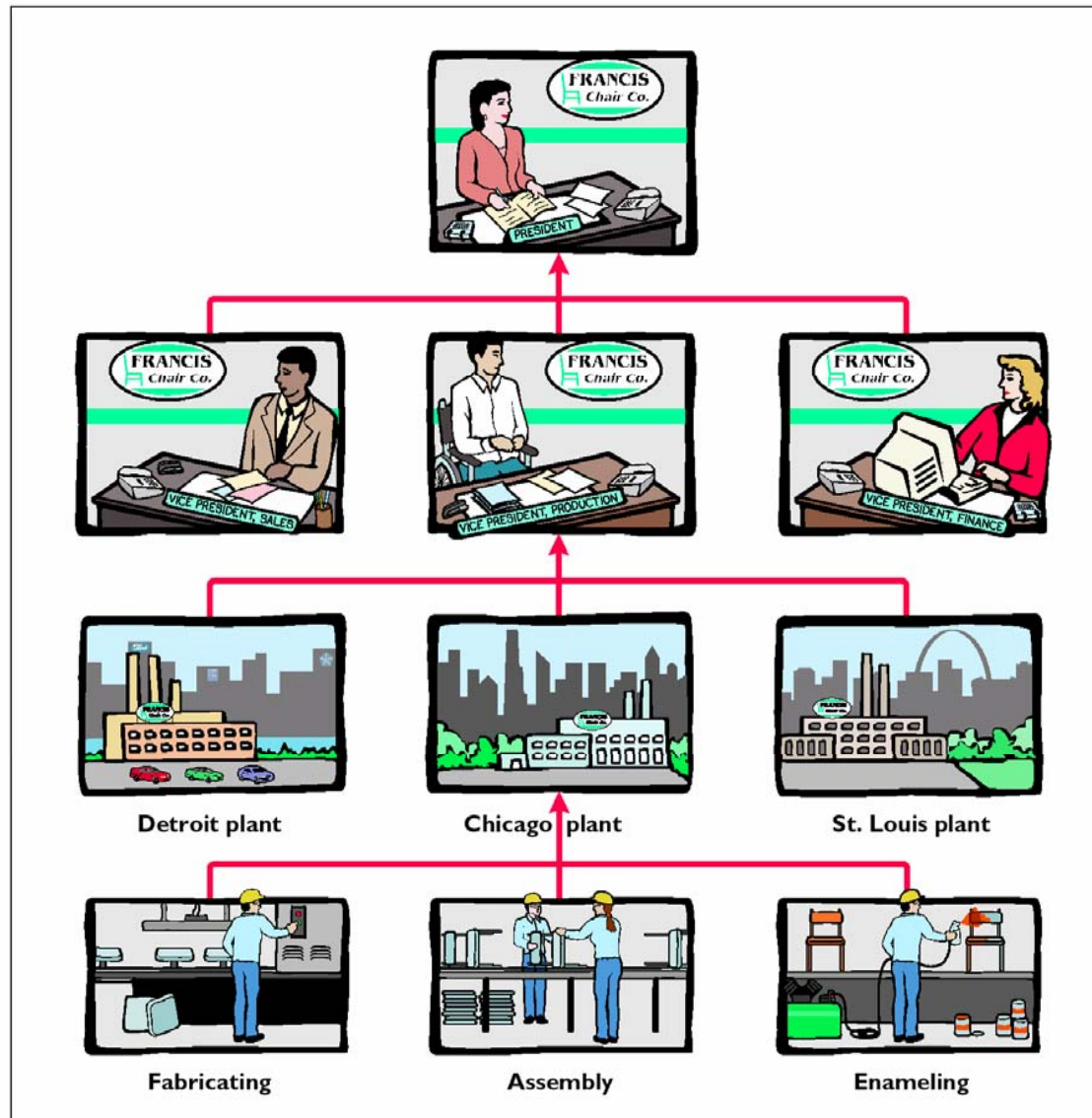


Responsibility Reporting System

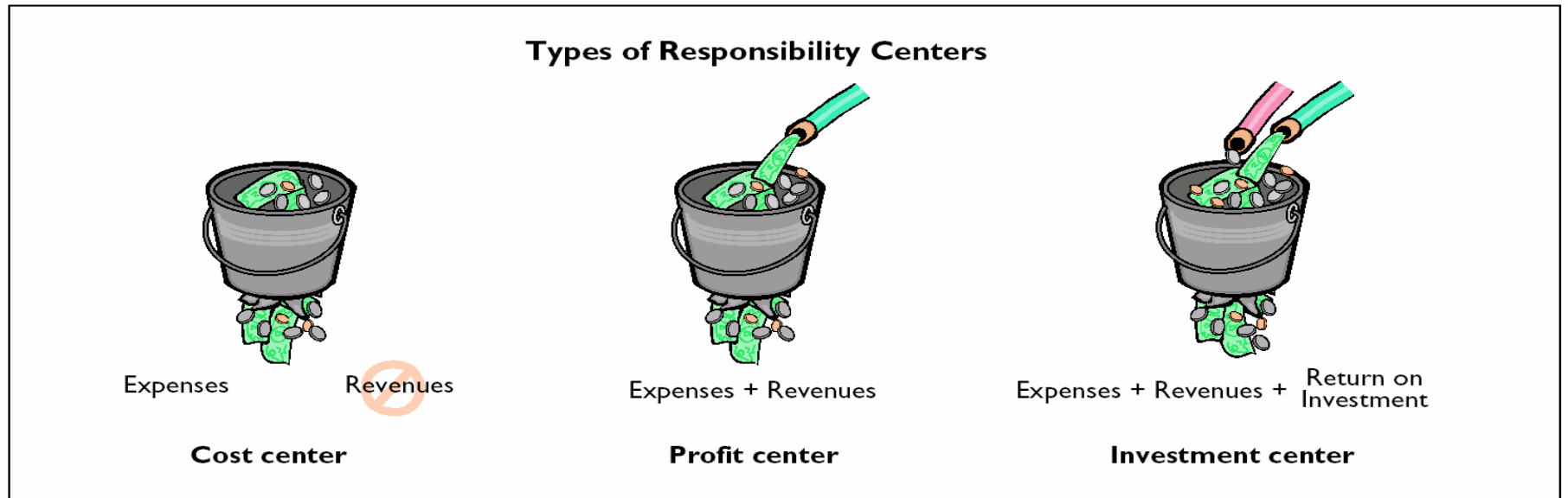
- **Involves preparation of a report for each level of responsibility in the company's organization chart.**
- **Permits management by exception each level of responsibility.**



Responsibility Reporting System



Types of Responsibility Centers



Examples of Responsibility Centers

Examples:

- *Cost center*: usually a production center or service department.
- *Profit center*: individual departments of retail stores and branch offices of banks.
- *Investment center*: subsidiary companies

Responsibility Accounting for Cost Centers

STUDY OBJECTIVE 5

The evaluation of a manager's performance for cost centers is based on his or her ability to meet budgeted goals for controllable costs. Responsibility reports for cost centers compare actual controllable costs with flexible budget data. Assume that the Finishing Department manager is able to control the following costs only.

FOX MANUFACTURING COMPANY			
Finishing Department			
Responsibility Report			
For the Month Ended January 31, 2005			
<u>Controllable cost</u>	<u>Budget</u>	<u>Actual</u>	<u>Variance</u>
Indirect material	\$13,500	\$14,000	\$ 500 U
Indirect labor	18,000	17,000	1,000 F
Utilities	4,500	4,600	100 U
Supervision	4,000	4,000	-0-
	<u>\$40,000</u>	<u>\$39,600</u>	<u>\$400 F</u>

Top
management
may want an
explanation
of these
variance.

Responsibility Accounting for Profit Centers

- **Profit center**
 - the operating revenues and variable expenses are controllable by the manager of the profit center.
- Necessary to distinguish between direct and indirect fixed costs.
- **Direct fixed costs** or traceable costs
 - costs that relate specifically to a responsibility center and are incurred for the sole benefit of the center.
- **Indirect fixed costs**
 - pertain to a company's overall operating activities
 - incurred for the benefit of more than one profit center
 - most indirect costs are not controllable by the profit center manager.

Responsibility Report

STUDY OBJECTIVE 6

- **Shows budgeted and actual controllable revenues and costs for a profit center.**
 - **Prepared using the cost-volume-profit income statement format.**
- 1) Controllable fixed costs**
 - 2) Controllable margin**
 - 3) Noncontrollable fixed costs are not reported.**

Responsibility Report for a Profit Center

MANTLE MANUFACTURING COMPANY Marine Division Responsibility Report For the Year Ended December 31, 2005			
			Difference
	Budget	Actual	Favorable F Unfavorable U
Sales	<u>\$1,200,000</u>	<u>\$1,150,000</u>	<u>\$50,000 U</u>
Variable Costs			
Costs of goods sold	500,000	490,000	10,000 F
Selling and administrative	<u>160,000</u>	<u>156,000</u>	<u>4,000 F</u>
Total	<u>660,000</u>	<u>646,000</u>	<u>14,000 F</u>
Contribution margin	<u>540,000</u>	<u>504,000</u>	<u>36,000 U</u>
Controllable fixed costs			
Cost of goods sold	100,000	100,000	-0-
Selling and administrative	<u>80,000</u>	<u>80,000</u>	<u>-0-</u>
Total	<u>180,000</u>	<u>180,000</u>	<u>-0-</u>
Controllable margin	<u>\$360,000</u>	<u>\$324,000</u>	<u>\$36,000 U</u>

Note that this report does not show noncontrollable fixed costs. This manager was below budgeted expectations by approximately 10% (\$36,000/\$360,000).

Responsibility Accounting for Investment Centers

STUDY OBJECTIVE 7

- **Investment center**
 - the manager can control or significantly influence the investment funds available for use.
- **Return on investment (ROI).**
 - Basis for evaluating the performance of a manager of an investment center
 - considered superior to any other performance measurement
 - shows the effectiveness of the manager in utilizing the assets at his or her disposal

ROI Formula

- **Operating assets**
 - **Current assets and plant assets used in operations by the center.** (Nonoperating assets such as idle plant assets and land held for future use are excluded)
- **Average operating assets**
 - usually based on the beginning and ending cost or book values of the assets

$$\text{\$1,000,000} / \text{\$5,000,000} = 20\%$$



Responsibility Report for Investment Center

MANTLE MANUFACTURING COMPANY

Marine Division

Responsibility Report

For the Year Ended December 31, 2002

	Budget	Actual	Difference Favorable F Unfavorable U
Sales	<u>\$1,200,000</u>	<u>\$1,150,000</u>	<u>\$50,000 U</u>
Variable Costs			
Costs of goods sold	500,000	490,000	10,000 F
Selling and administrative	<u>160,000</u>	<u>156,000</u>	<u>4,000 F</u>
Total	<u>660,000</u>	<u>646,000</u>	<u>14,000 F</u>
Contribution margin	<u>540,000</u>	<u>504,000</u>	<u>36,000 U</u>
Controllable Fixed Costs			
Cost of goods sold	100,000	100,000	-0-
Selling and administrative	<u>80,000</u>	<u>80,000</u>	<u>-0-</u>
Other fixed costs	<u>60,000</u>	<u>60,000</u>	<u>-0-</u>
Total	<u>240,000</u>	<u>240,000</u>	<u>-0-</u>
Controllable margin	<u><u>\$300,000</u></u>	<u><u>264,000</u></u>	<u><u>\$36,000 U</u></u>

Since an investment center is an independent entity for operating purposes, all fixed costs are controllable by the investment center manager. Assume in this example that the manager can control \$60,000 of fixed costs that were not controllable when the division was a profit center.

Responsibility Report for Investment Center

Assuming actual average operating assets are \$2,000,000 actual and budgeted ROI is calculated as follows:

	<u>Budget</u>	<u>Actual</u>	<u>Variance</u>
Controllable margin	\$300,000	\$264,000	\$36,000
/Actual average operating assets	\$2,000,000	\$2,000,000	\$2,000,000
Return on Investment	15%	13.2%	1.8%

Top management would likely want an explanation of the reasons for actual ROI being 12% below budgeted **ROI (1.8% / 15%)**.

Assumed Data for Marine Division

- **A manager can improve ROI by:**
 - Increasing controllable margin *or*
 - Reducing average operating assets.
- **Assume the following data for the Marine Division of Mantle Manufacturing:**

Sales	\$ 2,000,000
Variable cost	<u>1,100,000</u>
Contribution margin(45%)	900,000
Controllable fixed costs	300,000
Controllable margin(a)	<u>\$600,000</u>
Average operating assets(b)	\$ 5,000,000
Return on investment (a)÷(b)	12%

ROI computation - increase in Sales

If sales increased by **10%**, or **\$200,000** ($\$2,000,000 \times .10$) and there was no change in the contribution margin percentage of **45%**, contribution margin will increase **\$90,000** ($\$200,000 \times .45$). Controllable margin will increase by the same amount because controllable fixed costs will not change. Thus, controllable margin becomes **\$690,000** ($\$600,000 + \$90,000$). The new ROI is **13.8%**, computed as follows:

New controllable margin / Average operating assets

$$\mathbf{\$690,000 / \$5,000,000 = 13.8\%}$$

ROI computation - decrease in costs

Controllable margin can also be increased by reducing variable and controllable fixed costs.

If variable and fixed costs were decreased by **10%**, total costs will decrease **\$140,000** $[(\$1,000,000 + \$300,000) \times .10]$. This reduction will result in a corresponding increase in controllable margin. Thus, this margin becomes **\$740,000** $(\$600,000 + \$140,000)$, and the new ROI is **14.8%**, computed as follows:

New Controllable margin / Average operating assets

$$\mathbf{\$740,000 / \$5,000,000 = 14.8\%}$$

ROI Computation - decrease in operating assets

A manager can also improve ROI by reducing average operating assets. Assume that average operating assets are reduced **10%** or **\$500,000** ($\$5,000,000 \times .10$). Average operating assets become **\$4,500,000** ($\$5,000,000 - \$500,000$), Since controllable margin remains unchanged at **\$600,000**, the new ROI is **13.3%**, computed as follows:

Controllable margin / New average operating assets

$$\mathbf{\$600,000 / \$4,500,000 = 13.3\%}$$

Judgmental Factors in ROI

The return on investment approach includes two judgmental factors:

1) *Valuation of operating assets* –

Operating assets may be valued at acquisition cost, book value, appraised value, or market value.

2) *Margin (income) measure* –

This measure may be controllable margin, income from operations, or net income.



Principles of Performance Evaluation

Performance evaluation

- a management function that compares actual results with budget goals.
- includes both *behavioral* and *reporting* principles.

Review

Responsibilities centers include:

- a. cost centers.
- b. profit centers.
- c. investment centers.
- d. all of the above.

Review

Responsibilities centers include:

- a. cost centers.
- b. profit centers.
- c. investment centers.
- d. all of the above.

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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

Chapter 26

Performance Evaluation Through Standard Costs

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CHAPTER 26

Performance Evaluation Through Standard Costs

After studying this chapter, you should be able to:

- 1 Distinguish between a standard and a budget.**
- 2 Identify the advantages of standard costs.**
- 3 Describe how standards are set.**
- 4 State the formulas for determining direct materials and direct labor variances.**
- 5 State the formulas for determining manufacturing overhead variances.**
- 6 Discuss the reporting of variances.**
- 7 Enumerate the features of a standard cost accounting system.**

The Need for Standards

- **Standards**
 - common in business
 - those imposed by government agencies are often called *regulations* (such as Fair Labor Standards Act)
- **Standard costs**
 - predetermined unit costs used as measures of performance



Standards and Budgets

STUDY OBJECTIVE 1

- **Both are pre-determined costs and both contribute to management planning and control.**
- **Standard**
 - *unit* amount
- **Budget**
 - *total* amount
- **Standard costs may be incorporated into a cost accounting system.**

Why Standard Costs?

STUDY OBJECTIVE 2

Advantages of standard costs



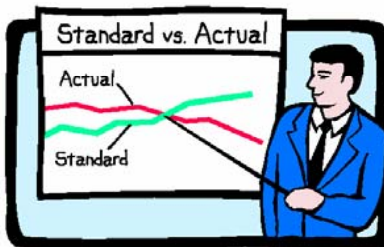
Facilitate management planning



Promote greater economy by making employees more "cost-conscious"



Useful in setting selling prices



Contribute to management control by providing basis for evaluation of cost control



Actual	Standard	Variance
~~~~~	~~~~~	~~~~~
~~~~~	~~~~~	~~~~~
~~~~~	~~~~~	~~~~~

Useful in highlighting variances in management by exception



Simplify costing of inventories and reduce clerical costs

# Review

---

The advantages of standard costs include all of the following *except*:

- a. management by exception may be used.
- b. management planning is facilitated.
- c. they may simplify the costing of inventories.
- d. management must use a static budget.



# Review

---

The advantages of standard costs include all of the following *except*:

- a. management by exception may be used.
- b. management planning is facilitated.
- c. they may simplify the costing of inventories.
- d. management must use a static budget.

# Setting Standard Costs

## STUDY OBJECTIVE 3

- **Input from all persons who have responsibility for costs and quantities.**
- ***Two* levels**
  - **Ideal standards**
    - **optimum levels of performance under perfect operating conditions**
  - **Normal standards**
    - **efficient levels of performance attainable under expected operating conditions**

# A Case Study

- To establish the standard cost of producing a product, it is necessary to establish standards for each manufacturing cost element - *direct materials, direct labor, and manufacturing overhead.*
- The standard for each element is derived from the standard price to be paid and the standard quantity to be used.
- To illustrate, assume that Xonic, Inc., wishes to use standard costs to measure performance in filling an order for 1,000 gallons of Weed-O, liquid weed killer.



# Direct Materials Standard

- **Cost per unit which should be incurred**
  - **purchasing department's best estimate of the cost of raw materials**
  - **include amount for related costs**
    - **receiving, storing, and handling**



# Setting Direct Materials Price Standard

The materials price standard per pound of material for Xonic's weed killer is:



<u>Item</u>	<u>Price</u>
Purchase price, net of discounts	\$2.70
Freight	.20
Receiving and handling	<u>.10</u>
<b>Standard direct materials price per pound</b>	<b><u>\$3.00</u></b>

# Direct Materials Standard

- **Quantity of direct materials used per unit of finished goods**
- **Physical measure**
  - **pounds, barrels, or board feet, etc.**
  - **includes allowances of unavoidable waste and normal storage.**

# Setting Direct Materials Quantity Standard

The standard quantity per unit for Xonic's Weed-O is as follows:



<u>Item</u>	<u>Quantity (Pounds)</u>
Required materials	\$3.50
Allowance for waste	.4
Allowance for spoilage	<u>.10</u>
<b>Standard direct materials quantity per unit</b>	<b><u>4.0</u></b>

# Total Direct Materials Cost/Unit

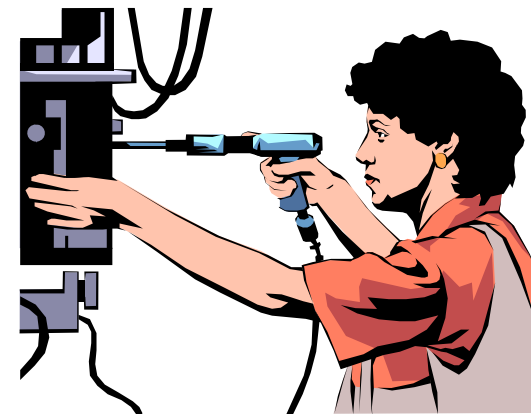
- The standard direct materials cost per unit is calculated as follows for a gallon of Weed-O:

STANDARD DIRECT MATERIALS PRICE	<b>X</b>	STANDARD DIRECT MATERIALS QUANTITY	<b>=</b>	STANDARD DIRECT MATERIALS COST PER UNIT
<b>\$3.00</b>	<b>x</b>	<b>4.0 pounds</b>	<b>=</b>	<b>\$12.00</b>



# Direct Labor Price Standard

- **Rate per hour incurred for direct labor.**
  - based on current wage rates adjusted for anticipated changes, such as cost of living adjustments
  - includes employer payroll taxes and fringe benefits



# Setting Direct Labor Price Standard

For Xonic, Inc., the direct labor price standard is as follows:



<u>Item</u>	<u>Price</u>
Hourly wage rate	\$7.50
Cost of living adjustment	.25
Payroll taxes	<u>.75</u>
Fringe benefits	<u>1.50</u>
<b>Standard direct labor rate per hour</b>	<b><u>\$10.00</u></b>

# Direct Labor Quantity Standard

- **Time required to make one unit of the product**
- **Critical in labor-intensive companies.**
  - **allowances should be made for rest periods, cleanup, machine setup and machine downtime**



# Setting Direct Labor Quantity Standard

For Xonic, Inc., the direct labor quantity standard is as follows:



<u>Item</u>	<u>Quantity (Hours)</u>
Actual production time	1.5
Rest periods and cleanup	.2
Setup and downtime	<u>.3</u>
<b>Standard direct labor hours per unit</b>	<b><u>2.0</u></b>

# Direct Labor

- **The standard direct labor cost per unit is calculated as follows for a gallon of Xonic's Weed-O:**

**STANDARD DIRECT  
LABOR RATE**

**\$10.00**

**x**

**STANDARD DIRECT  
LABOR HOURS**

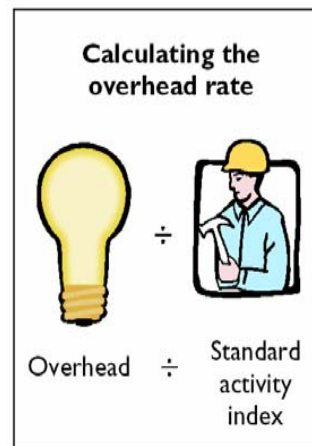
**2.0 hours =**

**STANDARD DIRECT  
LABOR COST  
PER UNIT**

**\$20.00**

# Manufacturing Overhead Standard

- Based on a **standard predetermined overhead rate**.
- Divide budgeted overhead costs by an expected standard activity index.
- The standard manufacturing overhead rate per unit is the predetermined overhead rate times the direct labor quantity standard.



# Computing Predetermined Overhead Rates

Xonic, Inc., uses standard direct labor hours as the activity index. The company expects to produce 13,200 gallons of Weed-O during the year at *normal capacity*. Since it takes two direct labor hours for each gallon, total standard direct labor hours are **26,400** ( $13,200 \times 2$ ). At this level of activity, overhead costs are expected to be \$132,000, of which \$79,200 are variable and \$52,800 are fixed. The **standard predetermined overhead rates** are computed as shown below:



<u>Budgeted Overhead Costs</u>	<u>Amount</u>	/	<u>Standard Direct Labor Hours</u>	=	<u>Overhead Rate Per Direct Labor Hour</u>
Variable	\$79,200		26,400		\$3.00
Fixed	<u>52,800</u>		26,400		<u>2.00</u>
Total	<u>\$132,000</u>		26,400		<u>\$5.00</u>

# Standard Cost Per Gallon of Weed-O

The **total standard cost per unit** is the sum of the standard costs of direct materials, direct labor, and manufacturing overhead. For Xonic, Inc., the total standard cost per gallon of Weed-O is **\$42**, as shown on the following standard cost card:

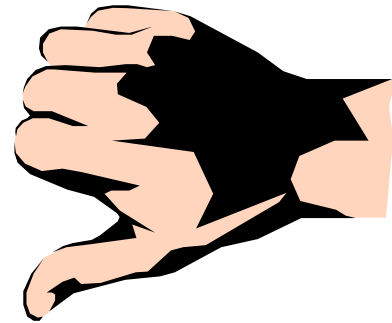


<u>Manufacturing Cost Elements</u>	<u>Standard Quantity</u>	<u>X</u>	<u>Standard Price</u>	<u>=</u>	<u>Standard Costs</u>
Direct materials	4 pounds		\$3.00		<b>\$ 12.00</b>
Direct labor	2 hours		\$10.00		<b>\$ 20.00</b>
Manufacturing overhead	2 hours		\$ 5.00		<b><u>\$ 10.00</u></b>
					<b><u>\$ 42.00</u></b>



# Variance from Standards

- **Difference between total actual costs and total standard costs.**
- ***Unfavorable* variance**
  - too much was paid for materials and labor or that there were inefficiencies in using materials and labor.
- ***Favorable* variances**
  - efficiencies in incurring costs and in using materials and labor.



# Actual Production Costs and Computation of Total Variance

To illustrate variances, we will assume that in producing 1,000 gallons of Weed-O in the month of June, Xonic, Inc. incurred the following costs. The total standard cost of Weed-O is **\$42,000 (1,000 gallons x \$42)**. Thus, the total variance is **\$2,500**, as shown below:

	Actual costs	Standard costs	Total variance
Direct materials	\$13,020		
Direct labor	20,580		
Variable overhead	6,500		
Fixed overhead	<u>4,400</u>		
	<u>\$44,500</u>	42,000	\$2,500

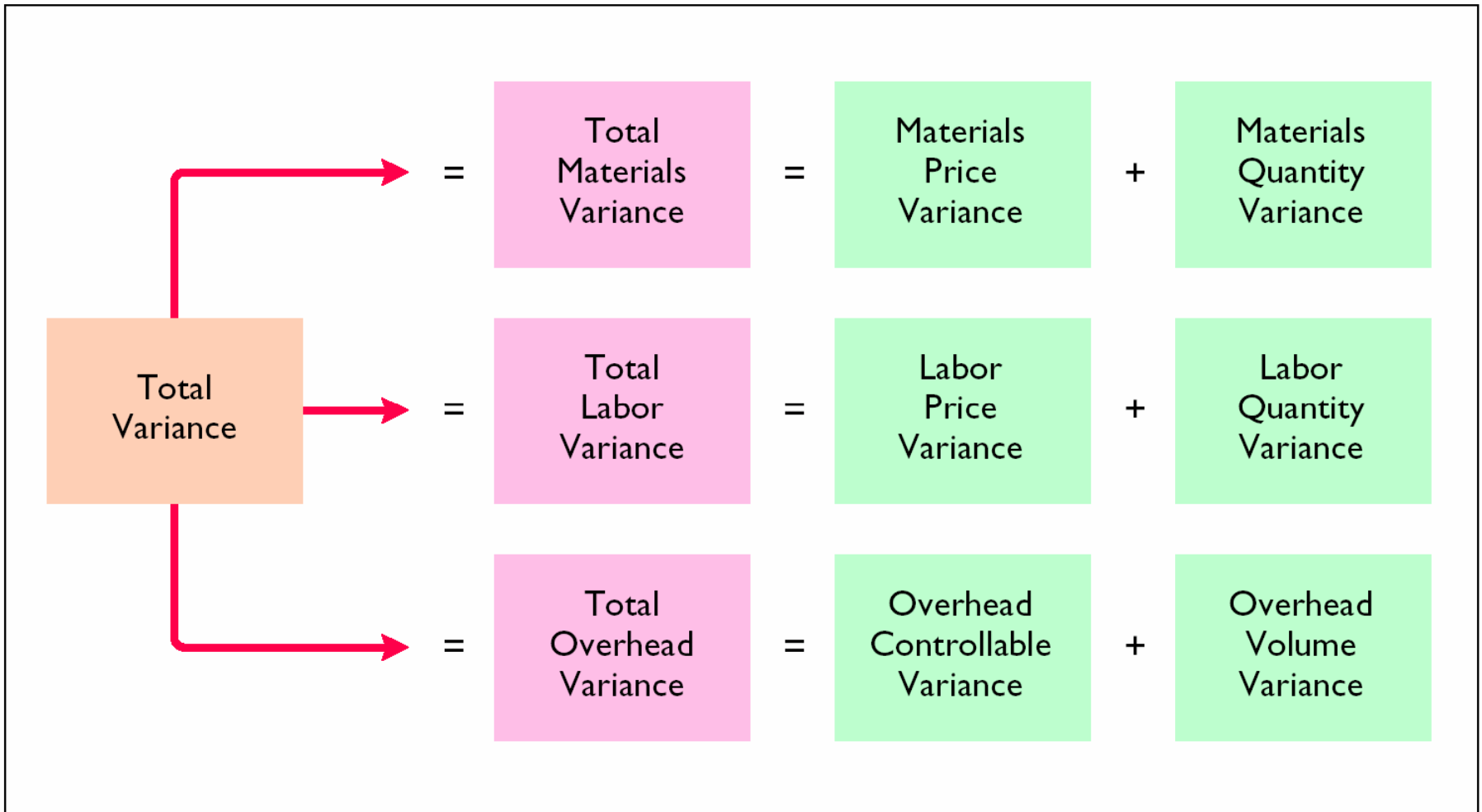
***UNFAVORABLE***

# Analyzing variances

- **Determine the cost elements that comprise the variance.**
- **For each manufacturing cost element, a total dollar variance is computed. Then this variance is analyzed into a *price variance* and a *quantity variance*.**



# Relationships of Variances



# Formula for Total Materials Variance

## STUDY OBJECTIVE 4

In completing the order for 1,000 gallons of Weed-O, Xonic used 4,200 pounds of direct materials purchased at a cost of \$3.10 per unit. The **total materials variance** is computed from the following formula:

Actual Quantity  
x Actual Price  
(AQ) x (AP)

—

Standard Quantity  
x Standard Price  
(SQ) x (SP)

=

Total Materials  
Variance  
(TMV)

$$(4,200 \times \$3.10) - (4,000 \times \$3.00) = \$1,020 \text{ U}$$

# Formula for Materials Price Variance

The **materials price variance** is computed from the following formula. For Xonic, Inc., the materials price variance is \$420 calculated as follows:

$$\begin{array}{|c|} \hline \text{Actual Quantity} \\ \text{x Actual Price} \\ \text{(AQ) x (AP)} \\ \hline \end{array} - \begin{array}{|c|} \hline \text{Actual Quantity} \\ \text{x Standard Price} \\ \text{(SQ) x (SP)} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Materials Price} \\ \text{Variance} \\ \text{(MPV)} \\ \hline \end{array}$$

$$(4,200 \times \$3.10) - (4,200 \times \$3.00) = \$420 \text{ U}$$

# Formula for Materials Quantity Variance

The **materials quantity variance** is determined from the following formula. For Xonic, Inc., the materials quantity variance is \$600 calculated as follows:

$$\begin{array}{|c|} \hline \text{Actual Quantity} \\ \text{x Standard Price} \\ \text{(AQ) x (SP)} \\ \hline \end{array} - \begin{array}{|c|} \hline \text{Standard Quantity} \\ \text{x Standard Price} \\ \text{(SQ) x (SP)} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Materials} \\ \text{Quantity} \\ \text{Variance} \\ \text{(MQV)} \\ \hline \end{array}$$

$$(4,200 \times \$3.00) - (4,000 \times \$3.00) = \$600 \text{ U}$$

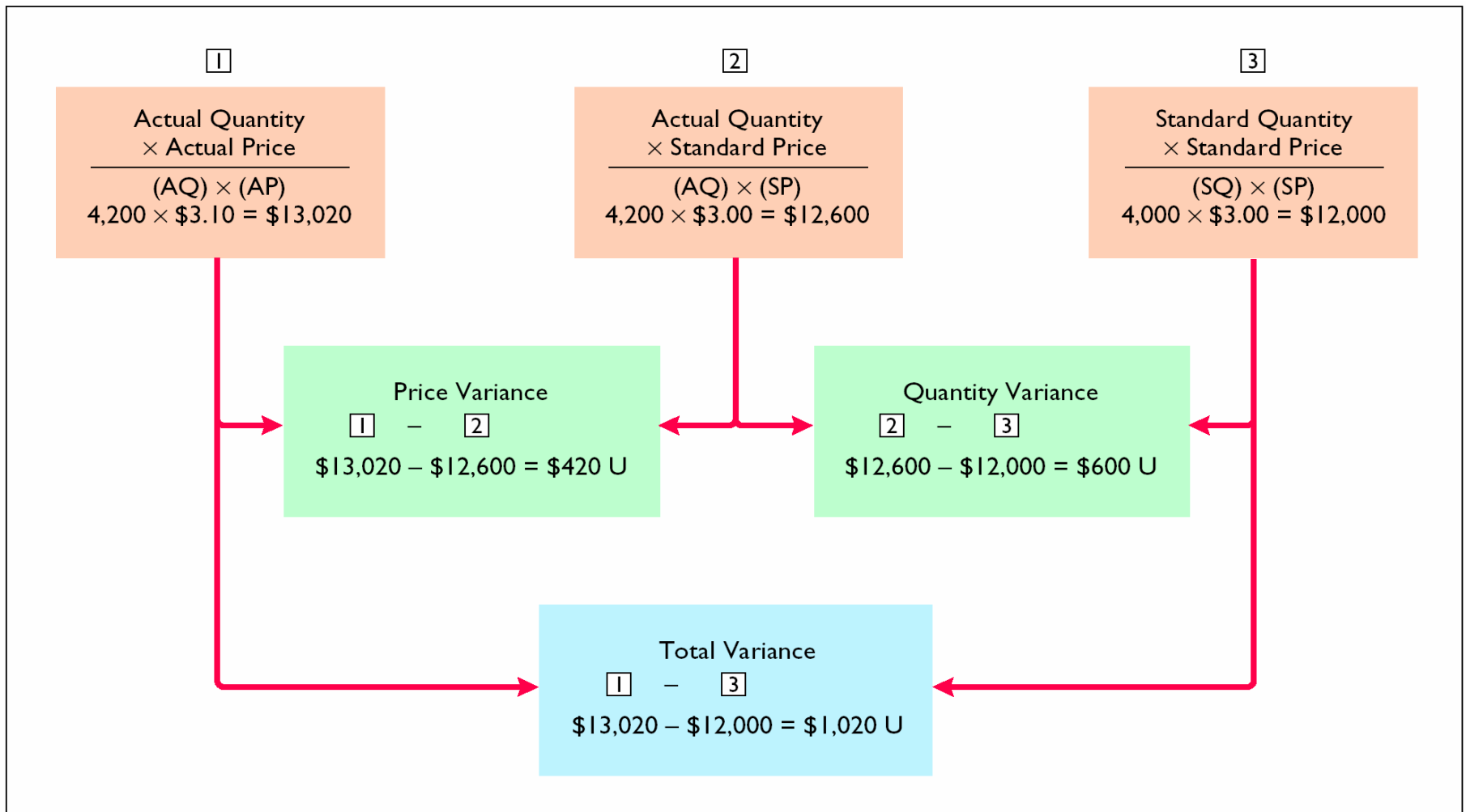
# Summary of Materials Variance

The total materials variance of **\$1,020 (U)**, therefore, consists of the following:

Materials price variance	\$ 420 U
Materials quantity variance	<u>600 U</u>
<b>Total materials variance</b>	<b><u>\$1,020 U</u></b>



# Matrix for Direct Materials Variance



# Causes of Materials Variances

- **Internal and external factors**
- **Materials price variance**
  - **begins in the purchasing department**
  - **variance may be beyond the control of purchasing**
- **Materials quantity variance**
  - **is in the production department.**
  - **variance may be beyond the control of production**

# Formula for Total Labor Variance

In completing the Weed-O order, Xonic, Inc., incurred **2,100 direct labor hours** at an average hourly rate of **\$9.80**. The standard hours allowed for the units produced were **2,000 hours (1,000 units x 2 hours)** and the **standard rate was \$10 per hour**. The **total labor variance** is obtained from the following formula:

Actual Hours  
x Actual Rate  
(AH) x (AR)

–

Standard Hours  
x Standard Rate  
(SH) x (SR)

=

Total Labor  
Variance  
(TLV)

$$(2,100 \times \$9.80) - (2,000 \times \$10.00) = \$580 \text{ U}$$

# Formula for Labor Price Variance

The formula for the **labor price variance** is as follows. Xonic's labor price variance is **\$420 (\$20,580 - \$21,000)** favorable as shown below:

Actual Hours  
x Actual Rate  
(AH) x (AR)

—

Actual Hours  
X Standard Rate  
(AH) x (SR)

=

Labor Price  
Variance  
(LPV)

$$(2,100 \times \$9.80) - (2,100 \times \$10.00) = \$420 \text{ F}$$

# Formula for Labor Quantity Variance

The **labor quantity variance** is derived from the following formula. For Xonic, Inc., the labor quantity variance is **\$1,000 (\$21,000 - \$20,000)** unfavorable:

$$\begin{array}{ccc} \begin{array}{c} \text{Actual Hours} \\ \text{x Standard Rate} \\ \text{(AH) x (SR)} \end{array} & - & \begin{array}{c} \text{Standard Hours} \\ \text{x Standard Rate} \\ \text{(SH) x (SR)} \end{array} & = & \begin{array}{c} \text{Labor} \\ \text{Quantity} \\ \text{Variance} \\ \text{(LQV)} \end{array} \end{array}$$

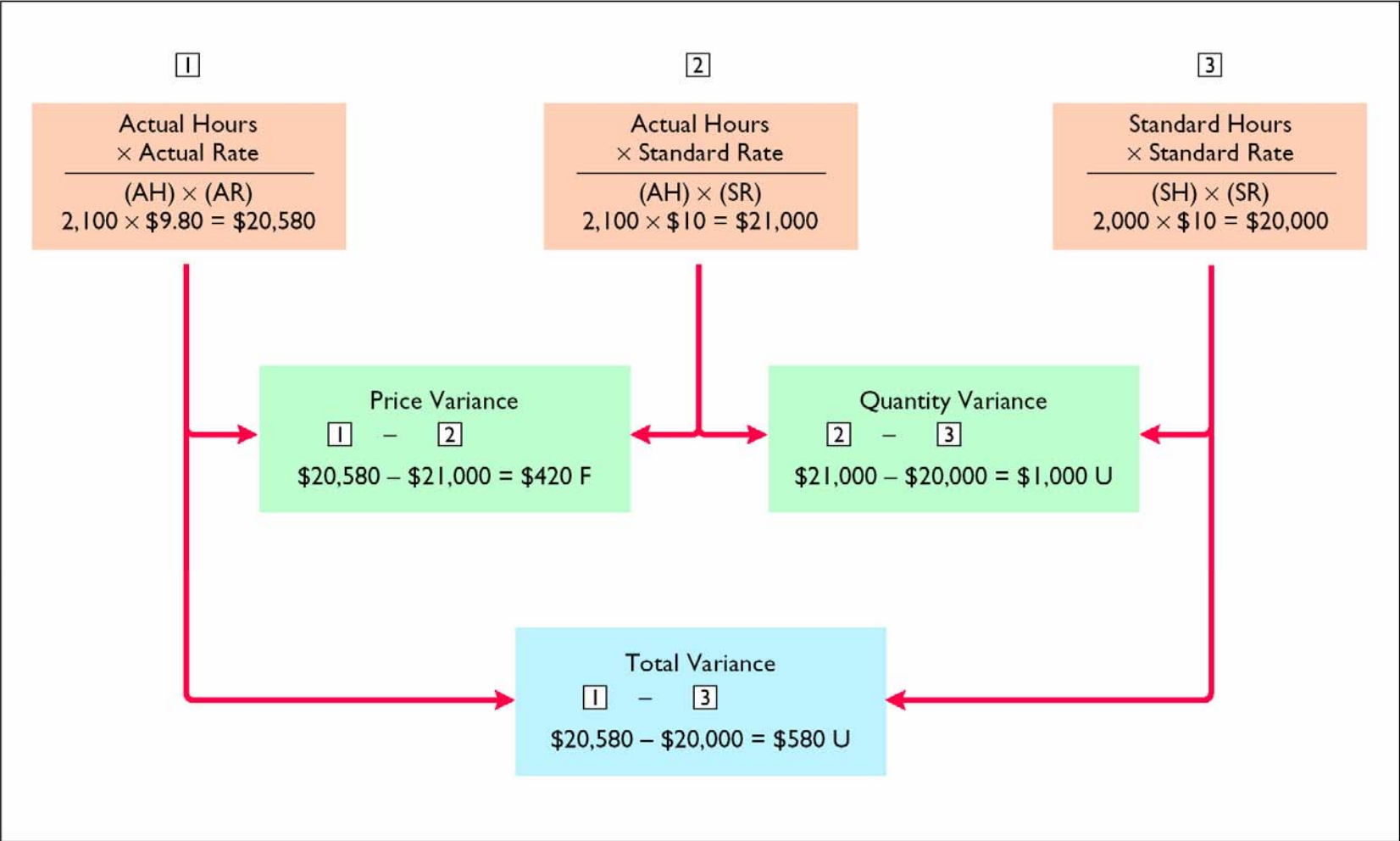
$$(2,100 \times \$10.00) - (2,000 \times \$10.00) = \$1,000 \text{ U}$$

# Summary of Labor Variances

**The total direct labor variance of \$580 U, therefore, consists of:**

Labor price variance	\$ 420 F
Labor quantity variance	<u>1,000 U</u>
<b>Total direct labor variance</b>	<b><u>\$ 580 U</u></b>

# Matrix for Direct Labor Variances



# Actual Overhead Costs

## STUDY OBJECTIVE 5

The **total overhead variance** is the difference between *actual overhead costs* and *overhead costs applied to work done*. As indicated earlier, manufacturing overhead costs incurred were \$10,900, as follows:

Variable overhead	\$6,500
Fixed overhead	<u>4,400</u>
Total actual overhead	<u><b>\$10,900</b></u>



# Formula for Total Overhead Variance

With standard costs, manufacturing overhead costs are applied to work in process on the basis of the standard hours allowed for the work done. **Standard hours allowed** are the hours that should have been worked for the units produced. For the Weed-O order, the standard hours allowed are 2,000. The predetermined overhead rate is \$5 per direct labor hour. Thus, overhead applied is \$10,000. The formula for the total overhead variance is:

Actual Overhead	—	Overhead Applied based on Standard Hours Allowed	=	Total Overhead Variance
\$10,900	-	\$10,000	=	\$900 U

# Formula for Overhead Controllable Variance

The formula for the **Overhead Controllable Variance** is shown below. For Xonic, Inc., the overhead controllable variance is **\$500 unfavorable** :

<b>Actual Overhead</b>	—	<b>Overhead Budgeted based on Standard Hours Allowed</b>	=	<b>Overhead Controllable Variance</b>
<b>\$10,900</b>	-	<b>\$10,400</b>	=	<b>\$500 U</b>

# Formula for Overhead Volume Variance

The **Overhead Volume Variance** indicates whether plant facilities were efficiently used during the period. The formula for computing the volume variance is as follows:

For Xonic Inc., the overhead volume variance is **\$400 unfavorable** as shown below:

Overhead  
Budgeted based  
on Standard  
Hours Allowed

–

Overhead  
Applied based  
on Standard  
Hours Allowed

=

Overhead  
Volume  
Variance

**\$10,400**

–

**\$10,000**

=

**\$400 U**

# Flexible Budget Using Standard Direct Labor Hours

XONIC, INC. Flexible Manufacturing Overhead Budget				
<u>Activity Index</u>				
Standard direct labor hours	<u>1,800</u>	<u>2,000</u>	<u>2,200</u>	<u>2,400</u>
<u>Costs</u>				
Variable costs				
Indirect materials	\$1,800	\$ 2,000	\$ 2,200	\$ 2,400
Indirect labor	2,700	3,000	3,300	3,600
Utilities	<u>900</u>	<u>1,000</u>	<u>1,100</u>	<u>1,200</u>
Total variable	<u>5,400</u>	<u>6,000</u>	<u>6,600</u>	<u>7,200</u>
Fixed costs				
Supervision	3,000	3,000	3,000	3,000
Depreciation	<u>1,400</u>	<u>1,400</u>	<u>1,400</u>	<u>1,400</u>
Total fixed	<u>4,400</u>	<u>4,400</u>	<u>4,400</u>	<u>4,400</u>
Total costs	<u>\$9,800</u>	<u>\$10,400</u>	<u>\$11,000</u>	<u>\$11,600</u>

# Detailed Analysis of Overhead Volume Variance

An analysis of the volume variance shows that of the budgeted overhead of \$10,400, \$6,000 of that amount is variable and \$4,400 is fixed. The predetermined rate of \$5 (obtained in Illustration 26-6) consists of \$3 variable and \$2 fixed.

Overhead budgeted		
Variable costs	\$6,000	
<b>Fixed costs</b>	<b><u>4,400</u></b>	<b>\$10,400</b>
Overhead applied		
Variable costs (2,000 x \$3)	<u>6,000</u>	
<b>Fixed costs (2,000 x \$2)</b>	<b><u>4,000</u></b>	<b><u>10,000</u></b>
Overhead volume variance - unfavorable		<b><u>\$400</u></b>

The analysis shows that the overhead volume variance relates solely to the fixed costs (**fixed costs budgeted \$4,400 - fixed costs applied \$4,000**). Thus the volume variance measures the amount that fixed overhead costs are **under- or overapplied**.

# Alternative Formula for Overhead Volume Variance

An **alternative formula** for computing the volume variance is shown below. In Xonic, Inc., normal capacity is 26,400 hours for the year or **2,200 hours for a month (26,400/12)**, and the fixed overhead rate is \$2 per hour. Thus, the volume variance is \$400 unfavorable as shown below:

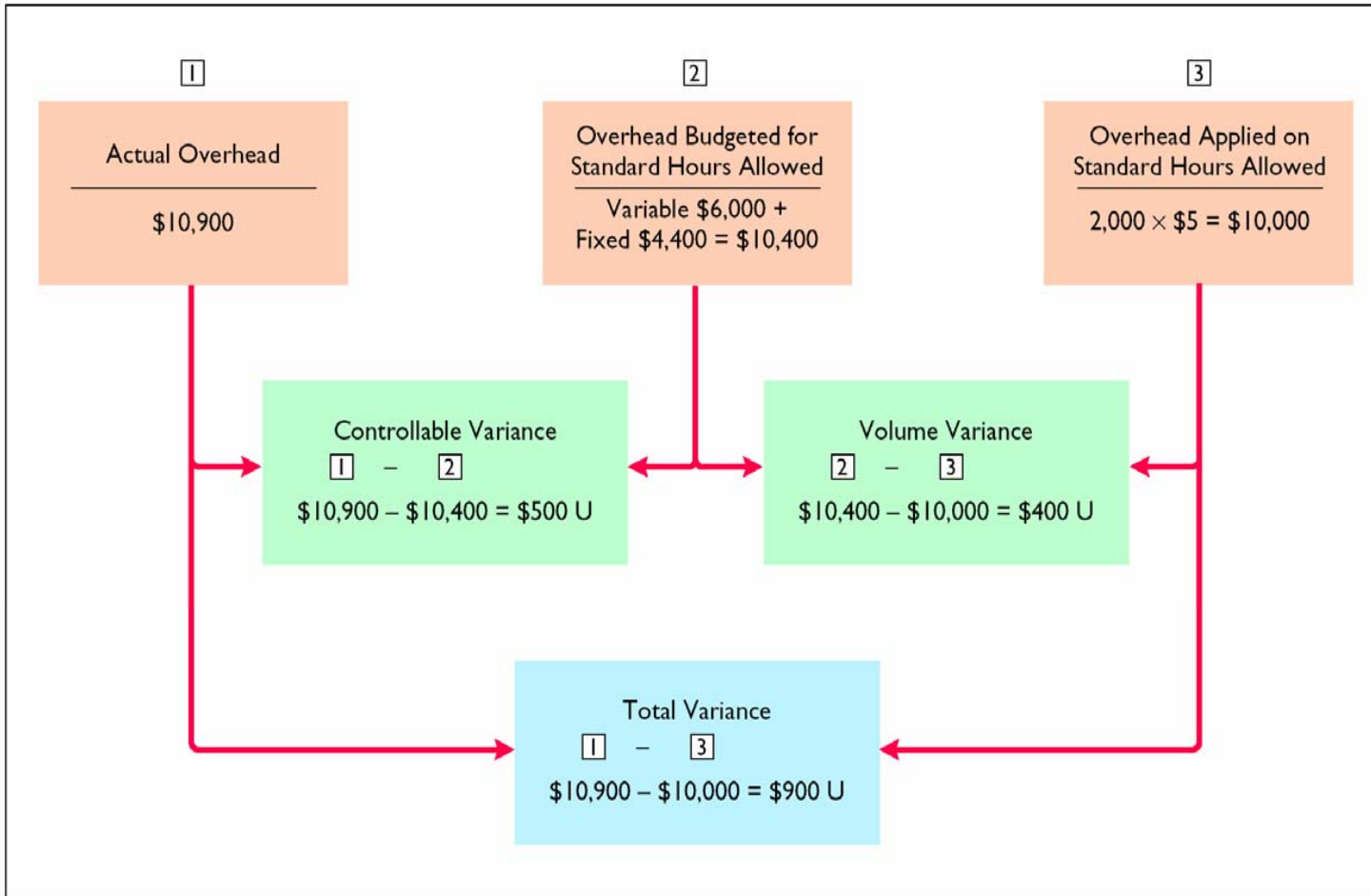
$$\begin{array}{ccc} \begin{array}{c} \text{Fixed} \\ \text{Overhead} \\ \text{Rate} \end{array} & \times & \begin{array}{c} \text{Normal Capacity} \\ \text{Hours - Standard} \\ \text{Hours Allowed} \end{array} = \begin{array}{c} \text{Overhead} \\ \text{Volume} \\ \text{Variance} \end{array} \\ \\ \$2 & \times & (2,200 - 2,000) = \$400 \text{ U} \end{array}$$

# Summary of Overhead Variance

**The total overhead variance of \$900 unfavorable for Xonic, Inc. consists of the following:**

<b>Overhead controllable variance</b>	<b>\$500 U</b>
<b>Overhead volume variance</b>	<b><u>400 U</u></b>
<b>Total overhead variance</b>	<b>900 U</b>

# Matrix for Manufacturing Overhead Variance





# Reporting Variances

## STUDY OBJECTIVE 6

- All **variances** should be reported to appropriate levels of management as soon as possible so that corrective action can be taken.
- The form, content, and frequency of variance reports vary considerably among companies.
- Variance reports facilitate the principle of **“management by exception”**.
  - In using variance reports, top management normally looks for *significant variances*.

# Standard Cost Accounting System

## STUDY OBJECTIVE 7

- **Double-entry system of accounting**
  - standard costs in making entries and variances
  - recognized in the accounts
- **A standard cost, job order cost accounting system includes two important assumptions:**
  - 1) **Variances from standards are recognized at the earliest opportunity**
  - 2) **Work in Process account is maintained exclusively on the basis of standard costs.**

# Standard Cost System

## Journal Entry #1

**Purchased raw materials on account for \$13,020 when the standard cost is \$12,600.**

<b>Raw Material inventory</b>	<b>12,600</b>	
<i>Materials Price Variance</i>	<b>420</b>	
<b>Accounts Payable</b>		<b>13,020</b>
<b>(To record purchase of materials)</b>		

The inventory account is debited for actual quantities at standard cost. This enables the perpetual materials records to show actual quantities. The price variance, which is unfavorable, is debited to Materials Price Variance.

# Standard Cost System

## Journal Entry #2

Incur direct labor costs of \$20,580 when the standard labor cost is \$21,000.

<b>Factory Labor</b>	<b>21,000</b>	
<i>Labor Price Variance</i>		<b>420</b>
<b>Wages Payable</b>		<b>20,580</b>
(To record direct labor costs)		

Like the raw materials inventory account, Factory Labor is debited for the actual hours worked at the standard hourly rate of pay. In this case, the labor variance is favorable. Thus, Labor Price Variance is credited.

# Standard Cost System

## Journal Entry #3

**Incur actual manufacturing overhead costs of \$10,900.**

<b>Manufacturing Overhead</b>	<b>10,900</b>	
<b>Accounts Payable/Cash/Acc. Depr</b>		<b>10,900</b>
<b>(To record overhead incurred)</b>		

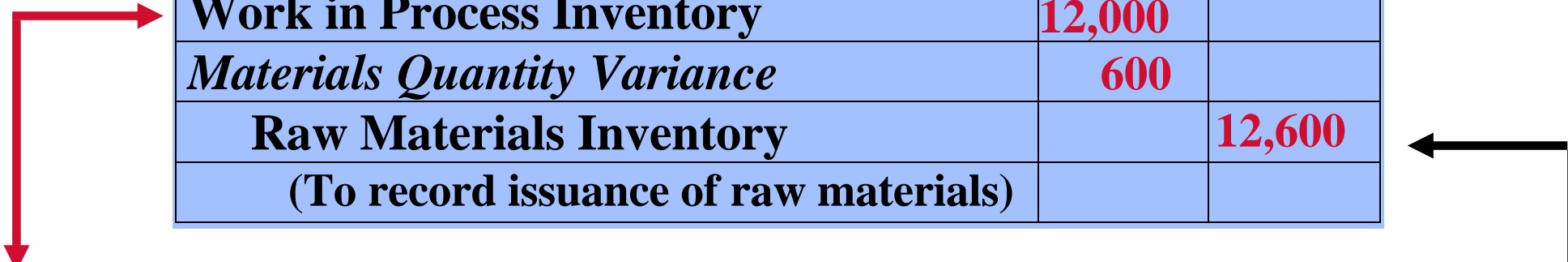
The **controllable overhead variance** is not recorded at this time. It depends on standard hours applied to work in process. This amount is not known at the time overhead is incurred.

# Standard Cost System

## Journal Entry #4

Issue raw materials for production at a cost of \$12,600 when the standard cost is \$12,000.

Work in Process Inventory	12,000	
<i>Materials Quantity Variance</i>	600	
Raw Materials Inventory		12,600
(To record issuance of raw materials)		



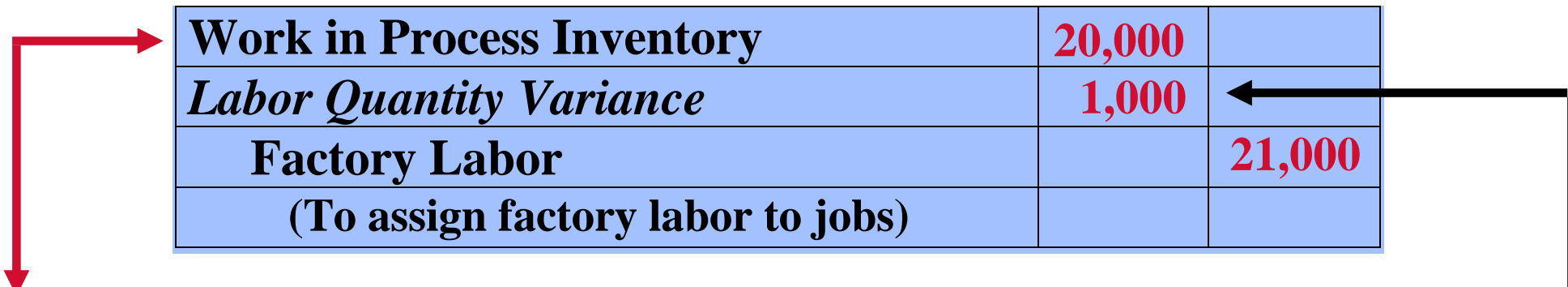
**Work in Process Inventory** is debited for standard materials quantities used at standard prices. The variance account is debited because the variance is unfavorable. Raw Materials Inventory is credited for actual quantities at standard prices.

# Standard Cost System

## Journal Entry #5

**Assign factory labor to production at a cost of \$21,000 when standard cost is \$20,000.**

<b>Work in Process Inventory</b>	<b>20,000</b>	
<i>Labor Quantity Variance</i>	<b>1,000</b>	
<b>Factory Labor</b>		<b>21,000</b>
(To assign factory labor to jobs)		




**Work in Process Inventory is debited for standard hours at standard rates, and the unfavorable variance is debited to Labor Quantity Variance. The credit to Factory Labor produces a zero balance in this account.**

# Standard Cost System

## Journal Entry #6

**Applying manufacturing overhead to production, \$10,000.**



<b>Work in Process Inventory</b>	<b>10,000</b>	
<b>Manufacturing Overhead</b>		<b>10,000</b>
<b>(To assign overhead to jobs)</b>		

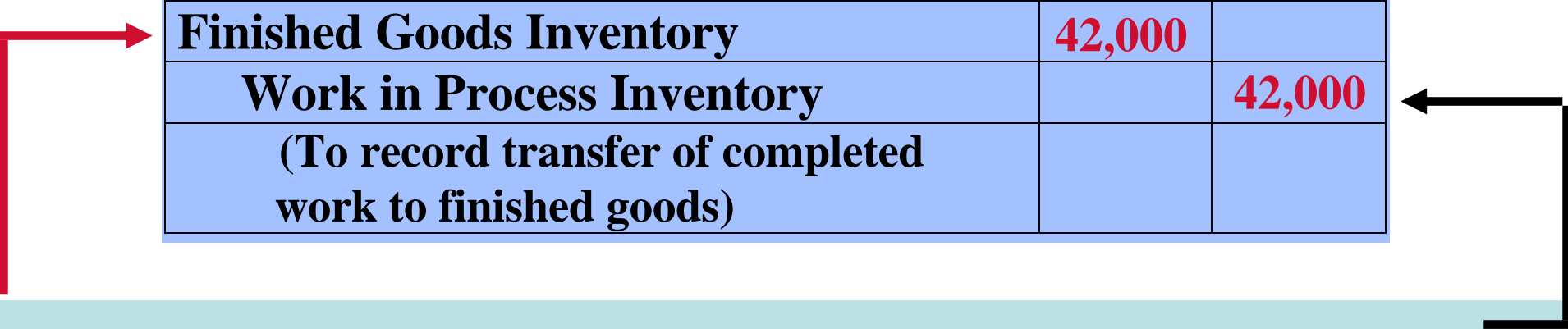
**Work in Process Inventory is debited for standard hours allowed multiplied by the standard overhead rate.**



# Standard Cost System Journal Entry #7

**Transfer completed work to finished goods, \$42,000.**

<b>Finished Goods Inventory</b>	<b>42,000</b>	
<b>Work in Process Inventory</b>		<b>42,000</b>
(To record transfer of completed work to finished goods)		




**Both inventory accounts are at standard cost.**

# Standard Cost System

## Journal Entry #8

**The 1,000 gallons of Weed-O are sold for \$60,000.**



<b>Accounts Receivable</b>	<b>60,000</b>	
<b>Cost of Goods Sold</b>	<b>42,000</b>	
<b>Sales</b>		<b>60,000</b>
<b>Finished Goods Inventory</b>		<b>42,000</b>
<b>(To record sale of finished goods and the cost of goods sold)</b>		

**Cost of Goods Sold is debited at standard cost. Gross profit, in turn, is the difference between sales and the standard cost of goods sold.**

# Standard Cost System

## Journal Entry #9

**Recognize unfavorable overhead variances: controllable, \$500; volume, \$400.**

<b>Overhead Controllable Variance</b>	<b>500</b>	
<b>Overhead Volume Variance</b>	<b>400</b>	
<b>Manufacturing Overhead</b>		<b>900</b>
<b>(To recognize overhead variances)</b>		

**Prior to this entry, a debit balance of \$900 existed in Manufacturing Overhead. This entry therefore produces a zero balance in the Manufacturing Overhead account.**

# Statement Presentation of Variances

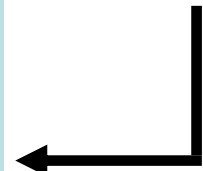
- **Income statements prepared for management**
  - **cost of goods sold is stated at standard cost and the variances are separately disclosed.**
- **Financial statements prepared for stockholders and other external users**
  - **standard costs may be used when there are no significant differences between actual costs and standard costs.**



# Variances in Income Statement for Management

<b>XONIC, INC.</b>		
<b>Income Statement</b>		
<b>For the Month Ended June 30, 2002</b>		
<b>Sales</b>		<b>\$60,000</b>
<b>Cost of goods sold (at standard)</b>		<b><u>42,000</u></b>
<b>Gross profit (at standard)</b>		<b>18,000</b>
<b>Variances</b>		
<b>Materials price</b>	<b>\$ 420</b>	
<b>Materials quantity</b>	<b>600</b>	
<b>Labor Price</b>	<b>(420)</b>	
<b>Labor quantity</b>	<b>1,000</b>	
<b>Overhead controllable</b>	<b>500</b>	
<b>Overhead volume</b>	<b><u>400</u></b>	
<b>Total variance unfavorable</b>		<b><u>2,500</u></b>
<b>Gross profit (actual)</b>		<b>15,500</b>
<b>Selling and administrative expenses</b>		<b><u>3,000</u></b>
<b>Net Income</b>		<b><u>\$12,500</u></b>

Notice that variances from standard costs in this example reduced net income by \$2,500.



# Review

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The setting of standards is:

- a. a managerial accounting decision.
- b. a management decision.
- c. a worker decision.
- d. preferably set at the ideal level of performance.

# Review

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The setting of standards is:

- a. a managerial accounting decision.
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Accounting Principles, 7th Edition

Weygandt • Kieso • Kimmel

## Chapter 27

# Incremental Analysis and Capital Budgeting

Prepared by Naomi Karolinski

Monroe Community College

and

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Bryant College

# CHAPTER 27

## INCREMENTAL ANALYSIS AND CAPITAL BUDGETING

*After studying this chapter, you should be able to:*

- 1 Identify the steps in management's decision-making process.
- 2 Describe the concept of incremental analysis.
- 3 Identify the relevant costs in accepting an order at a special price.
- 4 Identify the relevant costs in a make-or-buy decision.
- 5 Give the decision rule for whether to sell or process materials further.
- 6 Identify the factors to be considered in retaining or replacing equipment.

# CHAPTER 27

## INCREMENTAL ANALYSIS AND CAPITAL BUDGETING

*After studying this chapter, you should be able to:*

- 7 Explain the relevant factors in deciding whether to eliminate an unprofitable segment.
- 8 Determine which products to make and sell when a company's resources are limited.
- 9 Contrast the annual rate of return and cash payback techniques in capital budgeting.
- 10 Distinguish between the net present value and internal rate of return methods.

# Management's Decision-Making Process

Study Objective 1

*Management's decision-making process frequently involves the following steps:*

- 1) Identify the problem and assign responsibility
- 2) Determine and evaluate possible courses of action
- 3) Make a decision
- 4) Review results of the decision



# Incremental Analysis

## Study Objective 2

- Business decisions involve a choice among alternative courses of action.
- In making such decisions, management ordinarily considers both *financial* and *nonfinancial* information.
- The process used to identify the financial data that change under alternative courses of action is called **incremental analysis**.

# Incremental Analysis

- **Incremental analysis** includes the probable effects of the decision on future earnings.
- Data for incremental analysis involves estimates and uncertainty.
- Gathering data may involve market analysts, engineers, and accountants.
- In incremental analysis, both costs and revenues may change. However, in some cases:
  - (1) variable costs may not change under the alternative courses of action, and
  - (2) fixed costs do change



# Basic Approach in Incremental Analysis

The basic approach in incremental analysis is illustrated in the following example:

	Alternative A	Alternative B	<u>Net Income Increase (Decrease)</u>
Revenues	\$125,000	\$110,000	\$(15,000)
Costs	<u>100,000</u>	<u>80,000</u>	<u>20,000</u>
Net income	<u>\$ 25,000</u>	<u>\$ 30,000</u>	<u>\$ 5,000</u>

In this example, alternative B is being compared with alternative A. The net income column shows the differences between the alternatives. Alternative B will produce **\$5,000** more net income than alternative A.

# Types of Incremental Analysis

*A number of different types of decisions involve incremental analysis. The more common types of decisions are whether to:*

- 1) Accept an order at a special price.
- 2) Make or buy.
- 3) Sell or process further.
- 4) Retain or replace equipment.
- 5) Eliminate an unprofitable business segment.
- 6) Allocate limited resources.





# Accept an Order at a Special Price

## Study Objective 3

- Sometimes, a company may have an opportunity to obtain additional business if it is willing to make **major price concessions** to a specific customer.
- An order at a special price should be accepted when the *incremental revenue from the order exceeds the incremental costs*.
- It is assumed that sales in other markets will not be affected by the special order.
- If the units can be produced within existing plant capacity, generally only variable costs will be affected.

# Accept an Order at a Special Price

To illustrate, assume that Sunbelt Company produces 100,000 automatic blenders per month, which is **80% of plant capacity**. Variable manufacturing costs are \$8 per unit, and fixed manufacturing costs are \$400,000, or \$4 per unit. The blenders are normally sold to retailers at **\$20 each**.



## **PROBLEM:**

Sunbelt has an offer from Mexico Co. to purchase an additional 2,000 blenders at \$11 per unit.

Acceptance of this offer would not affect normal sales of the product, and the additional units can be manufactured without increasing plant capacity.

# Incremental Analysis-Accepting an Order at a Special Price

If management makes its decision on the basis of total cost per unit of \$12 (\$8 + \$4), the order would be rejected, because costs (\$12) would exceed revenues (\$11) by \$1 per unit. However, since the units can be produced within existing plant capacity, the special order **WILL NOT INCREASE FIXED COSTS**. The relevant data for the decision, therefore, are the variable manufacturing costs per unit of \$8 and the expected revenue of \$11 per unit.

	<u>Reject Order</u>	<u>Accept Order</u>	<u>Net Income Increase (Decrease)</u>
Revenues	\$-0-	\$22,000	\$22,000
Costs	-0-	16,000	<u>(16,000)</u>
Net income	<u>\$-0-</u>	<u>\$ 6,000</u>	<u>\$6,000</u>

**DECISION:** Sunbelt should accept the special order because it will increase its net income by \$6,000.

# Make or Buy

## Study Objective 4

- In a **make or buy decision**, management must determine the costs which are different under the two alternatives.
- If there is an opportunity to use the productive capacity for another purpose, **opportunity cost** should be considered.
- **Opportunity cost** is the potential benefit that may be obtained by following an alternative course of action. This cost is an additional cost of making the component.

# Annual Product Cost Data

To illustrate the analysis, assume that Baron Co. incurs the following annual costs in producing 25,000 ignition switches for motor scooters.

Direct materials	\$ 50,000
Direct labor	75,000
Variable manufacturing overhead	40,000
Fixed manufacturing overhead	<u>60,000</u>
Total manufacturing costs	<u>\$ 225,000</u>
Total cost per unit ( $\$225,000 / 25,000$ )	\$9.00

Alternatively, Baron may purchase the ignition switches from Ignition, Inc. at a price of **\$8 per unit**.

**PROBLEM:**

What should management do?

# Incremental Analysis-Make or Buy

At first glance, it appears that management should buy the switches for \$8 instead of make for \$9. However, a review of operations indicates that if the switches are purchased all of Baron's variable costs but only \$10,000 of its fixed manufacturing costs will be eliminated. **Thus, \$50,000 of fixed costs will remain.** The incremental costs are shown below:

	<u>Make</u>	<u>Buy</u>	<u>Net Income Increase (Decrease)</u>
Direct materials	\$50,000	\$ -0-	\$50,000
Direct labor	75,000	-0-	75,000
Variable manufacturing costs	40,000	-0-	40,000
Fixed manufacturing costs	60,000	50,000	10,000
Purchase price (25,000x \$8)	<u>-0-</u>	<u>200,000</u>	<u>(200,000)</u>
<b>Total annual cost</b>	<b><u>\$225,000</u></b>	<b><u>\$250,000</u></b>	<b><u>\$ (25,000)</u></b>

**DECISION:** This analysis shows that Baron Co. will incur \$25,000 of additional cost by buying the switches. Therefore, Baron will continue to make the switches.

# Incremental Analysis-Make or Buy, with Opportunity Cost

Assume that through buying the switches, Baron Co. can use the released productive capacity **to generate additional income of \$28,000**. This lost income is an additional cost of continuing to make the switches in the make-or-buy decision. This opportunity cost is added to the “Make” column, for comparison. As shown, it is now advantageous to buy the switches.

	<u>Make</u>	<u>Buy</u>	<u>Net Income Increase (Decrease)</u>
Total annual cost	\$225,000	\$250,000	\$(25,000)
Opportunity cost	28,000	-0-	<u>28,000</u>
Total cost	<u>\$253,000</u>	<u>\$250,000</u>	<u>\$ 3,000</u>

# **Review**

---

**In a make-or-buy decision, relevant costs are:**

- a. manufacturing costs that will be saved.**
- b. the purchase price of the units.**
- c. opportunity costs.**
- d. all of the above.**



# Review

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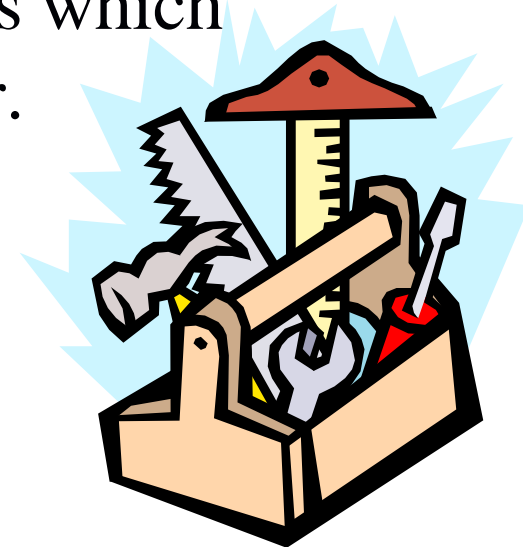
**In a make-or-buy decision, relevant costs are:**

- a. manufacturing costs that will be saved.**
- b. the purchase price of the units.**
- c. opportunity costs.**
- d. all of the above.**

# Sell or Process Further

## Study Objective 5

- The basic decision rule in a sell or process further decision is:
- *Process further as long as the incremental revenue from such processing exceeds the incremental processing costs.*
- Incremental revenue is the increase in sales which results from processing the product further.



# Per Unit Cost of Unfinished Table

Assume that Woodmasters Inc. makes tables. The cost to manufacture an unfinished table is \$35, computed as follows:

<b>Direct material</b>	<b>\$15</b>
<b>Direct labor</b>	<b>10</b>
<b>Variable manufacturing overhead</b>	<b>6</b>
<b>Fixed manufacturing overhead</b>	<b><u>4</u></b>
<b>Manufacturing cost per unit</b>	<b><u>\$35</u></b>

# Incremental Analysis-Sell or Process Further

The selling price per unfinished unit is \$50. Woodmasters currently has unused productive capacity that can be used to finish the tables and sell them for \$60 each. For a finished table direct materials will increase \$2 and direct labor costs will increase \$4. Variable overhead will increase by \$2.40 (60% of direct labor). There will be no increase in fixed overhead. The incremental analysis on a per unit basis is as follows:

	<u>Sell</u>	<u>Process Further</u>	<u>Net Income Inc.(Decrease)</u>
<b>Sales</b>	<u>\$50.00</u>	<u>\$60.00</u>	<u>\$10.00</u>
<b>Cost per unit</b>			
Direct materials	15.00	17.00	(2.00)
Direct labor	10.00	14.00	(4.00)
Variable MOH	6.00	8.40	(2.40)
Fixed MOH	<u>4.00</u>	<u>4.00</u>	<u>-0-</u>
<b>Total</b>	<u>\$35.00</u>	<u>\$43.40</u>	<u>\$(8.40)</u>
<b>Net income/unit</b>	<u>\$15.00</u>	<u>\$16.60</u>	<u>\$ 1.60</u>

## DECISION:

Woodmasters should process the tables further because incremental revenue is higher than incremental processing costs.



# Retain or Replace Equipment

## Study Objective 6

- In a decision to retain or replace equipment, management compares the costs which are affected by the two alternatives. Generally, these are variable manufacturing costs and the cost of the new equipment.
- The book value of the old machine is a **sunk cost** which does not affect the decision. A sunk cost is a cost that cannot be changed by any present or future decision.
- Any trade-in allowance or cash disposal value of the existing asset must be considered.



# Retain or Replace Equipment

Assume that Jeffcoat Company has a factory machine with a **book value of \$40,000 and a remaining useful life of four years**. A new machine is available that **costs \$120,000 and is expected to have zero salvage value at the end of its 4-year useful life**. If the new machine is acquired, variable manufacturing costs are expected to decrease from \$160,000 to \$125,000 annually and the old unit will be scrapped. The incremental analysis for the 4-year period is as follows:

	<u>Retain Equipment</u>	<u>Replace Equipment</u>	<u>Net Income Increase (Decrease)</u>
Variable manufacturing costs	\$640,000 (4 years x \$160,000)	\$500,000 (4 years x \$125,000)	\$140,000
New machine cost	<u>-0-</u>	<u>120,000</u>	<u>(120,000)</u>
<b>Total</b>	<u><u>\$640,000</u></u>	<u><u>\$620,000</u></u>	<u><u>\$20,000</u></u>

# Retain or Replace Equipment

## DECISION:

- In this case, it would be to the company's advantage to REPLACE the equipment.
- The lower variable manufacturing costs due to replacement more than offset the cost of the new equipment.
- The sunk cost, the book value of the old machine does not affect the decision.

# Eliminate an Unprofitable Segment

Study Objective 7


- In deciding whether to eliminate an unprofitable segment, management should choose the alternative which results in the highest net income.
- Often fixed costs allocated to the unprofitable segment must be absorbed by the other segments.
- It is possible, therefore, for net income to *decrease* when an unprofitable segment is eliminated.





# Segment Income Data

Assume that Martina Company manufactures tennis racquets in three models: Pro, Master, and Champ. Pro and Master are profitable lines, whereas Champ operates at a **loss**. Condensed income statement data are:



	<u>Pro</u>	<u>Master</u>	<u>Champ</u>	<u>Total</u>
<b>Sales</b>	\$800,000	\$300,000	\$ 100,000	\$1,200,000
<b>Variable expense</b>	<u>520,000</u>	<u>210,000</u>	90,000	<u>820,000</u>
<b>Contribution margin</b>	280,000	90,000	10,000	380,000
<b>Fixed Expenses</b>	<u>80,000</u>	<u>50,000</u>	<u>30,000</u>	<u>160,000</u>
<b>Net income</b>	<u>\$200,000</u>	<u>\$ 40,000</u>	<u>\$(20,000)</u>	<u>\$ 220,000</u>

# Income Data after Eliminating Unprofitable Product Line

## PROBLEM:

Although it appears that income would increase if the Champ line was discontinued, it is possible for income to decrease if Champ was discontinued. The reason is that the fixed expense allocated to Champ will have to be absorbed by the other products. To illustrate, assume that the \$30,000 of fixed costs are allocated 2/3 to Pro and 1/3 to Master. The revised income statement is:

	<u>Pro</u>	<u>Master</u>	<u>Total</u>
Sales	\$800,000	\$300,000	\$1,100,000
Variable expense	<u>520,000</u>	<u>210,000</u>	<u>730,000</u>
Contribution margin	280,000	90,000	370,000
Fixed Expenses	100,000	60,000	<u>160,000</u>
Net income	<u>\$180,000</u>	<u>\$ 30,000</u>	<u>\$210,000</u>

Total net income has decreased

**\$10,000:**

(\$220,000 - \$210,000)

# Incremental Analysis- Eliminating an Unprofitable Segment

The loss in net income is attributable to the contribution margin (\$10,000) that will not be realized if the segment is discontinued.

**DECISION:** In deciding on the future status of an unprofitable segment, management should consider the effect of elimination on related product lines. In this case total net income would have decreased if Champ is eliminated.

	Continue	Eliminate	Net Income Increase(Dec.)
Sales	\$100,000	\$-0-	\$(100,000)
Variable expenses	<u>90,000</u>	<u>-0-</u>	<u>90,000</u>
Contribution margin	10,000	-0-	(10,000)
Fixed Expenses	<u>30,000</u>	<u>30,000</u>	<u>-0-</u>
Net income	<u>\$(20,000)</u>	<u>\$(30,000)</u>	<u>\$(10,000)</u>


# Allocate Limited Resources

## Study Objective 8

- When a company has limited resources (floor space, raw materials, or machine hours), management must decide which products to make and sell.
- In an allocation of limited resources decision, it is necessary to find the *contribution margin per unit of limited resource*.
- This is obtained by dividing the contribution margin per unit of each product by the number of units of the limited resource required for each product.
- Production should be geared to the product with the *highest contribution margin per unit of limited resource*.

# Contribution Margin per Unit of Limited Resource

- To illustrate, assume that Collins Co. manufactures deluxe and standard pen and pencil sets.
- The limited resource is machine capacity, which is *3,600 hours per month*.
- Based on the data below, it would appear that deluxe is more profitable since they have a higher contribution margin.
- However, standard sets take fewer machine hours.
- Therefore, it is necessary to find the contribution margin per unit of limited resource.



	<u>Deluxe Sets</u>	<u>Standard Sets</u>
<b>Contribution margin per unit</b>	<b>\$8</b>	<b>\$6</b>
<b>Machine hours required</b>	<b>4</b>	<b>2</b>

# Contribution Margin per Unit of Limited Resource

The computation shows that the standard sets have a **higher contribution margin per unit** of limited resource.

	<u>Deluxe Sets</u>	<u>Standard Sets</u>
Contribution margin per unit (a)	\$8	\$6
Machine hours required (b)	4	2
Contribution margin per unit Of limited resource (a)/(b)	\$2	\$3

# Incremental Analysis- Computation of Total Contribution Margin

- If Collins Co. can increase machine capacity from **3,600 hours to 4,200 hours**, the additional 600 hours could be used to produce either the standard or deluxe pen and pencil sets.
- The **total contribution margin** under each alternative is found by multiplying the machine hours by the contribution margin per unit of limited resource as shown below:

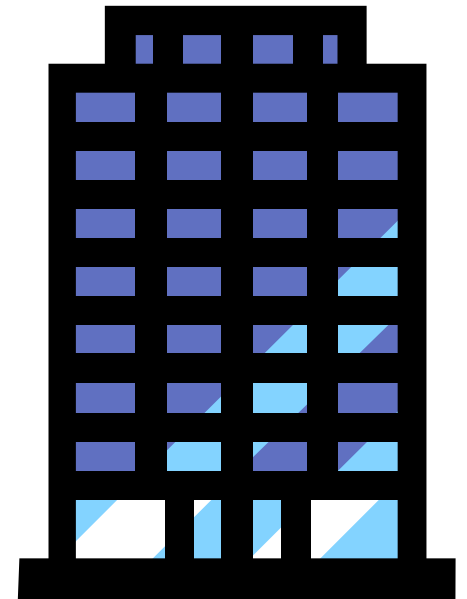
	<u>Produce Deluxe Sets</u>	<u>Produce Standard Sets</u>
Machine hours (a)	600	600
Contribution margin per unit of limited resource (b)	<u>\$2</u>	<u>\$3</u>
Contribution margin (a) x (b)	<u><u>\$1,200</u></u>	<u><u>\$1,800</u></u>

## **DECISION:**

From this analysis, we can see that to maximize net income, all of the increased capacity should be used to make and sell the standard sets.

# Capital Budgeting

- The process of making capital expenditure decisions is known as **capital budgeting**.
- The three most commonly used capital budgeting techniques are
  - (a) annual rate of return,
  - (b) cash payback, and
  - (c) discounted cash flow.





# Estimated Annual Net Income from Capital Expenditure

Assume that Tappan Co. is considering an investment of \$130,000 in new equipment. The new equipment is expected to last *10 years*. It will have *zero salvage value* at the end of its useful life. The *straight-line method of depreciation* is used for accounting purposes. The expected annual revenues and costs of the new product that will be produced from the investment are:

<b>Sales</b>		<b>\$200,000</b>
<b>Less: Costs and expenses</b>		
Manufacturing costs (exclusive of depreciation)	\$145,000	
Depreciation expense ( $\$130,000 / 10$ )	13,000	
Selling and administrative expenses	<u>22,000</u>	<u>180,000</u>
<b>Income before income taxes</b>		<b>20,000</b>
<b>Income tax expense</b>		<u>7,000</u>
<b>Net income</b>		<b><u>\$ 13,000</u></b>

# Annual Rate of Return Formula

Study Objective 9

- The **annual rate of return technique** is based on accounting data. It indicates the profitability of a capital expenditure. The formula is:

$$\text{Expected Annual Net Income} \div \text{Average Investment} = \text{Annual Rate of Return}$$

The **annual rate of return** is compared with its required **minimum rate of return** for investments of similar risk. This minimum return is based on the company's **cost of capital**, which is the rate of return that management expects to pay on all borrowed and equity funds.

# Formula for Computing Average Investment

Expected annual net income (\$13,000) is obtained from the projected income statement. Average investment is derived from the following formula:

$$\text{Average Investment} = \frac{\text{Original Investment} + \text{Value at End of Useful Life}}{2}$$

For Tappan, average investment is **\$65,000**: [(\$130,000 + \$0)/ 2]

# Solution to Annual Rate of Return Problem

The expected annual rate of return for Tappan Company's investment in new equipment is therefore 20%, computed as follows:

$$\begin{array}{ccccc} \text{Expected Annual} & & \text{Average} & & \text{Annual Rate} \\ \text{Net Income} & \div & \text{Investment} & = & \text{of Return} \end{array}$$

$$\$13,000 \quad / \quad \$65,000 \quad = \quad 20\%$$

## The decision rule is:

A project is acceptable if its rate of return is greater than management's minimum rate of return. It is unacceptable when the reverse is true. When choosing among several acceptable projects, the higher the rate of return for a given risk, the more attractive the investment.

# Cash Payback Formula

The **cash payback technique** identifies the time period required to recover the cost of the capital investment from the annual cash inflow produced by the investment. The formula for computing the cash payback period is:

$$\text{Cost of Capital Investment} \div \text{Annual Cash Inflow} = \text{Cash Payback Period}$$

# Computation of Annual Cash Inflow

Annual (or net) cash inflow is approximated by taking net income and adding back depreciation expense. Depreciation expense is added back because depreciation on the capital expenditure does not involve an annual outflow of cash.

In the Tappan Company example, annual cash inflow is \$26,000 as shown below:

<b>Net income</b>	<b>\$13,000</b>
<b>Add: Depreciation expense</b>	<b><u>13,000</u></b>
<b>Annual cash inflow</b>	<b><u><u>\$26,000</u></u></b>

# Cash Payback Period

The cash payback period in this example is therefore *5 years*, computed as follows:

**\$130,000**

**/**

**\$26,000**

**=**

**5 years**

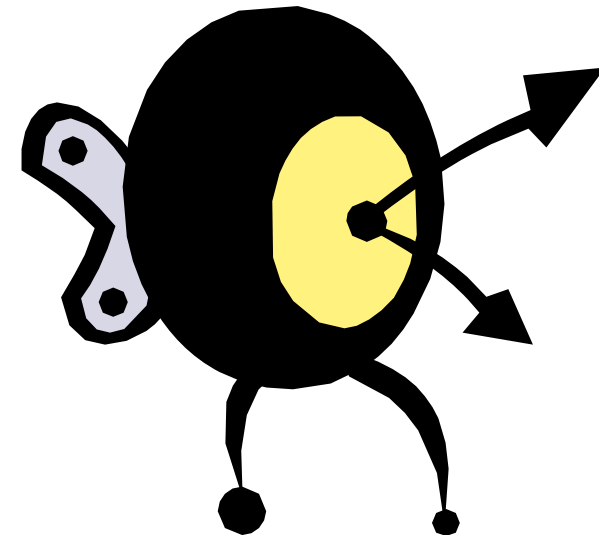
When the payback technique is used to decide among acceptable alternative projects, the shorter the payback period, the more attractive the investment. *This is true for two reasons:*

- 1) the earlier the investment is recovered, the sooner the cash funds can be used for other purposes, and**
- 2) the risk of loss from obsolescence and changed economic conditions is less in a shorter payback period.**

# Discounted Cash Flow

Study Objective 10

- The **discounted cash flow technique** is generally recognized as the best conceptual approach to making capital budgeting decisions.
- This technique considers both the estimated *total cash inflows and the time value of money.*
- Two methods are used with the discounted cash flow technique:
  - 1) net present value *and*
  - 2) internal rate of return

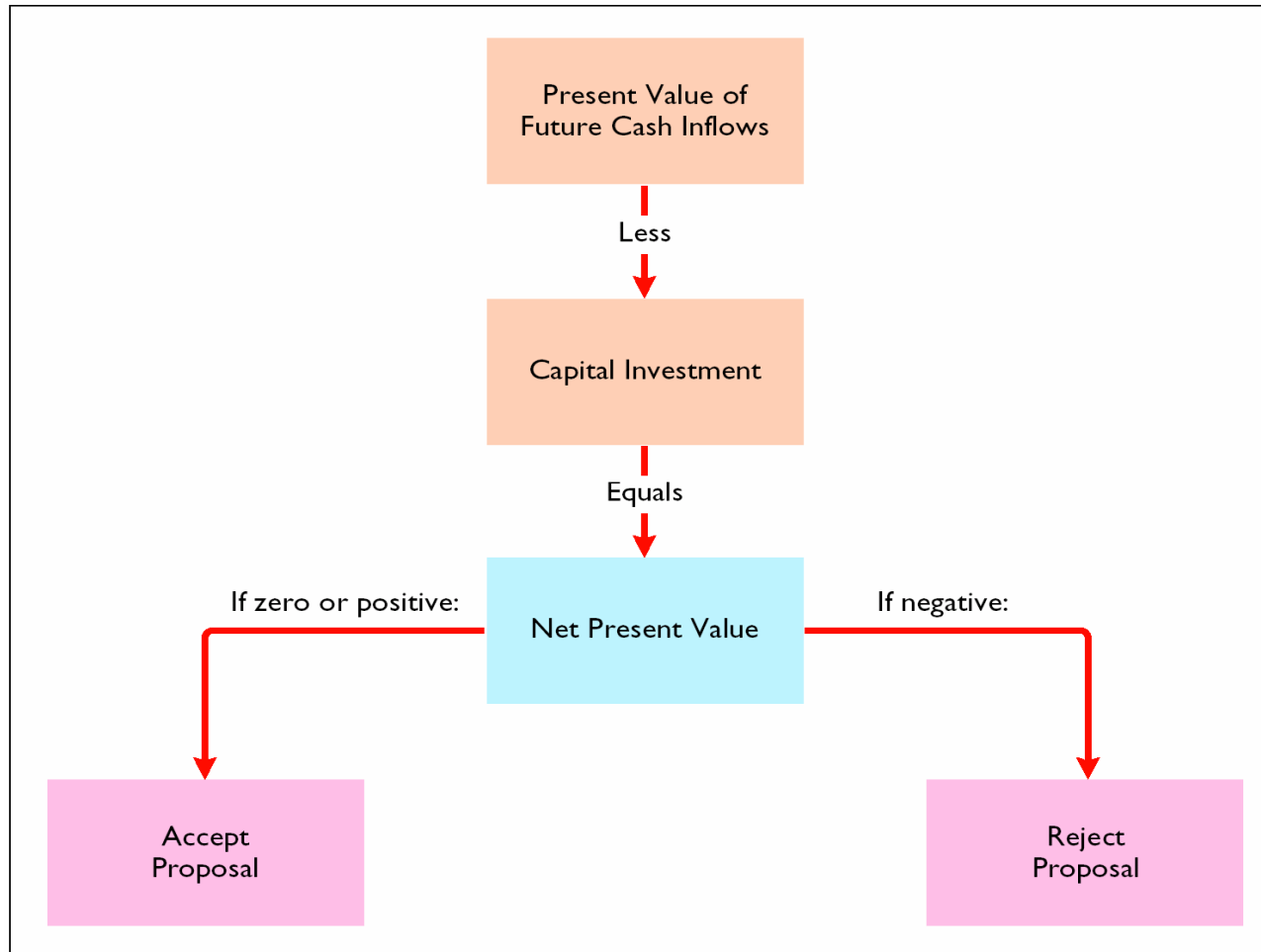




# Net Present Value Method

- Under the **net present value method**, cash inflows are discounted to their present value and then compared with the capital outlay required by the investment.
- The interest rate used in discounting the future cash inflows is the required **minimum rate of return**.
- A proposal is acceptable when **NPV is zero or positive**.
- The higher the positive NPV, the **more attractive the investment**.

# Net Present Value Decision Criteria



# Present Value of Annual Cash Inflows-Equal Annual cash Flows

Tappan Company's annual cash inflows are \$26,000. If we assume this amount is **uniform over the asset's useful life**, the present value of the annual cash inflows can be computed by using the present value of an annuity of 1 for 10 periods. The computations at rates of return of 12% and 15%, respectively are:

	Present Values at Different Discount Rates	
	12%	15%
Discount factor for 10 periods		
Present value of cash inflows:	<u>5.65022</u>	<u>5.01877</u>
\$26,000 x 5.65022	\$146,906	
\$26,000 x 5.01877		\$130,488

# Computation of Net Present Values

The analysis of the proposal by the net present value method is as follows:

	<u>12%</u>	<u>15%</u>
Present value of future cash inflows:	\$146,906	\$130,488
Capital investment	<u>130,000</u>	<u>130,000</u>
Positive (negative) net present value	<u>\$16,906</u>	<u>\$488</u>

The proposed capital expenditure is acceptable at a required rate of return of both 12% and 15% because the net present values are positive.

# Present Value of Annual Cash Inflows- unequal Annual Cash Flows

When annual cash inflows are unequal, we cannot use annuity tables to calculate their present value. Instead tables showing the present value of a single future amount must be applied to each annual cash inflow.

	Assumed Annual	Discount Factor		Present Value	
Year	<u>Cash Inflows</u>	<u>12%</u>	<u>15%</u>	<u>12%</u>	<u>15%</u>
	(1)	(2)	(3)	(1) x (2)	(1) x (3)
1	\$36,000	.89286	.86957	\$32,143	\$31,305
2	32,000	.79719	.75614	25,510	24,196
3	29,000	.71178	.65752	20,642	19,068
4	27,000	.63552	.57175	17,159	15,437
5	26,000	.56743	.49718	14,753	12,927
6	24,000	.50663	.43233	12,159	10,376
7	23,000	.45235	.37594	10,404	8,647
8	22,000	.40388	.32690	8,885	7,192
9	21,000	.36061	.28426	7,573	5,969
10	<u>20,000</u>	<u>.32197</u>	<u>.24719</u>	<u>6,439</u>	<u>4,944</u>
	<u>\$260,000</u>			<u>\$155,667</u>	<u>\$140,061</u>

# Analysis of Proposal Using Net Present Value Method

Therefore, the analysis of the proposal by the net present value method is as follows:

	<u>12%</u>	<u>15%</u>
<b>Present value of future cash inflows:</b>	<b>\$155,667</b>	<b>\$140,061</b>
<b>Capital investment</b>	<b><u>130,000</u></b>	<b><u>130,000</u></b>
<b>Positive (negative) net present value</b>	<b><u>\$ 25,667</u></b>	<b><u>\$10,061</u></b>

In this example, the present values of the cash inflows are greater than the \$130,000 capital investment. Thus the project is acceptable at both a 12% and 15% required rate of return.

# Formula for Internal Rate of Return Factor

- The **internal rate of return** method finds the interest yield of the potential investment.
- This is the interest rate that will cause the present value of the proposed capital expenditure to equal the present value of the expected annual cash inflows.
- Determining the true interest rate involves two steps:  
**STEP 1.** Compute the internal rate of return factor using this formula:

$$\text{Capital Investment} \div \text{Annual Cash Inflows} = \text{Internal Rate of Return Factor}$$

# Internal Rate of Return Method

**The computation for the Tappan Company, assuming equal annual cash inflows is:**

**Capital Investment**    ÷    **Annual Cash Inflows**    =    **Internal Rate of Return Factor**

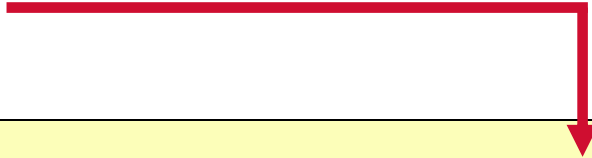
**\$130,000** / **\$26,000** = **5.0**



# Internal Rate of Return Method

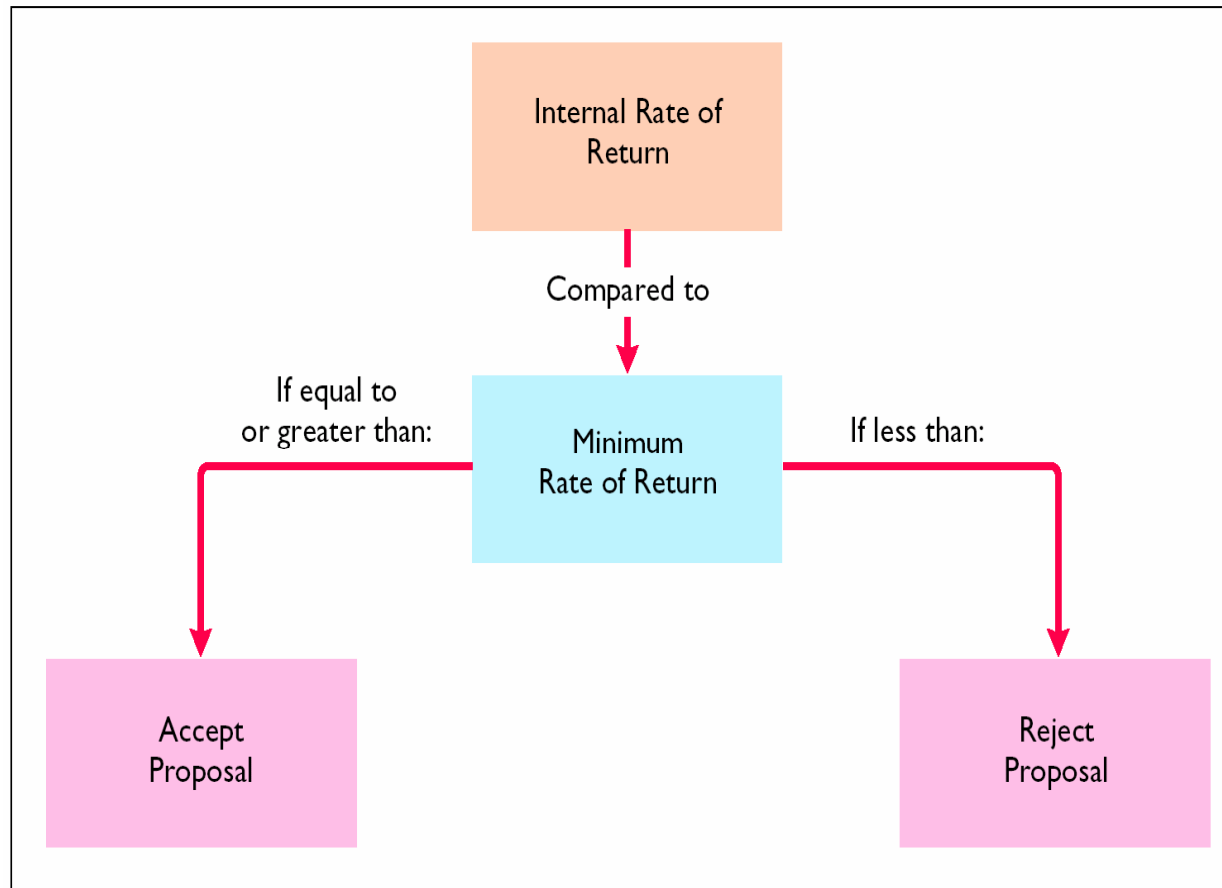
**STEP 2.** Use the factor and the present value of an annuity of 1 table to find **the internal rate of return**.

- The **internal rate of return** is found by locating the discount factor that is closest to the internal rate of return factor for the time period covered by the annual cash flows.
- For Tappan Co., the annual cash flows are expected to continue for 10 years. In the table below, the closest discount factor to 5.0 is 5.01877, which represents an interest rate of approximately 15%.



<b>(N) Periods</b>	<b>5%</b>	<b>6%</b>	<b>8%</b>	<b>9%</b>	<b>10%</b>	<b>11%</b>	<b>12%</b>	<b>15%</b>
<b>10</b>	<b>7.72173</b>	<b>7.36009</b>	<b>6.71008</b>	<b>6.41766</b>	<b>6.14457</b>	<b>5.88923</b>	<b>5.65022</b>	<b>5.01877</b>

# Internal Rate of Return Decision Criteria



**The decision rule is:** Accept the project when the internal rate of return is equal to or greater than the required rate of return. Reject the project when the internal rate of return is less than the required rate.

# Comparison of Discounted Cash Flow Methods

- In practice, the *internal rate of return* and *cash payback* methods are most widely used.
- A comparative summary of the two discounted cash flow methods-net present value and internal rate of return- is presented below:

Item	<u>Net Present Value</u>	<u>Internal Rate of Return</u>
1. Objective	Compute net present value	Compute internal rate of return
2. Decision rule	If net present value is zero or positive, accept the proposal; if net present value is negative, reject the proposal	If internal rate of return is equal to or greater than the minimum required rate of return, accept the proposal; if internal rate of return is less than the minimum rate, reject the proposal.

# Review

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**If the contribution margin per unit is \$15 and it takes 3.0 machine hours to produce the unit, the contribution margin per unit of limited resource is:**

- a. \$25.**
- b. \$5.**
- c. \$45.**
- d. No correct answer is given.**

# Review

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If the contribution margin per unit is \$15 and it takes 3.0 machine hours to produce the unit, the contribution margin per unit of limited resource is:

- a. \$25.
- b. \$5.**
- c. \$45.
- d. No correct answer is given.

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