



Accounting Principles, 7<sup>th</sup> 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:

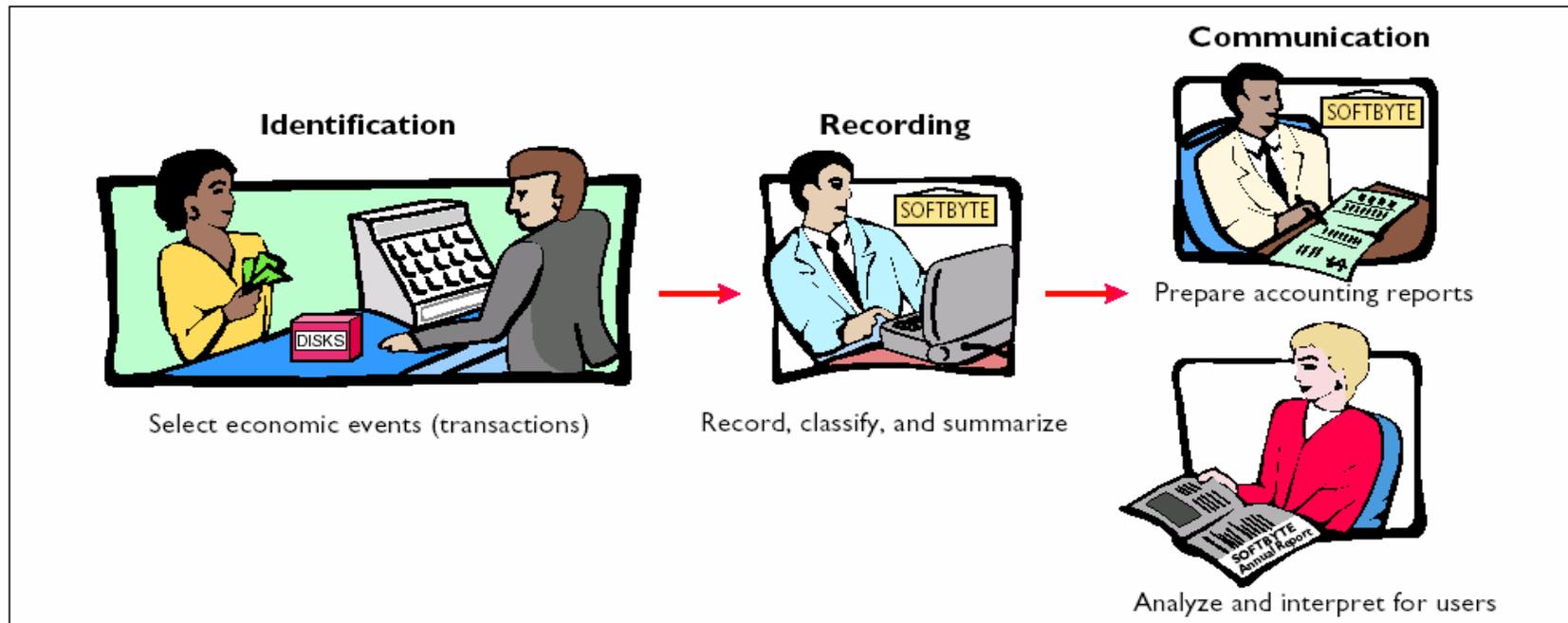
- **5 Explain the meaning of the monetary unit assumption and the economic entity assumption.**
- **6 State the basic accounting equation and explain the meaning of assets, liabilities, and owner's equity.**
- **7 Analyze the effect of business transactions on the basic accounting equation.**
- **8 Understand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



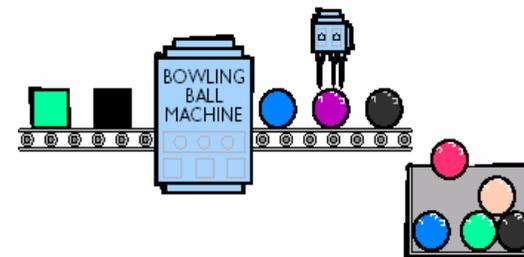
# QUESTIONS ASKED BY INTERNAL USERS

## 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?



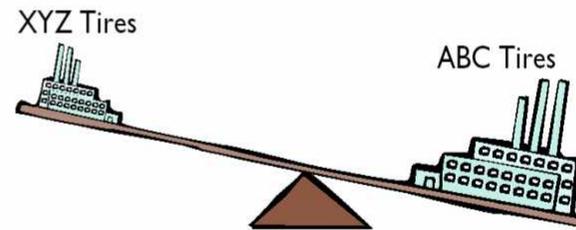
Which product line is the most profitable?

# 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

- identification, communication, recording.
- recording, communication, identification.
- identification, recording, communication.
- communication, recording, identification.

# The accounting process is correctly sequenced as

- identification, communication, recording.
- recording, communication, identification.
- **identification, recording, communication.**
- 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

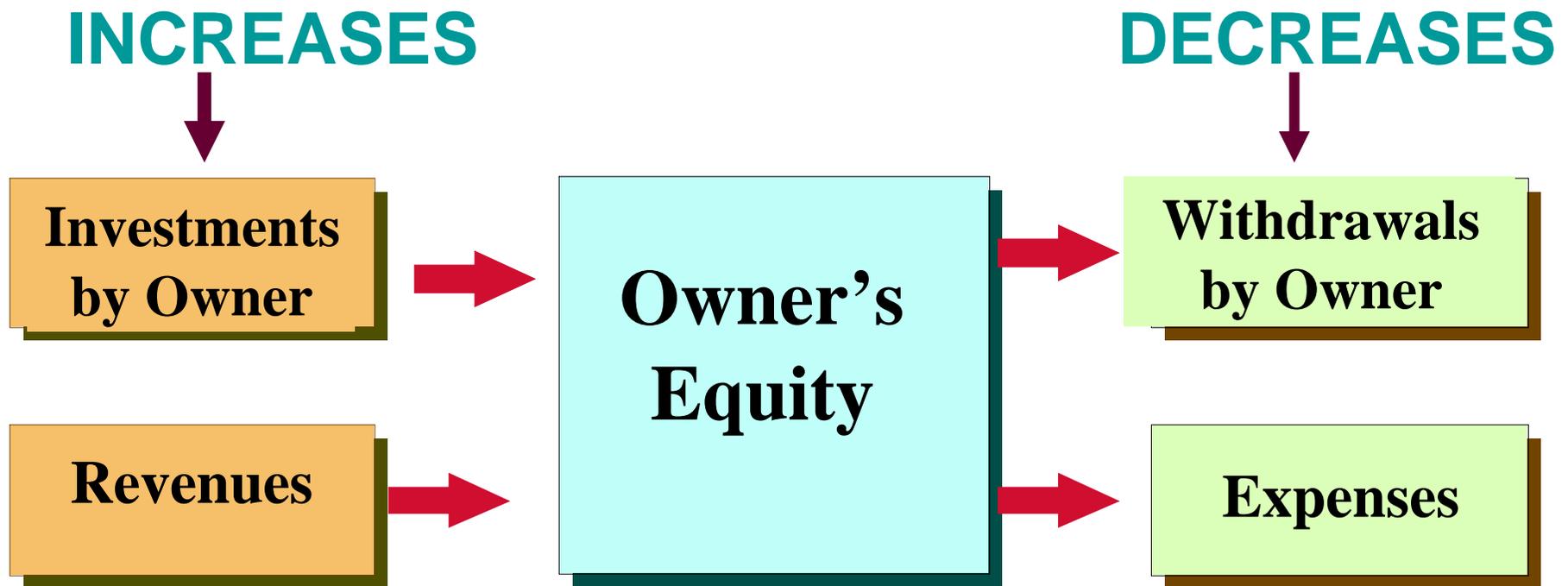
- **Revenues**
  - **gross increases in owner's equity from business activities entered into for the purpose of earning income**
  - **may result from sale of merchandise, services, rental of property, or lending money**
  - **usually result in an increase in an asset**

# EXPENSES AS A BUILDING BLOCK

## Expenses

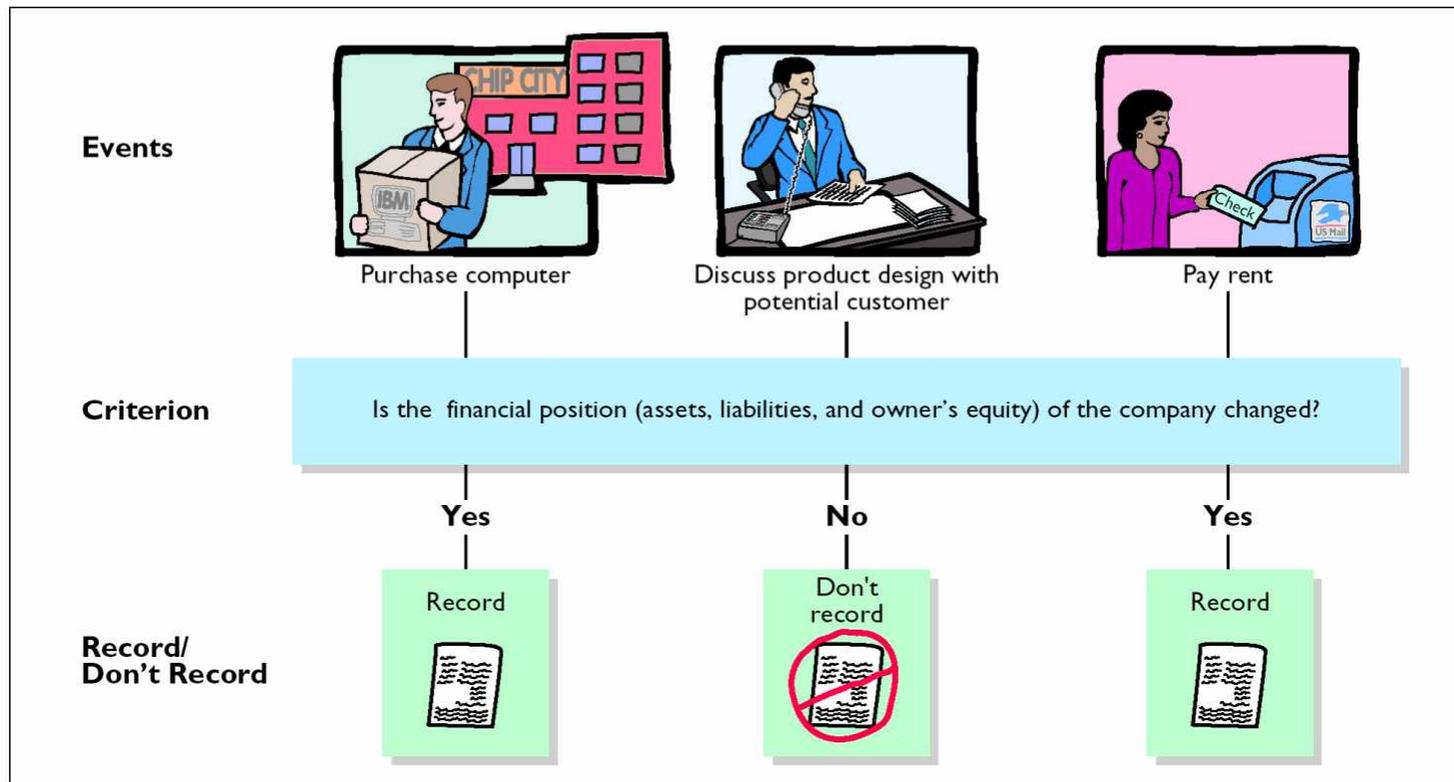
- **decreases in owner's equity that result from operating the business**
- **cost of assets consumed or services used in the process of earning revenue**
- **examples: utility expense, rent expense, supplies expense, and tax expense**

# INCREASES AND DECREASES IN OWNER'S EQUITY



# 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

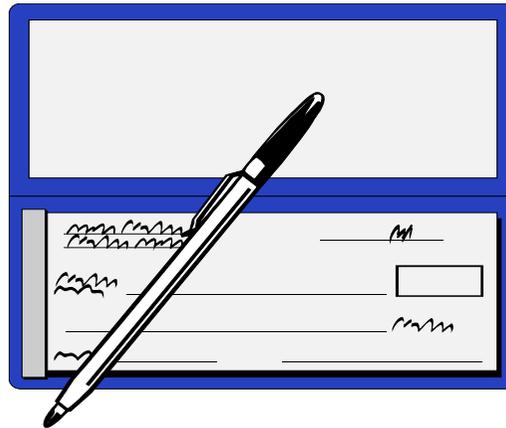
- $$\begin{array}{rcl} \underline{\text{Assets}} & = & \underline{\text{Liabilities}} + \underline{\text{Owner's Equity}} \\ \underline{\text{Cash}} & & \underline{\text{R. Neal, Capital}} \\ \\ + 15,000 & & \text{Investment} + 15,000 \\ \hline \$15,000 & = & \$15,000 \end{array}$$

**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

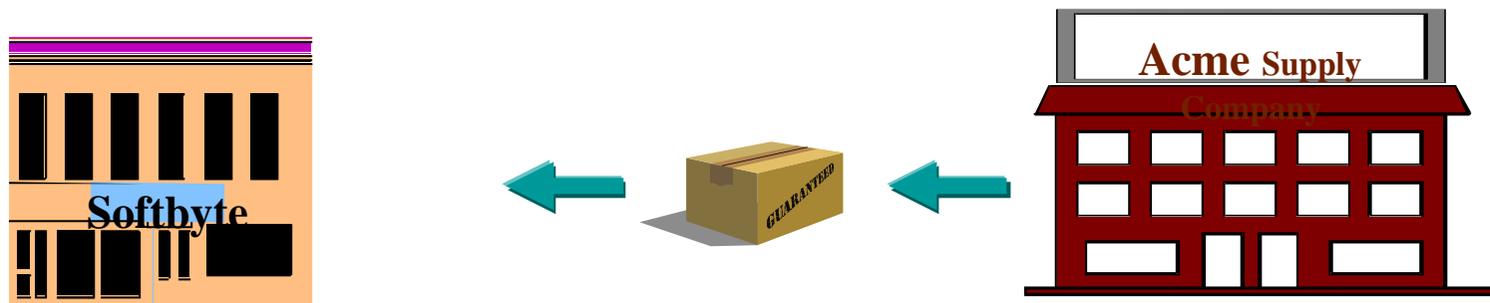
- $$\frac{\text{Assets}}{\text{Cash} + \text{Equipment}} = \frac{\text{Liabilities}}{\text{R. Neal, Capital}} + \frac{\text{Owner's Equity}}{\text{R. Neal, Capital}}$$
- Old
- $$\$15,000 = \$15,000$$
- (2) 
$$\underline{- 7,000 + 7,000}$$
- New
- $$\$ 8,000 + \$7,000 = \$15,000$$

**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

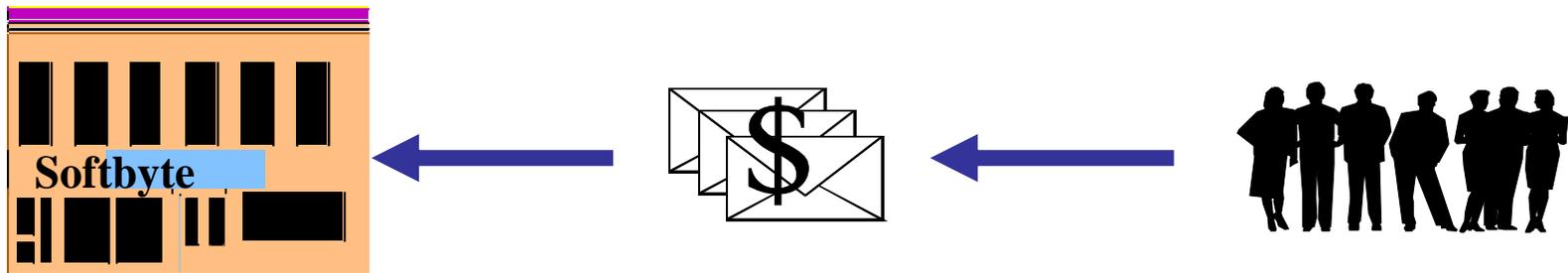
- $$\frac{\text{Assets}}{\text{Cash} + \text{Supplies} + \text{Equip.}} = \frac{\text{Liabilities}}{\text{Accts. Pay.}} + \frac{\text{Owner's Equity}}{\text{R. Neal, Capital}}$$
- Old \$8,000 + \$7,000 = \$15,000
- (3) 
$$\frac{\text{Cash} + \$1,600 + \text{Equip.}}{\text{Cash} + \$1,600 + \$7,000} =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

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

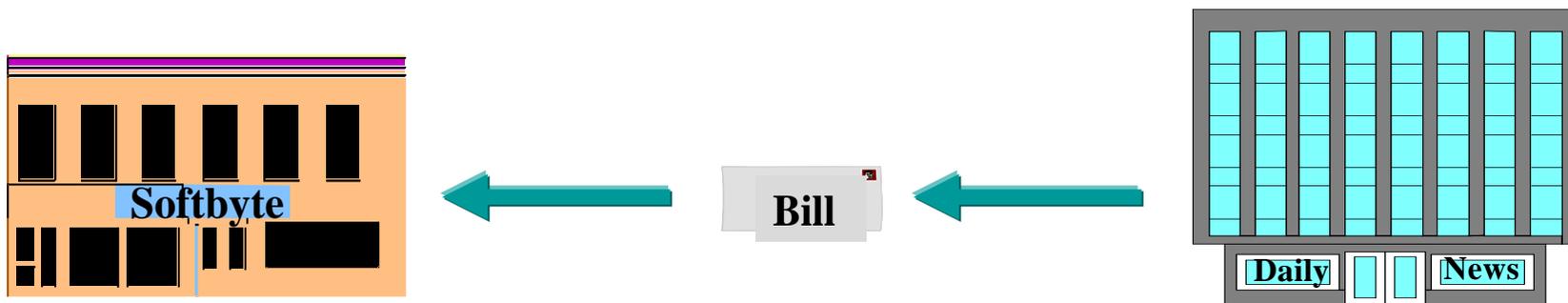
- $$\frac{\text{Assets}}{\text{Cash} + \text{Supplies} + \text{Equip.}} = \frac{\text{Liabilities}}{\text{Accts. Pay.}} + \frac{\text{Owner's Equity}}{\text{R. Neal, Capital}}$$
- Old  $\$8,000 + \$1,600 + \$7,000 = \$1,600 + \$15,000$
- (4)  $+ 1,200$   $+ 1,200$
- New  $\underbrace{\$9,200 + \$1,600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

**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.

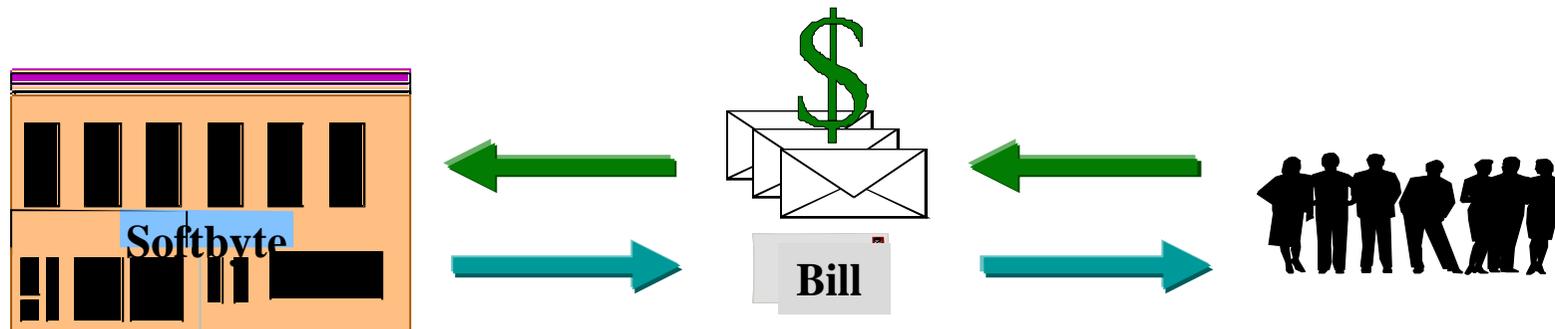




# TRANSACTION ANALYSIS

## TRANSACTION 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.

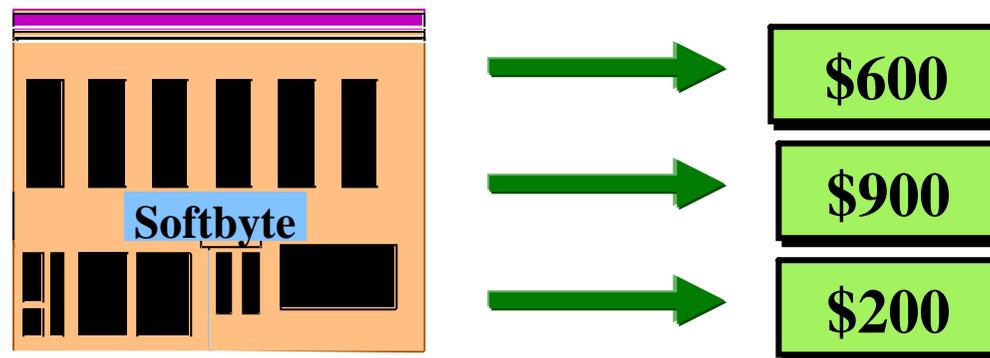




# TRANSACTION ANALYSIS

## TRANSACTION 7

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



# TRANSACTION ANALYSIS

## TRANSACTION 7 SOLUTION

- $$\frac{\text{Assets}}{\text{Equity}} = \text{Liabilities} + \text{Owner's}$$

- $$\text{Cash} + \text{Accts. Rec.} + \text{Supplies} + \text{Equip.} = \text{Accts. Pay.} + \text{R. Neal, Capital}$$

- Old

- $$\$10,700 + \$2,000 + \$1,600 + \$7,000 = \$1,850 + \$19,450$$

- (7)

- $$- 1,700$$
- $$\text{Rent Expense} \quad - \quad 600$$
- $$\text{Salaries Expense} \quad - \quad 900$$
- $$\text{Utilities Expense} \quad - \quad 200$$

- New

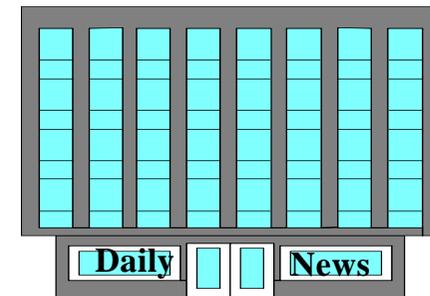
- $$\$9,000 + \$2,000 + \$1,600 + \$7,000 = \$1,850 + \$17,750$$

- **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
- $$\$9,000 + \$2,000 + \$1,600 + \$7,000 = \$1,850 + \$17,750$$
- $$(8) - 250 \quad \quad \quad - 250$$

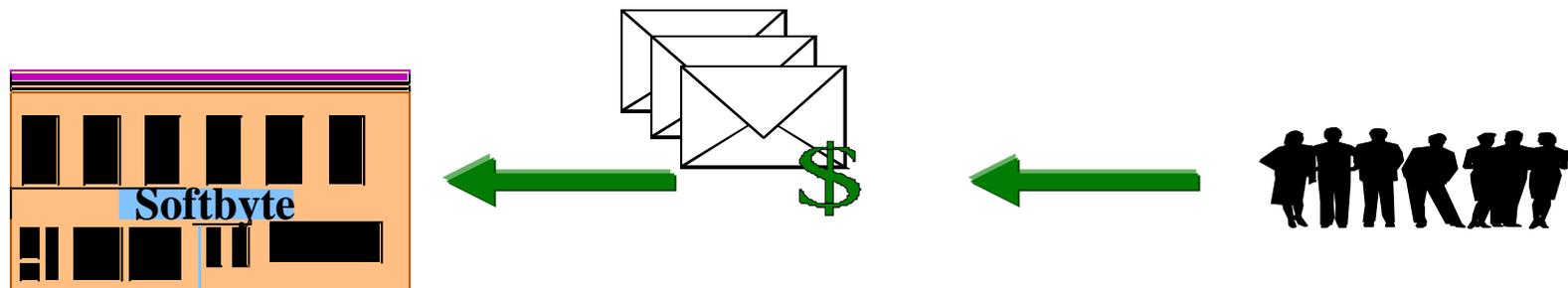

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- New
- $$\$8,750 + \$2,000 + \$1,600 + \$7,000 = \$1,600 + \$17,750$$
- $$\quad \quad \quad \$19,350 \quad \quad \quad \$19,350$$

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

- $$\$8,750 + \$2,000 + \$1,600 + \$7,000 = \$1,600 + \$17,750$$

- $$(9) + 600 - 600$$

- New

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

- 

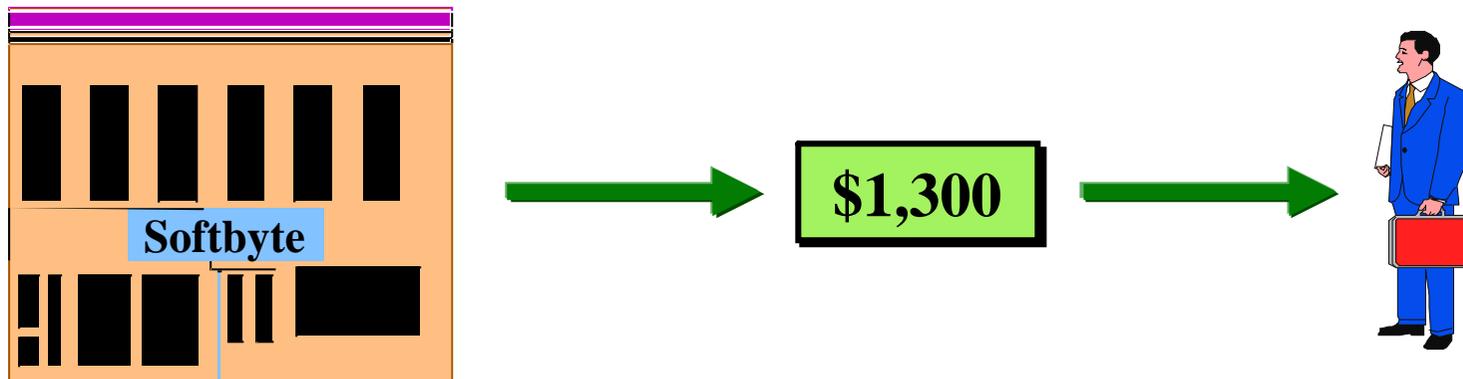
- $$\begin{array}{ccc} \$19,350 & & \$19,350 \end{array}$$

**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)
- $$\underline{- 1,300} \qquad \qquad \qquad \underline{\text{Drawing}} \qquad \qquad \qquad \underline{- 1,300}$$
- 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

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

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

<b>SOFTBYTE, INC.</b>		
<b>Owner's Equity Statement</b>		
<b>For the Month Ended September 30, 2005</b>		
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		<b><u>\$16,450</u></b>

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

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

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

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

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

- Limited liability of stockholders
- Transferability of ownership
- Unlimited personal liability for stockholders
- Unlimited life

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

- Limited liability of stockholders
- Transferability of ownership
- Unlimited personal liability for stockholders
- Unlimited life



Accounting Principles, 7<sup>th</sup> Edition

Weygandt • Kieso • Kimmel

## Chapter 2

# The Recording Process

Prepared by Naomi Karolinski  
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and

Marianne Bradford  
Bryant College

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# 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			
<b>(Debits)</b>	15,000	<b>(Credits)</b>	7,000
	1,200		1,700
	1,500		250
	600		1,300
Balance	8,050		
<b>(Debit)</b>			

# 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**

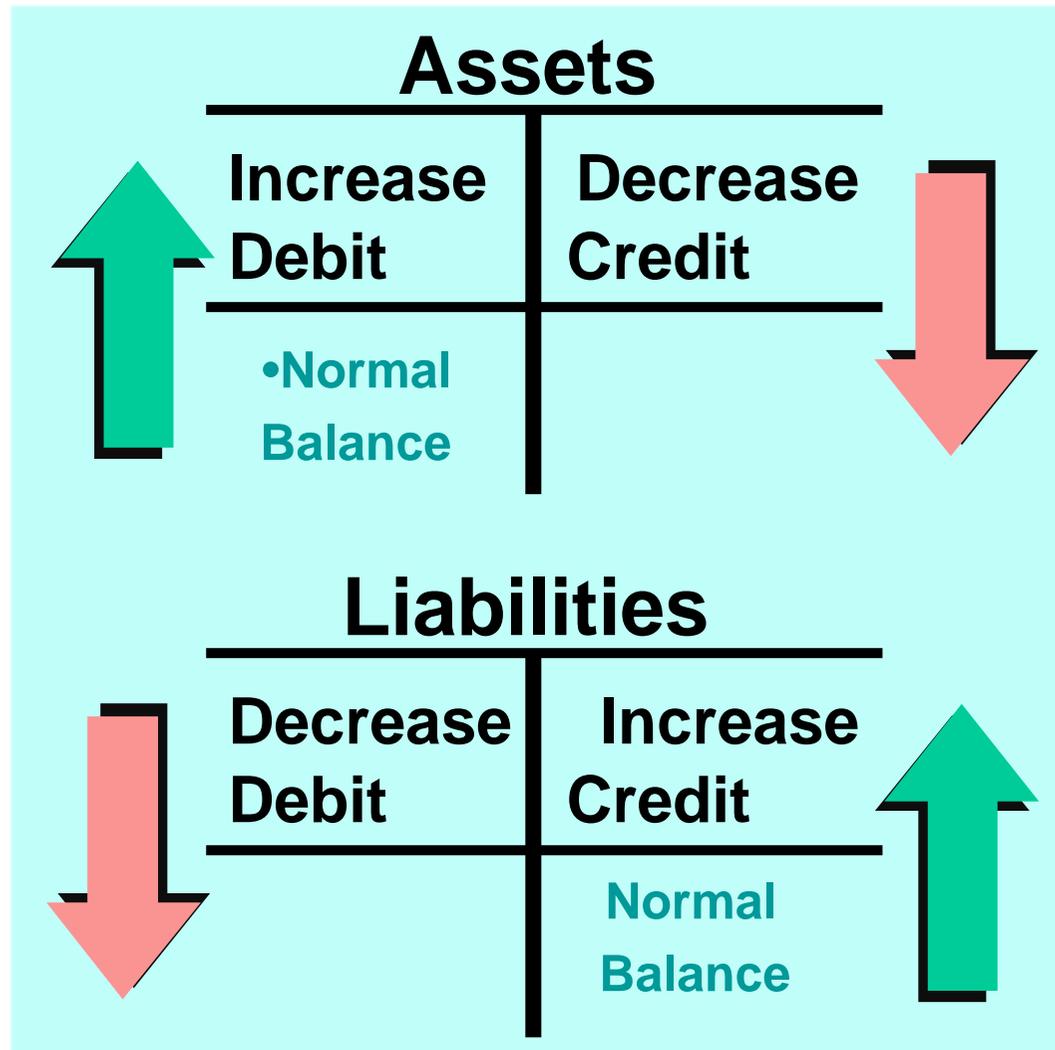
# DEBIT AND CREDIT EFFECTS — ASSETS AND LIABILITIES

<b>Debits</b>	<b>Credits</b>
<b>Increase assets</b> <b>Decrease liabilities</b>	<b>Decrease assets</b> <b>Increase liabilities</b>

# NORMAL BALANCE

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

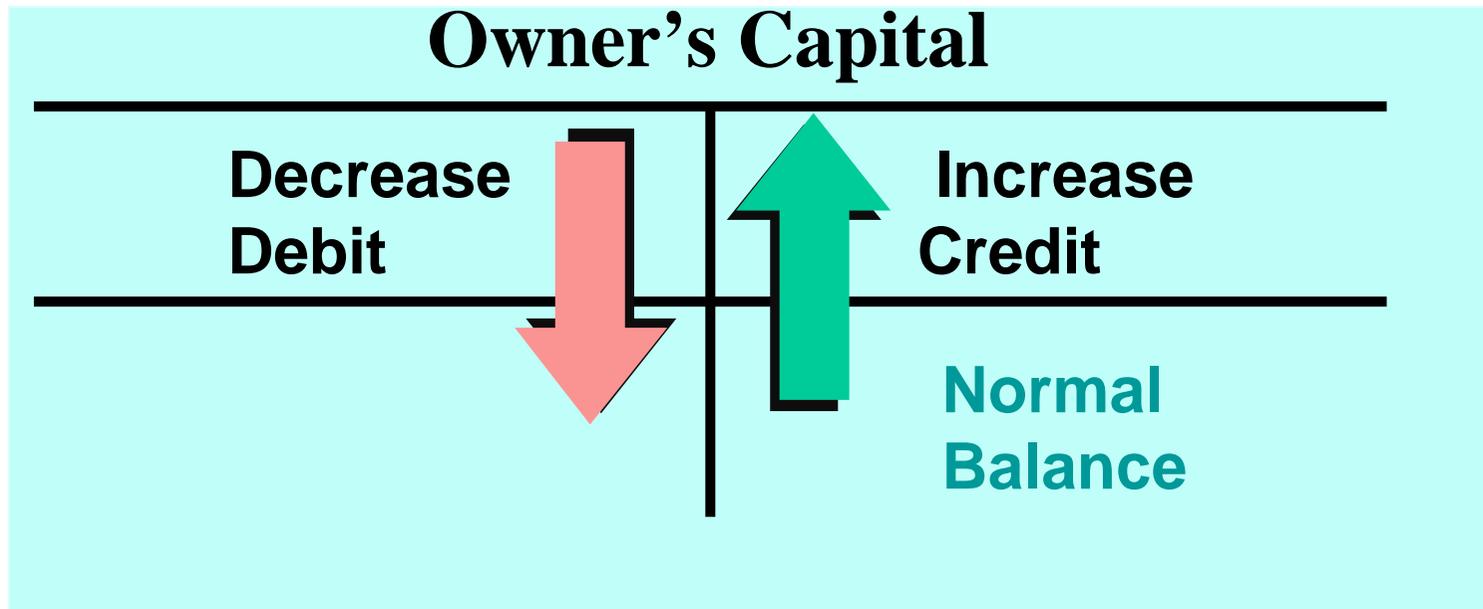
# NORMAL BALANCES — ASSETS AND LIABILITIES



# DEBIT AND CREDIT EFFECTS — OWNER'S CAPITAL

<b>Debits</b>	<b>Credits</b>
<b>Decrease owner's capital</b>	<b>Increase owner's capital</b>

# NORMAL BALANCE — OWNER'S CAPITAL

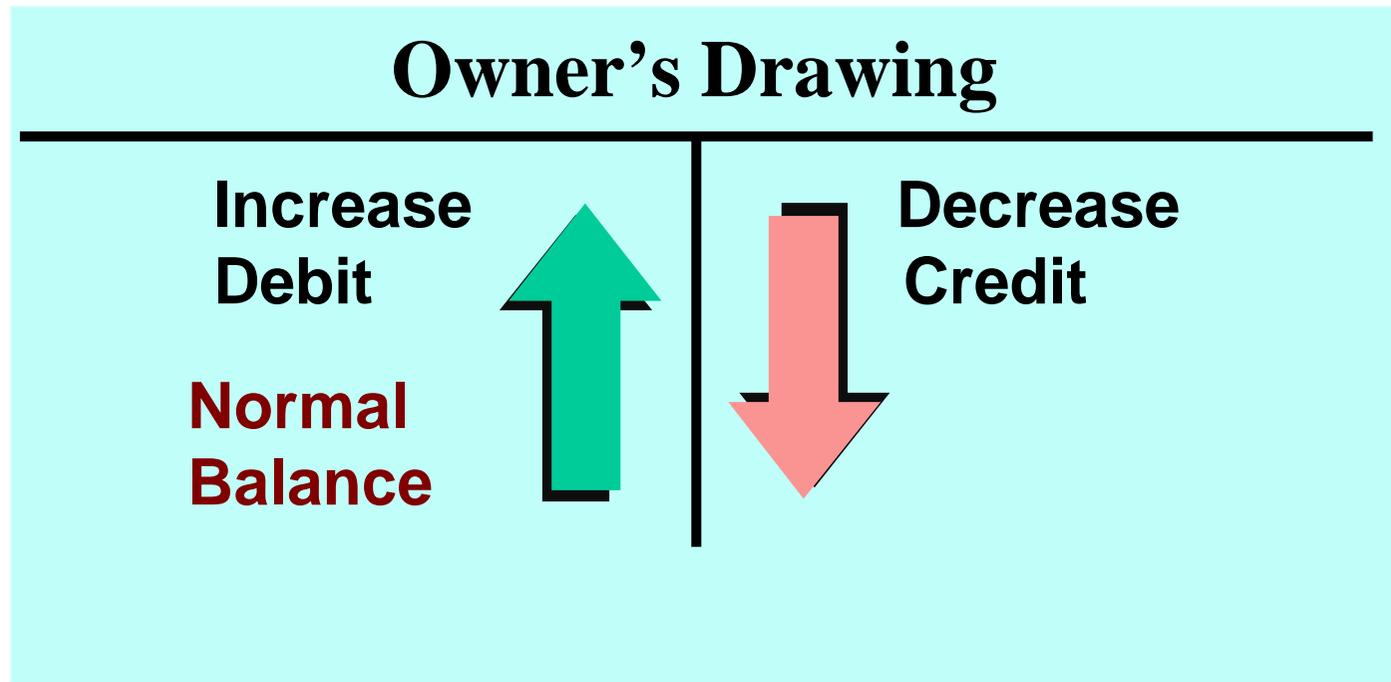


# DEBIT AND CREDIT EFFECTS — OWNER'S DRAWING

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).

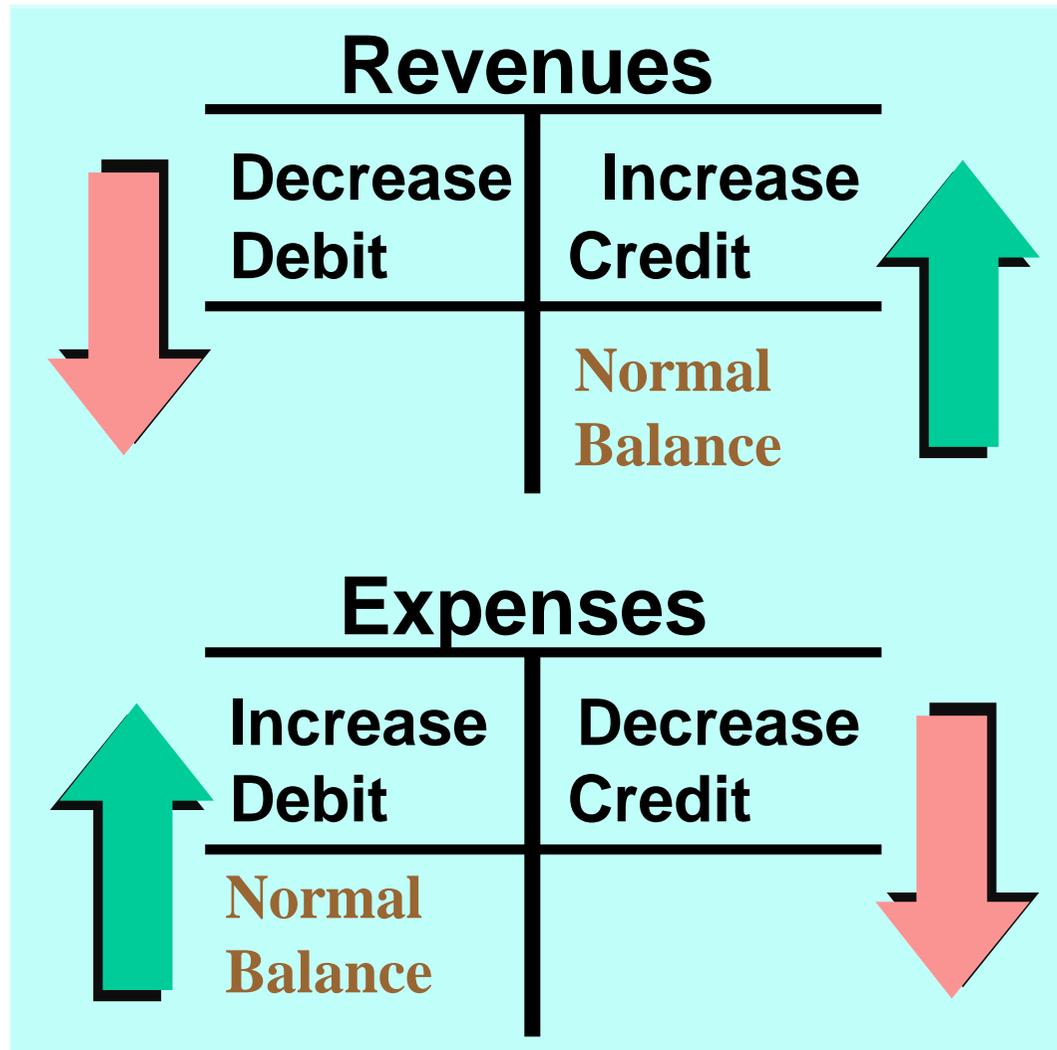
# NORMAL BALANCE — OWNER'S DRAWING



# DEBIT AND CREDIT EFFECTS — REVENUES AND EXPENSES

<b>Debits</b>	<b>Credits</b>
<b>Decrease revenues Increase expenses</b>	<b>Increase revenues Decrease expenses</b>

# NORMAL BALANCES — REVENUES AND EXPENSES



# EXPANDED BASIC EQUATION AND DEBIT/CREDIT RULES AND EFFECTS

<b>Assets</b>	=	<b>Liabilities</b>	+	<b>Owner's Equity</b>
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<b>Assets</b>	=	<b>Liabilities</b>	+	<b>Owner's Capital</b>	-	<b>Owner's Drawing</b>																
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+	<b>Revenues</b>	-	<b>Expenses</b>								
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<b>Dr.</b>	<b>Cr.</b>										
-	+										
<b>Dr.</b>	<b>Cr.</b>										
+	-										

# Review

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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

---

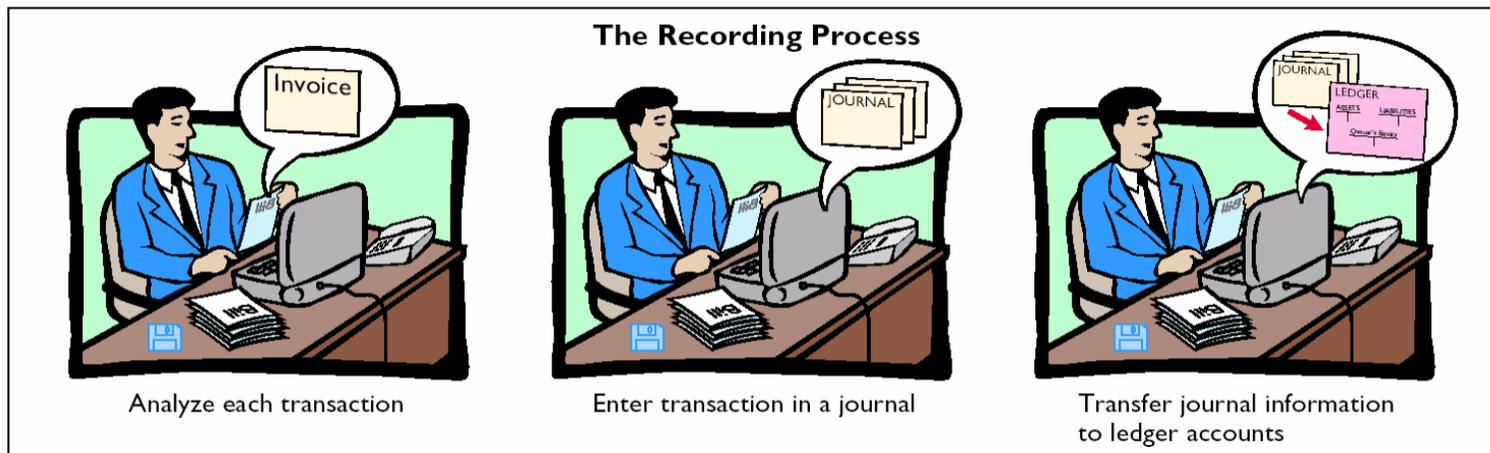
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- a. They can be abbreviated as Dr. and Cr.
- b. They can be interpreted to mean increase and decrease.
- c. They can be used to describe the balance of an account.
- d. They can be interpreted to mean left and right.

# 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.

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

# 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.

<b>GENERAL JOURNAL</b>					<b>J1</b>
<b>Date</b>	<b>Account Titles and Explanation</b>	<b>Ref.</b>	<b>Debit</b>	<b>Credit</b>	
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.

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

# 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.

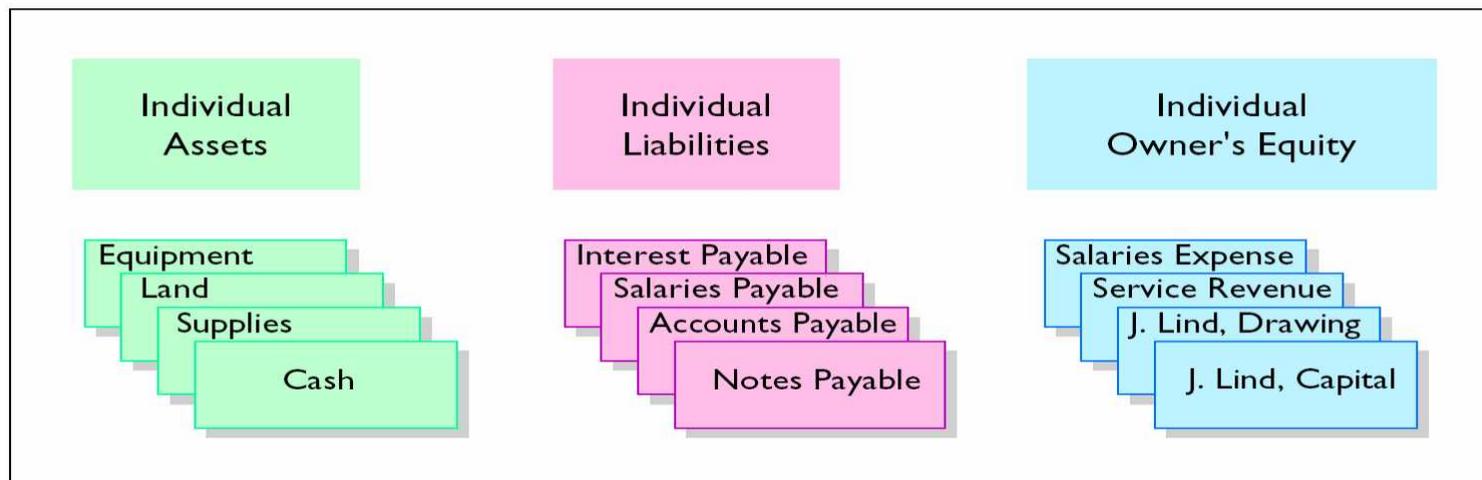
<b>GENERAL JOURNAL</b>				<b>J1</b>
<b>Date</b>	<b>Account Titles and Explanation</b>	<b>Ref.</b>	<b>Debit</b>	<b>Credit</b>
<b>2005 July 1</b>	<b>Cash</b>			<b>8,000</b>
	<b>Delivery Equipment</b>		<b>14,000</b>	
	<b>Accounts Payable</b>			<b>6,000</b>
	<b>(Purchased truck for cash with balance on account)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

# 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.	Cash	10	15,000			
	R. Neal, Capital	25		15,000		
	(invested cash in business)					
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						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) 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

<u>Assets</u>	<u>Owner's Equity</u>
<b>101 Cash</b>	<b>301 C. R. Byrd, Capital</b>
112 Accounts Receivable	<b>306 C. R. Byrd, Drawing</b>
<b>126 Advertising Supplies</b>	350 Income Summary
<b>130 Prepaid Insurance</b>	
<b>157 Office Equipment</b>	<u>Revenues</u>
158 Accumulated Depreciation—Office Equipment	<b>400 Service Revenue</b>
<u>Liabilities</u>	<u>Expenses</u>
<b>200 Notes Payable</b>	631 Advertising Supplies Expense
<b>201 Accounts Payable</b>	711 Depreciation Expense
<b>209 Unearned Revenue</b>	722 Insurance Expense
212 Salaries Payable	<b>726 Salaries Expense</b>
230 Interest Payable	<b>729 Rent Expense</b>
	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	157	5,000	
	Notes Payable	200		5,000
	(Issued 3-month, 12% note for office equipment)			

## 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 Unearned Fees (Received advance from R. Knox for future services)	101 209	1,200	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

<b>PIONEER ADVERTISING AGENCY</b>		
<b>Trial Balance</b>		
<b>October 31, 2005</b>		
	<b>Debit</b>	<b>Credit</b>
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	
	<b>\$ 28,700</b>	<b>\$ 28,700</b>

**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.  $\text{Assets} = \text{Revenue} + \text{Expenses} - \text{Liabilities}.$



Accounting Principles, 7<sup>th</sup> Edition

Weygandt • Kieso • Kimmel

## Chapter 3

# Adjusting the Accounts

Prepared by Naomi Karolinski  
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# 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

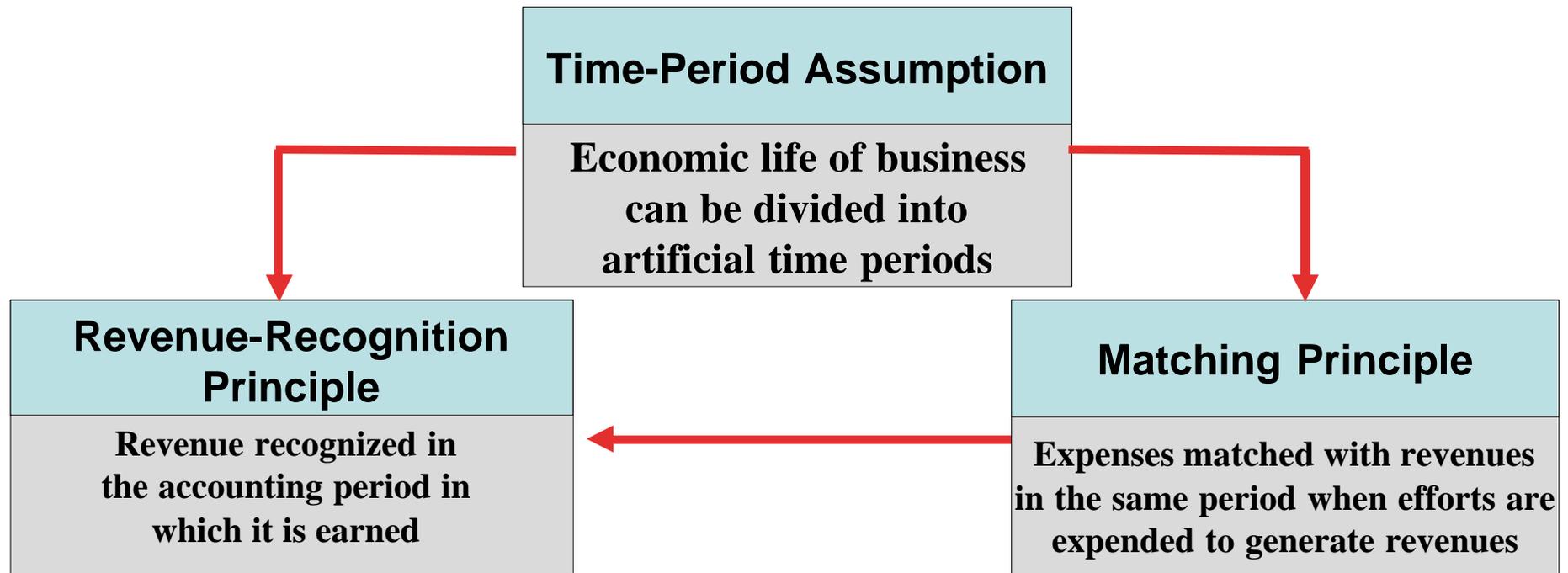
- **Revenue recognition principle**
  - Revenue must be recognized in the accounting period in which it is earned, not just when money is exchanged.
  - In a service business, revenue is earned at the time the service is performed.

# 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

<b>PIONEER ADVERTISING AGENCY</b> <b>Trial Balance</b> <b>October 31, 2005</b>		
	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	
	<b>\$ 28,700</b>	<b>\$ 28,700</b>

**The Trial Balance is  
 the starting place  
 for adjusting  
 entries.**

# PREPAYMENTS

## STUDY OBJECTIVE 5

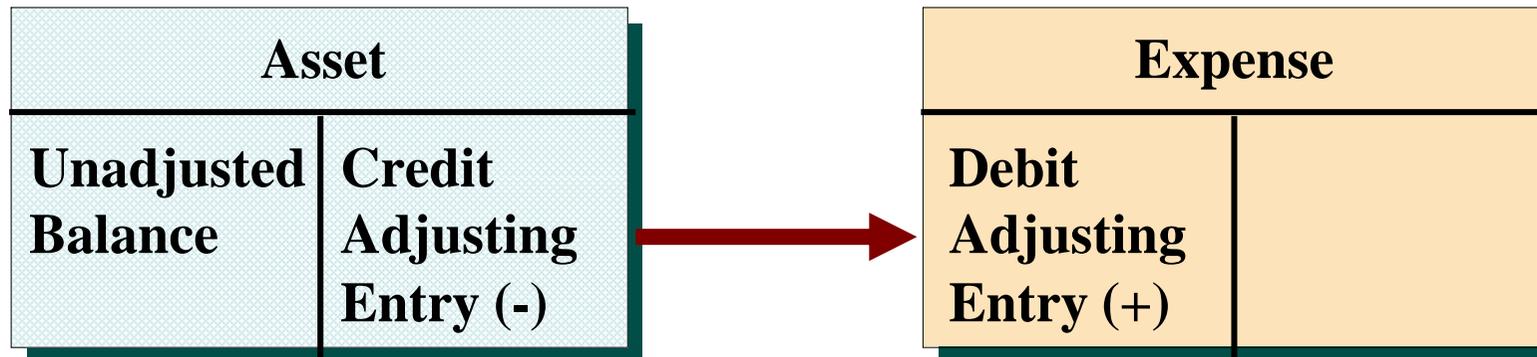
### Prepayments

- 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

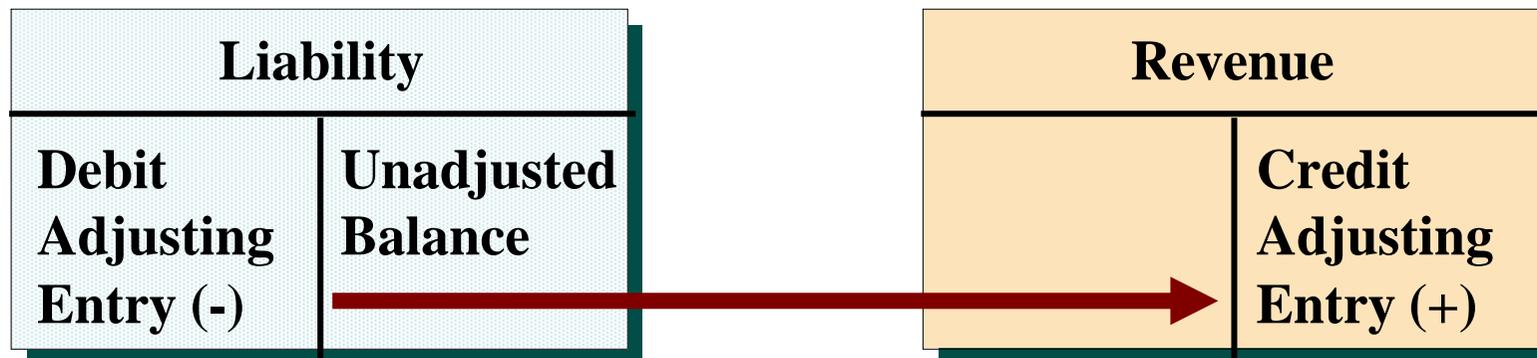
# ADJUSTING ENTRIES FOR PREPAYMENTS

## Adjusting Entries

### Prepaid Expenses



### Unearned Revenues



# 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		
		10		63	
Oct. 4	600	Oct. 31	50	Oct. 31	50
31	550				

# 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	

# 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

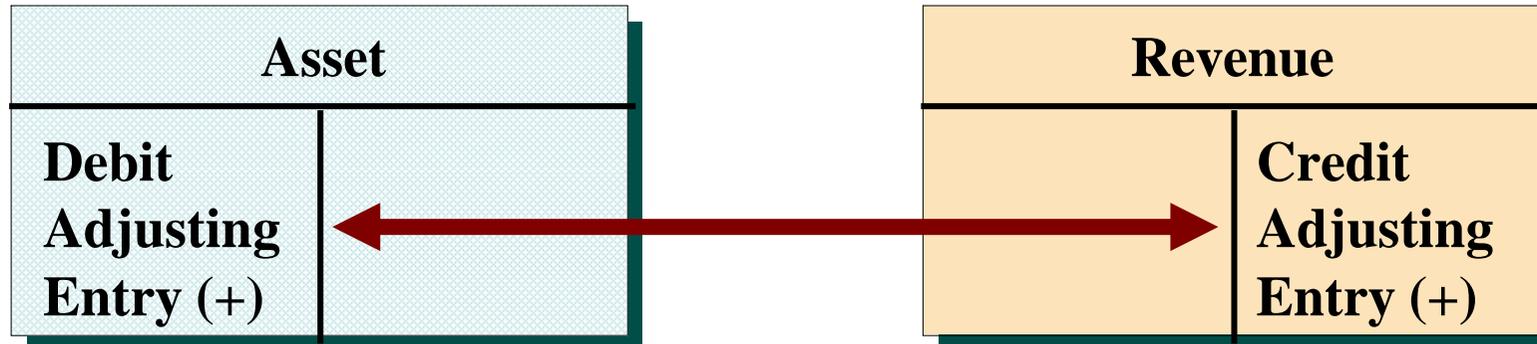
## STUDY OBJECTIVE 6

- **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**

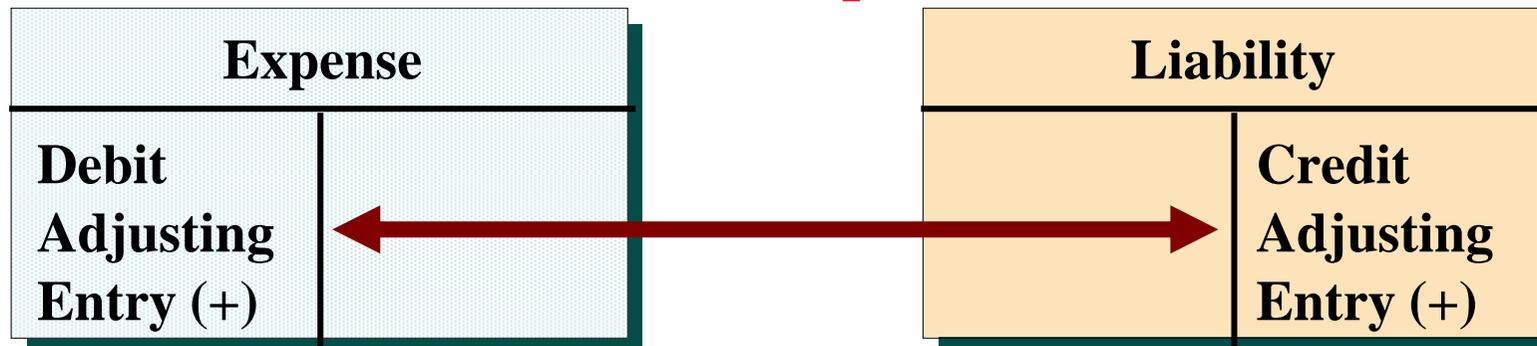
# ADJUSTING ENTRIES FOR ACCRUALS

## 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

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

<b>PIONEER ADVERTISING AGENCY</b>				
<b>Adjusted Trial Balance</b>				
<b>October 31, 2005</b>				
	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

<b>PIONEER ADVERTISING AGENCY</b> <b>Adjusted Trial Balance</b> <b>October 31, 2005</b>		
	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

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

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

<b>PIONEER ADVERTISING AGENCY</b> <b>Adjusted Trial Balance</b> <b>October 31, 2005</b>		
	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**

<b>PIONEER ADVERTISING AGENCY</b> <b>Owner's Equity Statement</b> <b>For the Month Ended October 31, 2005</b>		
C.R. Byrd, Capital, October 1		\$ -0-
Add: Investments	<b>\$ 10,000</b>	
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

<b>PIONEER ADVERTISING AGENCY</b> <b>Adjusted Trial Balance</b> <b>October 31, 2005</b>		
	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

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

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	1,000	
	Advertising Supplies Expense (To record supplies inventory)		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>
<b>1</b> Prepaid Expenses	Assets and Expenses	<b>a</b> Prepaid expenses initially recorded in asset accounts have been used.	Assets overstated Expenses understated	<b>Dr</b> Expenses <b>Cr</b> Assets
		<b>b</b> Prepaid expenses initially recorded in expense accounts have not been used.	Assets understated Expenses overstated	<b>Dr</b> Assets <b>Cr</b> Expenses
<b>2</b> Unearned Revenues	Liabilities and Revenues	<b>a</b> Unearned revenues initially recorded in liability accounts have been earned.	Liabilities overstated Revenues understated	<b>Dr</b> Liabilities <b>Cr</b> Revenues
		<b>b</b> Unearned revenues initially recorded in revenue accounts have not been earned.	Liabilities understated Revenues overstated	<b>Dr</b> Revenues <b>Cr</b> 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.
4. An adjusted trial balance is prepared before all transactions have been posted from the journal.



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## Chapter 4

# Completion of the Accounting Cycle

Prepared by Naomi Karolinski  
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and

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# 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



# 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, 200 5						
Account Titles	Trial Balance		Adjustments		Adjusted Trial Balance	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Cash		15,200				
Advertising Supplies						
Prepaid Insurance						
Office Equipment						
Notes Payable						
Accounts Payable						
Unearned Revenue		2,500				
C.R. Byrd, Capital						
C.R. Bvrd. Drawing						
Service Revenue						
Salaries Expense						
Rent Expense						
Totals						
		5,000				

# 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 150
Prepaid Insurance	600					
Office Equipment	5,000					
Notes Payable		5,000				
Accounts Payable		2,500	b			
Unearned Revenue		1,200				1
C.R. Byrd, Capital		10,000				
C.R. Byrd, Drawing	500					
Service Revenue		10,000				
Salaries Expense	4,000					
Rent Expense	900					
<b>Totals</b>	<b>28,700</b>	<b>28,700</b>				
Advertising Supplies Expense						
Insurance Expense						
Accum. Depr —Off Equip						
Depreciation Expense						
Accounts Receivable						
Interest Expense						
Interest Payable						
Salaries Payable						
<b>Totals</b>			<b>3,440</b>	<b>3,440</b>		

d 400

# 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	
<b>Totals</b>	<b>28,700</b>	<b>28,700</b>				
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
<b>Totals</b>			<b>3,440</b>	<b>3,440</b>	<b>30,190</b>	<b>30,190</b>

# 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					
Rent Expense	900					
Advertising Supplies Expense	1,500					
Insurance Expense	50					
Accum. Depr. — Office Equip.		40				
Depreciation Expense	40					
Interest Expense	50					
Accounts Receivable	200		5,200			
Interest Payable		50				
Salaries Payable		1,200				
<b>Totals</b>	<b>30,190</b>	<b>30,190</b>	<b>7,740</b>	<b>10,600</b>		
Net Income			2,860			
<b>Totals</b>			<b>10,600</b>	<b>10,600</b>		

# 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					5,200 1
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					1,000
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			50
Accounts Receivable	200					
Interest Payable		50				
Salaries Payable		1,200				
<b>Totals</b>	<b>30,190</b>	<b>30,190</b>	<b>7,740</b>	<b>10,600</b>	<b>22,450</b>	<b>19,590</b>
Net Income			2,860			2,860
<b>Totals</b>			<b>10,600</b>	<b>10,600</b>	<b>22,450</b>	<b>20,450</b>

# ADJUSTING ENTRIES JOURNALIZED

<b>GENERAL JOURNAL</b>				
Date	Account Titles and Explanation	Ref.	Debit	Credit
2005 Oct. 31	<span style="color: purple;">a</span> Advertising Supplies Expense <div style="padding-left: 20px;">Advertising Supplies</div>		1,500	1,500
31	<span style="color: purple;">b</span> Insurance Expense <div style="padding-left: 20px;">Prepaid Insurance</div>		50	50
31	<span style="color: purple;">c</span> Depreciation Expense <div style="padding-left: 20px;">Accumulated Expense</div>		40	40
31	<span style="color: purple;">d</span> Unearned Fees <div style="padding-left: 20px;">Fees Earned</div>		400	400
31	<span style="color: purple;">e</span> Accounts Receivable <div style="padding-left: 20px;">Fees Earned</div>		200	200
31	<span style="color: purple;">f</span> Interest Expense <div style="padding-left: 20px;">Interest Payable</div>		50	50
31	<span style="color: purple;">g</span> Salaries Expense <div style="padding-left: 20px;">Salaries Payable</div>		1,200	1,200

# PREPARATION OF FINANCIAL STATEMENTS

## INCOME STATEMENT

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

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

# PREPARATION OF FINANCIAL STATEMENTS

## OWNER'S EQUITY STATEMENT

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

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

# PREPARATION OF FINANCIAL STATEMENTS

## BALANCE SHEET

<b>PIONEER ADVERTISING AGENCY</b> <b>Balance Sheet</b> <b>October 31, 2005</b>			
<u>Assets</u>		<u>Liabilities and Owner's Equity</u>	
<b>Cash</b>	\$ 15,200	<b>Liabilities</b>	
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 revenue	800
Less: Accumulated depreciation	40	Salaries payable	1,200
	<u>4,960</u>	<b>Total liabilities</b>	<u>9,550</u>
<b>Total assets</b>	<b>\$21,910</b>	<b>Owner's equity</b>	12,360
	<u><u>\$21,910</u></u>	C.R. Byrd, Capital	<u>12,360</u>
		<b>Total liabilities and owner's equity</b>	<u><u>\$21,910</u></u>

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

# Review

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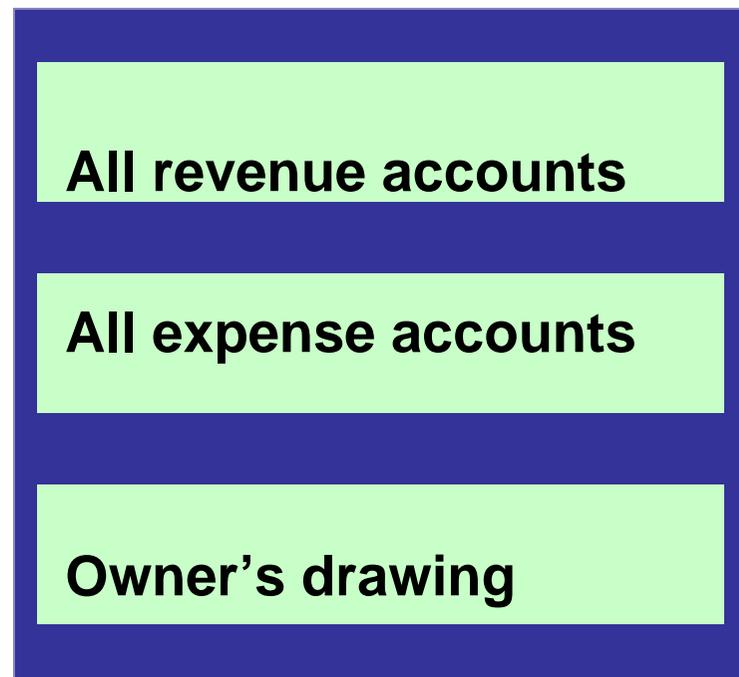
A work sheet can be thought of as a(n)

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

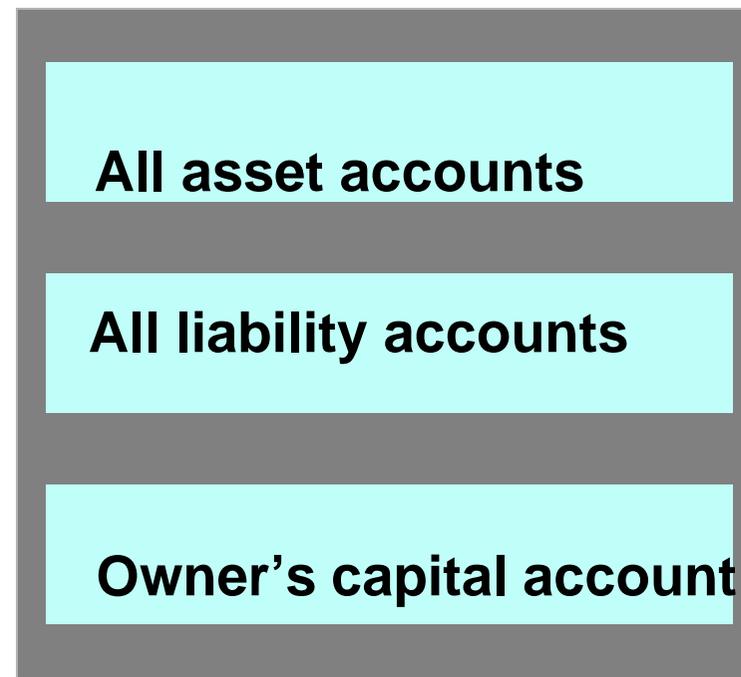
# TEMPORARY VERSUS PERMANENT ACCOUNTS

## STUDY OBJECTIVE 2

**TEMPORARY (NOMINAL)**  
These accounts are closed



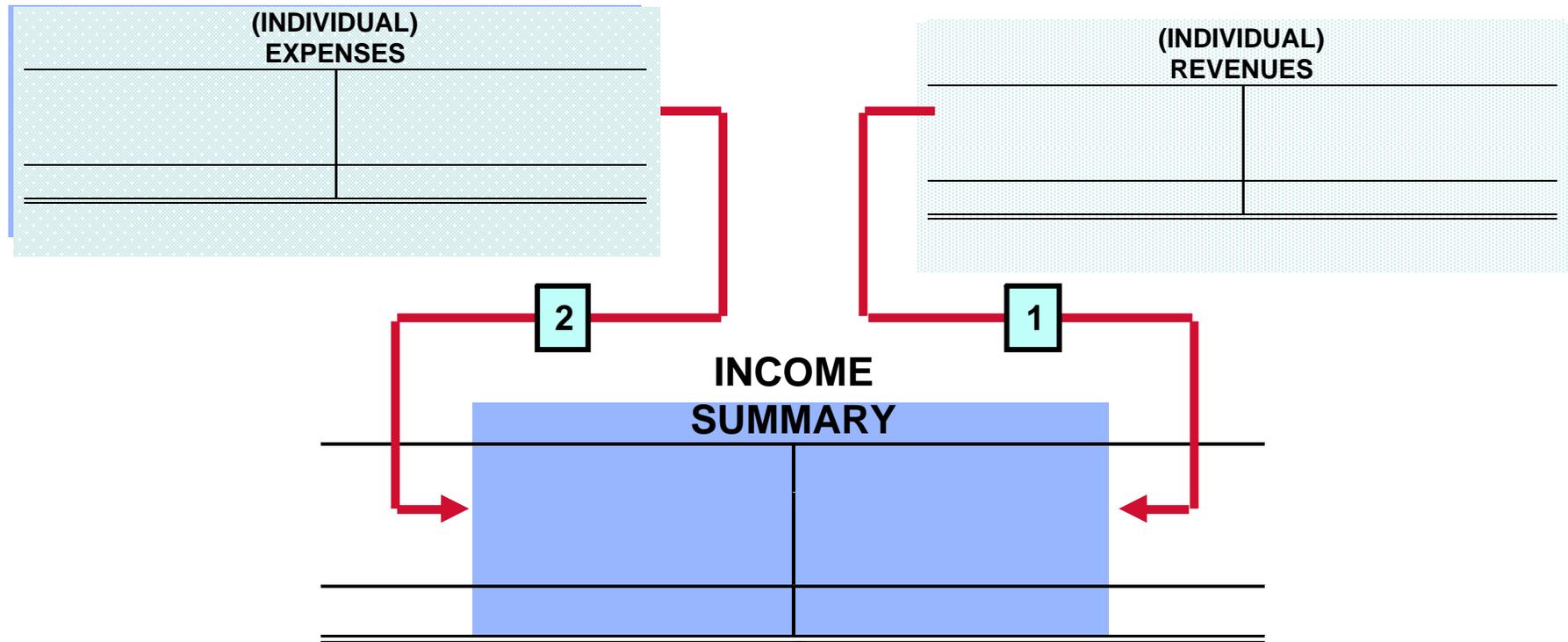
**PERMANENT (REAL)**  
These accounts are not closed



# CLOSING ENTRIES

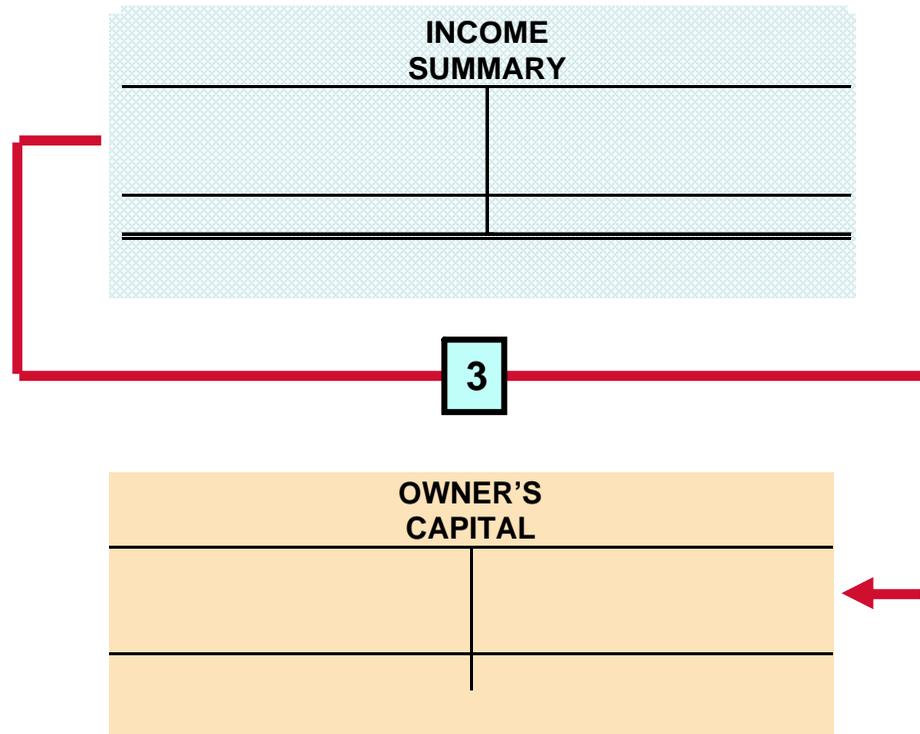
- **Closing entries**
  - Formally transfers net income (loss) and owner's drawings to owner's capital
  - Journalizing and posting is a required step in the **accounting cycle**
- **Income Summary**
  - A temporary account
  - Used in closing revenue and expense accounts
  - Minimizes the details in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

# DIAGRAM OF CLOSING PROCESS PROPRIETORSHIP



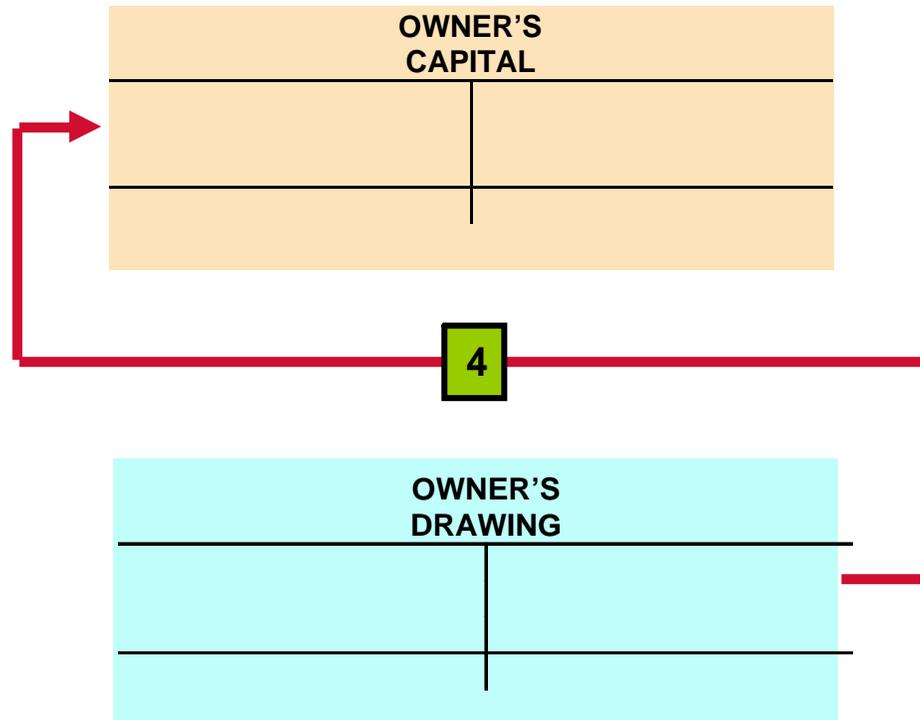
- 1** Debit each revenue account for its balance, and credit Income Summary for total revenues.
- 2** Debit Income Summary for total expenses, and credit each expense account for its balance.

# 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

<b>GENERAL JOURNAL</b>				
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

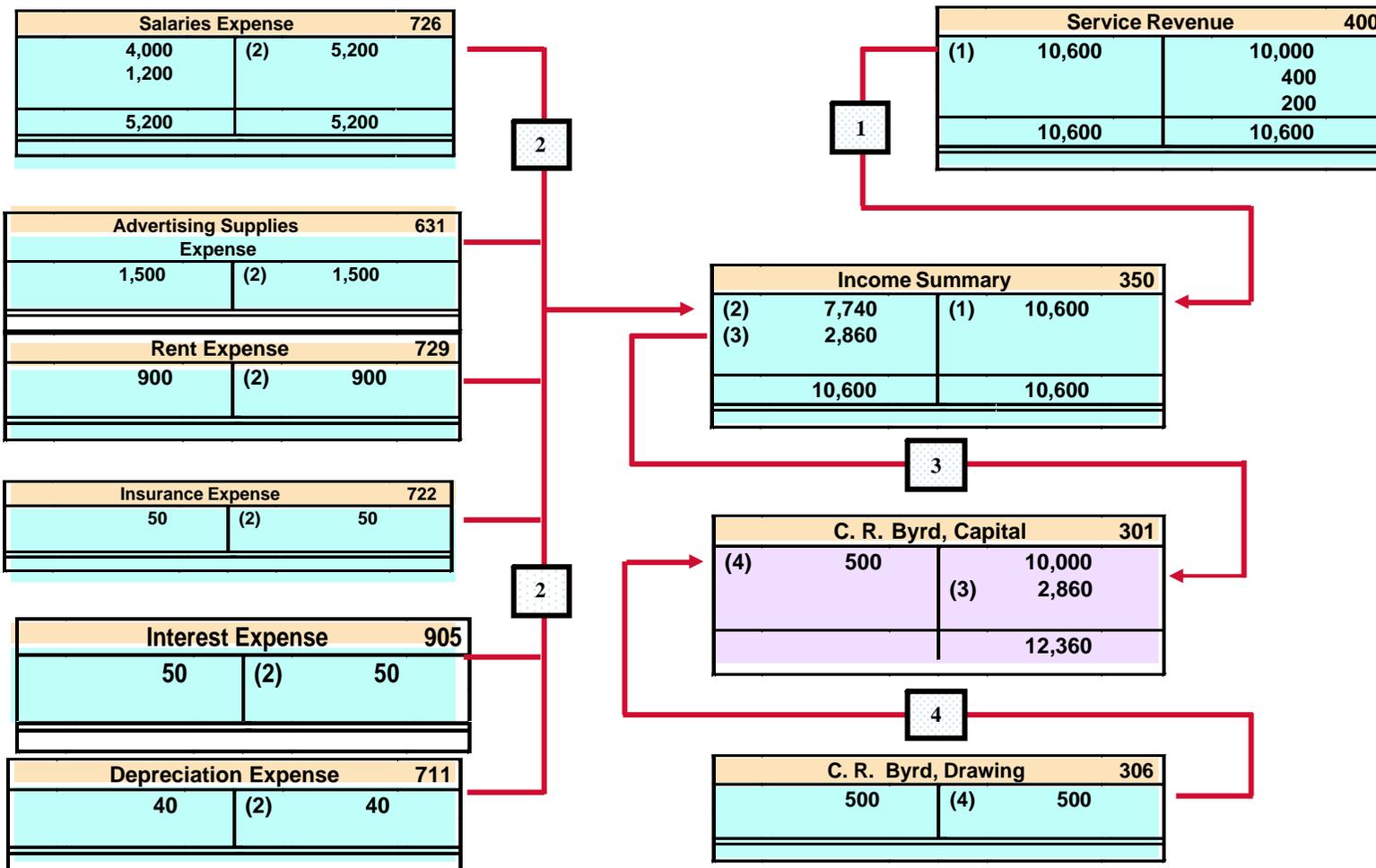
## **Caution:**

- **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		<b>Oct. 26</b>	<b>Salaries Expense</b>	<b>4,000</b>	
	Cash		4,000		<b>Cash</b>		<b>4,000</b>
<u>Adjusting Entry</u>				<u>Adjusting Entry</u>			
Oct. 31	Salaries Expense	1,200		<b>Oct. 31</b>	<b>Salaries Expense</b>	<b>1,200</b>	
	Salaries Payable		1,200		<b>Salaries Payable</b>		<b>1,200</b>
<u>Closing Entry</u>				<u>Closing Entry</u>			
Oct. 31	Income Summary	5,200		<b>Oct. 31</b>	<b>Income Summary</b>	<b>5,200</b>	
	Salaries Expense		5,200		<b>Salaries Expense</b>		<b>5,200</b>
<u>Reversing Entry</u>				<u>Reversing Entry</u>			
Nov. 1	No reversing entry is made.			<b>Nov. 1</b>	<b>Salaries Payable</b>	<b>1,200</b>	
					<b>Salaries Expense</b>		<b>1,200</b>
<u>Subsequent Salary Entry</u>				<u>Subsequent Salary Entry</u>			
Nov. 9	Salaries Payable	1,200		<b>Nov. 9</b>	<b>Salaries Expense</b>	<b>4,000</b>	
	Salaries Expense	2,800			<b>Cash</b>		<b>4,000</b>
	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**

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

ILLUSTRATIVE EXAMPLE OF  
**CORRECTING ENTRY 2**

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

# Review

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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:**

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

# 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**

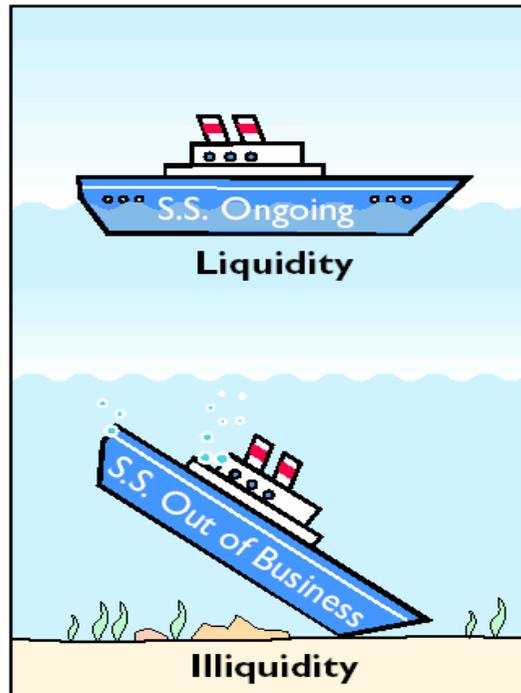
**AOL TIME WARNER, INC.**  
**Balance Sheet (partial)**  
**(in millions)**

<b>Intangible assets</b>	
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

<b>PIONEER ADVERTISING AGENCY</b>		
<b>Balance Sheet</b>		
<b>October 31, 2005</b>		
<u>Assets</u>		
<b>Current assets</b>		<b>\$ 15,200</b>
Cash		200
Accounts receivable		1,000
Advertising supplies		550
Prepaid insurance		<u>16,950</u>
<b>Total current assets</b>		<b>16,950</b>
<b>Property, plant, and equipment</b>	<b>\$5,000</b>	
Office equipment		4,960
Less: Accumulated depreciation	<u>40</u>	<u>4,960</u>
<b>Total assets</b>		<b><u><u>\$21,910</u></u></b>

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

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

# Review

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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, 7<sup>th</sup> Edition

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## Chapter 5

# Accounting for Merchandising Operations

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# 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**

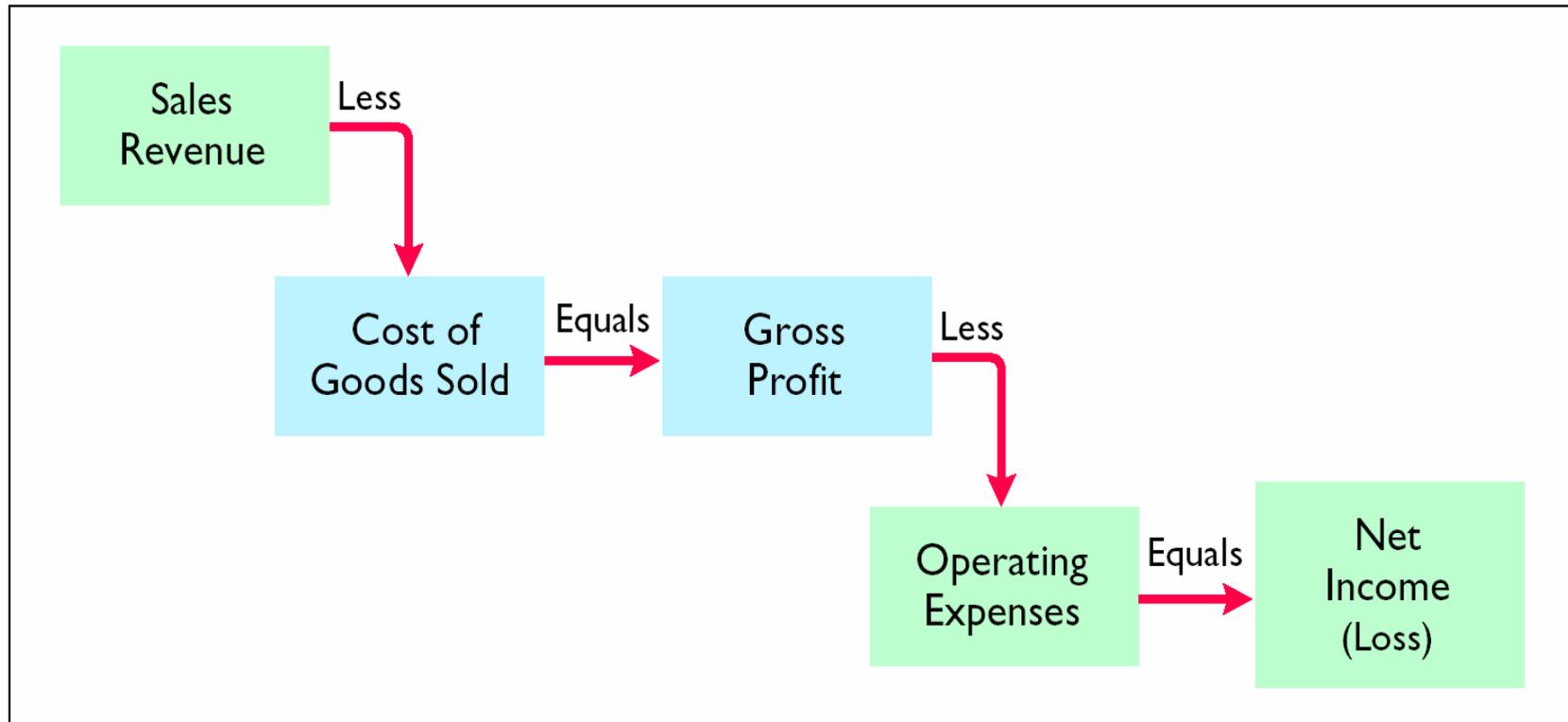
**Primary source of revenue is Sales**



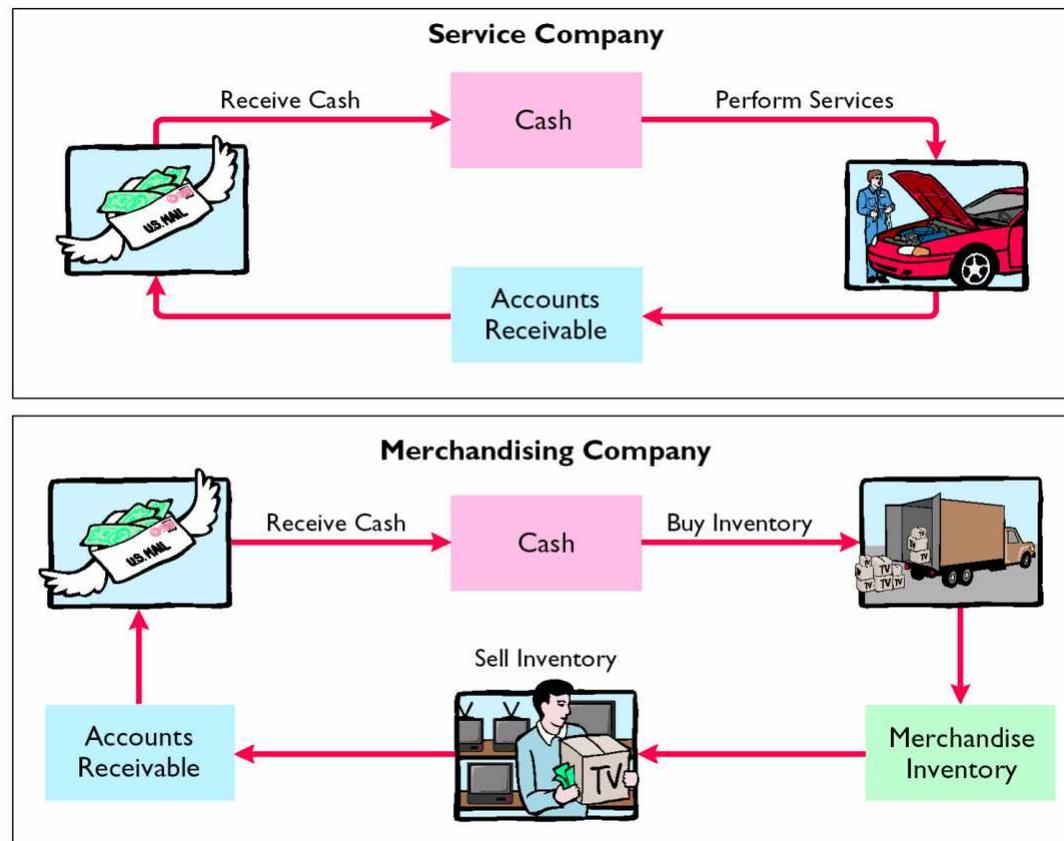
# MEASURING NET INCOME

- **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:**

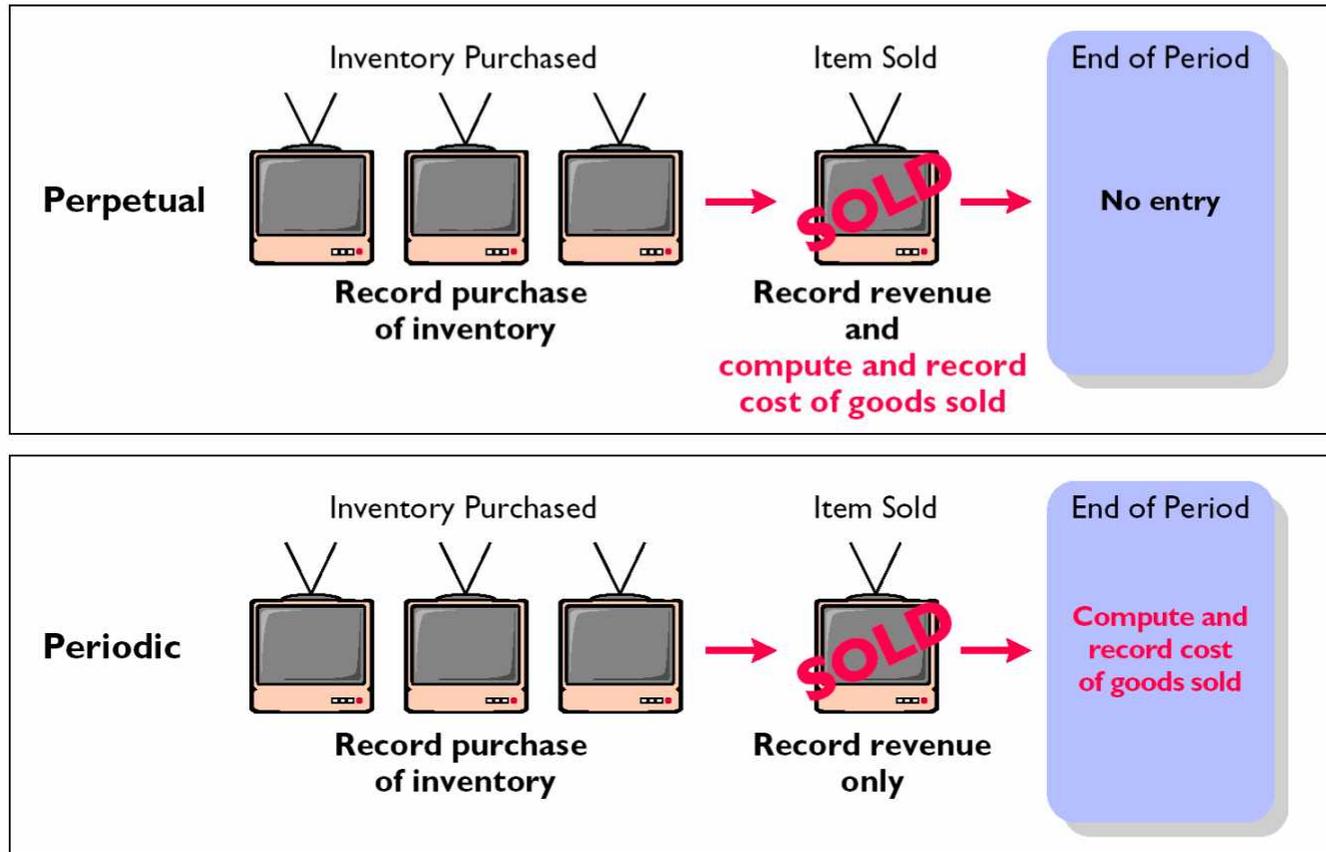
## **1) Perpetual Inventory**

**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 the purchaser when the goods **received** from the seller.**
- **Each credit purchase should be supported by a **purchase invoice**.**

by



# PURCHASES OF MERCHANDISE

## SALES INVOICE

INVOICE NO. 731

  
**SELLERS ELECTRONIX**  
27 CIRCLE DRIVE  
HARDING, MICHIGAN 48281

**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

Date	Salesperson	Terms	Freight Paid by Buyer		
5/4/05	Malone	2/10, n/30			
Catalog No.	Description	Quantity	Price	Amount	
X572Y9820	Printed Circuit Board-prototype	1	2,300	\$2,300	
A2547Z45	Production Model Circuits	5	300	1,500	
<b>IMPORTANT: ALL RETURNS MUST BE MADE WITHIN 10 DAYS</b>				<b>TOTAL</b>	<b>\$3,800</b>

# PURCHASES OF MERCHANDISE

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

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

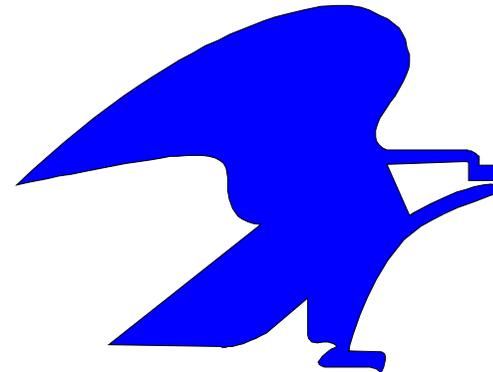
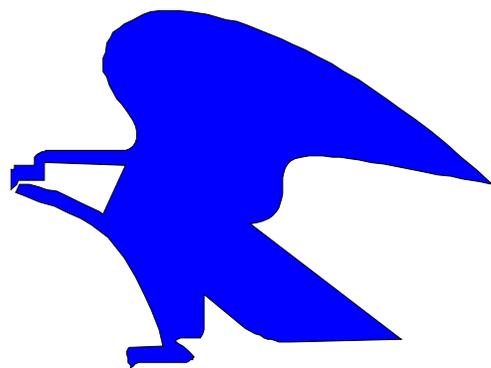
- **FOB Destination**

- 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:**

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

# 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	<b>Sales Returns and Allowances</b> <b>Accounts Receivable</b> (To record return of inoperable goods delivered to Beyer Video, per credit memorandum)	300	300
8	<b>Merchandise Inventory</b> <b>Cost of Goods Sold</b> (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

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

# RECORDING SALES DISCOUNTS

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

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**.

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

# 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

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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

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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

<b>SELLERS ELECTRONIX</b>		
<b>Income Statement</b>		
<b>For the Year Ended December 31, 2005</b>		
<b>Revenues</b>		
Net sales		\$ 460,000
Interest revenue	Revenues	3,000
Gain on sale of equipment		600
<b>Total revenues</b>		<b>463,600</b>
<b>Expenses</b>		
Cost of goods sold		\$ 316,000
Selling expenses		76,000
Administrative expenses		38,000
Interest expense		1,800
Casualty loss from vandalism		200
<b>Total expenses</b>		<b>432,000</b>
<b>Net income</b>		<b>\$ 31,600</b>

All data are classified under two categories: **1**

Revenues

**2** Expenses

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

# COMPUTATION OF GROSS PROFIT

## STUDY OBJECTIVE 6

**Gross profit is determined as follows:**

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

# OPERATING EXPENSES IN COMPUTING NET INCOME

**Net income is determined as follows:**

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

# Review

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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

<b>SELLERS ELECTRONIX</b>			
Cost of Goods Sold			
For the Year Ended December 31, 2005			
Cost of goods sold			
<b>Inventory, January 1</b>			<b>\$36,000</b>
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>	
<b>Cost of goods purchased</b>			<b><u>320,000</u></b>
Cost of goods available for sale			356,000
<b>Inventory, December 31</b>			<b><u>40,000</u></b>
<b>Cost of goods sold</b>			<b>316,000</b>

# 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
<b>May 4</b>	<b>Purchases</b>	<b>3,800</b>	
	<b>Accounts Payable</b>		<b>3,800</b>

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



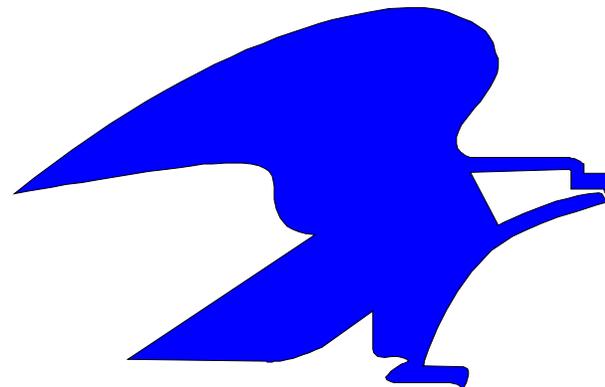
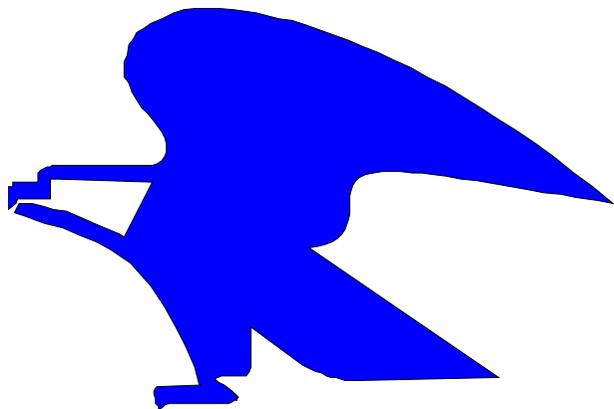
# RECORDING PURCHASE RETURNS AND ALLOWANCES

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

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
<b>May 9</b>	<b>Freight-in</b>	<b>150</b>	
	<b>Cash</b>		<b>150</b>

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
<b>May 14</b>	<b>Accounts Payable</b>	<b>3,500</b>	
	<b>Purchase Discounts</b>		<b>70</b>
	<b>Cash</b>		<b>3,430</b>

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
<b>May 4</b>	<b>Accounts Receivable</b>	<b>3,800</b>	
	<b>Sales</b>		
<b>3,800</b>			

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
<b>May 8</b>	<b>Sales Returns and Allowances</b>	<b>300</b>	
	<b>Accounts Receivable</b>		<b>300</b>

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
<b>May 15</b>	<b>Cash</b>	<b>3,430</b>	
	<b>Sales Discounts</b>		<b>70</b>
	<b>Accounts Receivable</b>		<b>3,500</b>

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

<b>SELLERS ELECTRONIX</b>										
Work Sheet										
For the Year Ended December 31, 2005										
	<b>Trial Balance</b>		<b>Adjustments</b>		<b>Adjusted Trial Balance</b>		<b>Income Statement</b>		<b>Balance Sheet</b>	
	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	
<b>MERCHANDISE INVENTORY</b>	<b>40,500</b>			(a) 500	<b>40,000</b>				<b>40,000</b>	
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	
<b>SALES</b>		<b>480,000</b>				<b>480,000</b>	<b>480,000</b>			
<b>SALES RETURNS AND ALLOWANCES</b>	<b>12,000</b>				<b>12,000</b>		<b>12,000</b>			
<b>SALES DISCOUNTS</b>	<b>8,000</b>				<b>8,000</b>		<b>8,000</b>			
<b>COST OF GOODS SOLD</b>	<b>315,500</b>		(a) 500		<b>316,000</b>		<b>316,000</b>			
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>	450,000	480,000	162,400	132,400
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 **balancesheet debit column**
- 3** The information to prepare the **owner's equity statement** is also found in these columns



# Accounting Principles, 7<sup>th</sup> Edition

Weygandt • Kieso • Kimmel

## Chapter 6

# Inventories

Prepared by Naomi Karolinski  
Monroe Community College

and

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Bryant College

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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**

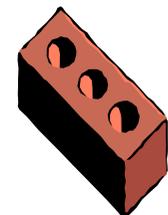
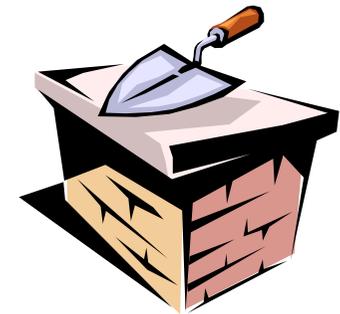
ready for sale

## **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**

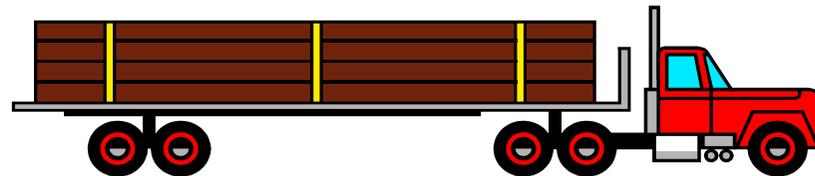
**pre-numbered inventory tags**

## **5 Independent internal verification**

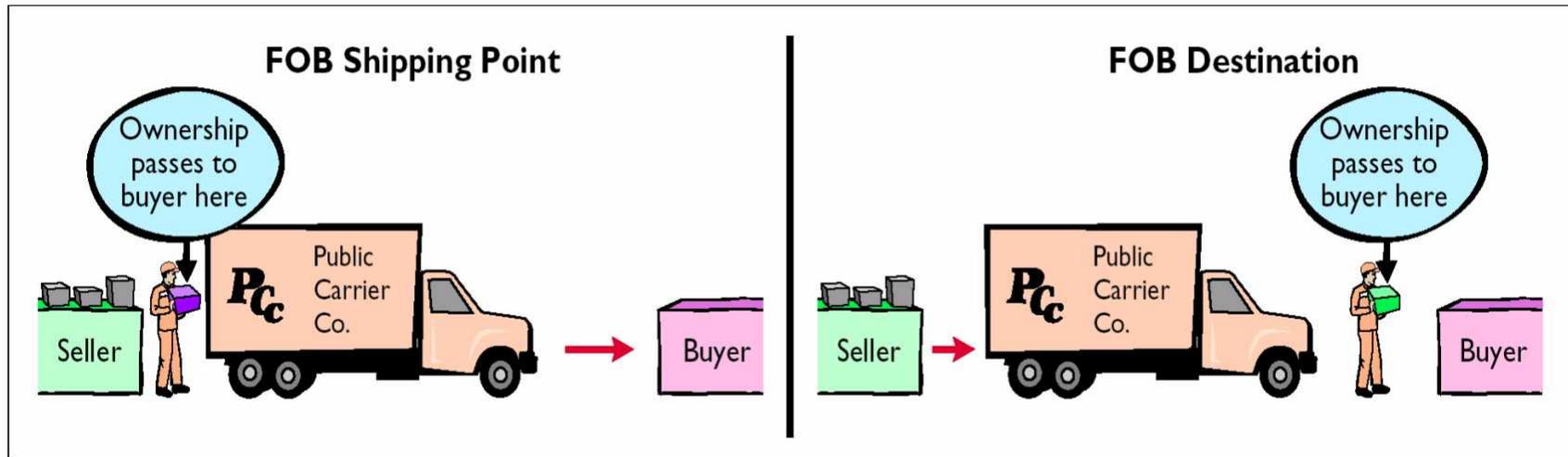
**designated supervisor checks all inventory items tags, no items have more than one tag**

# 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

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

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

# 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

---

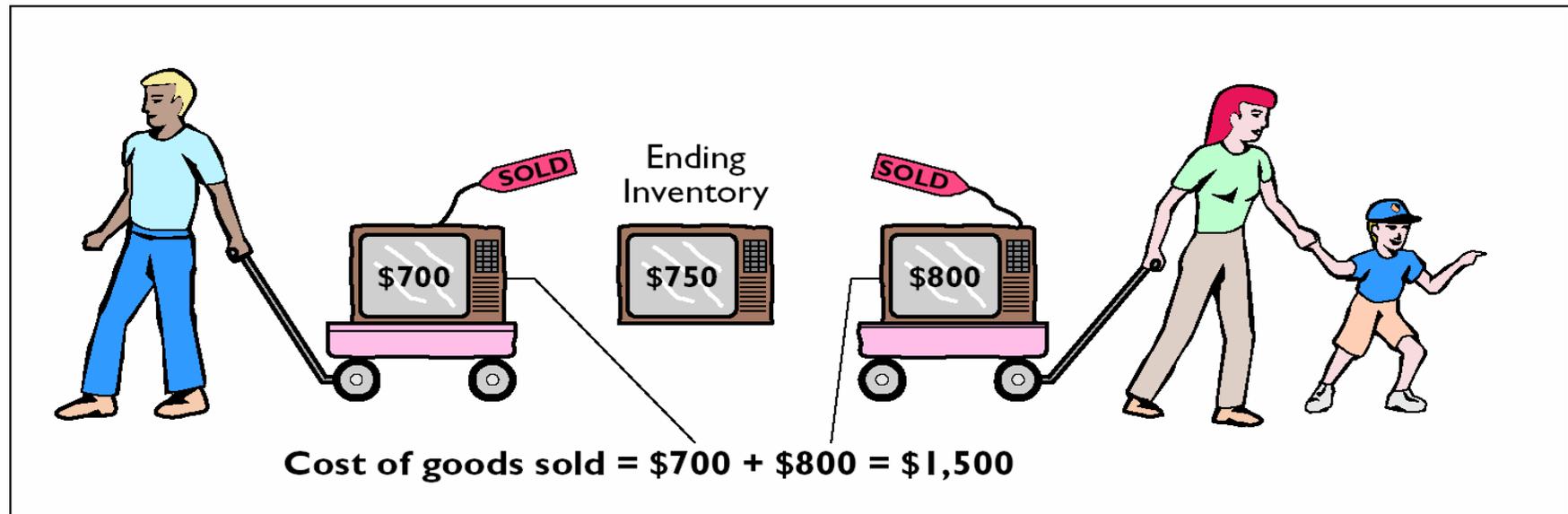
The cost of goods available for sale is allocated between

- 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



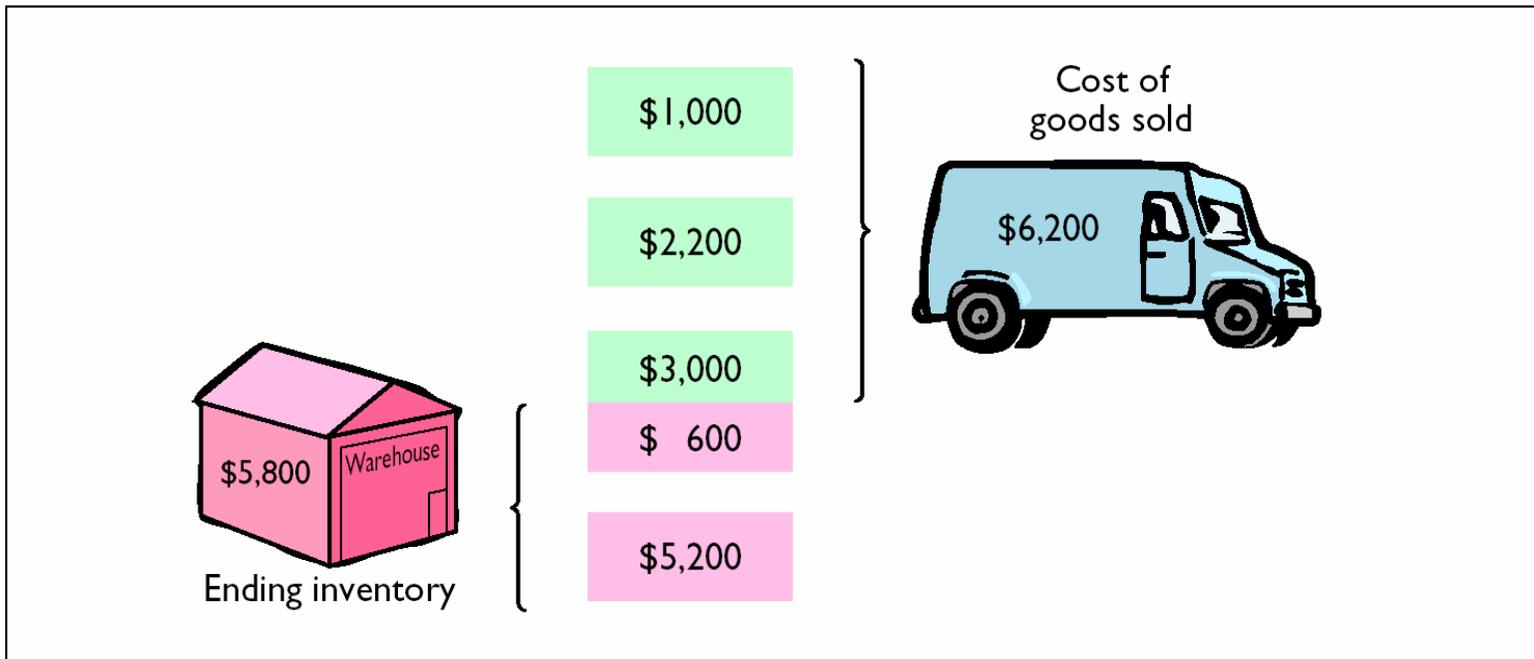
# USING ASSUMED COST FLOW METHODS

- **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>			Cost of goods sold	
			<u>\$ 5,800</u>		<u>\$ 6,200</u>

# PROOF OF COST OF GOODS SOLD

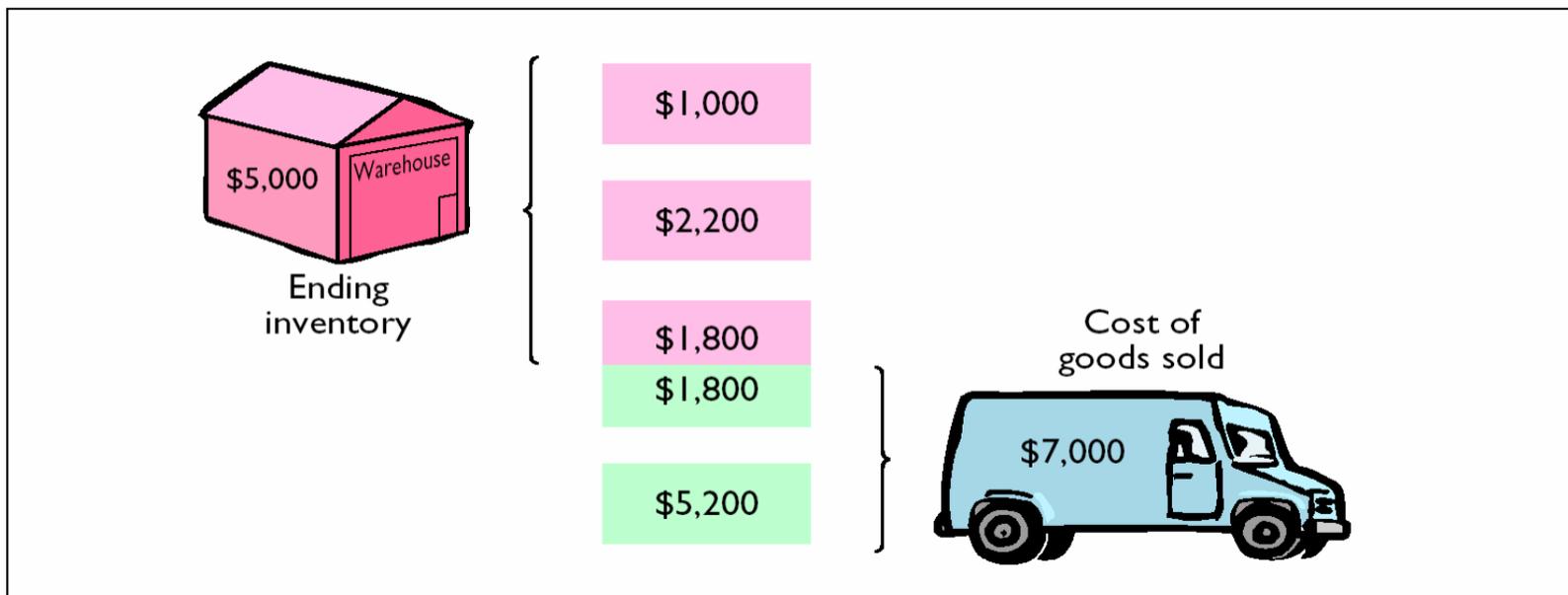
The **accuracy** of the cost of goods sold can be verified by recognizing that the **first** units acquired are the **first** units sold.

<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
<b>Total</b>	<b>550</b>				<b>\$ 6,200</b>

# 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				Step 2	
Ending Inventory				Cost of Goods Sold	
Date	Units	Unit Cost	Total Cost		
01/01	100	\$ 10	\$ 1,000		
04/15	200	11	2,200	Cost of goods available for sale	\$ 12,000
08/24	150	12	1,800	Less: Ending inventory	5,000
	<u>450</u>		<u>\$ 5,000</u>	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.**

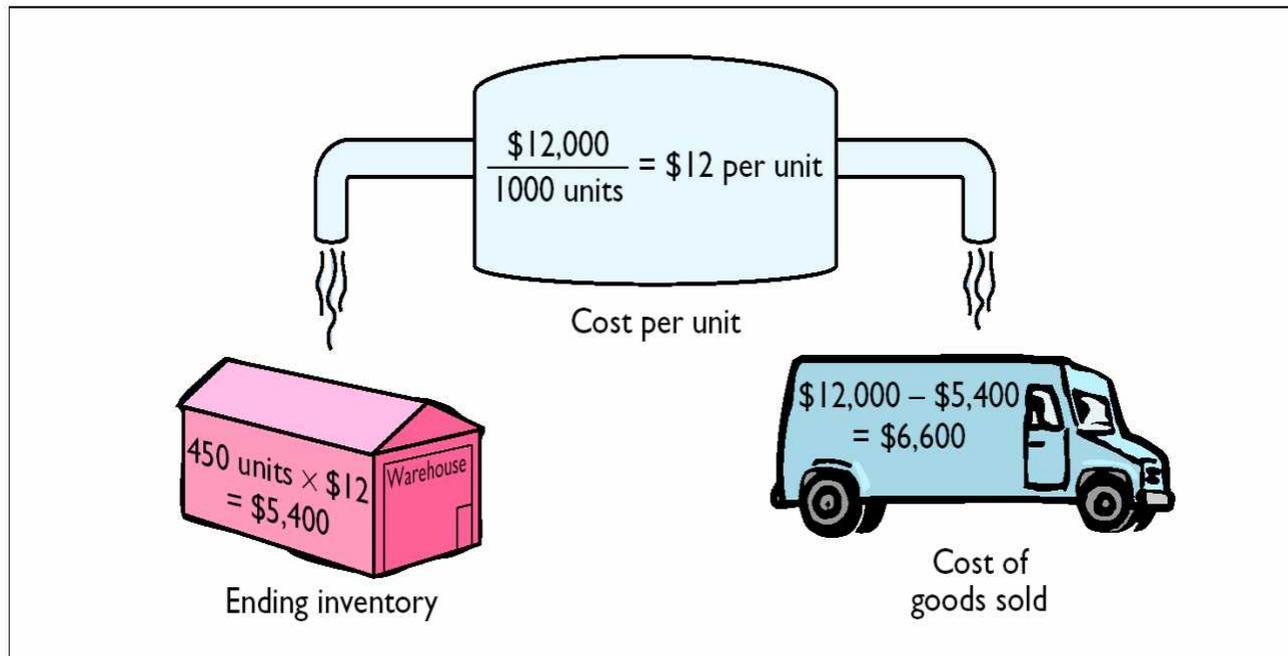
<u>Date</u>	<u>Units</u>		<u>Unit Cost</u>		<u>Total Cost</u>
11/27	400	X	\$ 13	=	\$ 5,200
08/24	150	X	12	=	1,800
<b>Total</b>	<b>550</b>				<b>\$ 7,000</b>

# 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



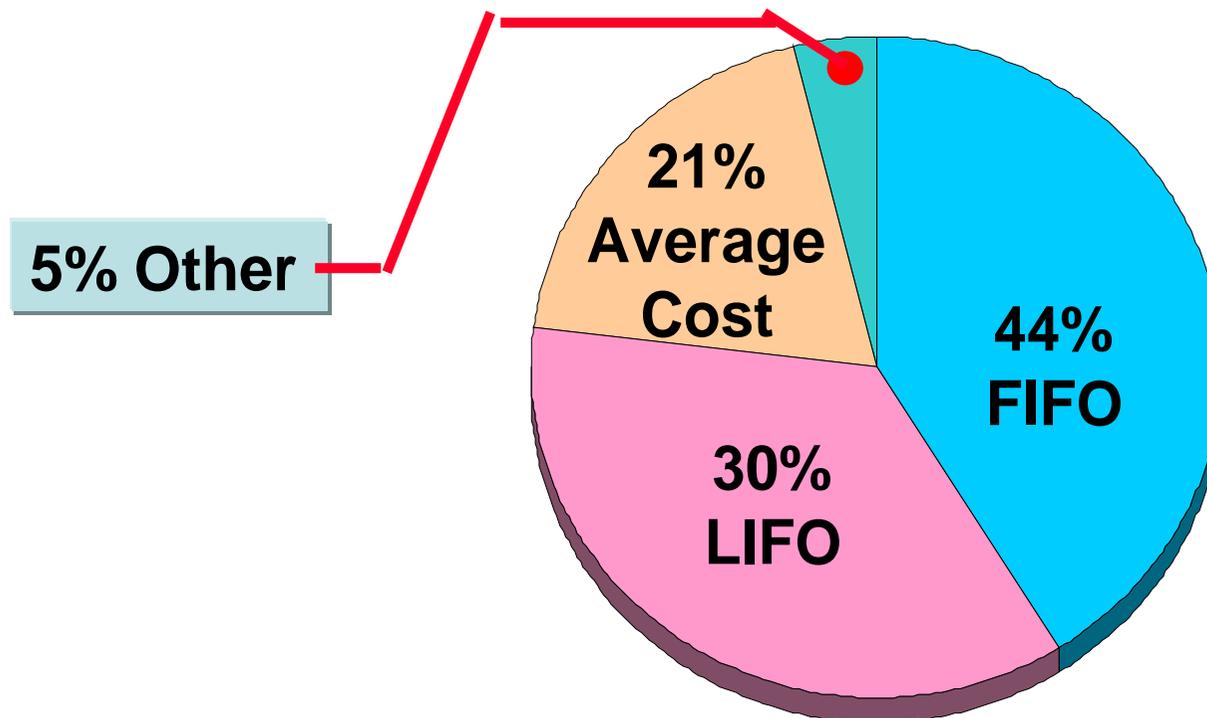
# ALLOCATION OF COSTS - AVERAGE COST METHOD

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
	<b>Total</b>	<b>1,000</b>		<b>\$12,000</b>

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

# 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 31<sup>st</sup>.

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

# 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

$$\begin{array}{ccccccc} \text{Beginning} & & & & & & \\ \text{Inventory} & + & \text{Cost of} & - & \text{Ending} & = & \text{Cost of} \\ & & \text{Goods} & & \text{Inventory} & & \text{Goods} \\ & & \text{Purchased} & & & & \text{Sold} \end{array}$$

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:**

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

# 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**

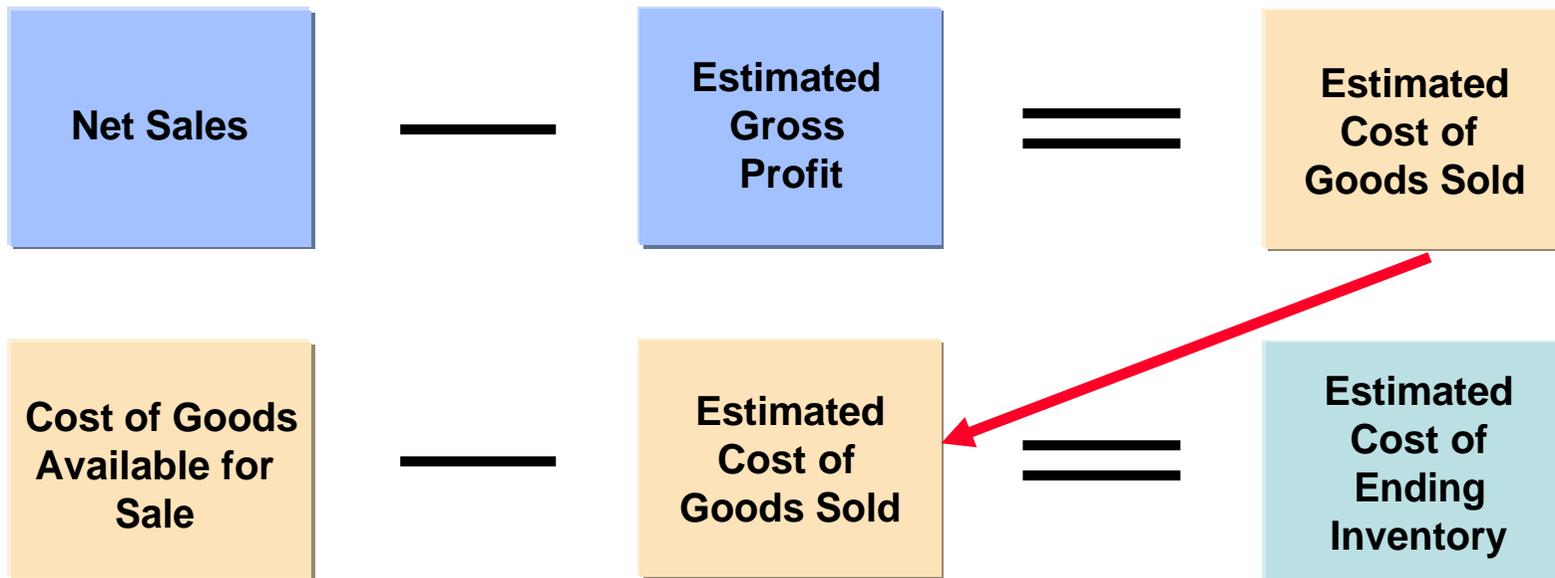


# GROSS PROFIT METHOD

- **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.



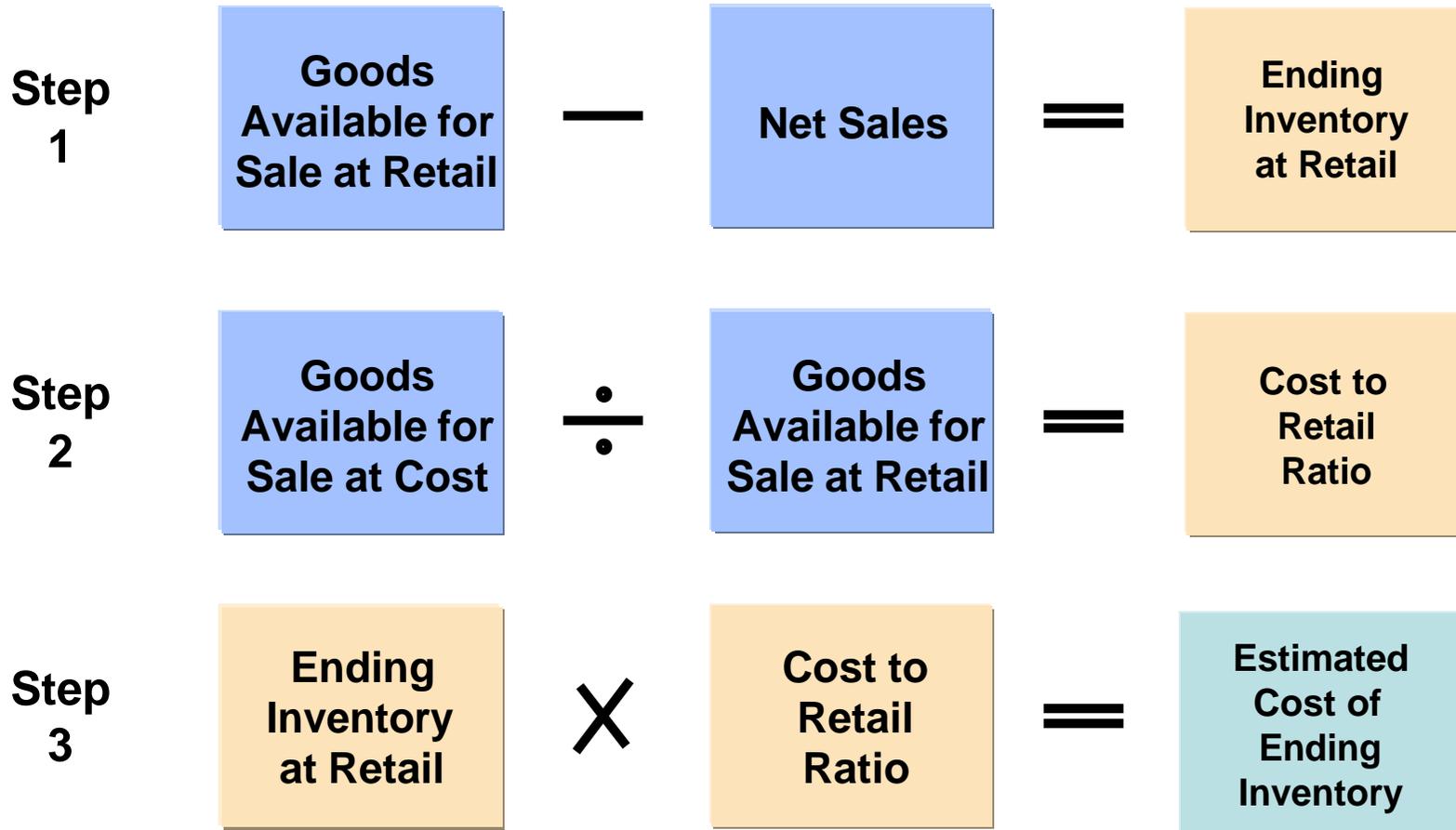
**Step 2** Cost of goods available for sale less estimated cost of goods sold (**from Step 1**) equals the estimated cost of ending inventory.

# 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



# 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	<b>Beg. Inventory</b>	<b>400 units</b>	<b>@</b>	<b>\$10.00 =</b>	<b>\$ 4,000</b>
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**



Accounting Principles, 7<sup>th</sup> Edition

Weygandt • Kieso • Kimmel

## Chapter 7

# Accounting Information Systems

Prepared by Naomi Karolinski  
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and

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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.



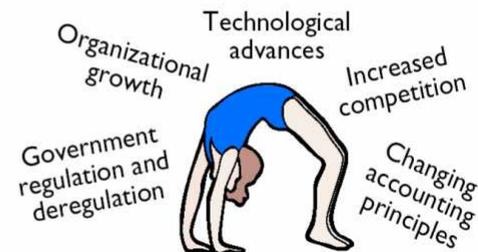
## Useful Output

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.



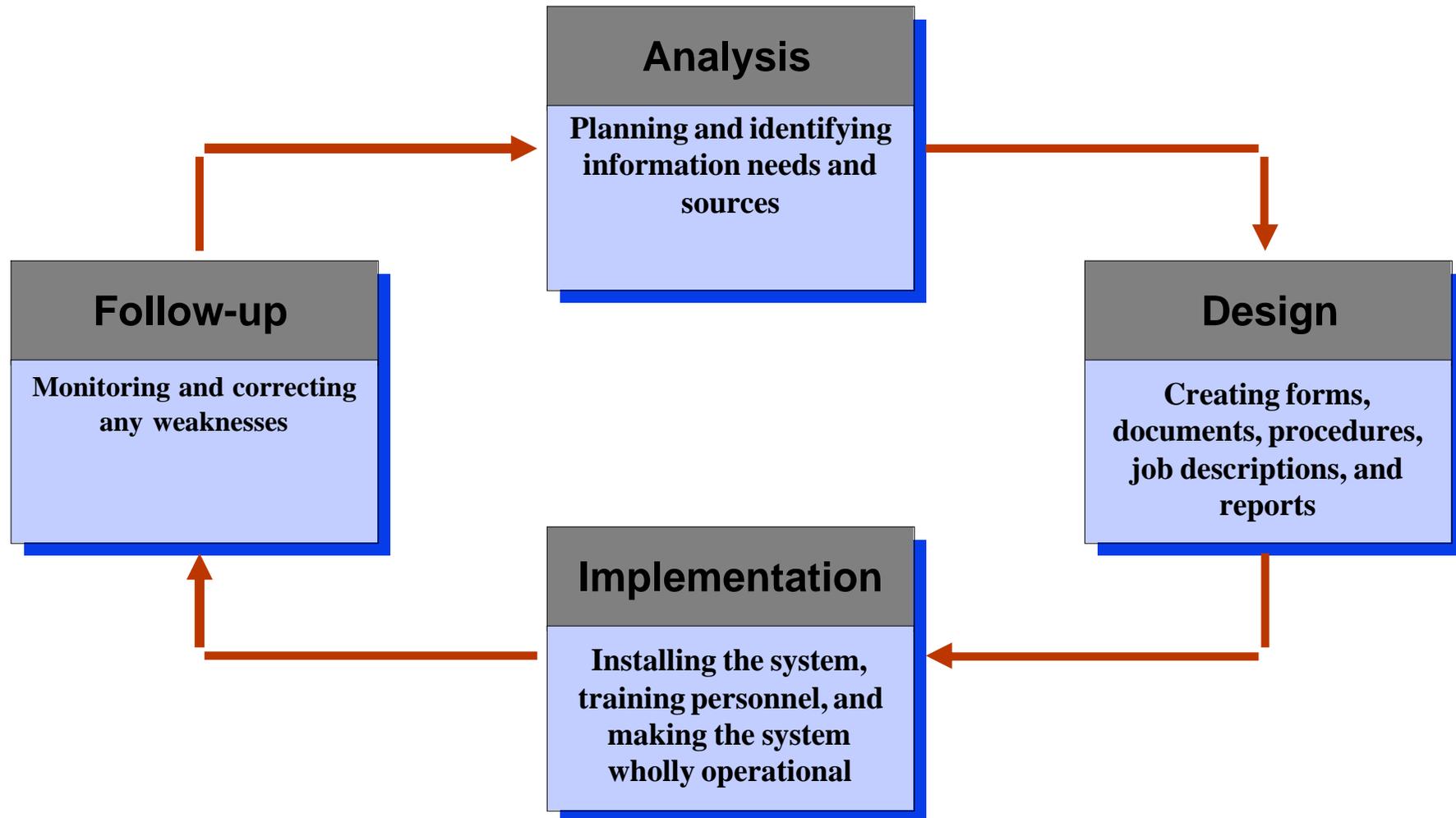
## Flexibility

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

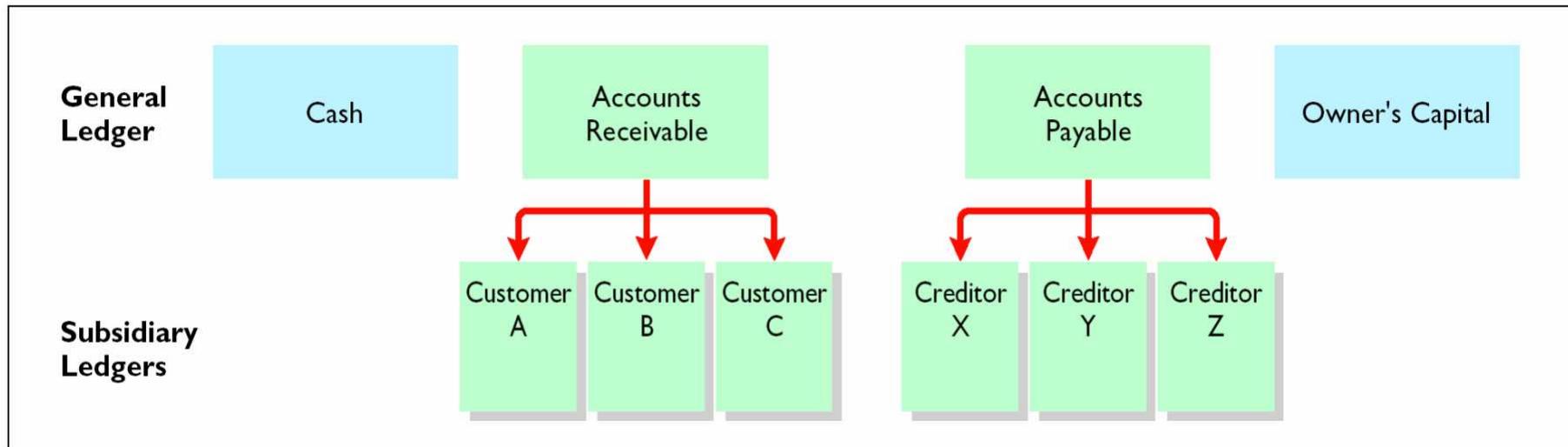
## STUDY OBJECTIVE 3

- **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**

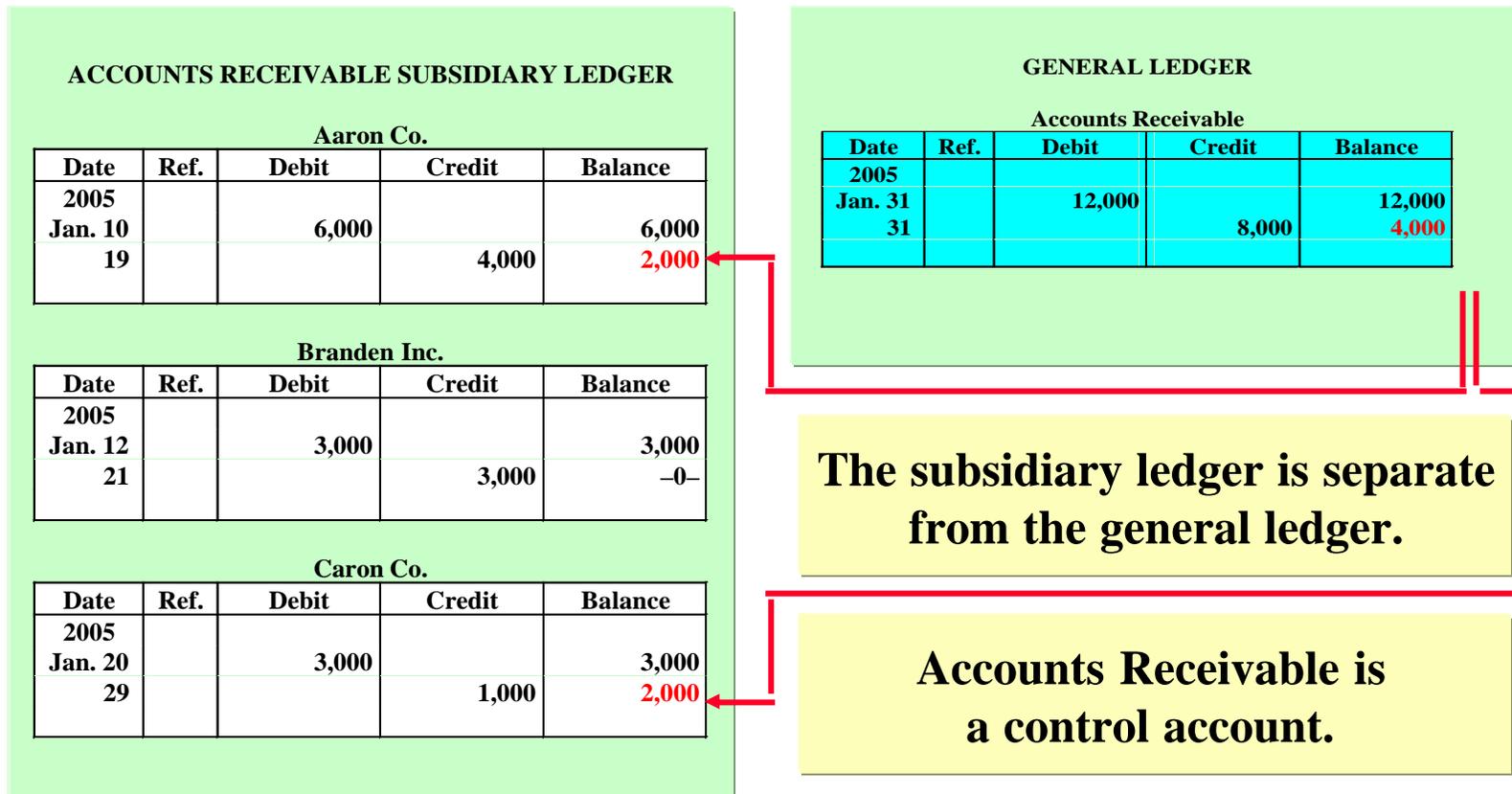
# CONTROL ACCOUNT

- **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



# 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

<b>Sales Journal</b>	<b>Cash Receipts Journal</b>	<b>Purchases Journal</b>	<b>Cash Payments Journal</b>	<b>General Journal</b>
<b><u>Used for:</u></b>  All sales of merchandise on account	<b><u>Used for:</u></b>  All cash received (including cash sales)	<b><u>Used for:</u></b>  All purchases of merchandise on account	<b><u>Used for:</u></b>  All cash paid (including cash purchases)	<b><u>Used for:</u></b>  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					S1
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
				<u>90,230</u>	<u>62,190</u>

- 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>Debits</u>			<u>\$90,230</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

Debits		Credits	
Cash	\$53,769	Accounts Receivable	\$ 39,050
Sales Discounts	781	Sales	4,500
Cost of goods sold	2,930	Other Accounts	11,000
	<u>\$57,480</u>	Merchandise Inventory	2,930
			<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
	<hr/>
	\$ 51,180

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.

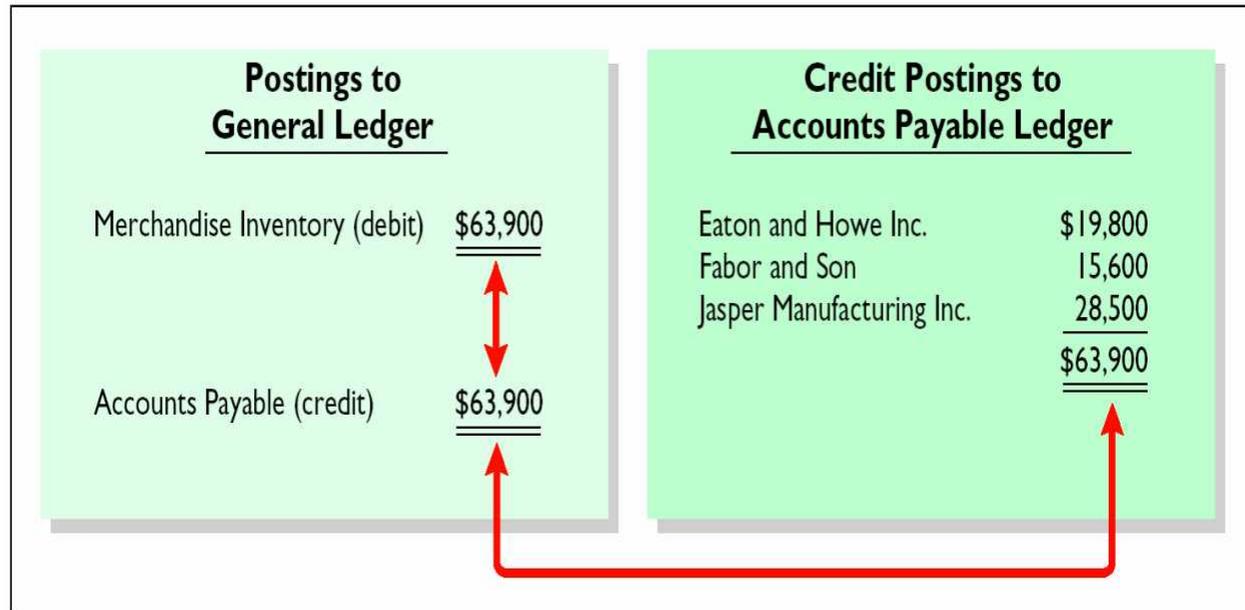
General Ledger	
<hr/>	
Debits	
<hr/>	
Cash	\$ 53,769
Accounts Receivable	51,180
Sales Discounts	781
Cost of Goods Sold	65,120
	<hr/>
	\$ 170,850
<hr/>	
Credits	
<hr/>	
Notes Payable	\$ 6,000
D. A. Karns, Capital	5,000
Sales	94,730
Merchandise Inventory	65,120
	<hr/>
	\$ 170,850
<hr/>	

# PURCHASES JOURNAL

<b>KARNS WHOLESALE SUPPLY Purchases Journal</b>				
Date	Account Credited	Terms	Ref.	Merchandise Inventory Dr. Accounts Payable Cr.
<b>2005</b>				
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

<b>KARNS WHOLESALE SUPPLY</b>							
<b>Cash Payments Journal</b>							
Date	Ck. No.	Accounts Debited	Ref.	Other Accounts Dr.	Accounts Payable Dr.	Merchandise Inventory Cr.	Cash Cr.
<b>2005</b>							
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 Manufacturin g Inc.			17,500	350	17,150
30	108	D. A. Karns, Drawing		500			500
				<b>6,200</b>	<b>42,600</b>	<b>855</b>	<b>47,945</b>
				<b>6,200</b>	<b>42,600</b>	<b>855</b>	<b>47,945</b>

- 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)

# Review

---

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

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

# Review

---

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

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



Accounting Principles, 7<sup>th</sup> Edition

Weygandt • Kieso • Kimmel

## Chapter 8

# Internal Control and Cash

Prepared by Naomi Karolinski  
Monroe Community College

and

Marianne Bradford  
Bryant College

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# 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

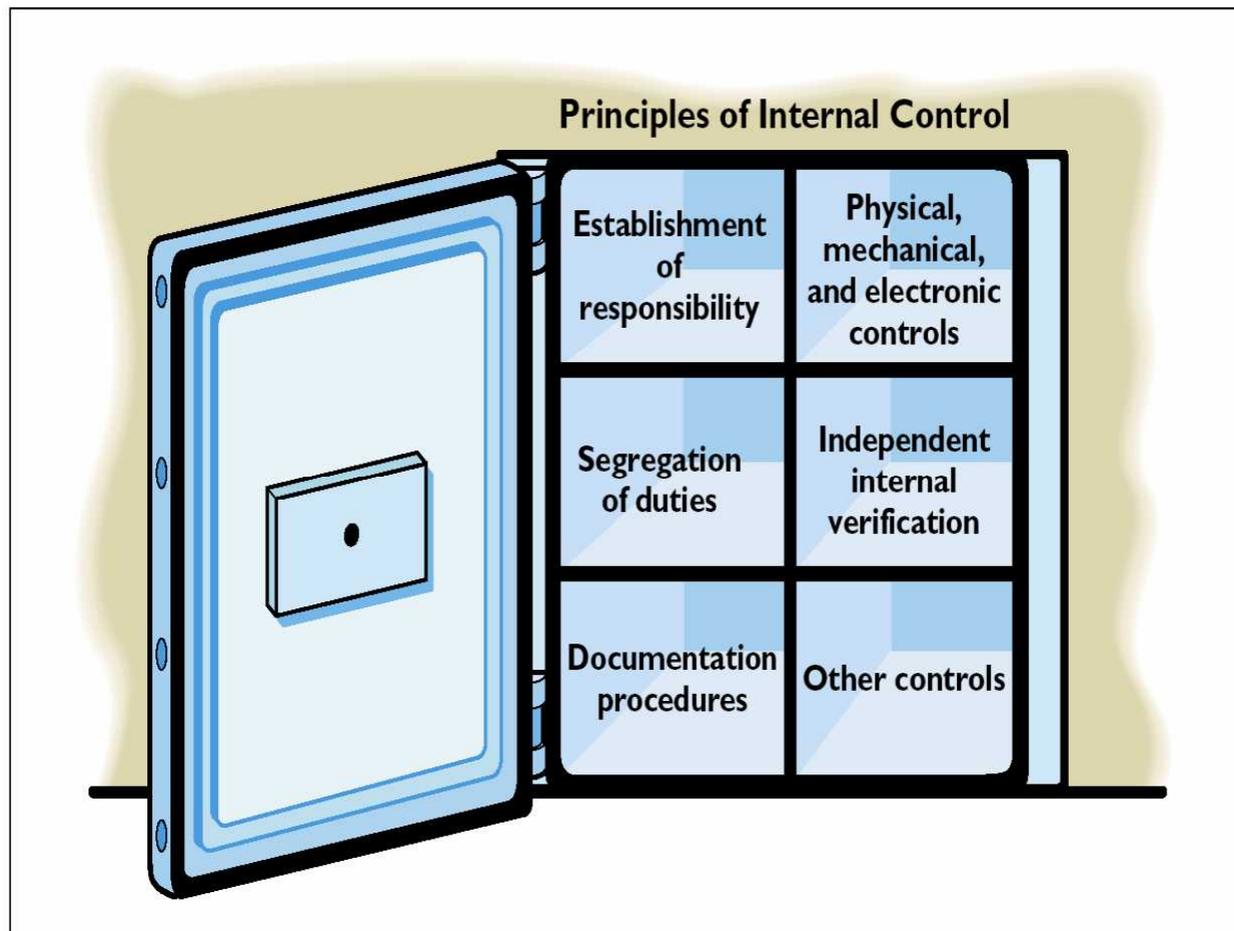
## STUDY OBJECTIVE 1

### 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

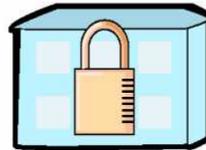
- ◆ **Locked warehouses and storage cabinets for inventories and records**
- ◆ **Safes, vaults, and safety deposit boxes for cash and business papers**
- ◆ **Time clocks for recording time worked**
- ◆ **Computer facilities with pass key access**
- ◆ **Alarms to prevent break-ins**
- ◆ **Television monitors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

# PHYSICAL, MECHANICAL, AND ELECTRONIC CONTROLS



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

## Physical Controls

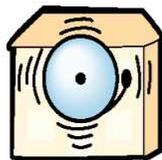


Locked warehouses and storage cabinets for inventories and records



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

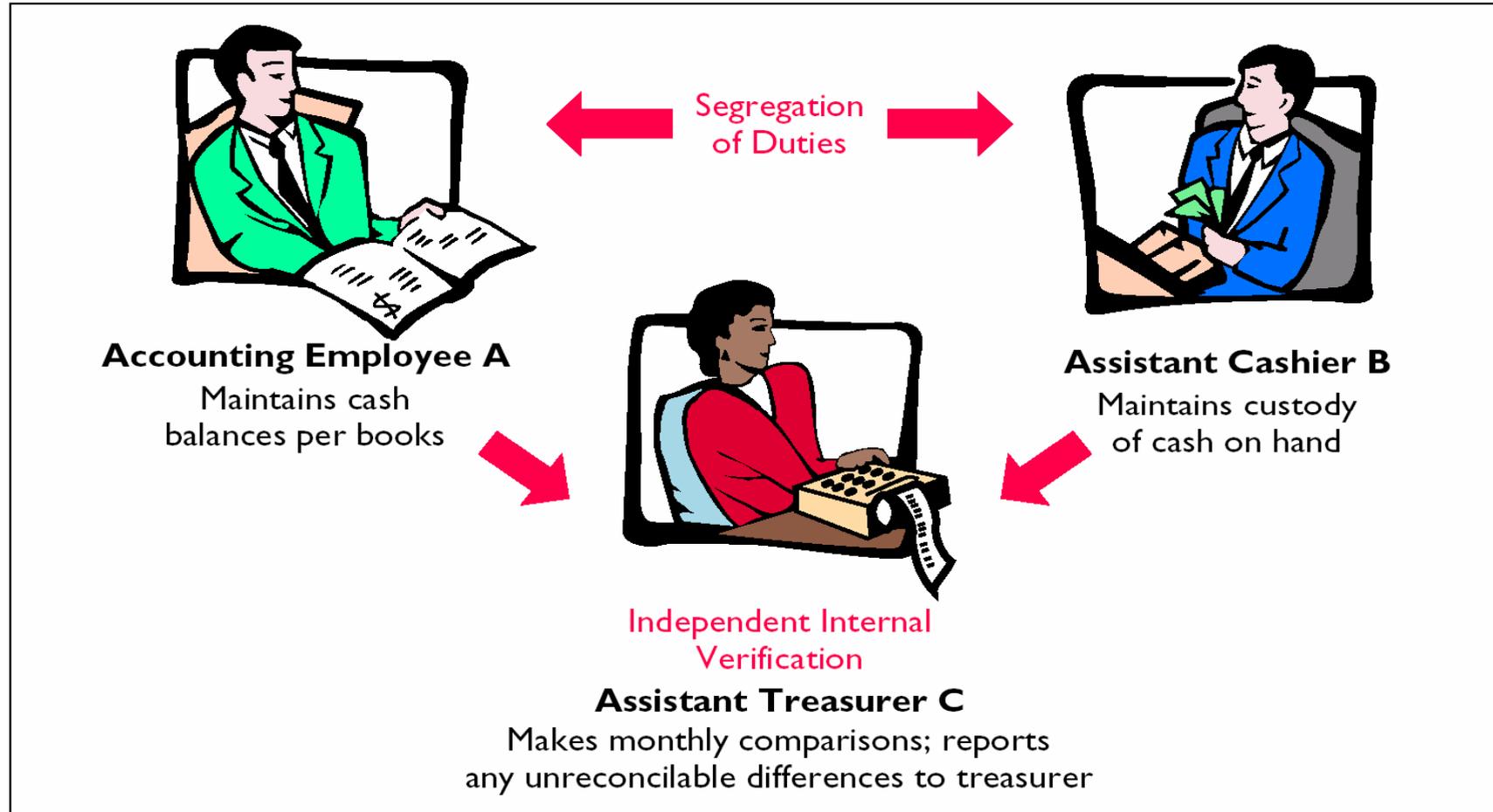
# INDEPENDENT INTERNAL VERIFICATION

**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

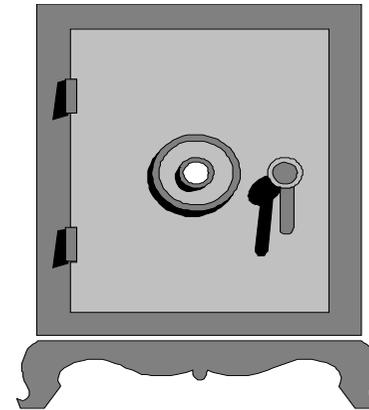
- **Documents should include:**

- 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.

# 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.

# 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	\$ <u>(10.10)</u>
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

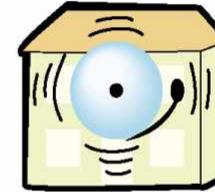
### Establishment of Responsibility

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



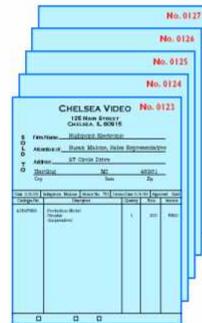
### Independent Internal Verification

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



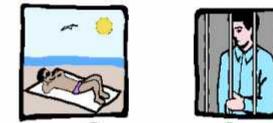
### Documentation Procedures

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

### Cashier's Department



Cashiers ring up sales on registers



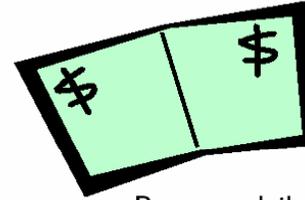
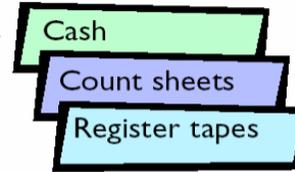
Supervisor reads register totals



Supervisor makes cash counts



Supervisor prepares cash count sheets



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

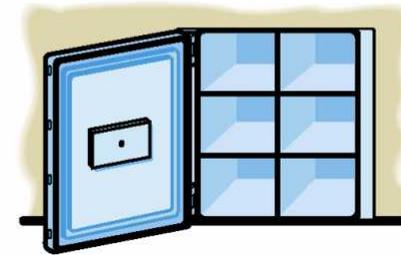
### Establishment of Responsibility

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									
155 Main Street Chelsea, IL 60815									
<b>S</b>	Firm Name <u>Highpoint Electronic</u>								
<b>O</b>	Attention of <u>Susan Malins, Sales Representative</u>								
<b>L</b>	Address <u>87 Circle Drive</u>								
<b>D</b>	Handling <u>MI</u> 48281								
<b>T</b>	City <u>Ann Arbor</u> Zip								
<b>O</b>	Order # <u>1000</u> Invoice # <u>1000</u> Invoice Date <u>01/01/80</u> Payment <u>1000</u>								
<b>I</b>	Quantity <u>1</u> Price <u>800</u> Amount								
<table border="1"> <thead> <tr> <th>Quantity</th> <th>Description</th> <th>Price</th> <th>Amount</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Previsional Model Stereo (Highpoint)</td> <td>800</td> <td>800</td> </tr> </tbody> </table>		Quantity	Description	Price	Amount	1	Previsional Model Stereo (Highpoint)	800	800
Quantity	Description	Price	Amount						
1	Previsional Model Stereo (Highpoint)	800	800						
<b>PAID</b>									

# 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

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

**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

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

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

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

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 → **W.A. LAIRD COMPANY**  
77 West Central Avenue,  
Midland, Michigan 48654

No. **448**  
*April 16 2005* 74-102724

Payee → Pay to the order of *Watkins Wholesale Supply*, \$ **1525.00**  
*fifteen hundred twenty-five and 00/100* Dollars

Payer → **NBT National Bank & Trust**  
Midland, Michigan 48654  
*W.F. Faine*

Memo: \_\_\_\_\_  
⑆024⑆0497⑆457923⑆02 448

---

**Remittance Advice**

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

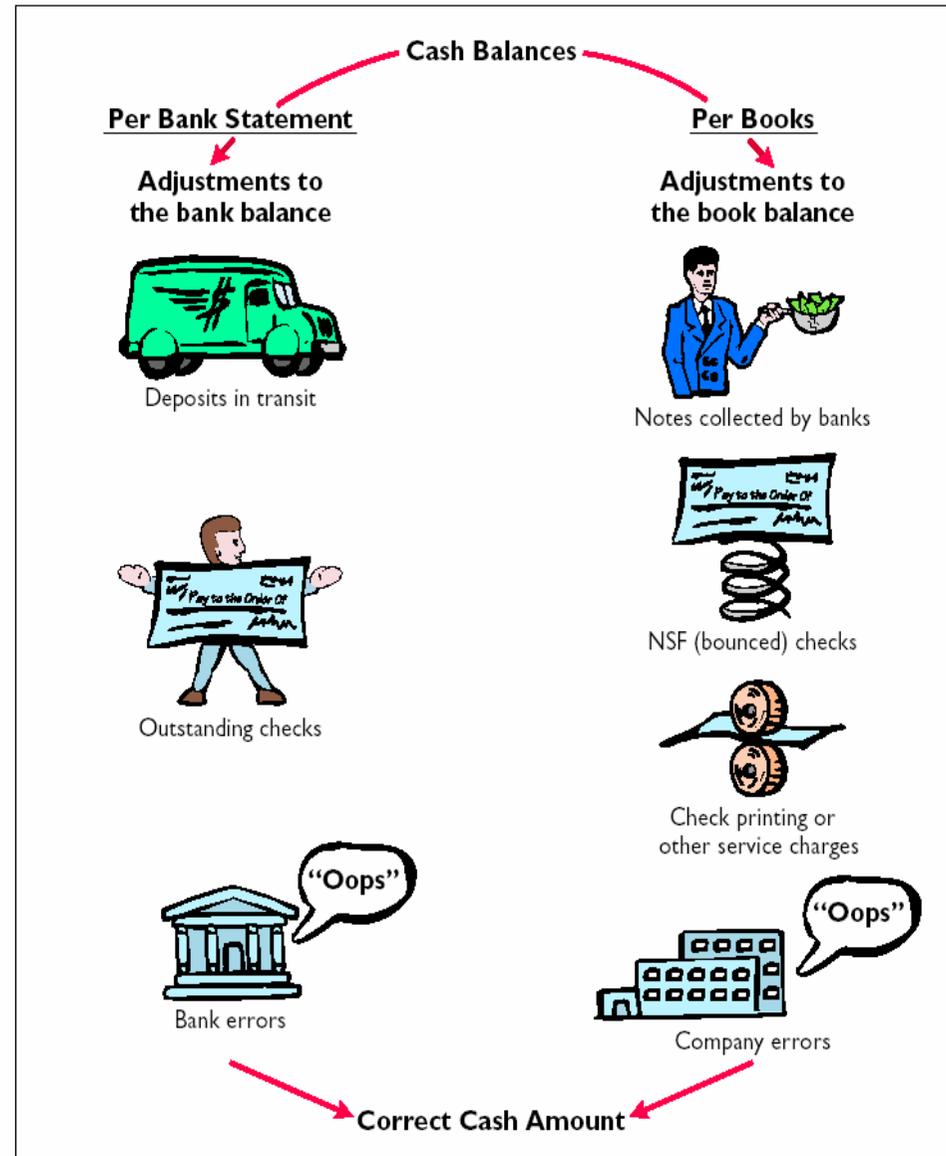
- **Should be prepared by an employee who has no other responsibilities pertaining to cash.**



# 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

<b>W. A. LAIRD COMPANY</b> <b>Bank Reconciliation</b> <b>April 30, 2005</b>			
Cash balance per bank statement			\$ 15,907.45
Add: Deposits in transit			2,201.40
			<u>18,108.85</u>
Less: Outstanding checks			
No. 453		\$ 3,000.00	
No. 457		1,401.30	
No. 460		1,502.70	
			<u>5,904.00</u>
<b>Adjusted cash balance per bank</b>			<b><u>\$ 12,204.85</u></b>
<div style="border: 1px solid black; background-color: #fff9c4; padding: 5px; display: inline-block;">                     The bank statement for the Laird Company shows a balance per bank of \$15,907.45 on April 30, 2005.                 </div>			
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	
			<u>1,071.00</u>
			12,660.45
Less: NSF check		425.60	
Bank service charge		30.00	
			<u>455.60</u>
<b>Adjusted cash balance per books</b>			<b><u>\$ 12,204.85</u></b>
<div style="border: 1px solid black; background-color: #fff9c4; padding: 5px; display: inline-block;">                     On this date the balance of cash per books is \$11,589.45.                 </div>			

# ENTRIES FROM BANK RECONCILIATION

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

**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

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

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

# ENTRIES FROM BANK RECONCILIATION

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

**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, 7<sup>th</sup> Edition

Weygandt • Kieso • Kimmel

## Chapter 9

# Accounting for Receivables

Prepared by Naomi Karolinski  
Monroe Community College

and

Marianne Bradford  
Bryant College

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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
<b>July 5</b>	<b>Sales Returns and Allowances</b>	<b>100</b>	
	<b>Accounts Receivable – Polo Company</b>		<b>100</b>

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

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

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
<b>Dec. 12</b>	<b>Bad Debts Expense</b>	<b>200</b>	
	<b>Accounts Receivable – M.E. Doran</b>		<b>200</b>

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
<b>Dec. 31</b>	<b>Bad Debts Expense</b>	<b>12,000</b>	
	<b>Allowance for Doubtful Accounts</b>		<b>12,000</b>

**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
<b>Mar. 1</b>	<b>Allowance for Doubtful Accounts</b>	<b>500</b>	
	<b>    Accounts Receivable - R. A. Ware</b>		<b>500</b>

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
<b>July 1</b>	<b>Accounts Receivable – R. A. Ware</b>	<b>500</b>	
	<b>Allowance for Doubtful Accounts</b>		<b>500</b>

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
<b>July 1</b>	<b>Cash</b>	<b>500</b>	
	<b>    Accounts Receivable</b>		<b>500</b>

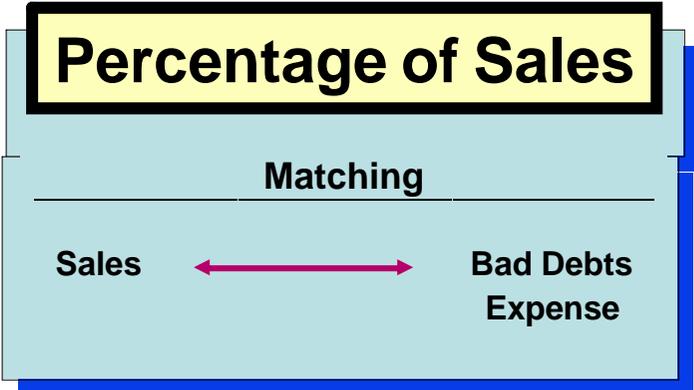
**2** record the collection in the usual manner.

# BASES USED FOR THE ALLOWANCE METHOD

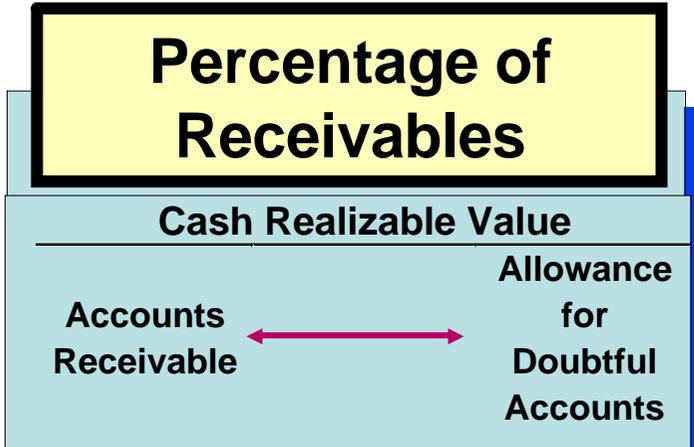
- **Companies use one of two methods in the estimation of uncollectibles:**
  - 1 Percentage of sales**
  - 2 Percentage of receivables**
- **Both bases are GAAP; the choice is a management decision.**



# 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
<b>Dec. 31</b>	<b>Bad Debts Expense</b>	<b>8,000</b>	
	<b>    Allowance for Doubtful Accounts</b>		<b>8,000</b>

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
<b>Dec. 31</b>	<b>Bad Debts Expense</b>	<b>1,700</b>	
	<b>Allowance for Doubtful Accounts</b>		<b>1,700</b>

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
	<b>Cash</b>	<b>588,000</b>	
	<b>Service Charge Expense (2% x \$600,000)</b>	<b>12,000</b>	
	<b>Accounts Receivable</b>		<b>600,000</b>

**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
	<b>Cash</b>	<b>970</b>	
	<b>Service Charge Expense</b>	<b>30</b>	
	<b>Sales</b>		<b>1,000</b>

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
	<b>Accounts Receivable – American Express</b>	<b>285</b>	
	<b>Service Charge Expense</b>	<b>15</b>	
	<b>Sales</b>		<b>300</b>

**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
<b>Maturity date: September</b>		<u>15</u>

# 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
<b>May 1</b>	<b>Notes Receivable</b>	<b>1,000</b>	
	<b>    Accounts Receivable – Brent Company</b>		<b>1,000</b>

**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 Accounts**.



# HONOR OF NOTES RECEIVABLE

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

<b>Sept. 30</b>	<b>Interest Receivable</b>	<b>300</b>	
	<b>Interest Revenue</b>		<b>300</b>
	<b>(To accrue 4 months' interest)</b>		

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

# HONOR OF NOTES RECEIVABLE

<b>Nov. 1</b>	<b>Cash</b>	<b>10,375</b>	
	<b>Notes Receivable</b>		<b>10,000</b>
	<b>Interest Receivable</b>		<b>300</b>
	<b>Interest Revenue</b>		<b>75</b>

**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
<b>Nov. 1</b>	<b>Accounts Receivable</b>	<b>10,375</b>	
	<b>Notes Receivable</b>		<b>10,000</b>
	<b>Interest Revenue</b>		<b>375</b>

- 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:

<b>Net Credit Sales</b>	/	<b>Average Net Receivables</b>	=	<b>Accounts Receivable Turnover</b>
-----------------------------	---	------------------------------------	---	---

$$\$18,915 / (\$1,466 + \$1,105)/2 = 14.7 \text{ times}$$

# 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**

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

# 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?

- 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.**



Accounting Principles, 7<sup>th</sup> Edition

Weygandt • Kieso • Kimmel

## Chapter 10

# Plant Assets, Natural Resources, and Intangible Assets

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# 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.**

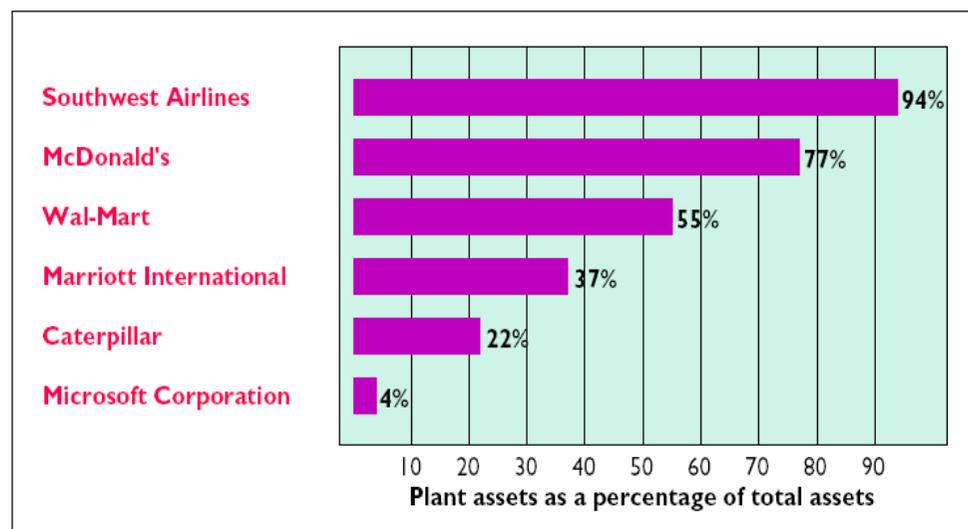
# PLANT ASSETS, NATURAL RESOURCES, AND INTANGIBLE ASSETS

**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.

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

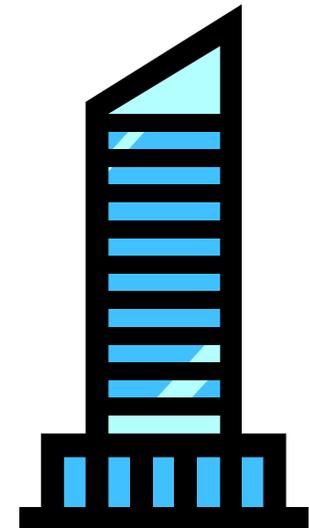
# LAND IMPROVEMENTS

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

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

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

<b>Factory Machinery</b>	<b>54,500</b>	
<b>Cash</b>		<b>54,500</b>

# 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

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

# ENTRY TO RECORD PURCHASE OF TRUCK

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

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

Account Titles and Explanation	Debit	Credit
<b>Delivery Truck</b>	<b>23,820</b>	
<b>License Expense</b>	<b>80</b>	
<b>Prepaid Insurance</b>	<b>1,600</b>	
<b>Cash</b>		<b>25,500</b>
(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**

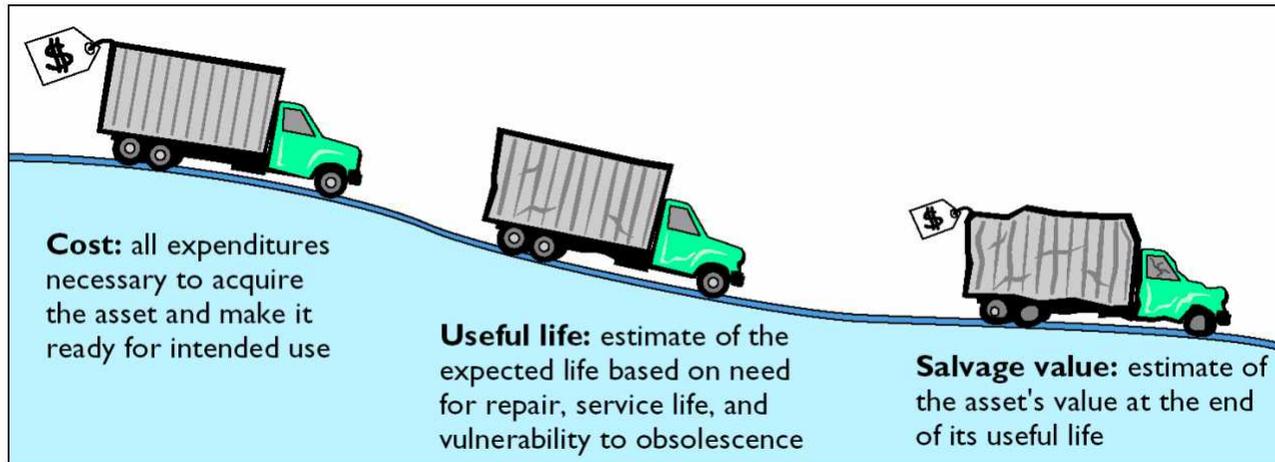
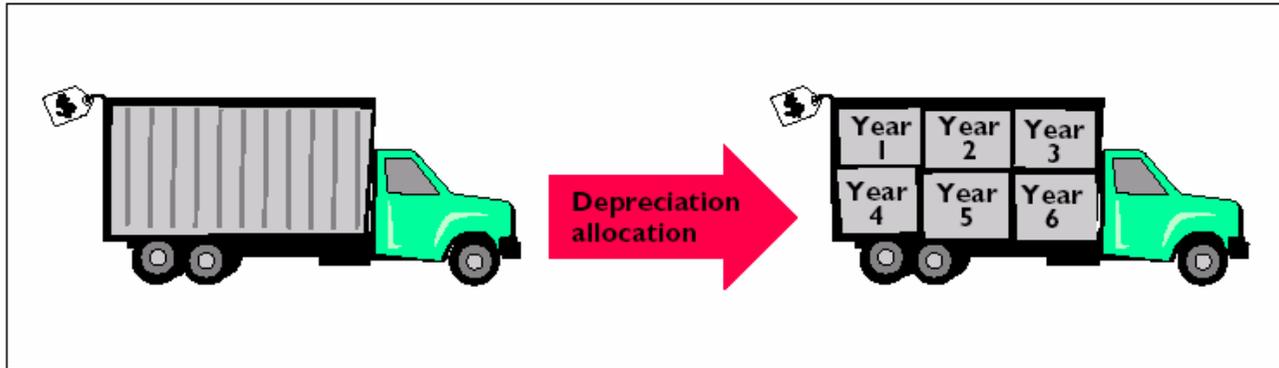
### **2 Useful life:**

**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

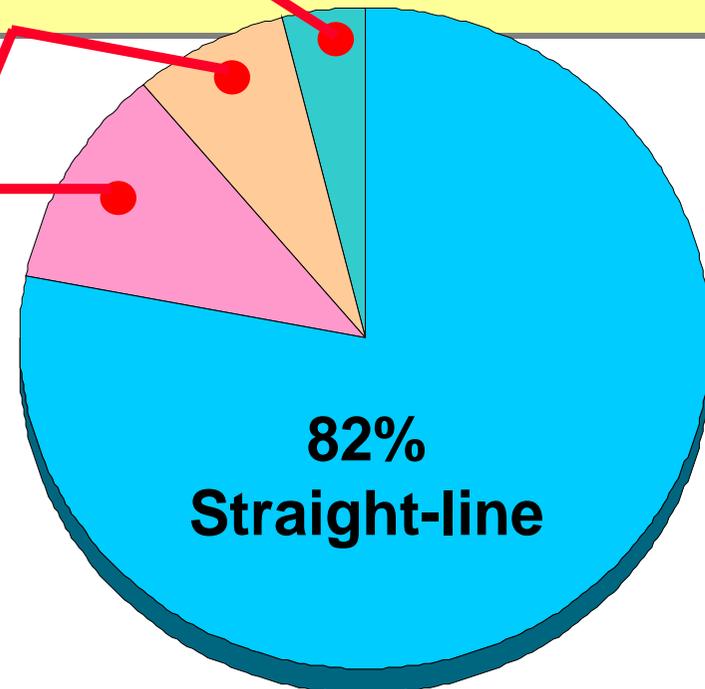
## STUDY OBJECTIVE 3

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**.

4% Declining balance

5% Units-of-activity

9% Other



# 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.**

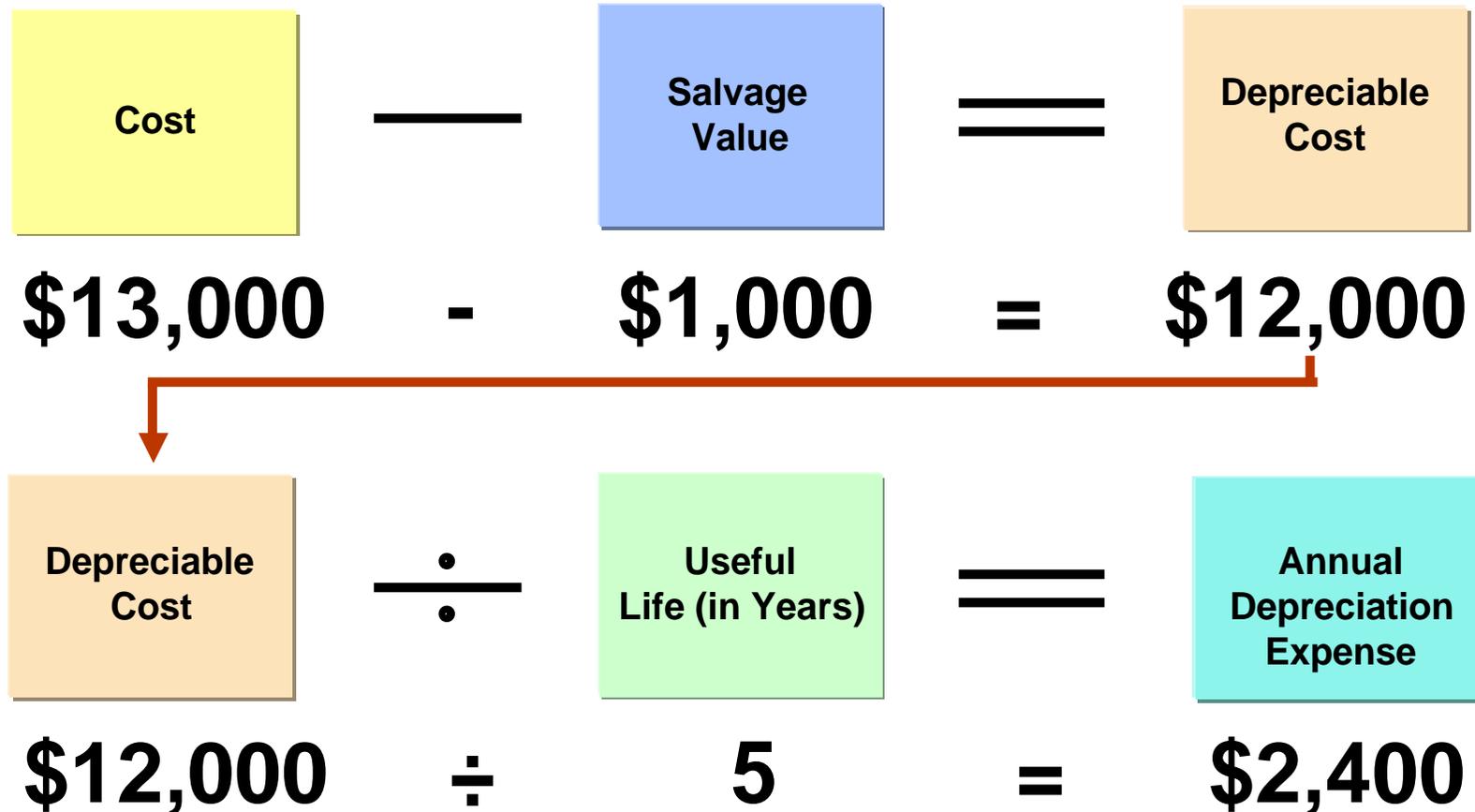
<b>Cost</b>	<b>\$13,000</b>
<b>Expected salvage value</b>	<b>\$1,000</b>
<b>Estimated useful life in years</b>	<b>5</b>
<b>Estimated useful life in miles</b>	<b>100,000</b>

# 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**



# 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

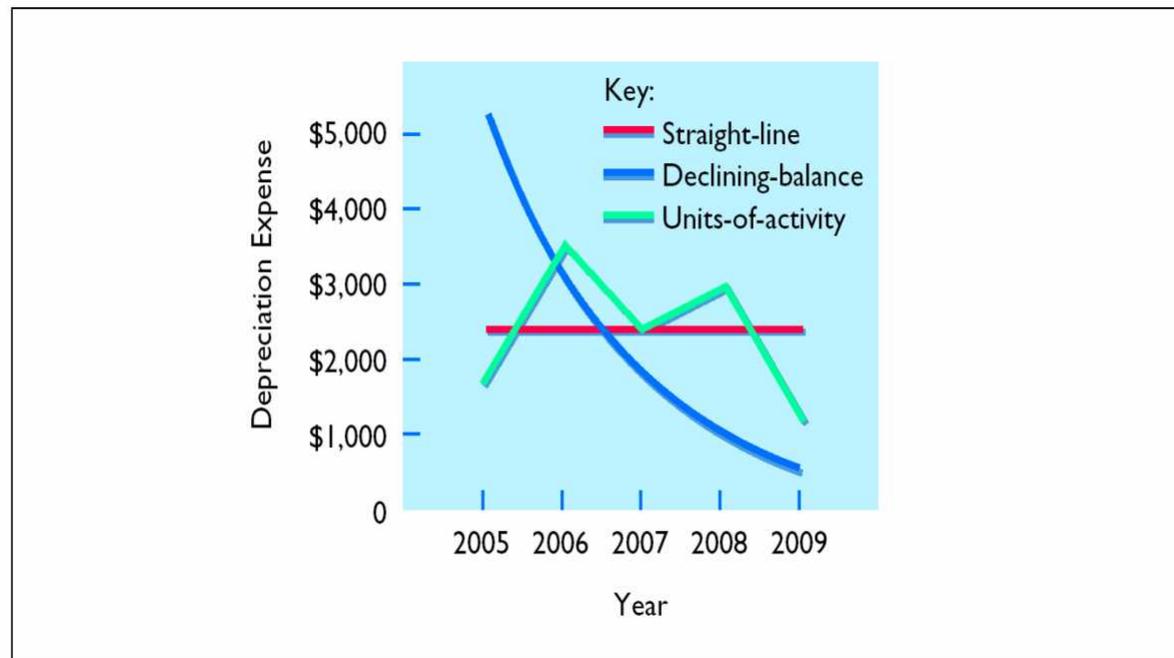
Unlike the other depreciation methods, salvage value is ignored in determining the amount to which the declining balance rate is applied.

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
<b>\$13,000</b>	<b>x</b>	<b>40%</b>	<b>=</b>	<b>\$5,200</b>

# 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.**

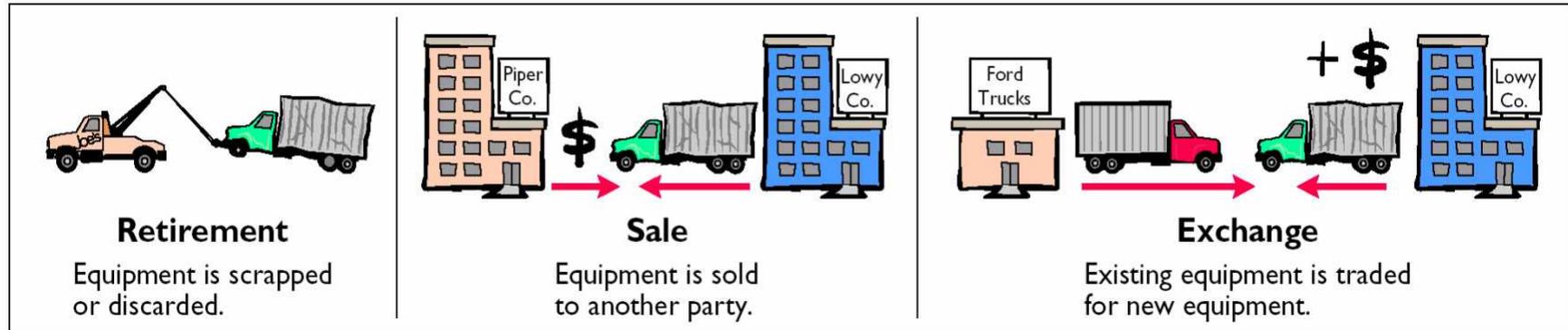
**Debit the plant asset affected.**

# 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



# 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:

<b>Depreciation Expense</b>		<b>8,000</b>	
<b>Accumulated Depreciation</b>			<b>8,000</b>

# 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
<b>Gain on disposal</b>	<b><u><u>\$ 5,000</u></u></b>

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
<b>Loss on disposal</b>	<b><u><u>\$ 2,000</u></u></b>

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.

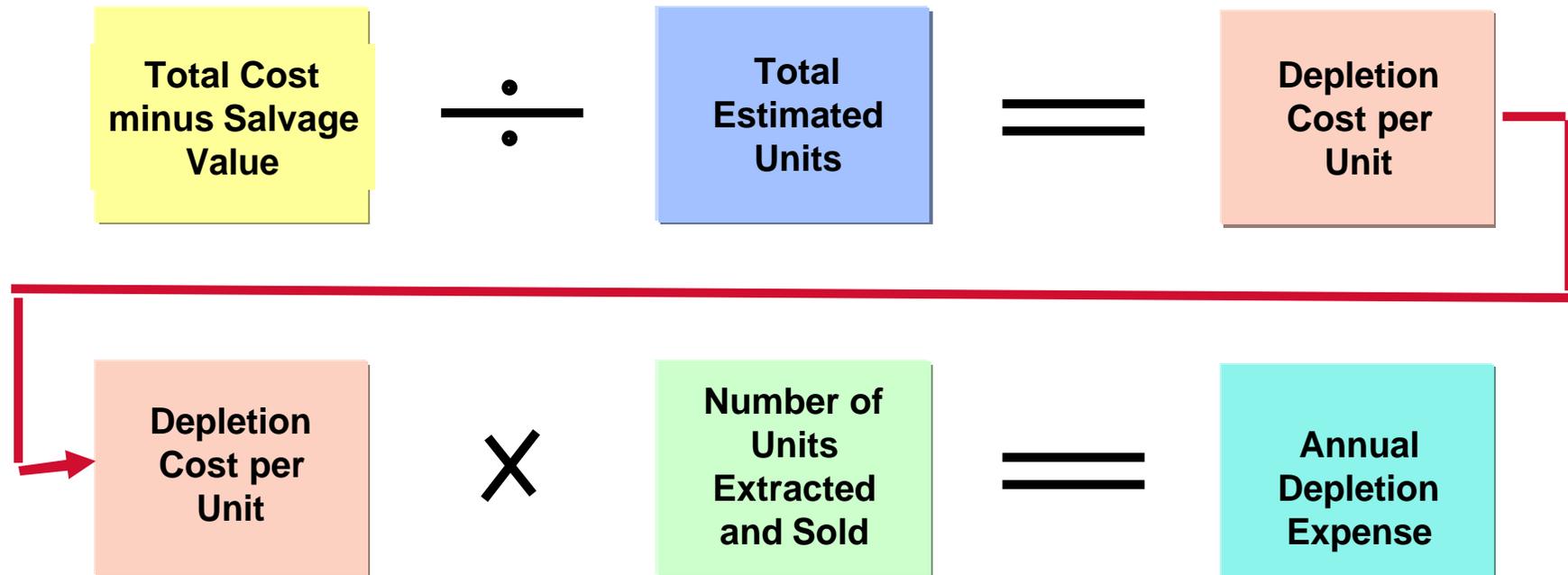


# DEPLETION

## 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:

<b>Depletion Expense</b>	<b>400,000</b>	
<b>Accumulated Depletion</b>		<b>400,000</b>

# 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:**

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

# 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

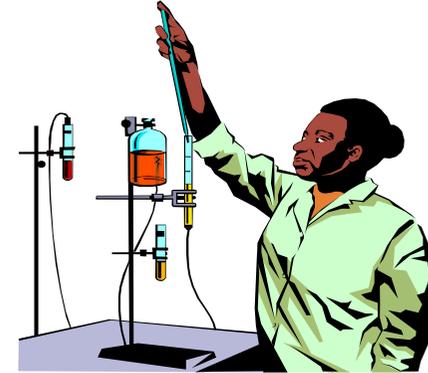
- **In general, accounting for intangible assets parallels the accounting for plant assets.**
- **Intangible assets are:**
  - 1 recorded at cost**
  - 2 written off over useful life in a rational and systematic manner**
  - 3 at disposal, book value is eliminated and gain or loss, if any, is recorded**

# 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:**

<b>Amortization Expense</b>	<b>7,500</b>	
<b>Patents</b>		<b>7,500</b>

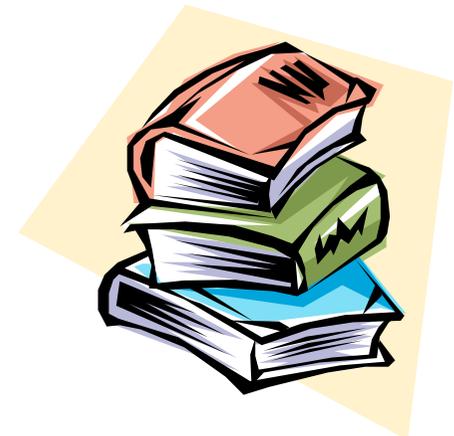
# COPYRIGHTS

- **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

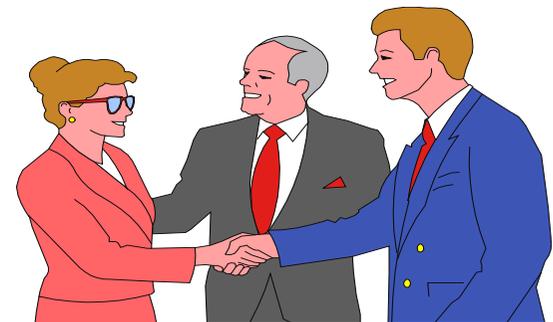
- **Goodwill**

- 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.

<b>OWENS-ILLINOIS, INC.</b> Balance Sheet - Partial (In millions of dollars)			
<b>Property, plant, and equipment</b>			
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
<b>Intangibles</b>			
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
<b>Cost of new office equipment</b>	<b><u><u>\$ 91,000</u></u></b>

# 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	<u>10,000</u>
<b>Loss on disposal</b>	<b>\$ 16,000</b>

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
<b>Cost of new delivery equipment (before deferral of gain)</b>	<b><u><u>\$ 22,000</u></u></b>

# 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>
<b>Gain on disposal</b>		<b><u><u>\$ 7,000</u></u></b>

## 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>
<b>Cost of new delivery equipment (after deferral of gain)</b>	<b><u><u>\$ 15,000</u></u></b>

**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
Recognize immediately by debiting Loss on Disposal	Loss
Defer and reduce cost of asset new	Gain

# 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.
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Accounting Principles, 7<sup>th</sup> Edition

Weygandt • Kieso • Kimmel

## Chapter 11

# Current Liabilities and Payroll Accounting

Prepared by Naomi Karolinski  
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# 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:

$$\mathbf{\$10,600 \div 1.06 = \$10,000}$$

# 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	<u>11,177</u>
Total assets	<u>\$32,851</u>

### Liabilities and Stockholders' Equity

#### **Current liabilities**

<b>Short-term borrowings</b>	<b>\$2,175</b>
<b>Accounts payable</b>	<b>2,269</b>
<b>Accrued expenses</b>	<b>1,620</b>
<b>Accrued wages, salaries, and employee benefits</b>	<b>1,178</b>
<b>Dividends payable</b>	<b>120</b>
<b>Deferred and current income taxes payable</b>	<b>70</b>
<b>Long-term debt due within one year</b>	<b><u>3,912</u></b>
<b>Total current liabilities</b>	<b>11,344</b>

Noncurrent liabilities	<u>16,035</u>
Total liabilities	27,379
Stockholders' equity	<u>5,472</u>
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.

$$\begin{array}{|c|} \hline \text{Current} \\ \text{Assets} \\ \hline \end{array} / \begin{array}{|c|} \hline \text{Current} \\ \text{Liabilities} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Current} \\ \text{Ratio} \\ \hline \end{array}$$

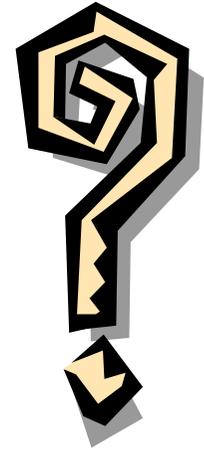
$$\$14,628 / = \$11,344 = 1.29:1$$

# CONTINGENT LIABILITIES

STUDY OBJECTIVE 5

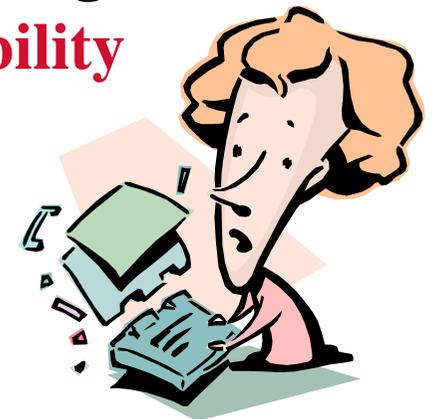
## Contingent liability

**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		<u>500</u>
Average warranty repair cost	X	\$ 80
<b>Estimated product warranty liability</b>		<u><u>\$ 40,000</u></u>

# 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.**



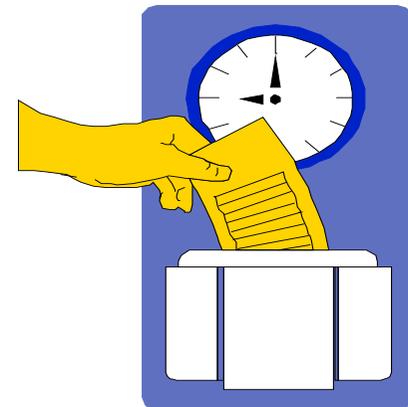
# TIMEKEEPING

- 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

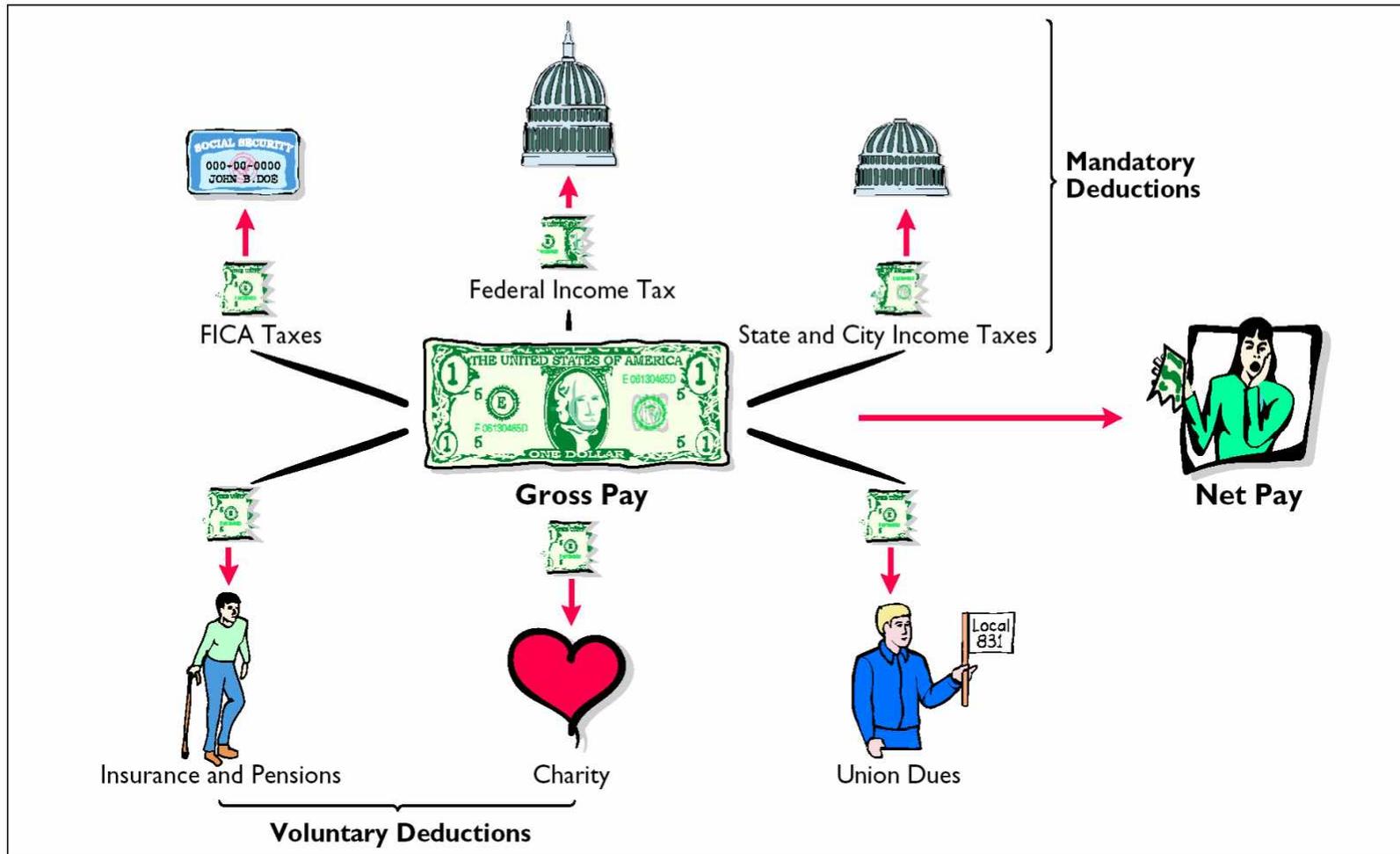
- **Gross earnings** is the total compensation earned by an employee.
- It consists of **wages** or **salaries**, plus any **bonuses and commissions**.
- Total wages are determined by multiplying the **hours worked** by the **hourly rate of pay**.
- Most companies are required to pay a minimum of **1 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
<b>Total wages</b>					<b>\$ 552.00</b>

# 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 taxes 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
<b>Net pay</b>		<b>\$ 432.80</b>

**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.**

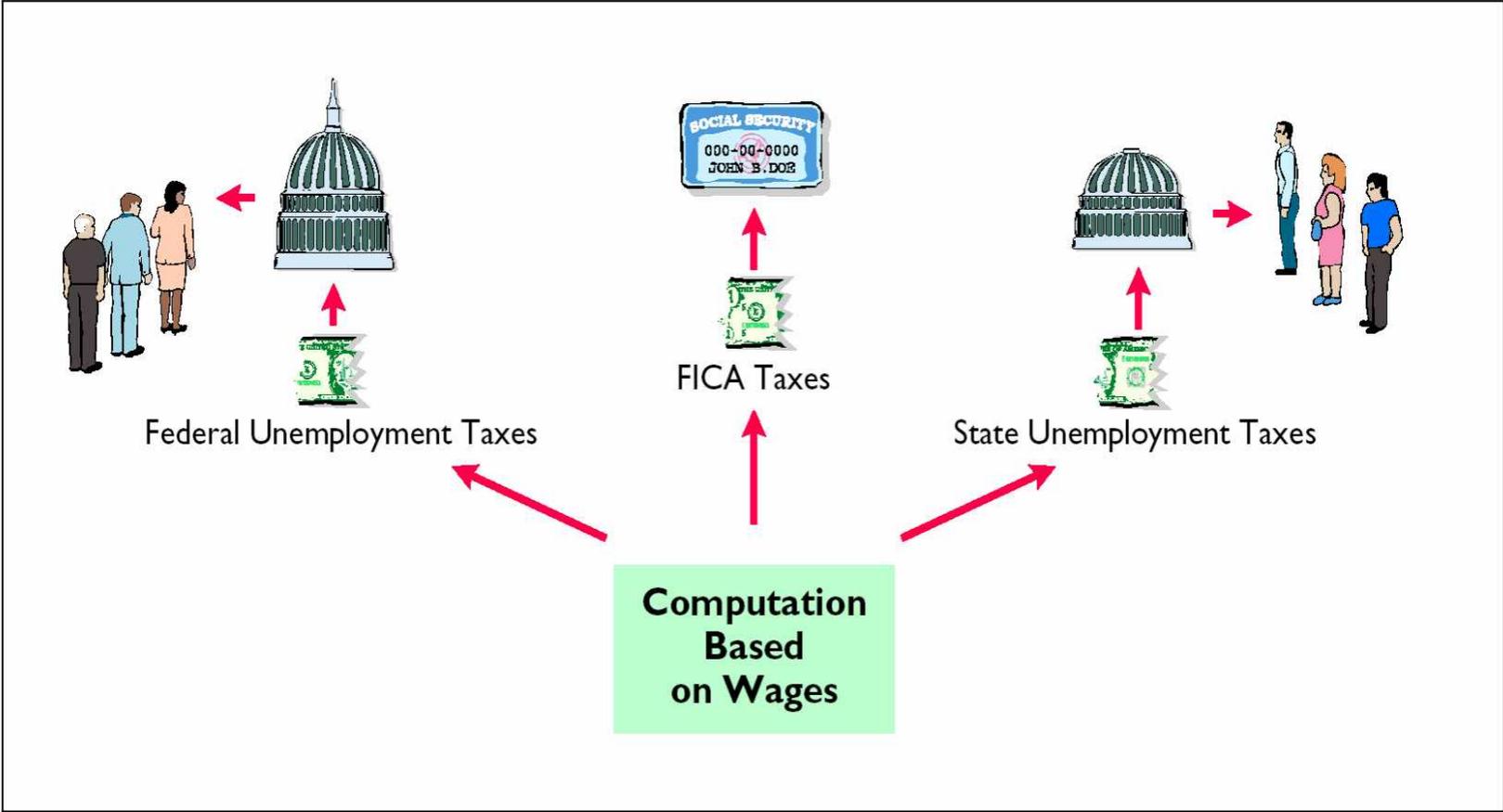
- 1 Employer must match each employee's FICA contribution**
- 2 Federal unemployment taxes (FUTA)**
- 3 State unemployment taxes (SUTA)**

# 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

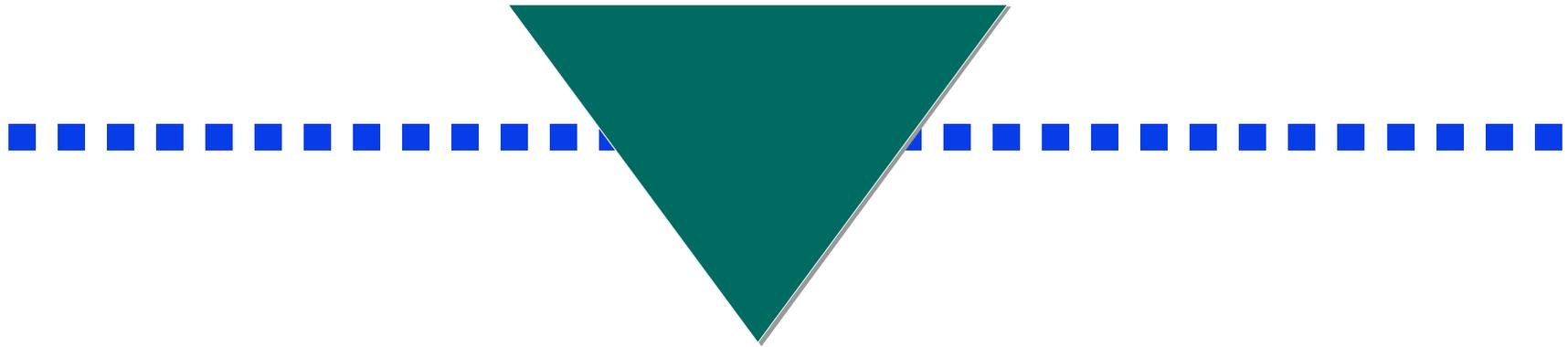


# FILING AND REMITTING PAYROLL TAXES

- **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**.

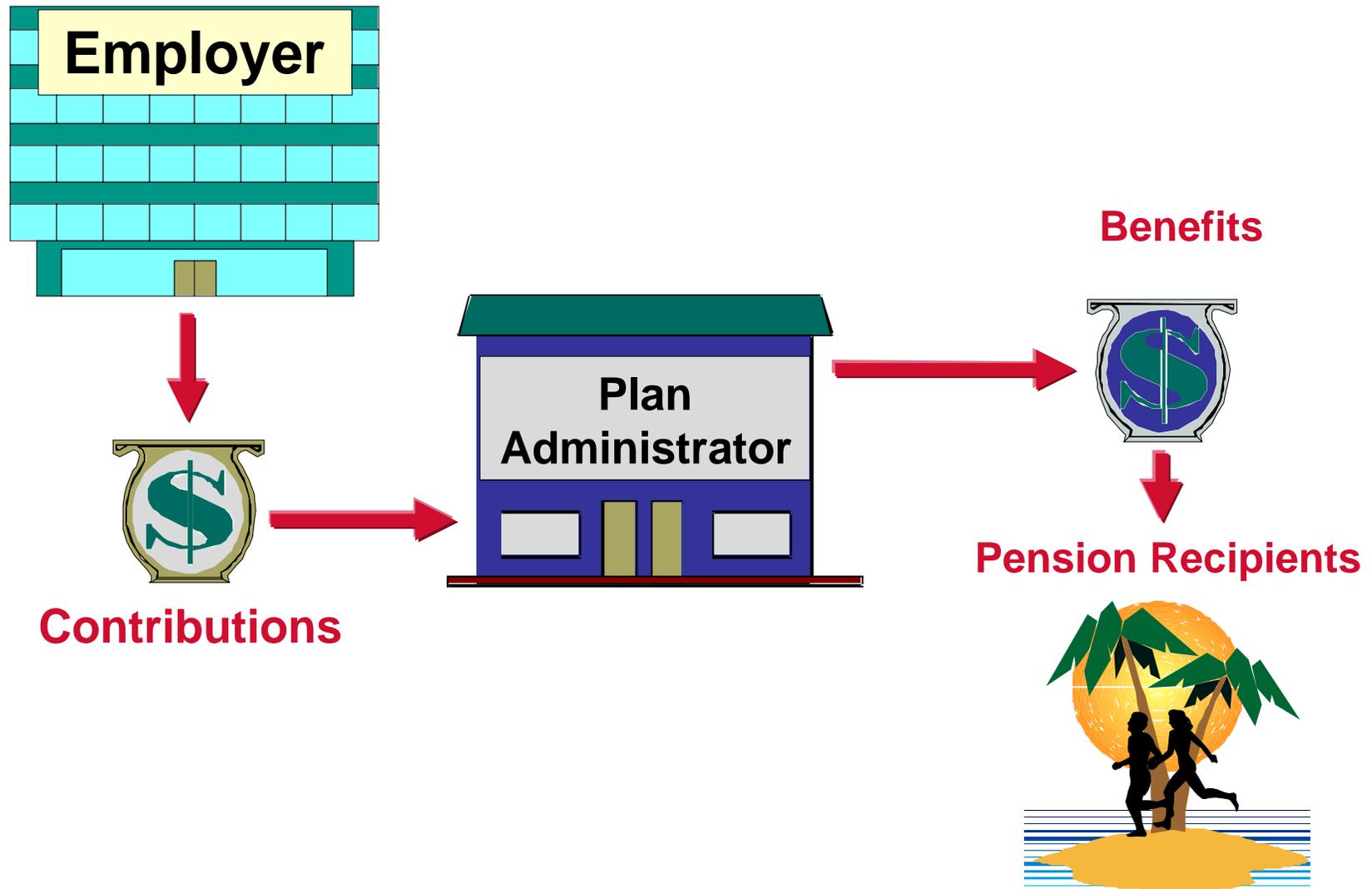


# PENSION PLANS

- 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.



# Accounting Principles, 7<sup>th</sup> Edition

Weygandt • Kieso • Kimmel

## Chapter 12

# Accounting Principles

Prepared by Naomi Karolinski  
Monroe Community College

and

Marianne Bradford  
Bryant College

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# 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.**

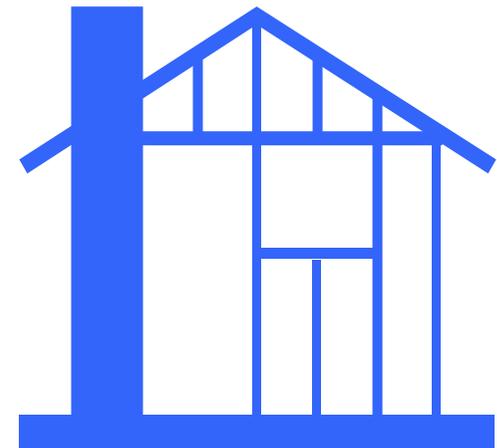
# CONCEPTUAL FRAMEWORK OF ACCOUNTING

## 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

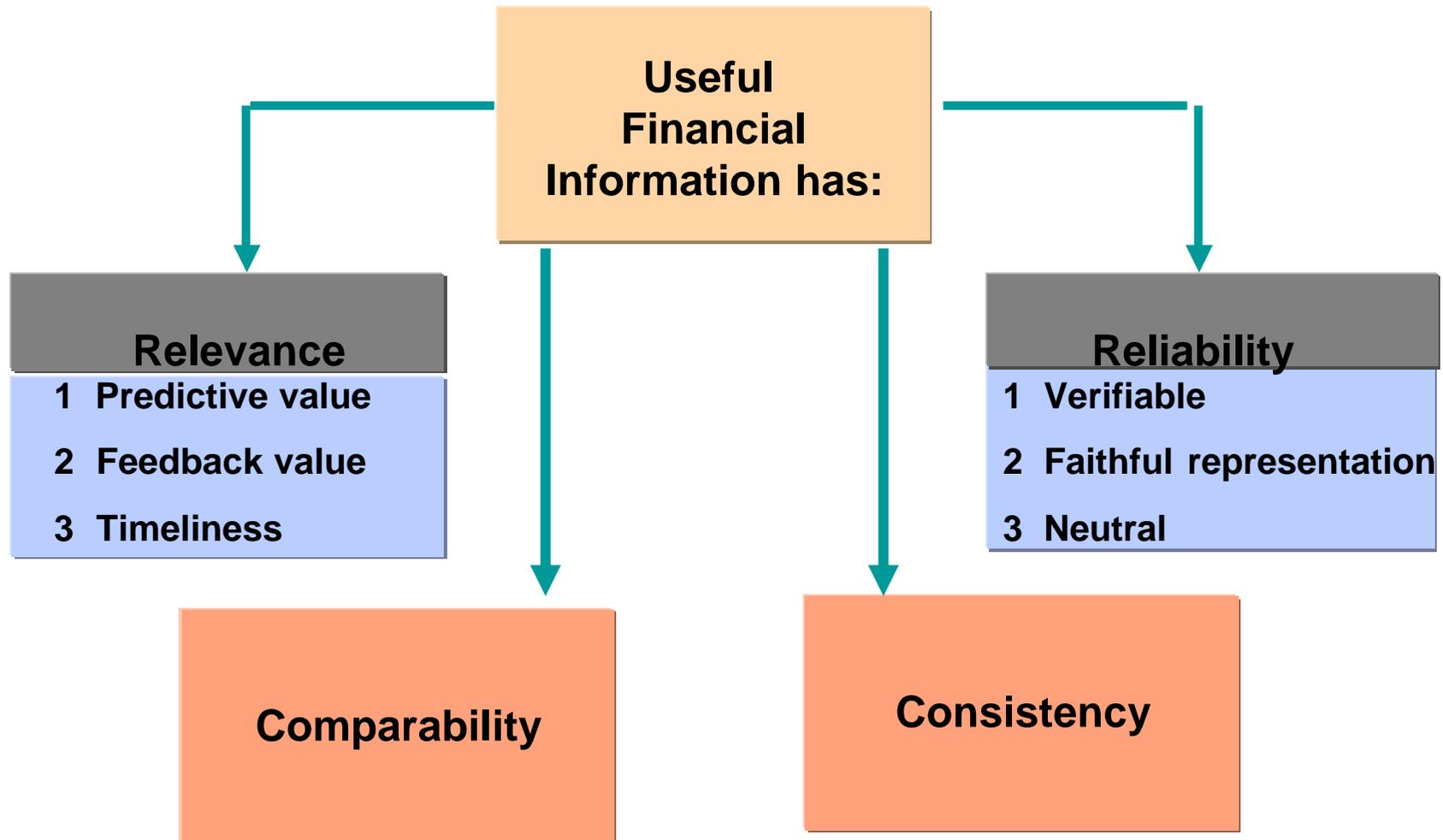
- **Reliability** of information means that the information is free of error and bias, in short, it can be depended on.
- To be reliable, accounting information must be **verifiable**.

# COMPARABILITY AND CONSISTENCY

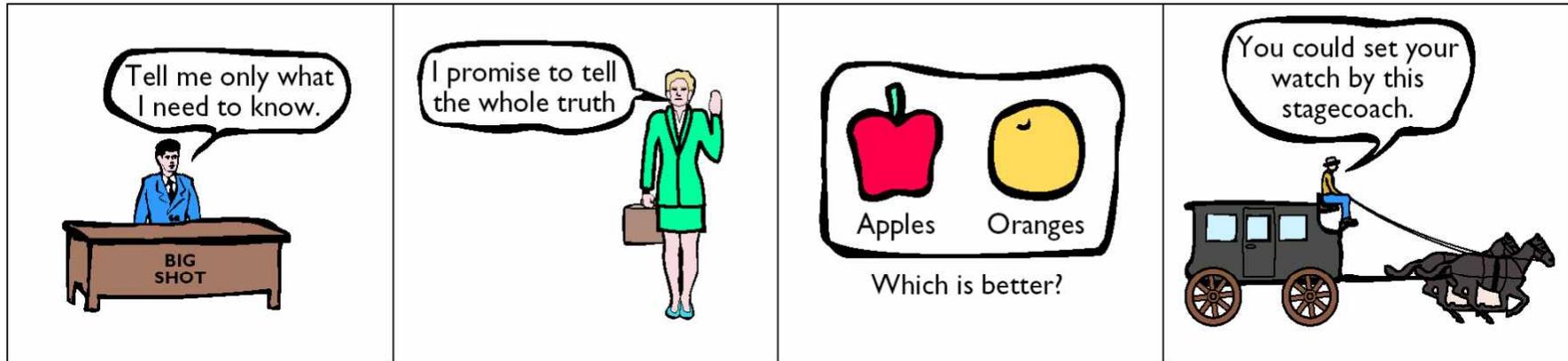
- **Comparability** means that the information should be comparable with accounting information about other enterprises.
- **Consistency** means that the same accounting principles and methods should be used from year to year within a company.



# 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

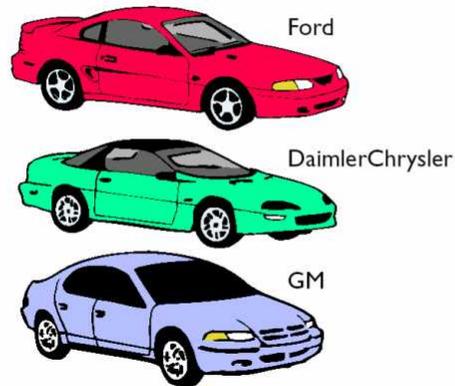
# THE OPERATING GUIDELINES OF ACCOUNTING

- **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

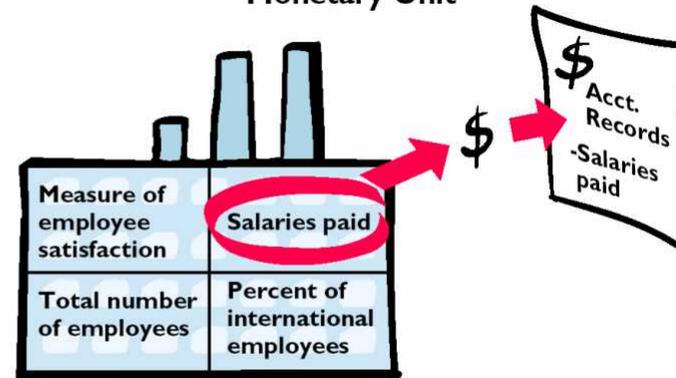
# ASSUMPTIONS USED IN ACCOUNTING

## Economic Entity



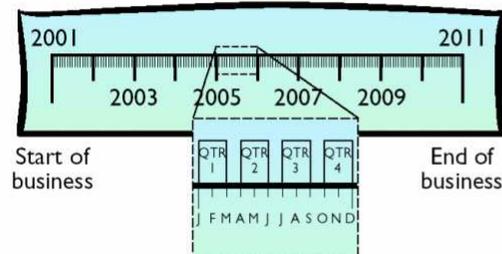
Economic events can be identified with a particular unit of accountability.

## Monetary Unit



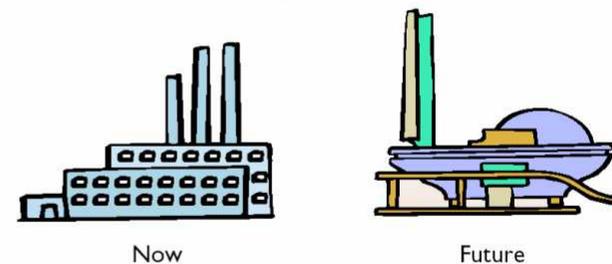
Only transaction data capable of being expressed in terms of money should be included in the accounting records of the economic entity.

## 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:

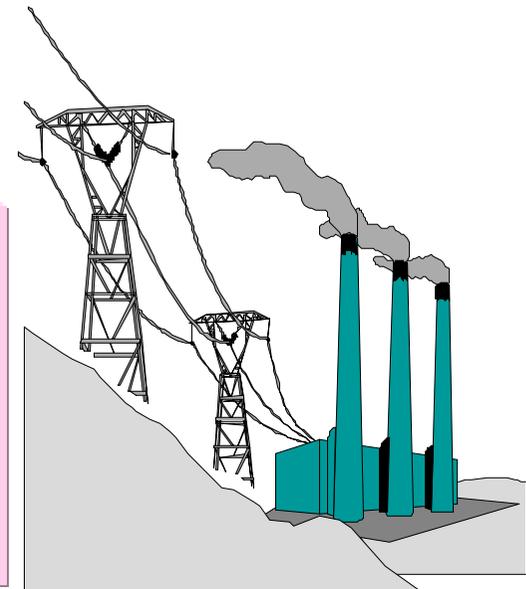
- only transaction data expressed in terms of money can be included in the accounting records

*Example:* employee satisfaction and percent of international employees are not transactions that should be included in the financial records.

Should be included  
in accounting records



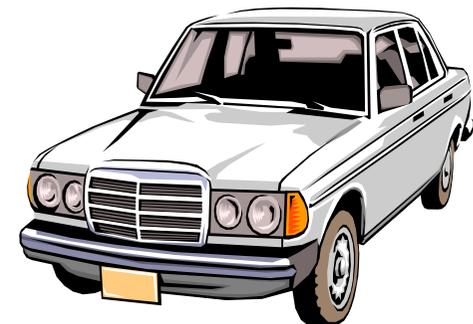
Customer Satisfaction  
Percentage of  
International Employees  
Salaries paid



# ECONOMIC ENTITY ASSUMPTION

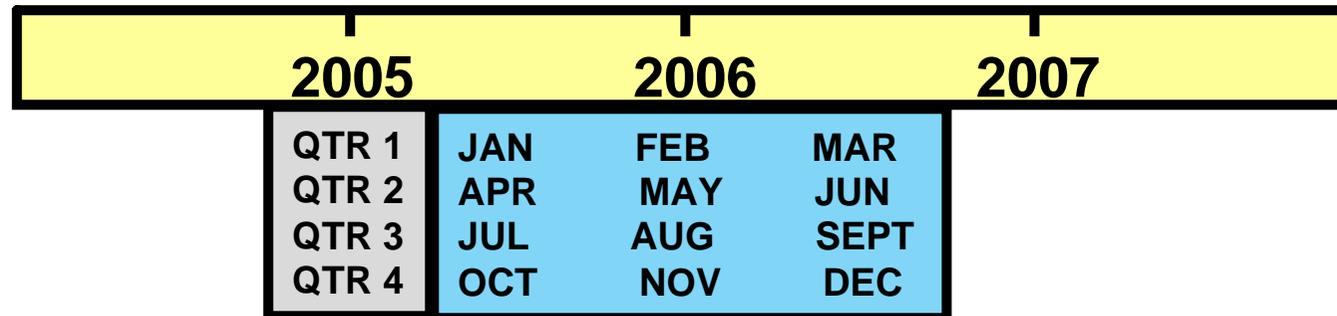
**Activities of the entity kept separate and distinct from the activities of the owner and all other economic entities.**

*Example:* **BMW** activities can be distinguished from those of other car manufacturers such as **Mercedes**.



# TIME PERIOD ASSUMPTION

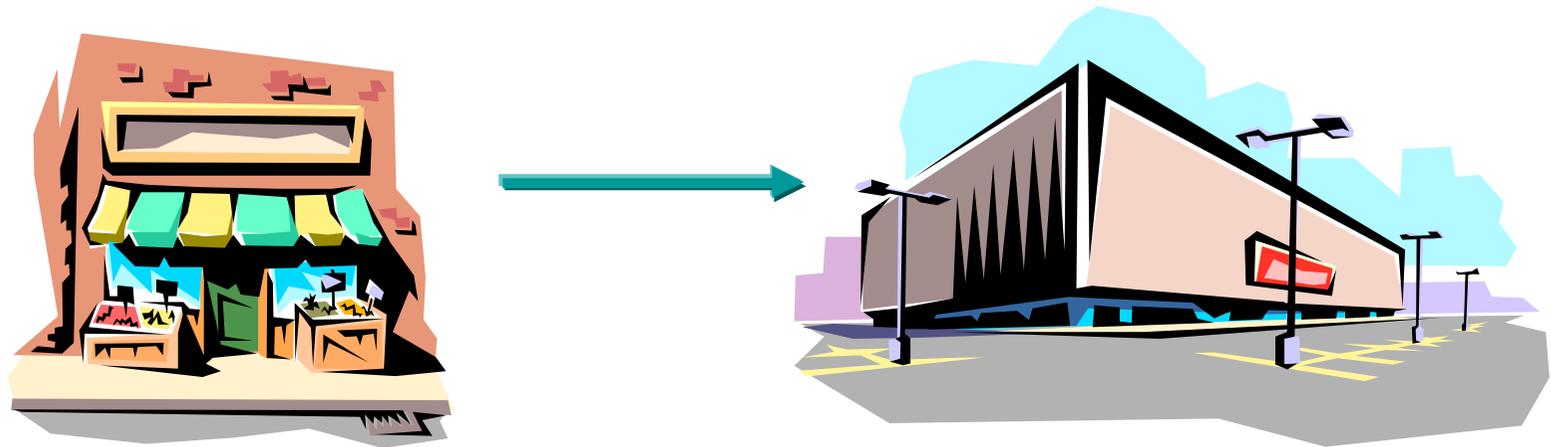
**Economic life of a business divided into artificial time periods.**



# 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.



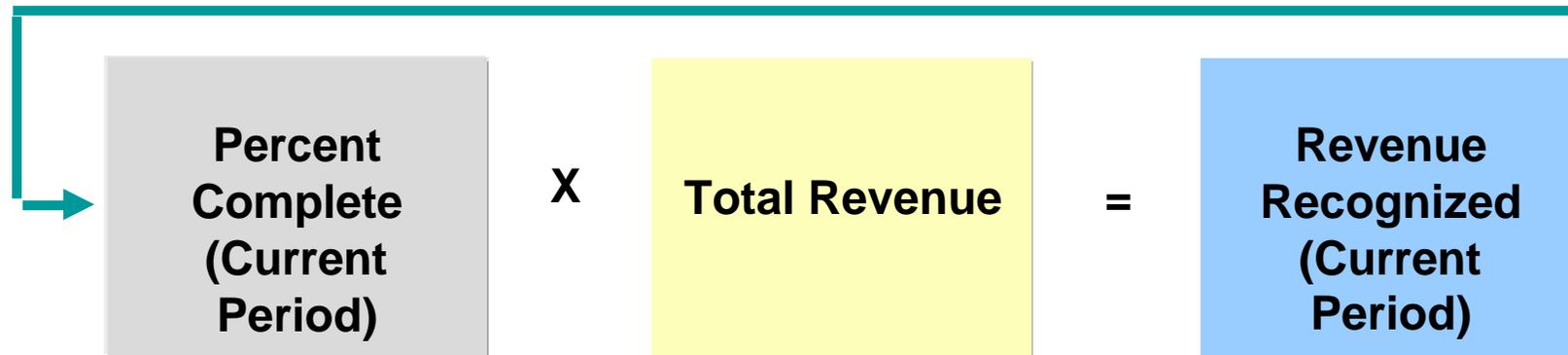
# PERCENTAGE-OF-COMPLETION METHOD OF REVENUE RECOGNITION

- 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

$$\begin{array}{|c|} \hline \text{Costs Incurred} \\ \text{(Current} \\ \text{Period)} \\ \hline \end{array} \div \begin{array}{|c|} \hline \text{Total} \\ \text{Estimated} \\ \text{Cost} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Percent} \\ \text{Complete} \\ \text{(Current} \\ \text{Period)} \\ \hline \end{array}$$


$$\begin{array}{|c|} \hline \text{Percent} \\ \text{Complete} \\ \text{(Current} \\ \text{Period)} \\ \hline \end{array} \times \begin{array}{|c|} \hline \text{Total Revenue} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Revenue} \\ \text{Recognized} \\ \text{(Current} \\ \text{Period)} \\ \hline \end{array}$$


## 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**.

$$\begin{array}{ccc} \begin{array}{c} \text{Revenue} \\ \text{Recognized} \\ \text{(Current} \\ \text{Period)} \end{array} & \times & \begin{array}{c} \text{Cost Incurred} \\ \text{(Current} \\ \text{Period)} \end{array} & = & \begin{array}{c} \text{Gross Profit} \\ \text{Recognized} \\ \text{(Current} \\ \text{Period)} \end{array} \end{array}$$

## 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.

$$\begin{array}{|c|} \hline \text{Cash Collections} \\ \text{from Customers} \\ \hline \end{array} \times \begin{array}{|c|} \hline \text{Gross Profit} \\ \text{Percentage} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Gross Profit} \\ \text{Recognized} \\ \text{during the} \\ \text{Period} \\ \hline \end{array}$$

## 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).

Year	Cash Collected	X	Gross Profit Percentage	=	Gross Profit Recognized
200 5	\$ 280,000		30%		\$ 84,000
200 6	200,000		30%		60,000
200 7	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**

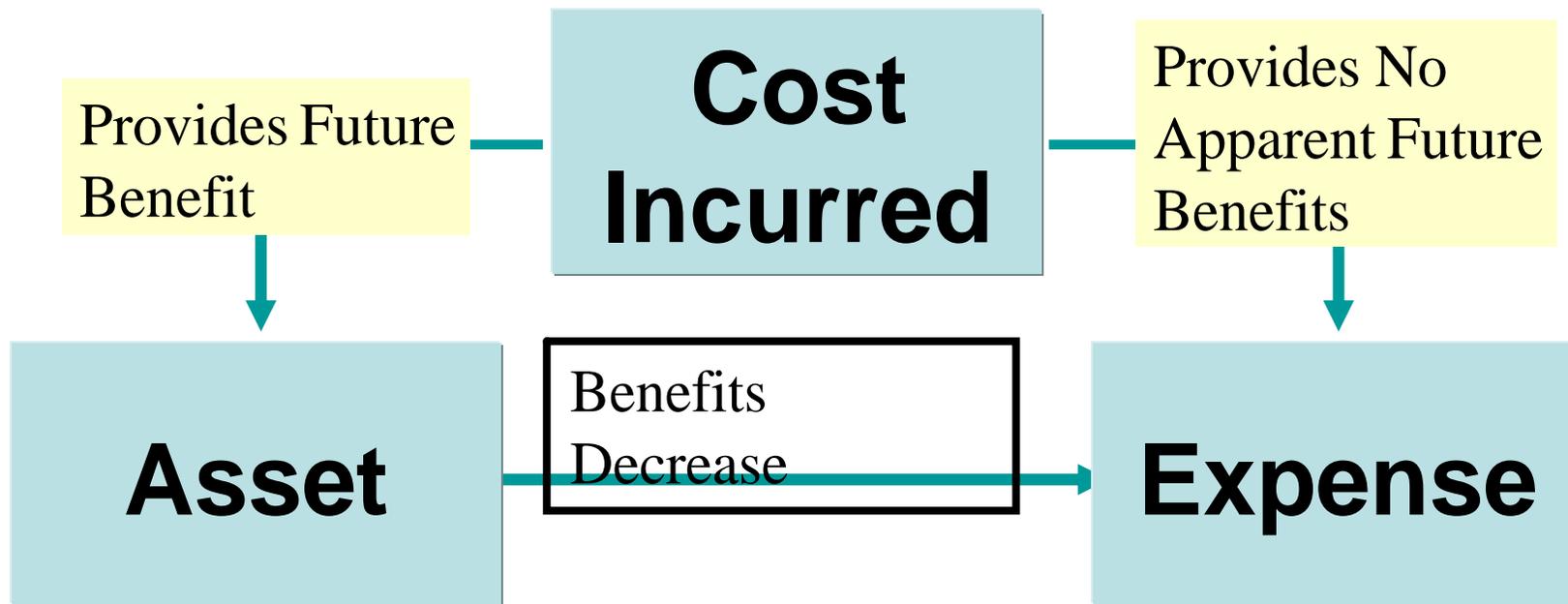
**merchandise inventory becomes expensed when the inventory is sold**

**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**.



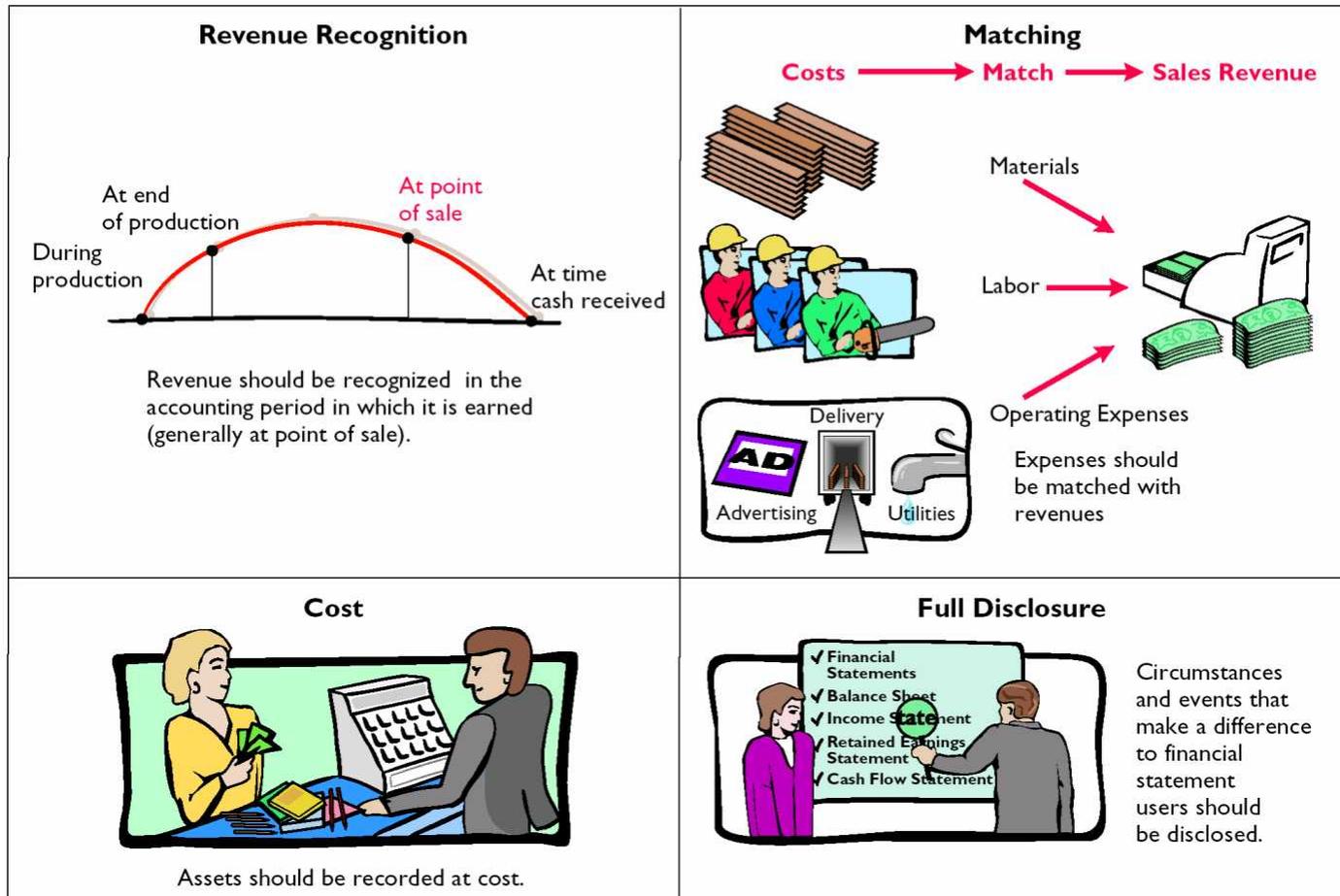
# FULL DISCLOSURE PRINCIPLE

- **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**

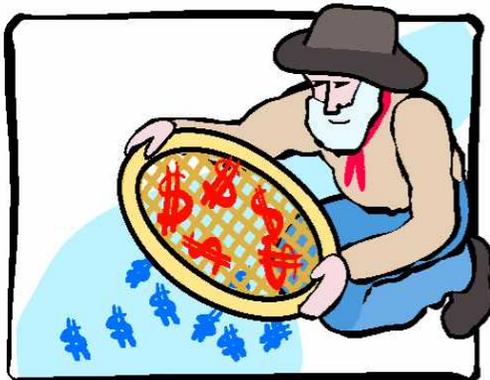
- relates to an item's impact on a firm's **overall financial condition and operations**.

- **Conservatism**

- dictates that when in doubt, choose the method that will be the least likely to overstate **assets and income**

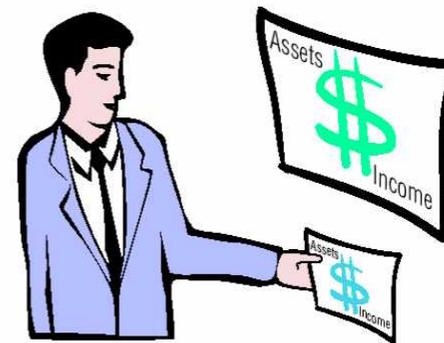
# CONSTRAINTS IN ACCOUNTING

## Materiality



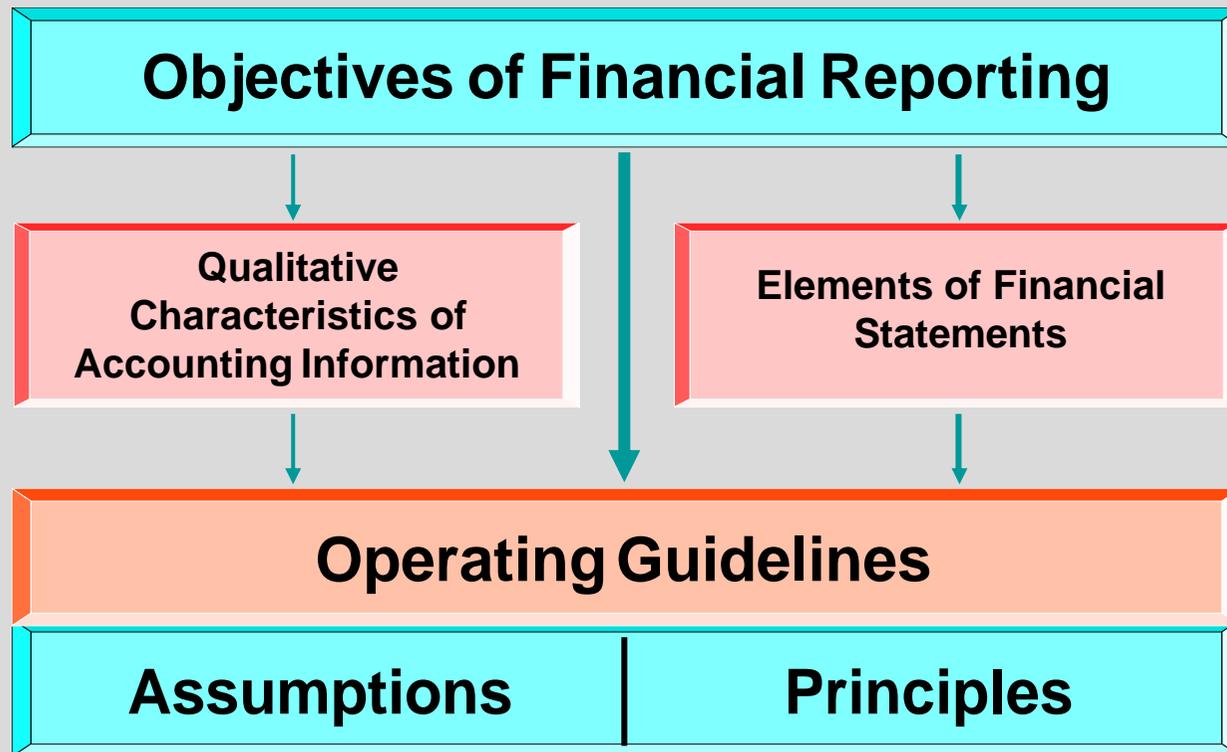
For small amounts, GAAP does not have to be followed.

## 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.



Accounting Principles, 7<sup>th</sup> Edition

Weygandt • Kieso • Kimmel

## Chapter 13

# Accounting for Partnerships

Prepared by Naomi Karolinski  
Monroe Community College

and

Marianne Bradford  
Bryant College

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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.

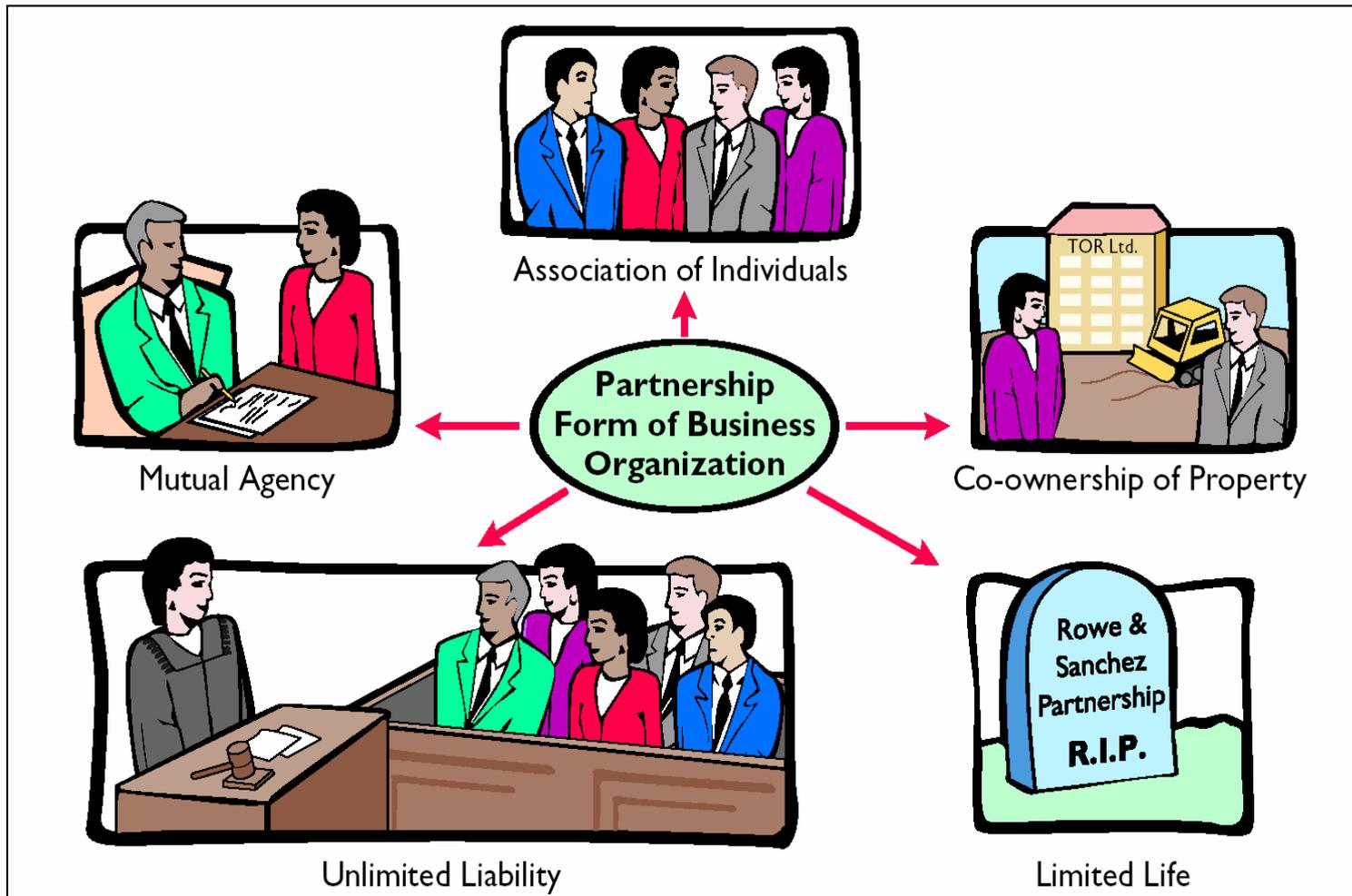


# CHARACTERISTICS OF PARTNERSHIPS

## **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)
	\$ 11,000	\$ 12,300	\$ 12,000	\$ 12,000

# RECORDING INVESTMENTS IN A PARTNERSHIP

**Entries to record the investments are:**

Account Titles and Explanation	Debit	Credit
<b><u>Investment of A. Rolfe</u></b>		
Cash	8,000	
Office Equipment	4,000	
A. Rolfe, Capital		12,000
(To record investment of Rolfe)		
<b><u>Investment of T. Shea</u></b>		
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 L. Arbor, Capital (\$32,000 X 50%) D. Barnett, Capital (\$32,000 X 50%) (To transfer net income to owners' capital accounts)	32,000	16,000 16,000
31	L. Arbor, Capital D. Barnett, Capital L. Arbor, Drawing D. Barnett, Drawing (To close drawing accounts to capital accounts)	8,000 6,000	8,000 6,000

# 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	<b>Closing</b>	<b>8,000</b>		1/1	Balance	47,000
				12/31	<b>Closing</b>	<b>16,000</b>
				12/31	Balance	55,000
L. Arbor, Drawing						
12/31	Balance	8,000	12/31	<b>Closing</b>	<b>8,000</b>	
D. Barnett, Capital						
12/31	<b>Closing</b>	<b>6,000</b>	1/1	Balance	36,000	
			12/31	<b>Closing</b>	<b>16,000</b>	
			12/31	Balance	46,000	
D. Barnett, Drawing						
12/31	Balance	6,000	12/31	<b>Closing</b>	<b>6,000</b>	

# 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
<b>Salary allowance</b>	\$ 8,400	\$6,000	\$14,400
<b>Interest allowance on partner's behalf</b>			
Sara King (\$28,000 X 10%)	2,800		
Ray Lee (\$24,000 X 10%)		2,400	
Total interest allowances			5,200
Total salaries and interest	11,200	8,400	19,600
<b>Remaining income – \$2,400</b>			
Sara King (\$2,400 X 50%)	1,200		
Ray Lee (\$2,400 X 50%)		1,200	
Total remainder			2,400
<b>Total division</b>	<b>\$ 12,400</b>	<b>\$9,600</b>	<b>\$22,000</b>

# 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**.

<b>KINGSLEE COMPANY</b>			
<b>Partners' Capital Statement</b>			
<b>For the Year Ended December 31, 2005</b>			
	<b>Sara King</b>	<b>Ray Lee</b>	<b>Total</b>
Capital, January 1	<u>\$ 28,000</u>	<u>\$ 24,000</u>	<u>\$52,000</u>
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
<b>Capital, December 31</b>	<u><b>\$ 35,400</b></u>	<u><b>\$ 28,600</b></u>	<u><b>\$ 64,000</b></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.

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
<b>Bal.</b>	<b>49,000</b>			<b>Bal.</b>	<b>22,500</b>	<b>Bal.</b>	<b>22,800</b>	<b>Bal.</b>	<b>3,700</b>

# 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).  
steps in

## 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		18,000
Inventory		18,000
Equipment		35,000
(To record realization of noncash assets)		

The  
the  
liquidation  
process are  
as follows:

# 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							
<b>Bal.</b>	<b>16,000</b>			<b>Bal. 6,000</b>		<b>Bal. 11,800</b>	<b>Bal. 1,800</b>	

# 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														
<b>Bal.</b>	<b>17,800</b>					<b>Bal.</b>	<b>6,000</b>			<b>Bal.</b>	<b>11,800</b>			<b>Bal.</b>	<b>-0-</b>

# 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  $\frac{3}{5}$  and  $\frac{2}{5}$ , respectively.

Entry is made to remove Eaton's capital deficiency.

Account Titles and Explanation	Debit	Credit
(a)		
R. Arnet, Capital ( $\$1,800 \times \frac{3}{5}$ )	1,080	
P. Carey, Capital ( $\$1,800 \times \frac{2}{5}$ )	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
<b>Bal.</b>	<b>16,000</b>					<b>Bal.</b>	<b>4,920</b>			<b>Bal.</b>	<b>11,080</b>			<b>Bal.</b>	<b>-0-</b>

# 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		
	10,000		30,000
	Balance		20,000
		L. Carson, Capital	
			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
<b>Net Assets</b>	<b>\$ 60,000</b>	<b>\$ 90,000</b>
<b>Capital</b>		
C. Ames	\$ 20,000	\$ 30,000
D. Barker	20,000	30,000
L. Carson	20,000	30,000
<b>Total capital</b>	<b>\$ 60,000</b>	<b>\$ 90,000</b>

# 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:

**1. 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>

**2. 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                      20,000</p> <hr style="width: 50%; margin-left: 0;"/> <p>Total capital of new partnership                      \$ 140,000</p> <hr style="width: 50%; margin-left: 0;"/>	<p>3. Bonus to Eden (\$35,000 – \$20,000)                      <u>\$ 15,000</u></p>
<p>2. Eden's capital credit (25% X \$140,000)      <u>\$ 35,000</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%)                      6,000</p> <hr style="width: 50%; margin-left: 0;"/> <p style="text-align: right;">\$ 15,000</p>

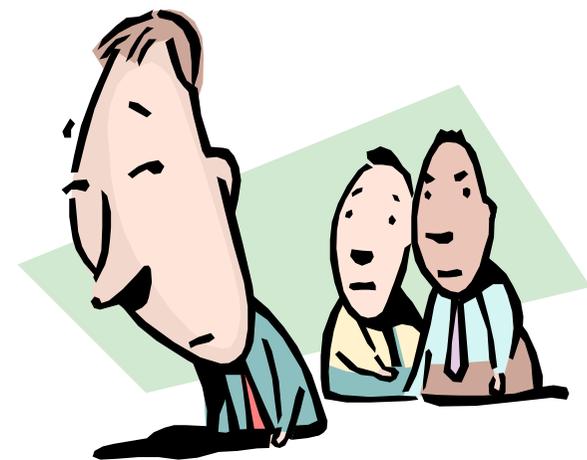
The entry to record the admission of Eden is as follows:

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 X 3/5**) and Sand **\$2,000** (**\$5,000 X 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.**





# Accounting Principles, 7<sup>th</sup> 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

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# 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.**

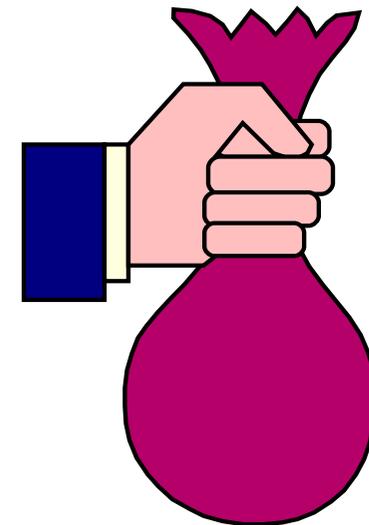
# Dividends

## 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**

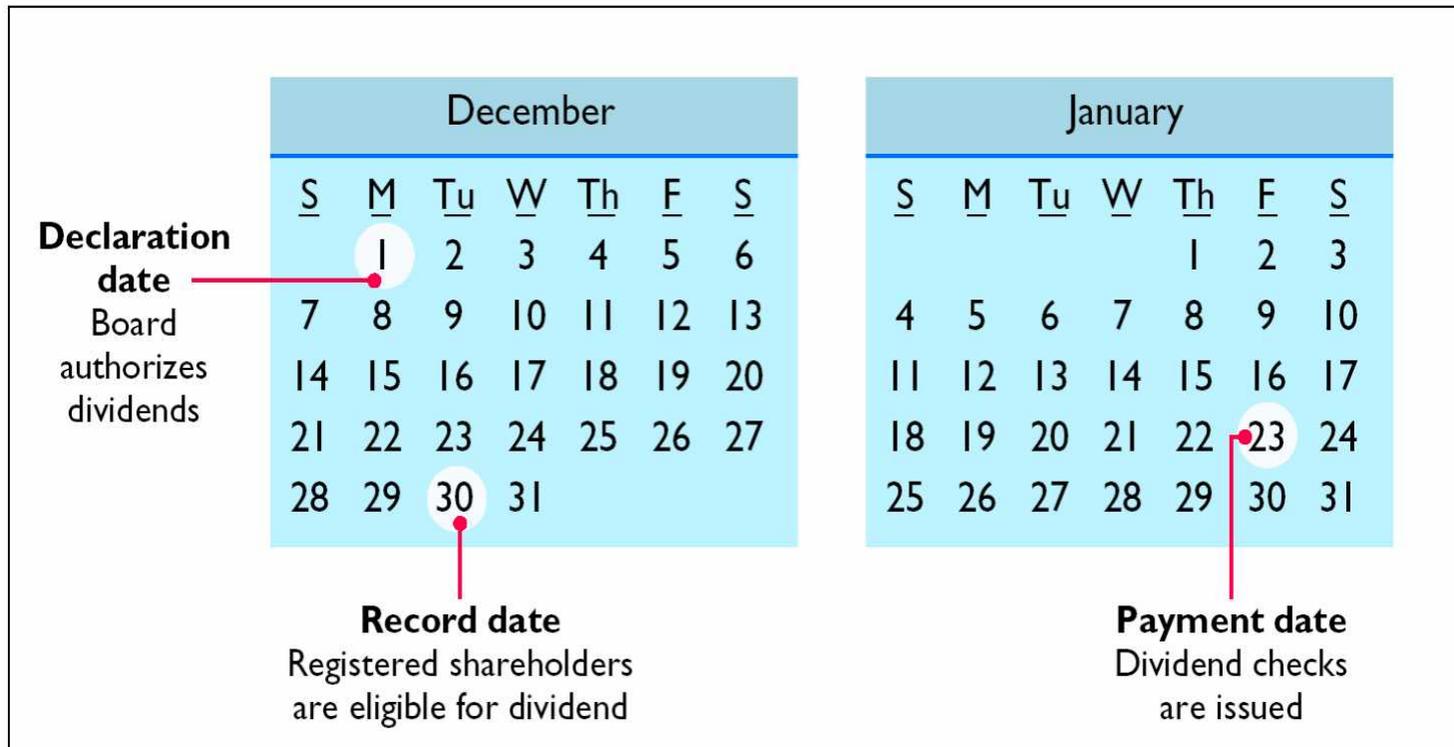


# Entries for Cash Dividends

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

<b>Total dividend</b>		<b>\$50,000</b>
<b>Allocated to preferred stock</b>		
<b>Dividend in arrears, 2005 (1,000 x \$2)</b>	<b>\$2,000</b>	
<b>2006 dividend (1,000 x \$8)</b>	<b><u>8,000</u></b>	<b><u>10,000</u></b>
<b>Remainder allocated to common stock</b>		<b><u>\$40,000</u></b>

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

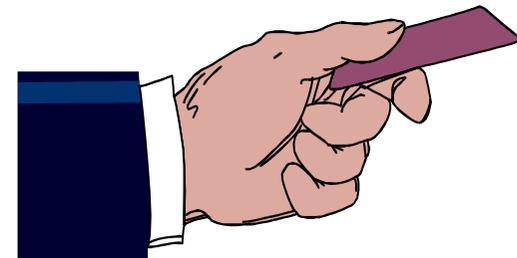
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The date a cash dividend becomes a binding legal obligation to a corporation is the

- a. declaration date.
- b. earnings date.
- c. payment date.
- d. record date.

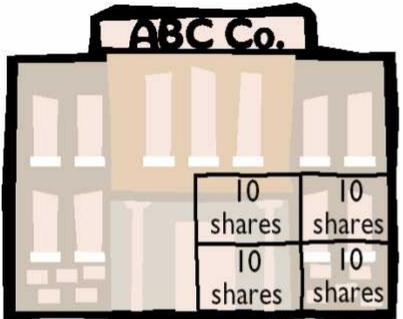
# Stock Dividends

- **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.**



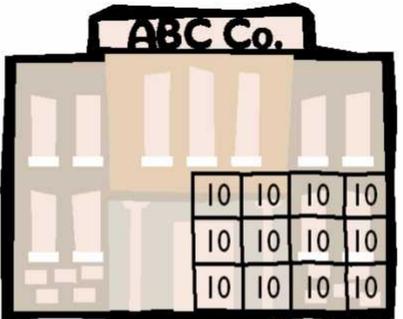
# Stock Dividends

**Before stock dividend**



10 shares 10 shares  
10 shares 10 shares

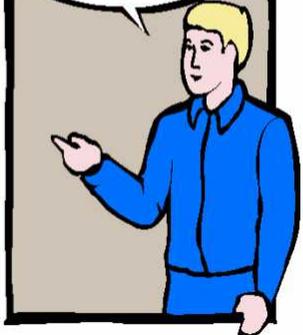
**After stock dividend**



10 10 10 10  
10 10 10 10  
10 10 10 10

Number of shares owned increases, but percentage of company owned remains the same.

"I owned 40 shares before and I own 120 shares now, but I still own only  $\frac{1}{4}$  of the company!"



# Disclosure

**Rally would present the information in the following Format.**

<b>Rally Inc. Income Statement (partial)</b>	
<b>Net income</b>	<b><u>\$211,000</u></b>
<b>Earnings per share</b>	<b><u>\$2.00</u></b>

# 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*.**

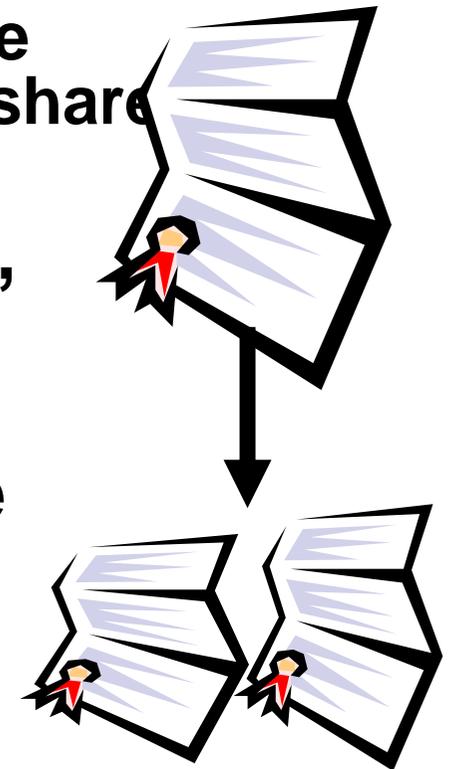
# Stock Dividend Effects

	<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>
<b>Total stockholders' equity</b>	<b><u><u>\$800,000</u></u></b>	<b><u><u>\$800,000</u></u></b>
<b>Outstanding shares</b>	<b><u><u>50,000</u></u></b>	<b><u><u>55,000</u></u></b>
<b>Book value per share</b>	<b><u><u>\$16.00</u></u></b>	<b><u><u>\$14.55</u></u></b>

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	-0-	-0-
Total paid-in capital	<u>500,000</u>	<u>500,000</u>
Retained earnings	<u>300,000</u>	<u>300,000</u>
<b>Total stockholders' equity</b>	<b><u><u>\$800,000</u></u></b>	<b><u><u>\$800,000</u></u></b>
<b>Outstanding shares</b>	<b><u><u>50,000</u></u></b>	<b><u><u>100,000</u></u></b>
<b>Book value per share</b>	<b><u><u>\$16.00</u></u></b>	<b><u><u>\$8.00</u></u></b>

# Differences Between the Effects of Stock Splits and Stock Dividends

<i>Item</i>	<i>Stock Split</i>	<i>Stock Dividend</i>
<b>Total paid-in capital</b>	<b>No change</b>	<b>Increase</b>
<b>Total retained earnings</b>	<b>No change</b>	<b>Decrease</b>
<b>Total par value (common stock)</b>	<b>No change</b>	<b>Increase</b>
<b>Par value per share</b>	<b>Decrease</b>	<b>No change</b>

# 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
<b>Retained earnings (deficit)</b>	<b>(50,000)</b>
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
<b>Correction for overstatement of net income in prior period (depreciation error)</b>	<b>(300,000)</b>
Balance, January 1, as adjusted	<u>\$500,000</u>

**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

<b>LEADS INC.</b>	
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>
<b>Income before income taxes</b>	<b>156,000</b>
<b>Income tax expense</b>	<b><u>46,800</u></b>
Net income	<b><u><u>\$109,200</u></u></b>

# 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)		

A	=	L	+	SE
		+46,800		-46,800 Exp

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.

$$\begin{array}{|c|} \hline \text{Net Income} \\ \text{Minus} \\ \text{Preferred} \\ \text{Dividends} \\ \hline \end{array} \quad / \quad \begin{array}{|c|} \hline \text{Weighted} \\ \text{Average} \\ \text{of Common} \\ \text{Shares} \\ \text{Outstanding} \\ \hline \end{array} \quad = \quad \begin{array}{|c|} \hline \text{Earnings} \\ \text{per} \\ \text{Share} \\ \hline \end{array}$$

$$\text{\$2 EPS} \quad (\$211,000 - \$6,000) / 102,500 \quad =$$

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.



# Accounting Principles, 7<sup>th</sup> Edition

Weygandt • Kieso • Kimmel

## Chapter 17

# Investments

Prepared by Naomi Karolinski  
Monroe Community College

and

Marianne Bradford  
Bryant College

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# CHAPTER 17

# INVESTMENTS

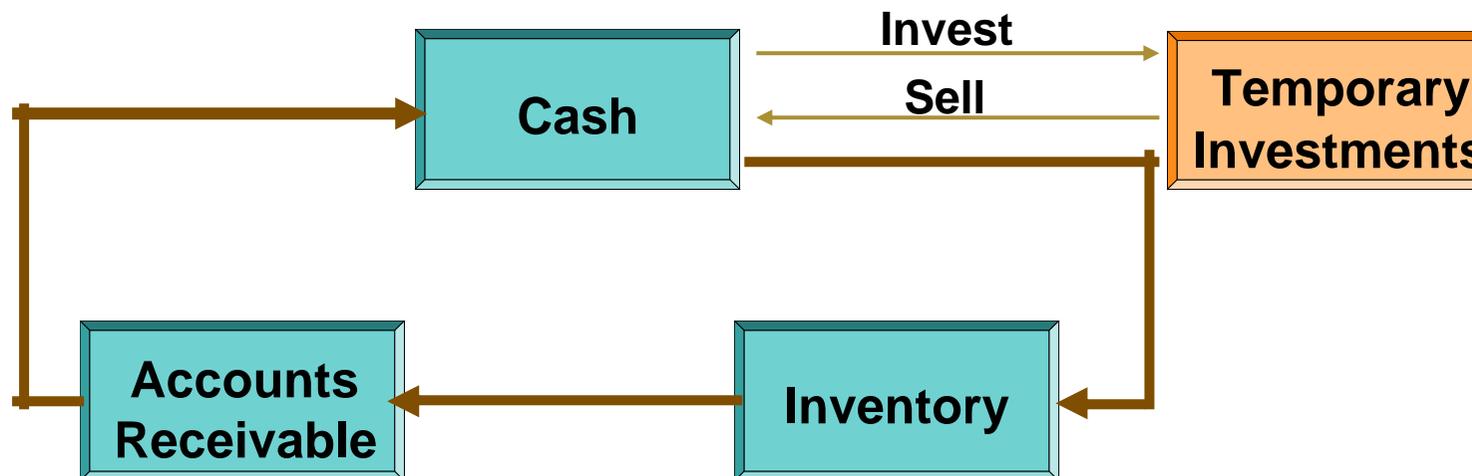
**After studying this chapter, you should be able to:**

- 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.**

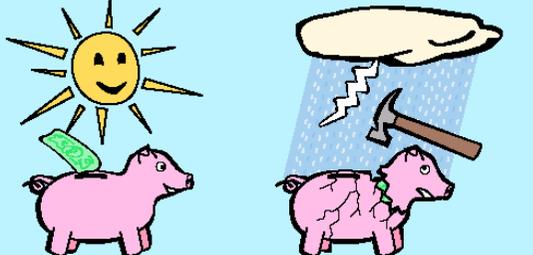
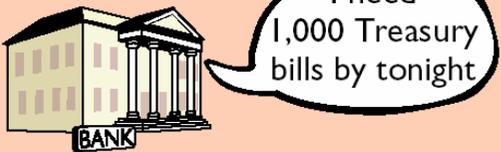
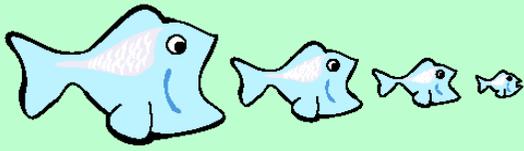
# TEMPORARY INVESTMENTS AND THE OPERATING CYCLE

## 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 pink piggy banks. The one on the left is whole and has a smiling sun above it with a green bill being inserted. The one on the right is cracked and has a lightning bolt striking it from a dark cloud above, with a hammer nearby.</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 path 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 AQUISITION 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:**

<b>Date</b>	<b>Account Titles and Explanation</b>	<b>Debit</b>	<b>Credit</b>
<b>Jan. 1</b>	<b>Cash</b>	<b>2,000</b>	
	<b>Interest Receivable</b>		<b>2,000</b>
	<b>(To record receipt of accrued interest)</b>		

# 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.**

<b>Date</b>	<b>Account Titles and Explanation</b>	<b>Debit</b>	<b>Credit</b>
<b>Jan. 1</b>	<b>Cash</b>	<b>58,000</b>	
	<b>Debt Investments</b>		<b>54,000</b>
	<b>Gain on Sale of Debt Investments</b>		<b>4,000</b>
	<b>(To record sale of Doan Inc. bonds)</b>		

# 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.

<u>Investor's Ownership Interest in Investee's Common Stock</u>	<u>Presumed Influence on Investee</u>	<u>Accounting Guidelines</u>
 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:**

<b>Date</b>	<b>Account Titles and Explanation</b>	<b>Debit</b>	<b>Credit</b>
July 1	Stock Investments Cash (To record purchase of 1,000 shares of Beal Corporation common stock)	40,500	40,500

# 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	<b>Stock Investments</b> <b>Revenue from Investment in Beck Company</b> (To record 30% equity in Beck's 2005 net income)	30,000	30,000

Date	Account Titles and Explanation	Debit	Credit
Dec. 31	<b>Cash</b> <b>Stock Investments</b> (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.

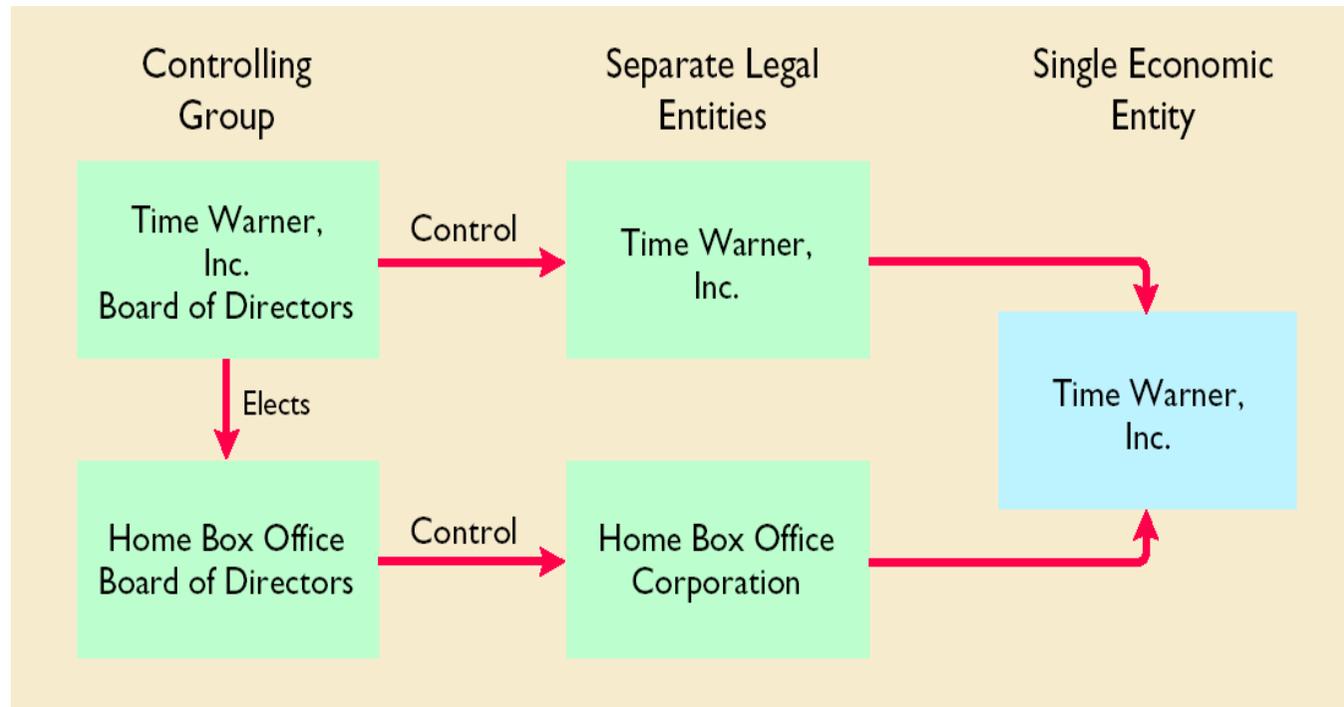
# RECORDING STOCK INVESTMENTS HOLDINGS OF MORE THAN 50%

## 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.**



# 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
<b>Total</b>	<b>\$ 140,000</b>	<b>\$ 147,000</b>	<b>\$ 7,000</b>

# 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)
<b>Total</b>	<b>\$ 293,537</b>	<b>\$ 284,000</b>	<b>\$ ( 9,537)</b>

# 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:**

<b>Date</b>	<b>Account Titles and Explanation</b>	<b>Debit</b>	<b>Credit</b>
<b>Dec. 31</b>	<b>Unrealized Loss — Equity Market Adjustment — Available-for-Sale (To record unrealized loss on available-for-sale securities)</b>	<b>9,537</b>	<b>9,537</b>

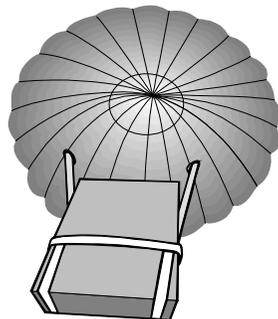
# VALUATION AND REPORTING OF INVESTMENTS AVAILABLE-FOR-SALE SECURITIES

## **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**:

<u>Other Revenues and Gains</u>	<u>Other Expenses and Losses</u>
Interest Revenue	Loss on Sale of Investments
Dividend Revenue	Unrealized Loss – Income
Gain on Sale of Investments	
Unrealized Gain – 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: <b>Unrealized loss on available-for-sale securities</b>	<b>( 100,000)</b>
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
<b>Short-term investments, at fair value</b>		<b>147,000</b>
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		
<b>Investments in stock of less than 20% owned companies, at fair value</b>		<b>50,000</b>
<b>Investment in stock of 20–50% owned company, at equity</b>		<b>150,000</b>
Total investments		200,000
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		926,000
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	10,000
Total current liabilities	<u>255,000</u>
Long-term liabilities	
Bonds payable, 10%, due 2016	\$ 300,000
Less: Discount on bonds	10,000
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	100,000
Total paid-in capital	900,000
Retained earnings (Note 1)	255,000
Total paid-in capital and retained earnings	1,155,000
Add: <b>Unrealized gain on available-for-sale securities</b>	<b>10,000</b>
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

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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

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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.



Accounting Principles, 7<sup>th</sup> Edition

Weygandt • Kieso • Kimmel

## Chapter 18

# The Statement of Cash Flows

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and

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# 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?**

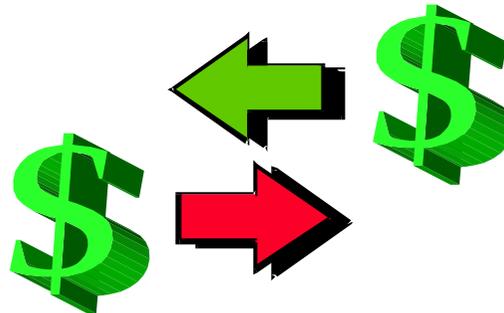
# MEANING OF CASH FLOWS

## 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		
<b>Cash flows from operating activities</b>		
(List of individual items)	<u>XX</u>	
Net cash provided (used) by operating activities		XXX
<b>Cash flows from investing activities</b>		
(List of individual inflows and outflows)	<u>XX</u>	
Net cash provided (used) by investing activities		XXX
<b>Cash flows from financing activities</b>		
(List of individual inflows and outflows)	<u>XX</u>	
Net cash provided (used) by financing activities		<u>XXX</u>
<b>Net increase (decrease) in cash</b>		<u>XXX</u>
<b>Cash at beginning of period</b>		<u>XXX</u>
<b>Cash at end of period</b>		<u>XXX</u>
<b>Noncash investing and financing activities</b>		
(List of individual noncash transactions)		<u>XXX</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

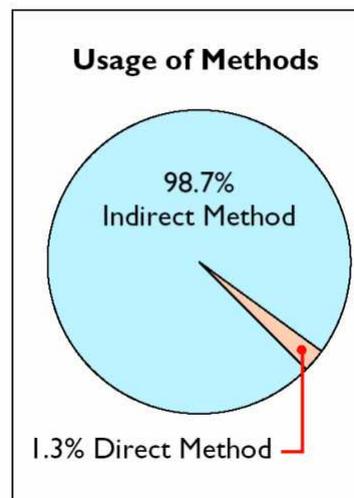
In order to determine net cash provided/used by operating activities, the operating activities section must be converted from accrual basis to cash basis. This conversion may be accomplished by :

- 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.

<b>COMPUTER SERVICES COMPANY</b>			
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	<u>164,000</u>	<u>48,000</u>	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
		<b>Depreciation expense</b>	<b>3,000</b>
		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** **9,000**

**Net cash provided by operating activities** **\$ 154,000**

# 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	(2,000)	<u>27,000</u>
Net cash provided by operating activities		<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.

<b>JUAREZ COMPANY</b>			
<b>Comparative Balance Sheet</b>			
<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
<b>Total</b>	<b><u>\$ 663,000</u></b>	<b><u>\$ 422,000</u></b>	
<b>Liabilities and Stockholders' Equity</b>			
<u>Accounts payable</u>	\$ 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
<b>Total</b>	<b><u>\$ 663,000</u></b>	<b><u>\$ 422,000</u></b>	

# INCOME STATEMENT AND ADDITIONAL INFORMATION, 2005

**JUAREZ COMPANY**  
**Income Statement**  
**For the Year Ended December 31, 2005**

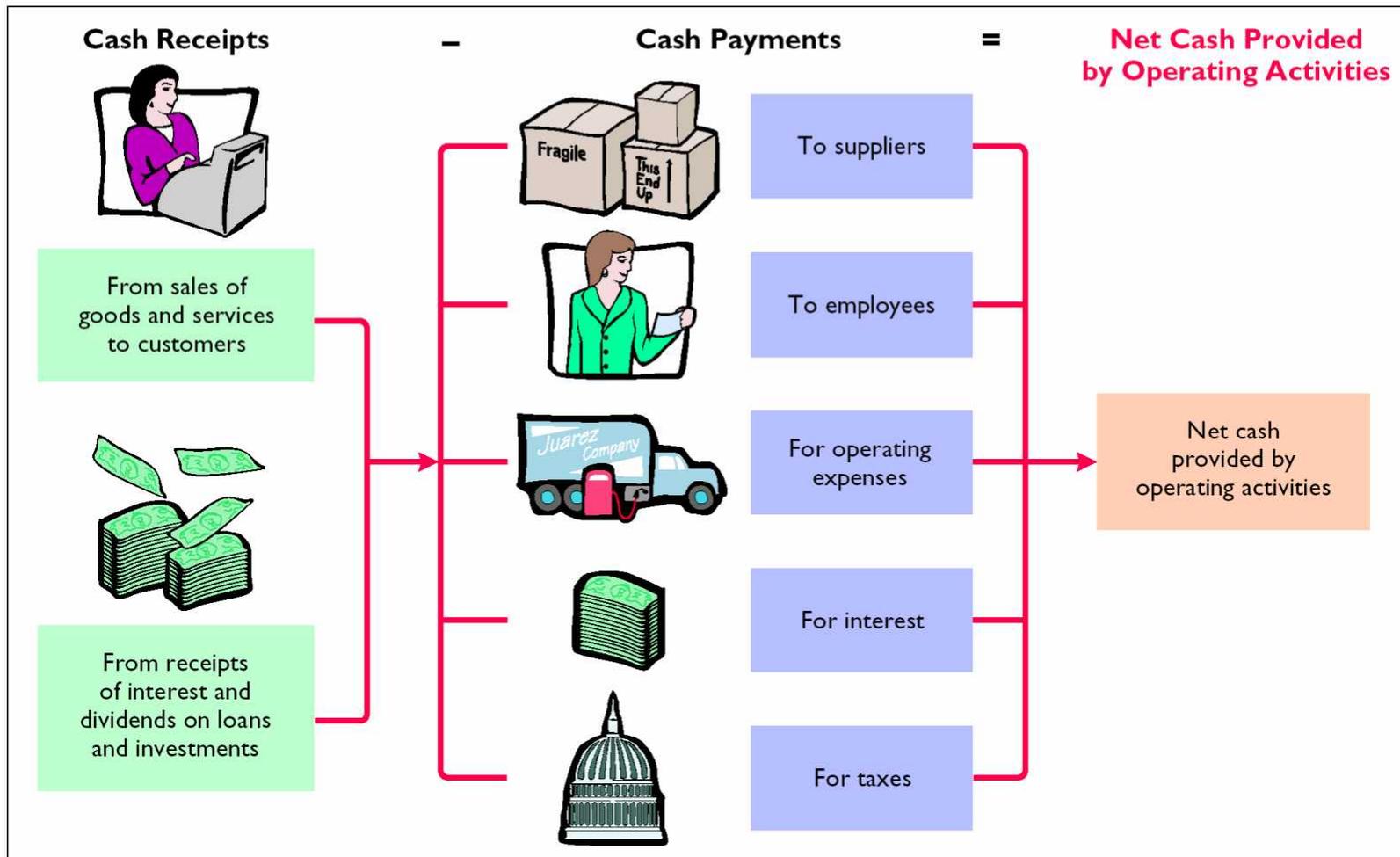
Revenues from sales		\$ 975,000
Cost of goods sold	\$ 660,000	
Operating expenses (excluding depreciation)	176,000	
Depreciation expense	18,000	
Loss on sale of store equipment	1,000	855,000
Income before income taxes		120,000
Income tax expense		36,000
Net income		84,000

**The income statement and  
additional information for 2005  
for Juarez Company are shown.**

**Additional information:**

- (1) In 2005, the company declared and paid a \$32,000 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.**



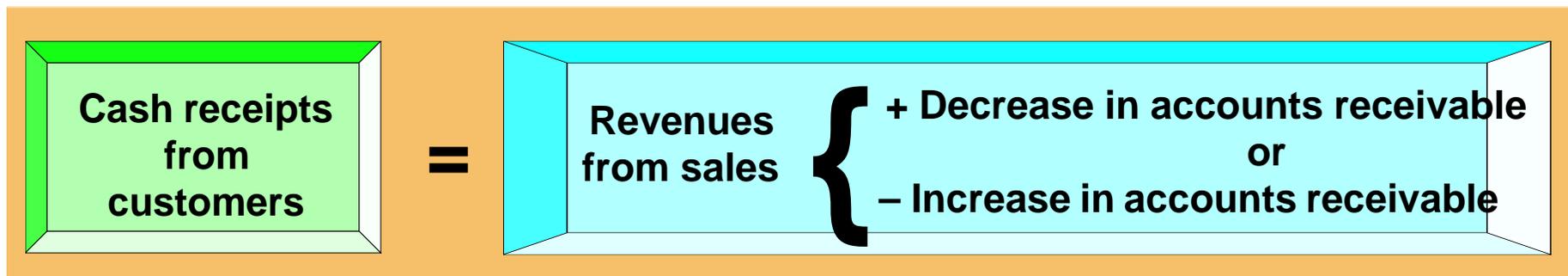
## COMPUTATION OF CASH RECEIPTS FROM CUSTOMERS

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
<b>Cash receipts from customers</b>	<b>\$ 978,000</b>

FORMULA TO COMPUTE CASH  
RECEIPTS FROM CUSTOMERS —  
DIRECT METHOD

**The relationships among cash receipts from customers, revenues from sales, and changes 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>
<b>Purchases</b>	<b><u><u>\$670,000</u></u></b>



# 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	<b>\$678,000</b>

## 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
<b>Cash payments for operating expenses</b>	<b>\$ 179,000</b>

# 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.

$$\begin{array}{c} \text{Cash} \\ \text{payments for} \\ \text{income} \\ \text{taxes} \end{array} = \begin{array}{c} \text{Income} \\ \text{tax} \\ \text{expense} \end{array} + \begin{array}{c} \text{Decrease in income taxes payable} \\ \text{or} \\ \text{Increase in income taxes payable} \end{array}$$

# 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	<b>\$24,000</b>

# 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.

<b>JUAREZ COMPANY</b>		
<b>Partial Statement of Cash Flows — Direct Method</b>		
<b>For the Year Ended December 31, 2005</b>		
<b>Cash flows from operating activities</b>		
Cash receipts from customers		<b>\$ 978,000</b>
Cash payments:		
To suppliers	<b>\$ 678,000</b>	
For operating expenses	<b>179,000</b>	
For income taxes	<b>24,000</b>	<b>881,000</b>
		<hr/>
<b>Net cash provided by operating activities</b>		<b><u><u>\$ 97,000</u></u></b>

# 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>
<b>Noncash investing and financing activities</b>		
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.**



Accounting Principles, 7<sup>th</sup> Edition

Weygandt • Kieso • Kimmel

## Chapter 19

# Financial Statement Analysis

Prepared by Naomi Karolinski  
Monroe Community College

and

Marianne Bradford  
Bryant College

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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:**

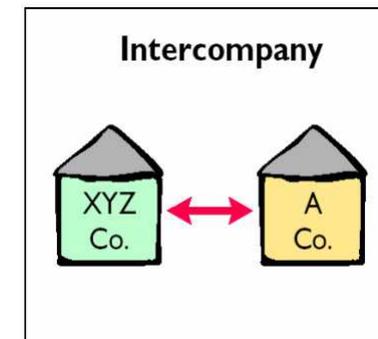
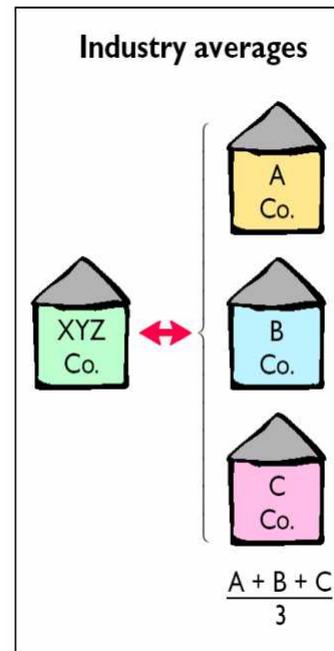
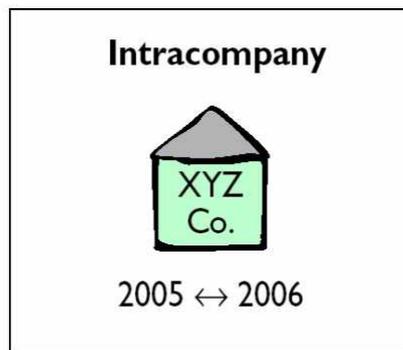
- 5 Identify and compute ratios and describe their purpose and use in analyzing a firm's liquidity, profitability, and solvency.**
- 6 Understand the concept of earning power; and indicate how material items not typical of regular operations are presented.**
- 7 Recognize the limitations of financial 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%.**

<b>QUALITY DEPARTMENT STORE INC.</b>				
<b>Retained Earnings Statement</b>				
<b>For the Years Ended December 31</b>				
	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

<b>QUALITY DEPARTMENT STORE INC.</b>				
<b>Condensed Balance Sheets</b>				
<b>December 31</b>				
	<b>2002</b>		<b>2001</b>	
	<b>Amount</b>	<b>Percent</b>	<b>Amount</b>	<b>Percent</b>
<b>Assets</b>				
<b>Current assets</b>	<b>\$ 1,020,000</b>	<b>55.6%</b>	<b>\$ 945,000</b>	<b>59.2%</b>
<b>Plant assets (net)</b>	<b>800,000</b>	<b>43.6%</b>	<b>632,500</b>	<b>39.7%</b>
<b>Intangible assets</b>	<b>15,000</b>	<b>0.8%</b>	<b>17,500</b>	<b>1.1%</b>
<b>Total assets</b>	<b>\$ 1,835,000</b>	<b>100.0%</b>	<b>\$ 1,595,000</b>	<b>100.0%</b>
<b>Liabilities</b>				
<b>Current liabilities</b>	<b>\$ 344,500</b>	<b>18.8%</b>	<b>\$ 303,000</b>	<b>19.0%</b>
<b>Long-term liabilities</b>	<b>487,500</b>	<b>26.5%</b>	<b>497,000</b>	<b>31.2%</b>
<b>Total liabilities</b>	<b>832,000</b>	<b>45.3%</b>	<b>800,000</b>	<b>50.2%</b>
<b>Stockholders' Equity</b>				
<b>Common stock, \$1 par</b>	<b>275,400</b>	<b>15.0%</b>	<b>270,000</b>	<b>16.9%</b>
<b>Retained earnings</b>	<b>727,600</b>	<b>39.7%</b>	<b>525,000</b>	<b>32.9%</b>
<b>Total stockholders' equity</b>	<b>1,003,000</b>	<b>54.7%</b>	<b>795,000</b>	<b>49.8%</b>
<b>Total liabilities and stockholders' equity</b>	<b>\$ 1,835,000</b>	<b>100.0%</b>	<b>\$1,595,000</b>	<b>100.0%</b>

# 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

<b>QUALITY DEPARTMENT STORE INC.</b> <b>Condensed Income Statements</b> <b>For the Years Ended December 31</b>				
	2002		2001	
	Amount	Percent	Amount	Percent
<b>Sales</b>	\$ 2,195,000	104.7%	\$ 1,960,000	106.7%
<b>Sales returns and allowances</b>	98,000	4.7%	123,000	6.7%
<b>Net sales</b>	2,097,000	100.0%	1,837,000	100.0%
<b>Cost of goods sold</b>	1,281,000	61.1%	1,140,000	62.1%
<b>Gross profit</b>	816,000	38.9%	697,000	37.9%
<b>Selling expenses</b>	253,000	12.0%	211,500	11.5%
<b>Administrative expenses</b>	104,000	5.0%	108,500	5.9%
<b>Total operating expenses</b>	357,000	17.0%	320,000	17.4%
<b>Income from operations</b>	459,000	21.9%	377,000	20.5%
<b>Other revenues and gains</b>				
<b>Interest and dividends</b>	9,000	0.4%	11,000	0.6%
<b>Other expenses and losses</b>				
<b>Interest expense</b>	36,000	1.7%	40,500	2.2%
<b>Income before income taxes</b>	432,000	20.6%	347,500	18.9%
<b>Income tax expense</b>	168,200	8.0%	139,000	7.5%
<b>Net income</b>	\$263,800	12.6%	\$208,500	11.4%

# INTERCOMPANY INCOME STATEMENT COMPARISON

**Vertical analysis enables you to compare companies of different sizes. Quality'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:

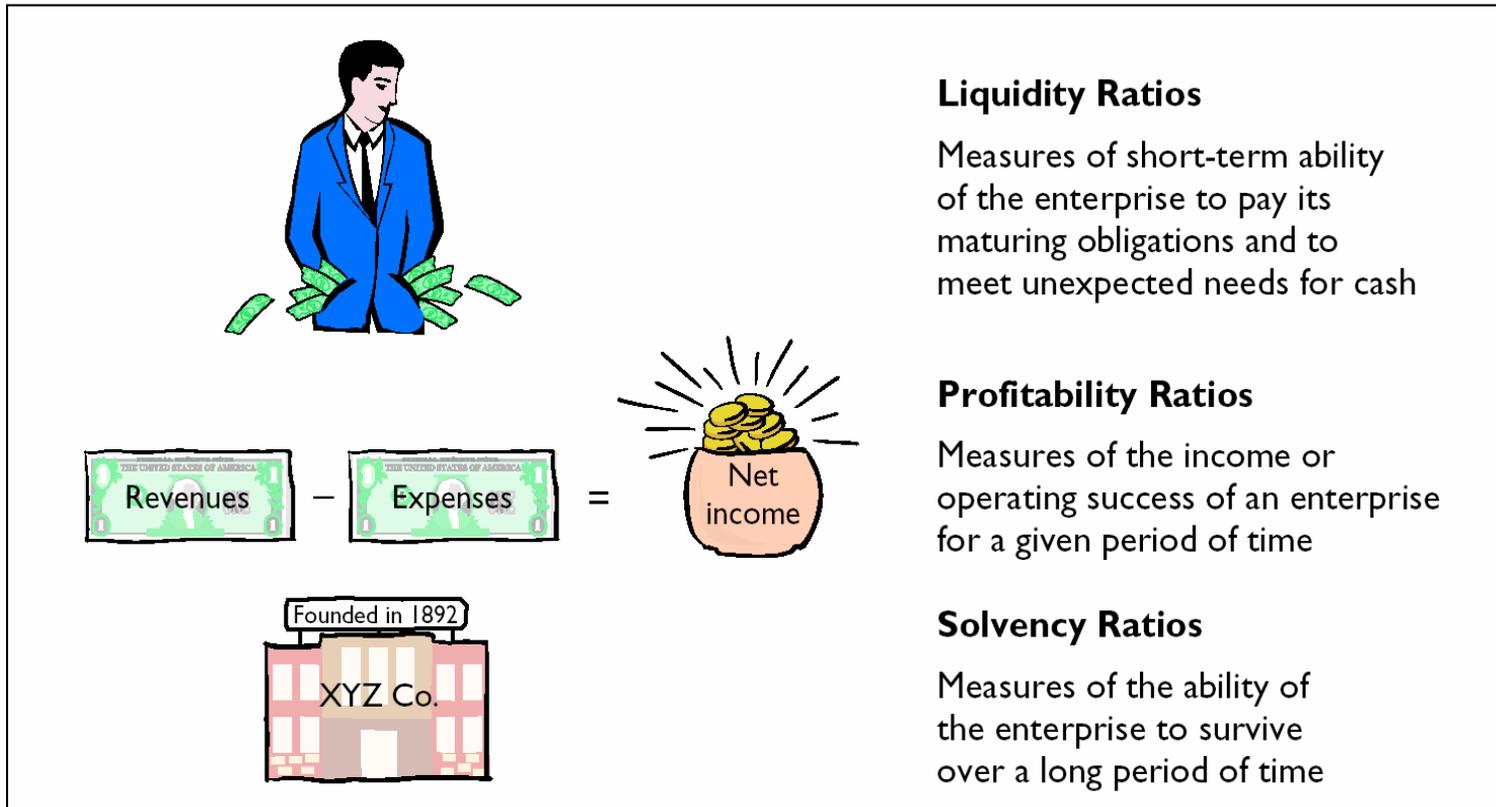
- a. net sales.
- b. depreciation expense in a previous year.
- c. gross profit.
- d. fixed assets.

# 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



# 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>
<b>Current assets</b>		
<b>Cash</b>	<b>\$ 100,000</b>	<b>\$ 155,000</b>
<b>Marketable securities</b>	<b>20,000</b>	<b>70,000</b>
<b>Receivables (net)</b>	<b>230,000</b>	<b>180,000</b>
<b>Inventory</b>	<b>620,000</b>	<b>500,000</b>
<b>Prepaid expenses</b>	<b>50,000</b>	<b>40,000</b>
<b>Total current assets</b>	<b><u>\$ 1,020,000</u></b>	<b><u>\$ 945,000</u></b>

# 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.**

$$\text{ACID-TEST RATIO} = \frac{\text{CASH + MARKETABLE SECURITIES + RECEIVABLES (NET)}}{\text{CURRENT LIABILITIES}}$$

# 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



<u>Industry average</u> 10.8 times	<u>Sears, Roebuck and Co.</u> 1.4 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
$\frac{\$1,281,000}{\frac{\$500,000 + \$620,000}{2}} = 2.3 \text{ times}$	$\frac{\$1,140,000}{\frac{\$450,000 + \$500,000}{2}} = 2.4 \text{ times}$

$\frac{\text{Industry average}}{6.7 \text{ times}}$	$\frac{\text{Sears, Roebuck and Co.}}{4.6 \text{ times}}$
---	---

# 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
$\frac{\$263,800}{\left[ \frac{\$1,595,000 + \$1,835,000}{2} \right]} = 15.4\%$	$\frac{\$208,500}{\left[ \frac{\$1,446,000 + \$1,595,000}{2} \right]} = 13.7\%$

$\frac{\text{Industry average}}{8.29\%}$	$\frac{\text{Sears, Roebuck and Co.}}{3.13\%}$
--	--

# 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
$\left[ \frac{\$263,800}{\frac{\$795,000 + \$1,003,000}{2}} \right] = 29.3\%$	$\left[ \frac{\$208,500}{\frac{\$667,000 + \$795,000}{2}} \right] = 28.5\%$

<u>Industry average</u>	<u>Sears, Roebuck and Co.</u>
20.5%	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

2002	2001
$\frac{\$12.00}{\$ .96} = 12.5 \text{ times}$	$\frac{\$ 8.00}{\$ .77} = 10.4 \text{ times}$

$\frac{\text{Industry average}}{\text{26 times}}$	$\frac{\text{Sears, Roebuck and Co.}}{\text{7 times}}$
---	--

# 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

<u>2002</u>	<u>2001</u>
$\frac{\$61,200}{\$263,800} = 23.2\%$	$\frac{\$60,000}{\$208,500} = 28.8\%$

<u>Industry average</u> 16.0%	<u>Sears, Roebuck and Co.</u> 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	Sears, Roebuck and Co.
<u>40.1%</u>	<u>76.1%</u>

# 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

<u>2002</u>	<u>2001</u>
$\frac{\$468,000}{\$36,000} = 13 \text{ times}$	$\frac{\$388,000}{\$40,500} = 9.6 \text{ times}$

$\frac{\text{Industry average}}{11.98 \text{ times}}$	$\frac{\text{Sears, Roebuck and Co.}}{2.8 \text{ times}}$
---	---

# 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
<b>Discontinued operations</b>		
<b>Loss from operations of chemical division,     net of \$60,000 income tax saving</b>	<b>\$140,000</b>	
<b>Loss from disposal of chemical division,     net of \$30,000 income tax saving</b>	<b><u>70,000</u></b>	<b><u>210,000</u></b>
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
<b>Extraordinary item</b>		
<b>Expropriation of investment, net of         \$21,000 income tax saving</b>		<b><u>49,000</u></b>
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.

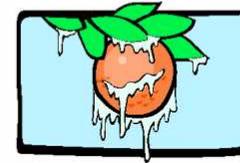


3. Effects of a newly enacted law or regulation, such as a condemnation action.



## 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

<b>ACRO ENERGY INC.</b>		
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
<b>Cumulative effect of change in accounting principle</b>		
<b>Effect on prior years of change in depreciation</b> <b>method, net of \$7,200 income tax saving</b>		<u><b>16,800</b></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.



# Accounting Principles

7<sup>th</sup> Edition

Weygandt • Kieso • Kimmel

## Chapter 20

# Managerial Accounting

Prepared by Naomi Karolinski  
Monroe Community College

and

Marianne Bradford  
Bryant College

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# 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:

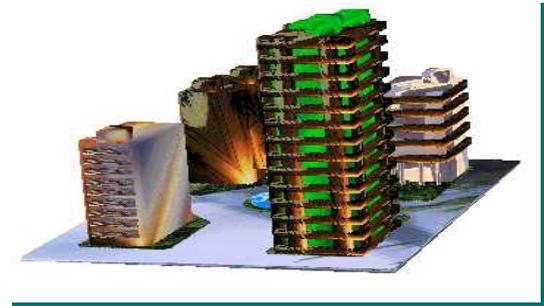
- **Explaining manufacturing and nonmanufacturing costs and how they are reported in the financial statements**
- **Computing the cost of providing a service or manufacturing a product**
- **Determining the behavior of costs and expenses as activity levels change**
- **Analyzing cost-volume profit relationships 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	Primary Users of Reports	Managerial Accounting
<ul style="list-style-type: none"> <li>External users: stockholders, creditors, and regulators.</li> <li>Financial statements.</li> <li>Quarterly and annually.</li> </ul>	<b>Types and Frequency of Reports</b>	<ul style="list-style-type: none"> <li>Internal users: officers and managers.</li> <li>Internal reports.</li> <li>As frequently as needed.</li> </ul>
<ul style="list-style-type: none"> <li>General-purpose.</li> </ul>	<b>Purpose of Reports</b>	<ul style="list-style-type: none"> <li>Special-purpose for specific decisions.</li> </ul>
<ul style="list-style-type: none"> <li>Pertains to business as a whole.</li> <li>Highly aggregated (condensed).</li> <li>Limited to double-entry accounting and cost data.</li> <li>Generally accepted accounting principles.</li> </ul>	<b>Content of Reports</b>	<ul style="list-style-type: none"> <li>Pertains to subunits of the business.</li> <li>Very detailed.</li> <li>Extends beyond double-entry accounting to any relevant data.</li> <li>Standard is relevance to decisions.</li> </ul>
<ul style="list-style-type: none"> <li>Audit by CPA.</li> </ul>	<b>Verification Process</b>	<ul style="list-style-type: none"> <li>No independent audits.</li> </ul>



# 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

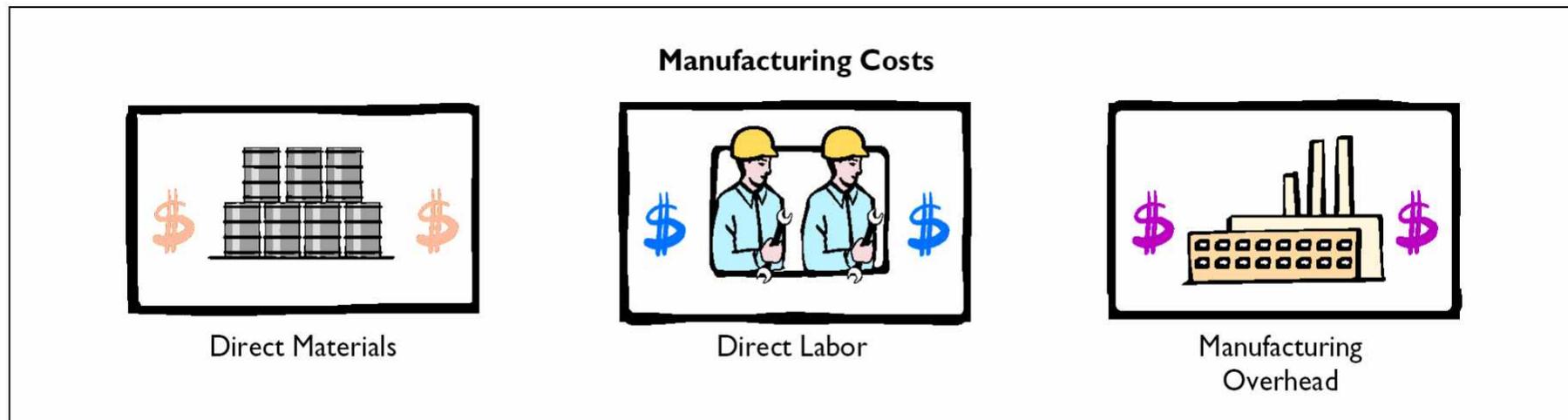
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## Managerial accounting:

- 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

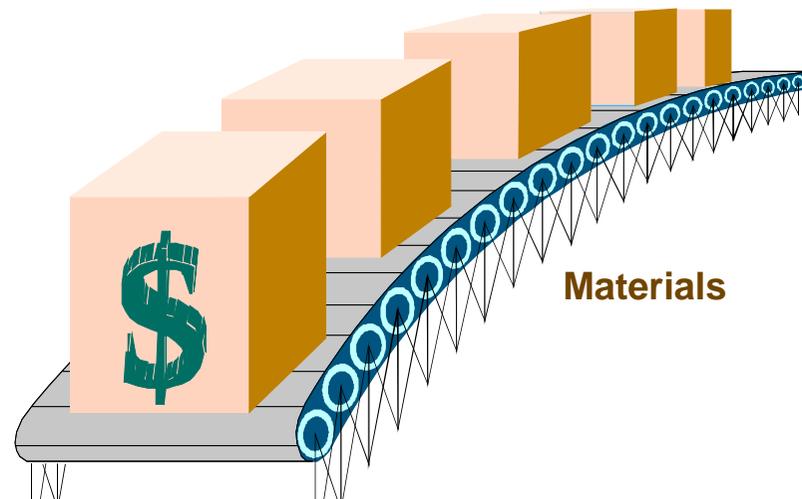


# MANUFACTURING COSTS

## DIRECT MATERIALS

### 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

**Manufacturing Costs**



## Period Costs

**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

<b>Cost of goods sold</b>	
<b>Merchandise inventory, January 1</b>	<b>\$ 70,000</b>
<b>Cost of goods purchased</b>	<b>650,000</b>
<b>Cost of goods available for sale</b>	<b>720,000</b>
<b>Merchandise inventory, December 31</b>	<b>400,000</b>
<b>Cost of goods sold</b>	<b>\$ 320,000</b>

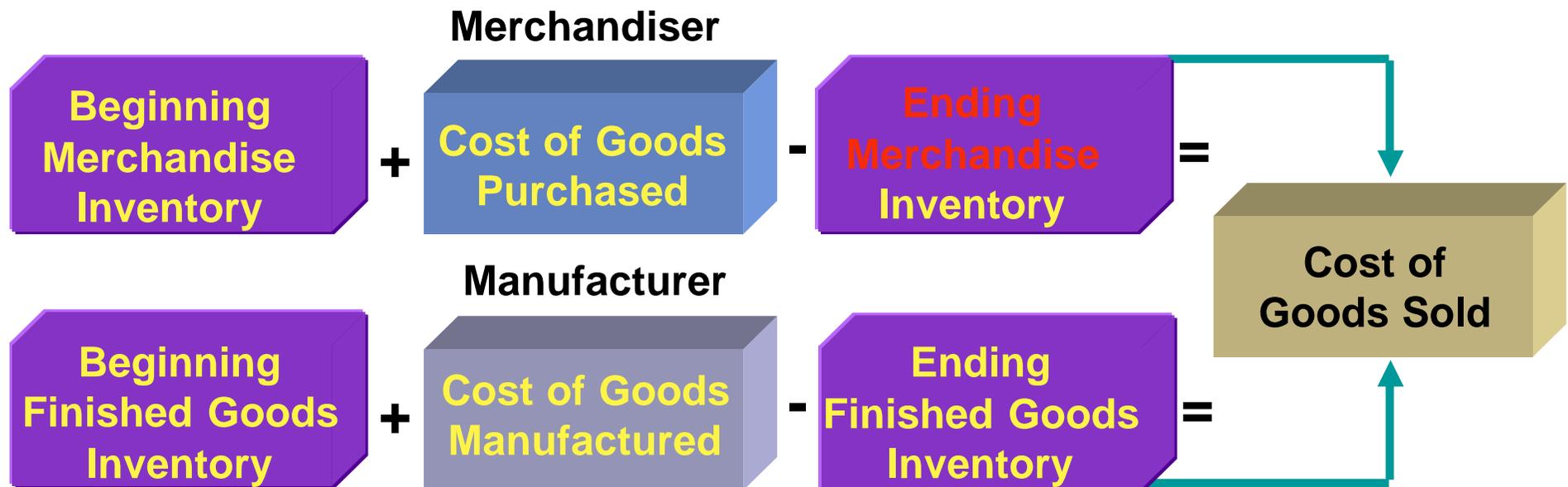
# COST OF GOODS SOLD SECTION OF A MANUFACTURING COMPANY

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	
<b>Finished goods inventory, January 1</b>	<b>\$ 90,000</b>
<b>Cost of goods manufactured</b>	<b>370,000</b>
Cost of goods available for sale	<u>460,000</u>
<b>Finished goods inventory, December 31</b>	<b>80,000</b>
Cost of goods sold	<u><u>\$ 380,000</u></u>

# COST OF GOODS SOLD COMPONENTS



# 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

<b>Work in process, January 1</b>		<b>\$ 18,400</b>
<b>Direct materials</b>		
Raw materials inventory, January 1	\$ 16,700	
Raw materials purchases	152,500	
Total raw materials available for use	<u>169,200</u>	
Less: Raw materials inventory, Dec. 31	<u>22,800</u>	
Direct materials used		\$ 146,400
<b>Direct labor</b>		175,600
<b>Manufacturing overhead</b>		
Indirect labor	14,300	
Factory repairs	12,600	
Factory utilities	10,100	
Factory depreciation	9,440	
Factory insurance	<u>8,360</u>	
Total manufacturing overhead		<u>54,800</u>
<b>Total manufacturing costs</b>		<b>376,800</b>
Total cost of work in process		<u>395,200</u>
<b>Less: Work in process, December 31</b>		<b>25,200</b>
<b>Cost of goods manufactured</b>		<b><u><u>\$ 370,000</u></u></b>

# Review

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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

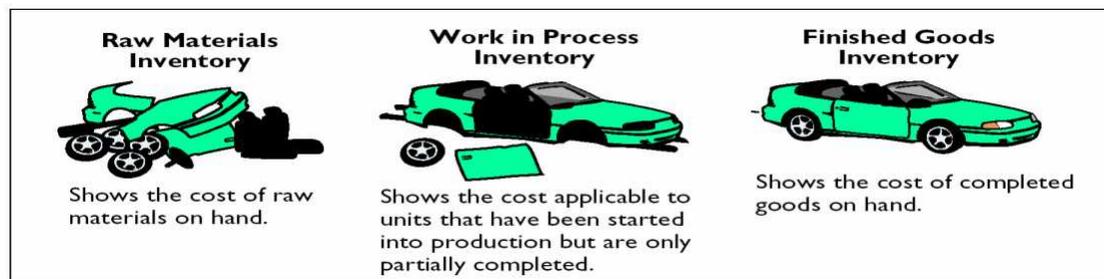
#### STUDY OBJECTIVE 7

## Merchandiser

- **One inventory category**

## Manufacturer

- **Three inventory accounts:**
  - **Finished Goods Inventory**
  - **Work in Process Inventory**
  - **Raw Materials Inventory**

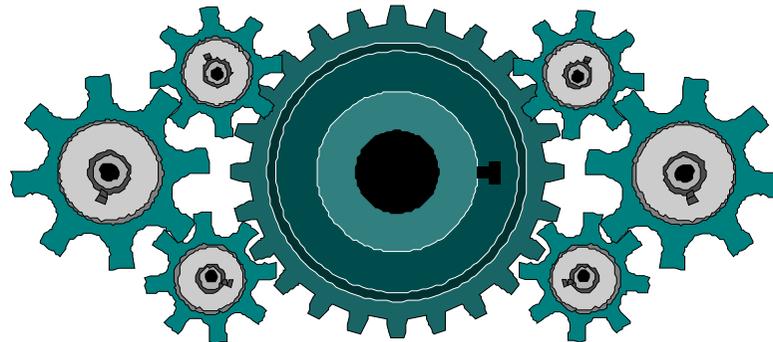


# CURRENT ASSETS SECTIONS OF MERCHANDISING AND MANUFACTURING BALANCE SHEETS

## Merchandising Company Balance Sheet December 31, 2005

### Current assets

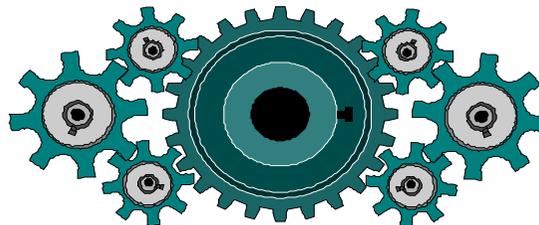
Cash	\$ 100,000
Receivables (net)	210,000
<b>Merchandise inventory</b>	<b>400,000</b>
Prepaid expenses	22,000
<b>Total current assets</b>	<b><u><u>\$ 732,000</u></u></b>



# CURRENT ASSETS SECTIONS OF MERCHANDISING AND MANUFACTURING BALANCE SHEETS

## Manufacturing Company Balance Sheet December 31, 2005

<b>Current assets</b>		
Cash		<b>\$ 180,000</b>
Receivables (net)		<b>210,000</b>
<b>Inventories:</b>		
<b>Finished goods</b>	<b>\$ 80,000</b>	
<b>Work in process</b>	<b>25,200</b>	
<b>Raw materials</b>	<b>22,800</b>	<b>128,000</b>
Prepaid expenses		<b>18,000</b>
<b>Total current assets</b>		<b>\$ 536,000</b>



# 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:

<b>Cost Number and Item</b>	<b>Manufacturing Cost</b>
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
<b>Total manufacturing costs</b>	<b>\$ 309,000</b>

# 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**



# Accounting Principles

7<sup>th</sup> 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.**

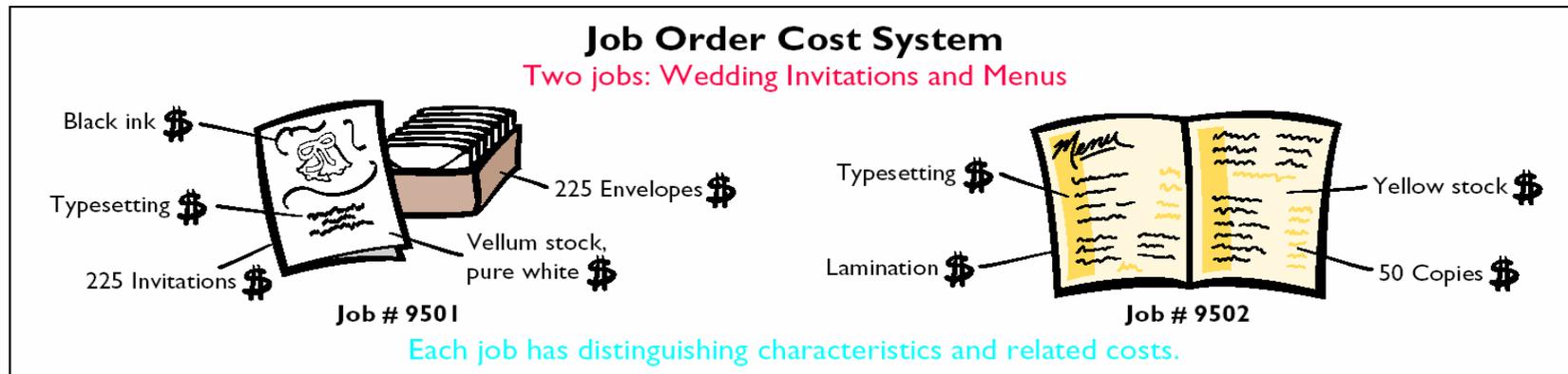
# COST ACCOUNTING SYSTEMS

- **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.**

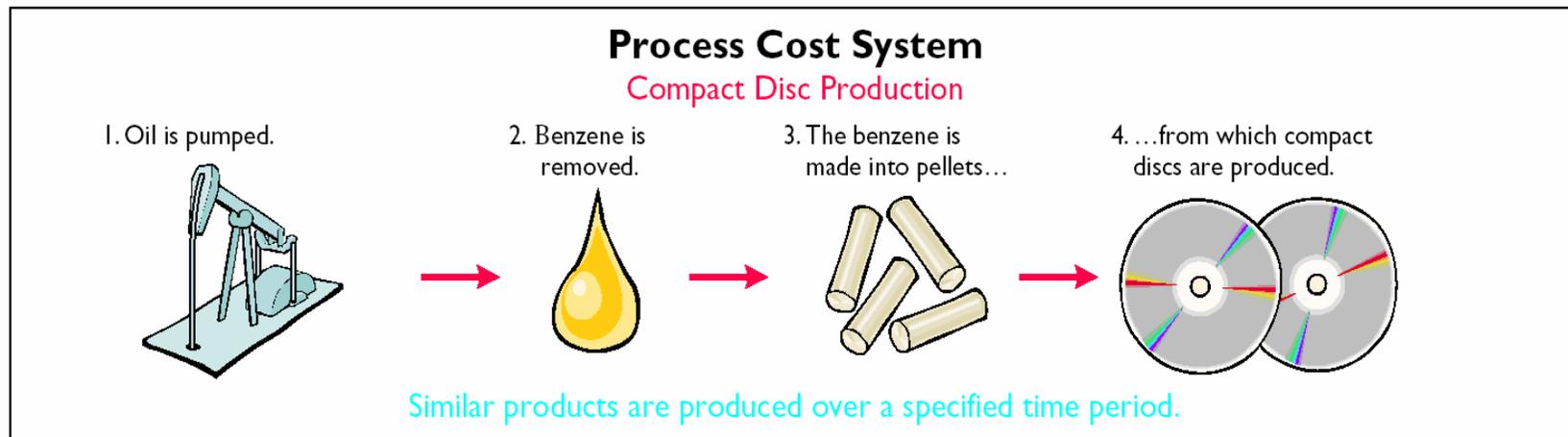
# Job Order Cost System



# 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:

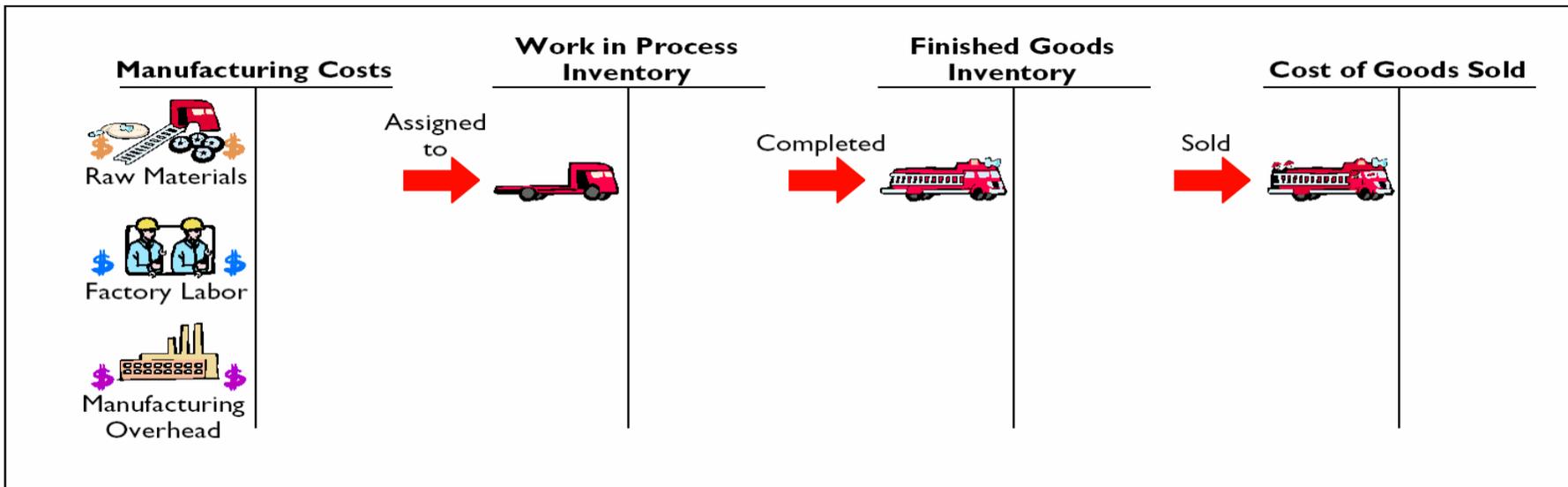
- a. **product costs.**
- b. future costs.
- c. manufacturing processes.
- d. managerial accounting decisions.

# JOB ORDER COST FLOW

## STUDY OBJECTIVE 2

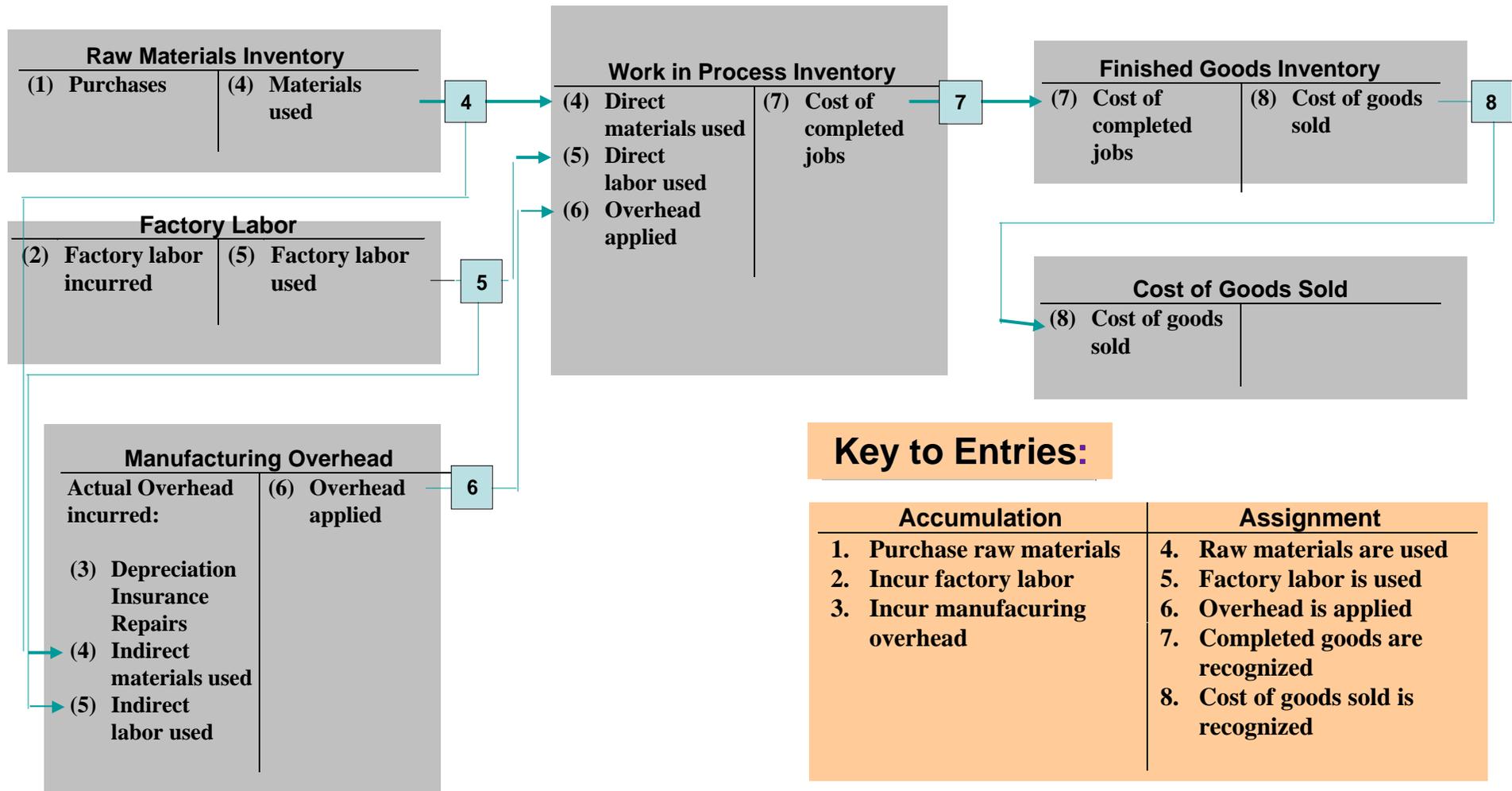
- **The flow of costs in job order cost accounting parallels the physical flow of the materials as they are converted into finished goods.**
- **There are 2 major steps in the flow of costs:**
  - 1) accumulating the manufacturing costs incurred**
  - 2) assigning the accumulated costs to the work done**

# FLOW OF COSTS IN JOB ORDER COST ACCOUNTING



# JOB ORDER COST ACCOUNTING SYSTEM

## Job Order Cost Accounting



### 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

# 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) <b>Factory Labor</b> <b>Factory Wages Payable</b> <b>Employer Payroll Taxes Payable</b> (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: center;">(3)</p> <b>Manufacturing Overhead</b> <b>Utilities Payable</b> <b>Prepaid Insurance</b> <b>Accounts Payable (for repairs)</b> <b>Accumulated Depreciation</b> <b>Property Taxes Payable</b> (To record overhead costs)	13,800	4,800 2,000 2,600 3,000 1,400



# 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:	_____	

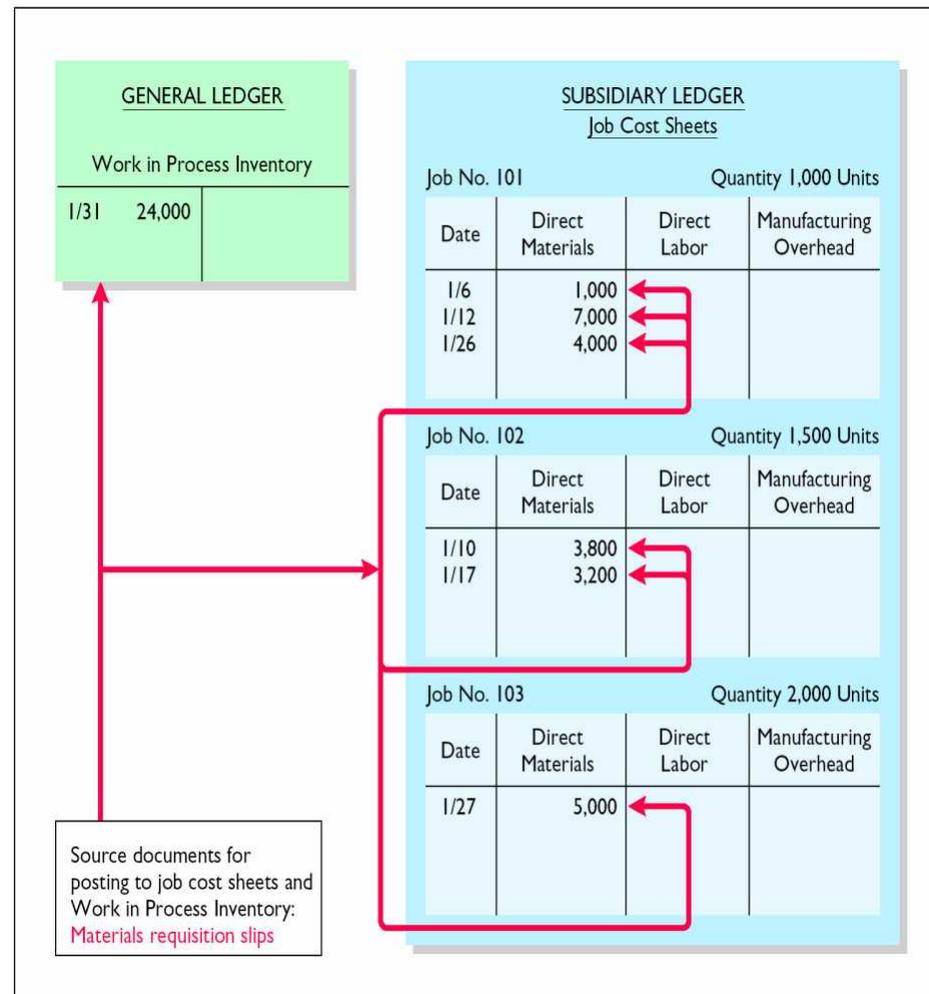
# JOB ORDER COST FLOW

- 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	(4) 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: <u>1/6/05</u>		
Employee	<u>John Nash</u>	Employee No.	<u>124</u>	
Charge to:	<u>Work in Process</u>	Job No.	<u>101</u>	
Time			Hourly	Total
Start	Stop	Total Hours	Rate	Cost
<u>0800</u>	<u>1200</u>	<u>4</u>	<u>10.00</u>	<u>40.00</u>
Approved by	<u>Bob Kadler</u>	Costed by	<u>M.Chen</u>	

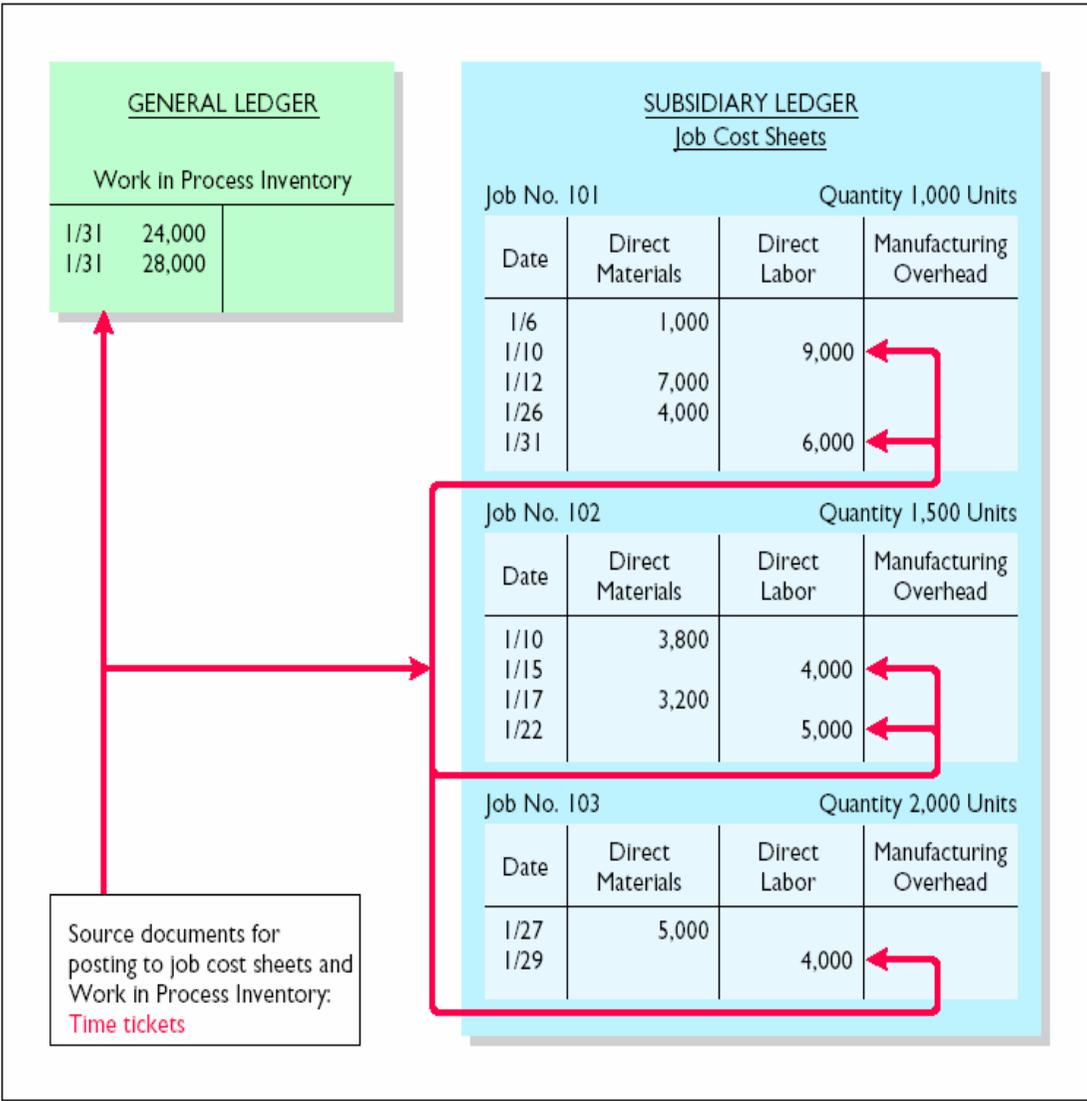
# JOB ORDER COST FLOW

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.**



# 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.**

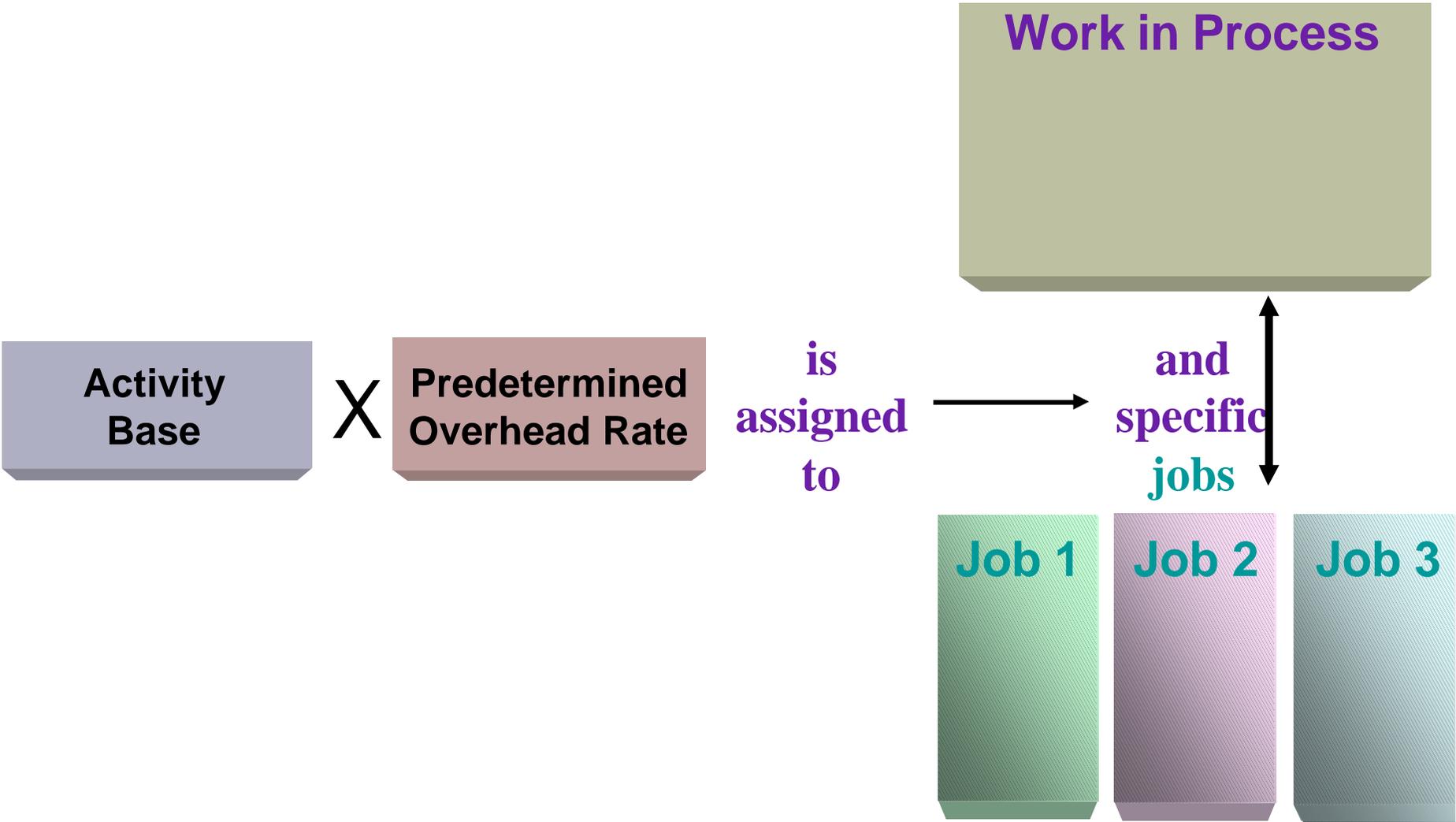
$$\begin{array}{|c|} \hline \text{Estimated Annual} \\ \text{Overhead Costs} \\ \hline \end{array} \div \begin{array}{|c|} \hline \text{Expected Annual} \\ \text{Operating Activity} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Predetermined} \\ \text{Overhead Rate} \\ \hline \end{array}$$

# 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	(6) Work in Process Inventory Manufacturing Overhead (To assign overhead to jobs)	22,400	22,400

# USING PREDETERMINED OVERHEAD RATES

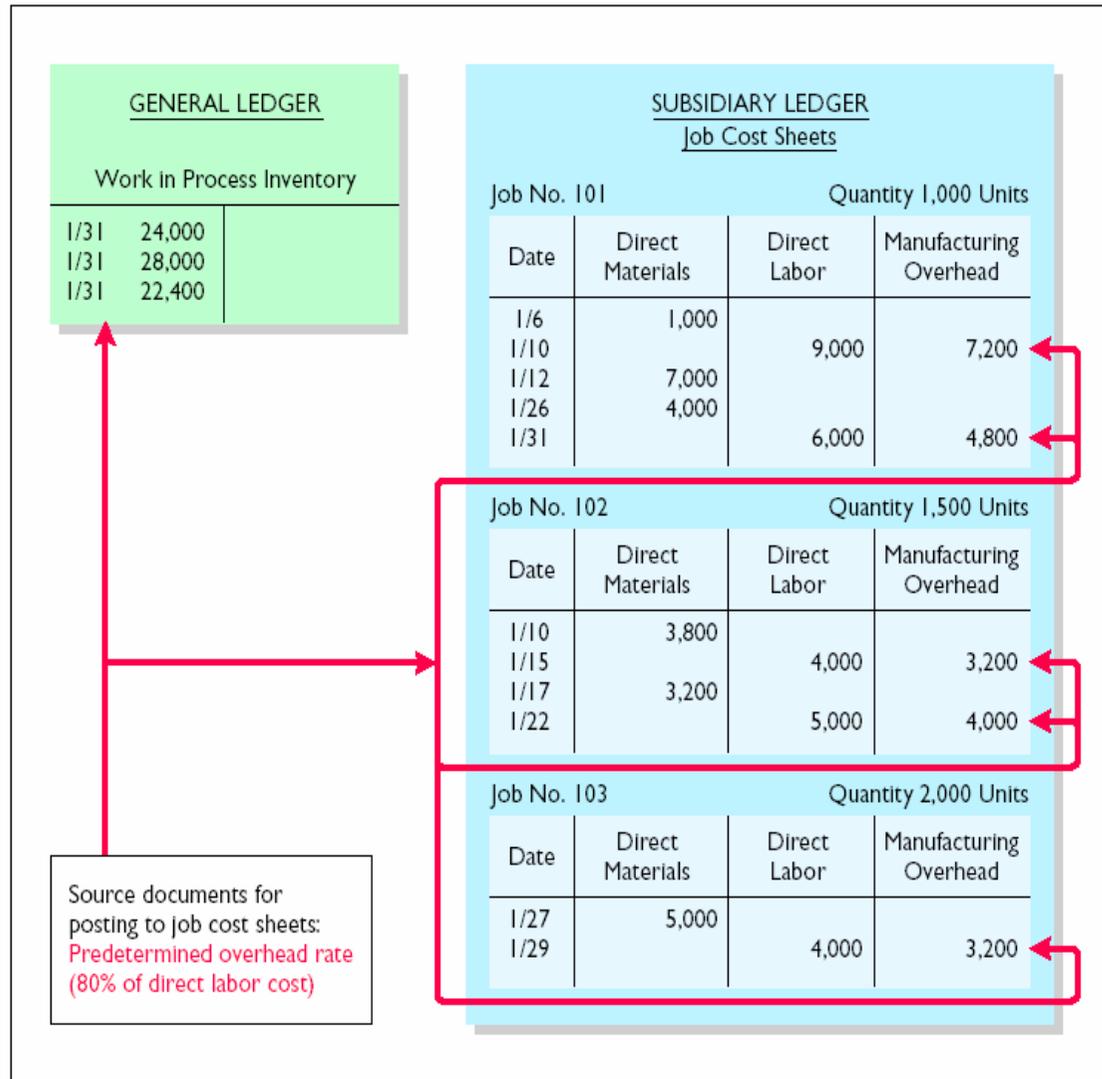


# JOB COST SHEETS

## MANUFACTURING OVERHEAD APPLIED

**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
	<hr/> 74,400		<hr/> \$ 74,400



# 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**

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

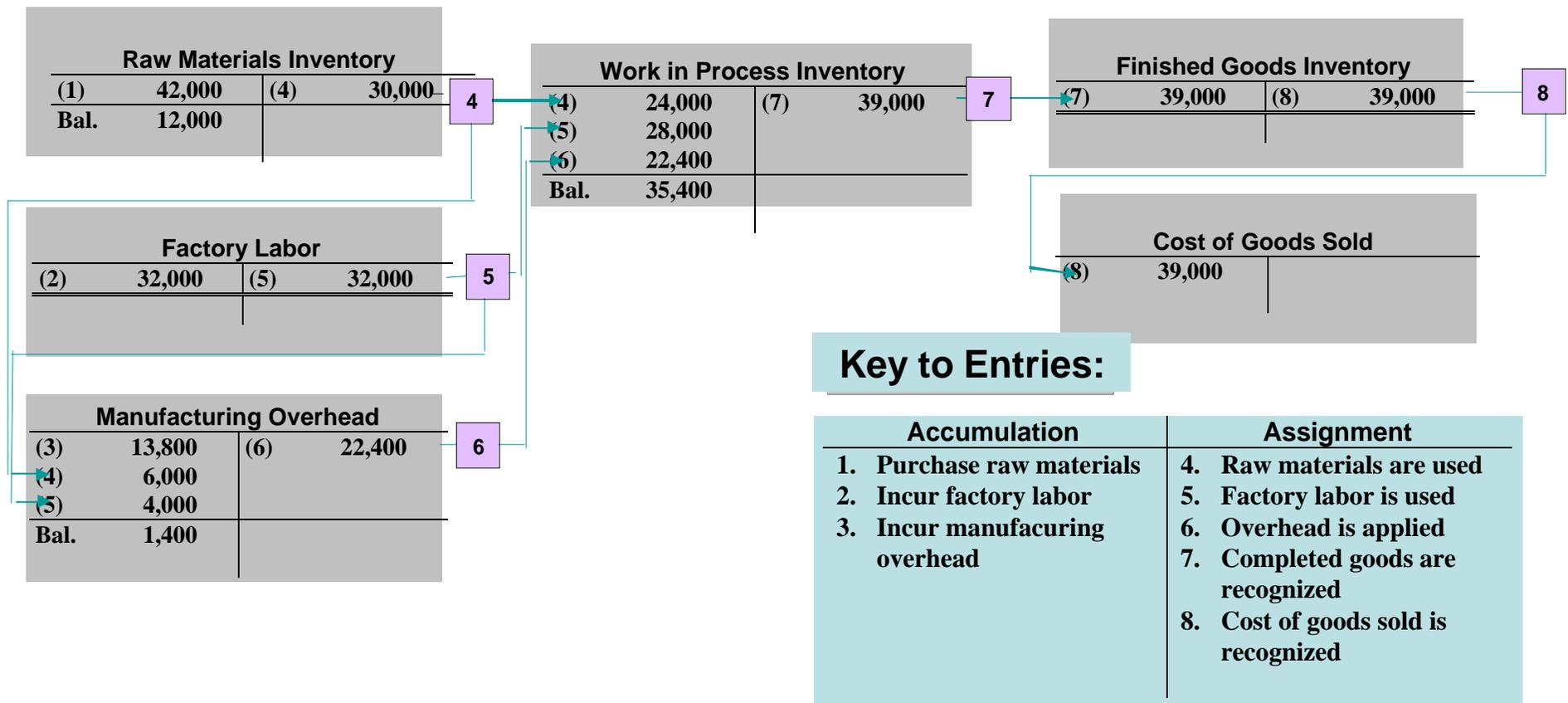
# ASSIGNING COSTS TO COST OF GOODS SOLD

- 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	Debit	Credit
	(8)		
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

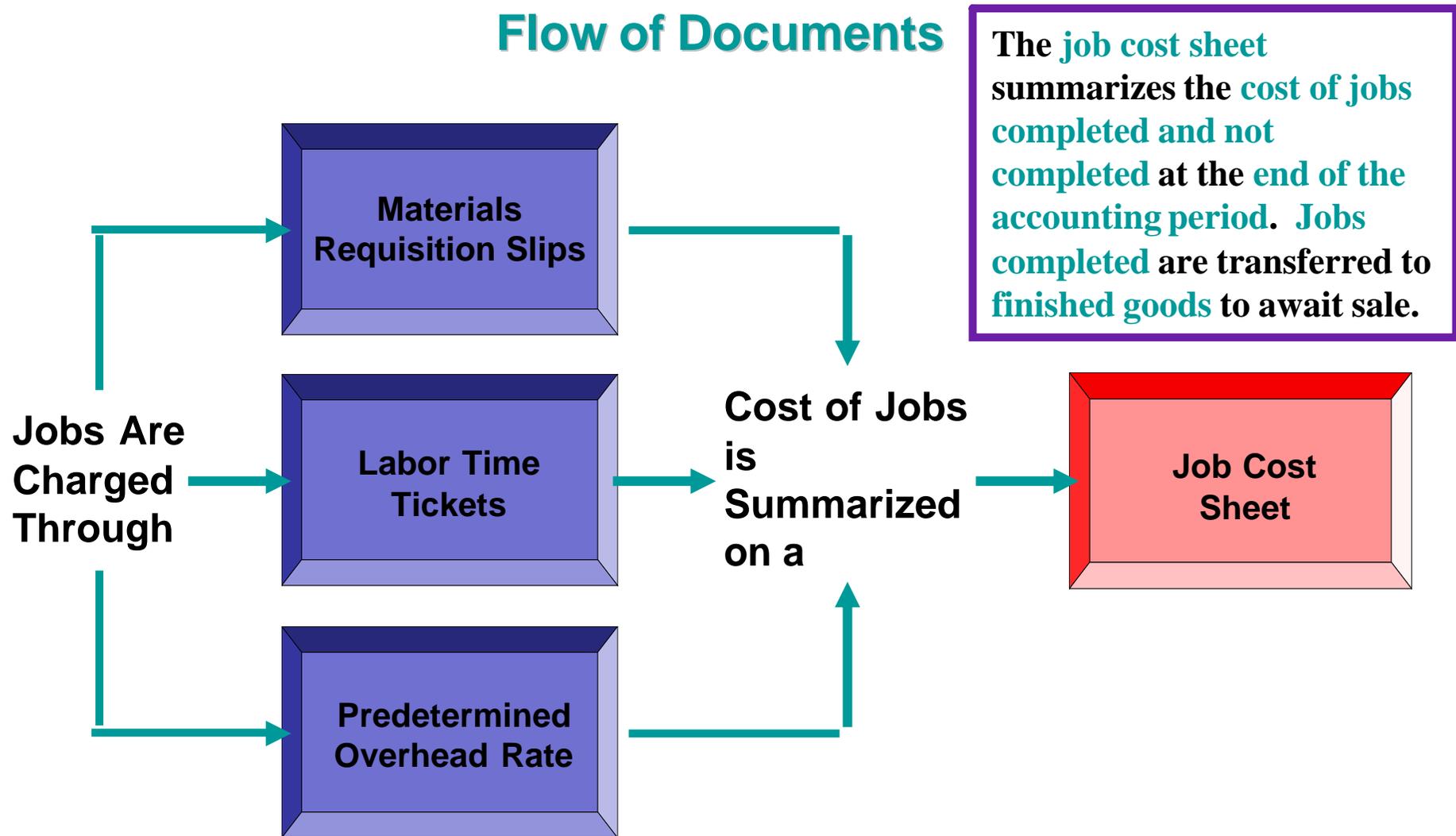
# JOB ORDER COST SYSTEM FLOW OF COSTS

## Flow of Costs



# 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		\$ -0-
Direct materials used	\$ 24,000	
Direct labor	28,000	
<b>Manufacturing overhead applied</b>	<u>22,400</u>	
Total manufacturing costs		<u>74,400</u>
Total cost of work in process		74,400
Less: Work in process inventory, January 31		<u>35,400</u>
<b>Cost of goods manufactured</b>		<u><u>\$ 39,000</u></u>

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**

<b>Sales</b>		<b>\$ 50,000</b>
<b>Less: Cost of goods sold</b>		
<b>Finished goods inventory, January 1</b>	<b>\$ -0-</b>	
<b>Cost of goods manufactured</b>	<b><u>39,000</u></b>	
<b>Cost of goods available for sale</b>	<b>39,000</b>	
<b>Finished goods inventory, January 31</b>	<b><u>-0-</u></b>	
<b>Cost of goods sold</b>		<b><u>39,000</u></b>
<b>Gross profit</b>		<b><u><u>\$ 11,000</u></u></b>

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



## Manufacturing Overhead

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.



Accounting Principles, 7<sup>th</sup> Edition

Weygandt • Kieso • Kimmel

## Chapter 22

# Process Cost Accounting

Prepared by Naomi Karolinski  
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and

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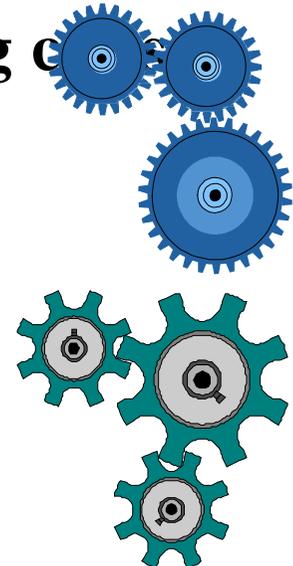
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# CHAPTER 22

## 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.**

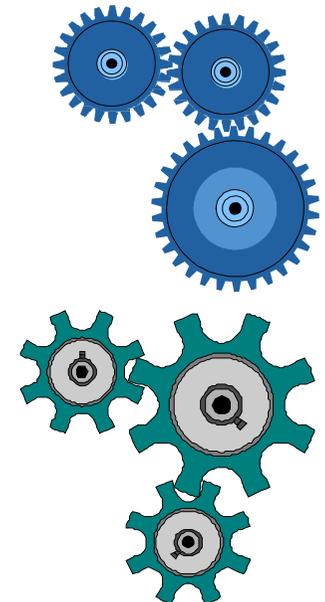


# CHAPTER 22

## 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

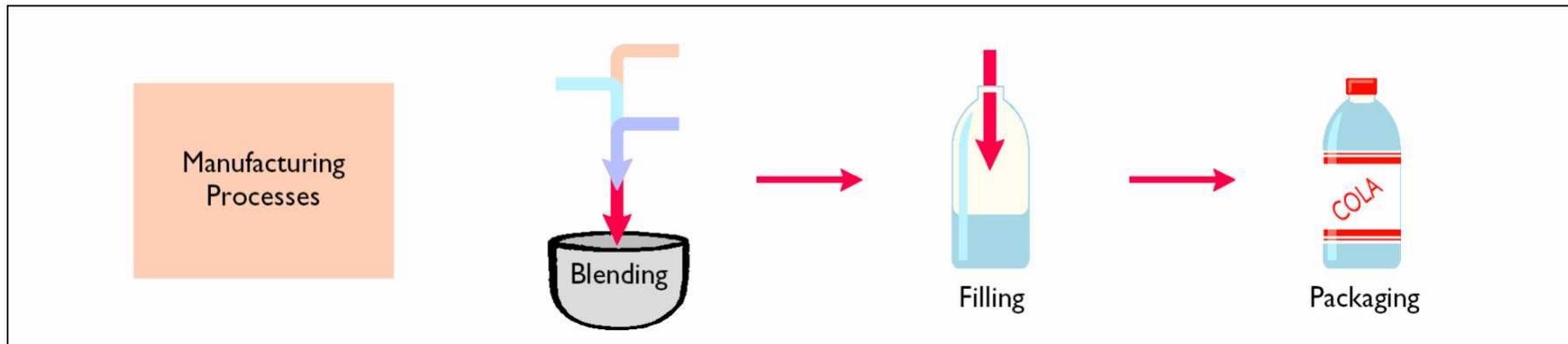
## STUDY OBJECTIVE 1

### **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:**

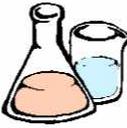
- 1. Manufacturing cost elements**
- 2. Accumulation of the costs of materials, labor, and overhead**
- 3. Flow of costs**
  - methods of assigning costs differ significantly**

# 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

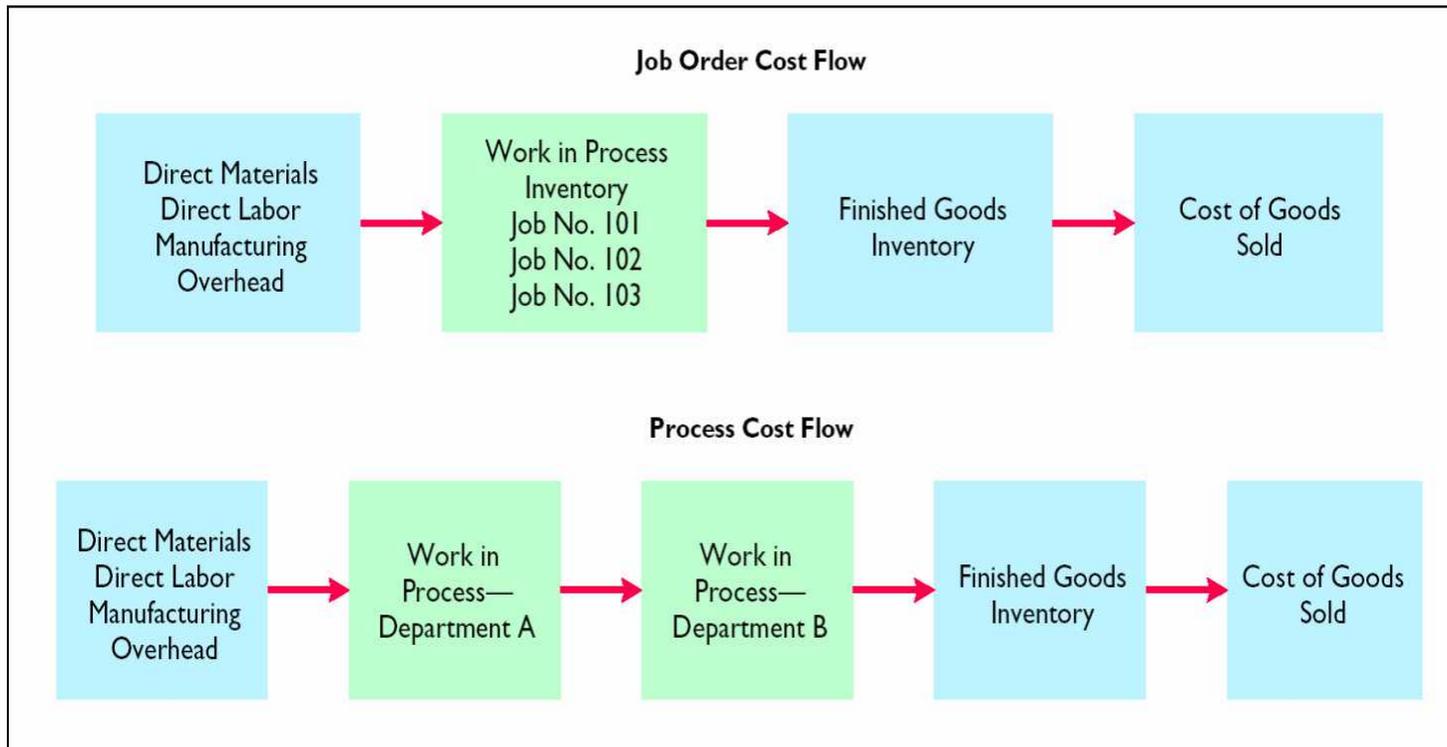
Process Cost System Company	Product	Job Order Cost System Company	Product
Coca-Cola, PepsiCo	Soft drinks 	Young & Rubicam, J. Walter Thompson	Advertising 
ExxonMobil, Shell Oil	Oil 	Walt Disney, Warner Brothers	Motion pictures 
Intel, Advanced Micro Devices	Computer chips 	Center Ice Consultants, Ice 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:

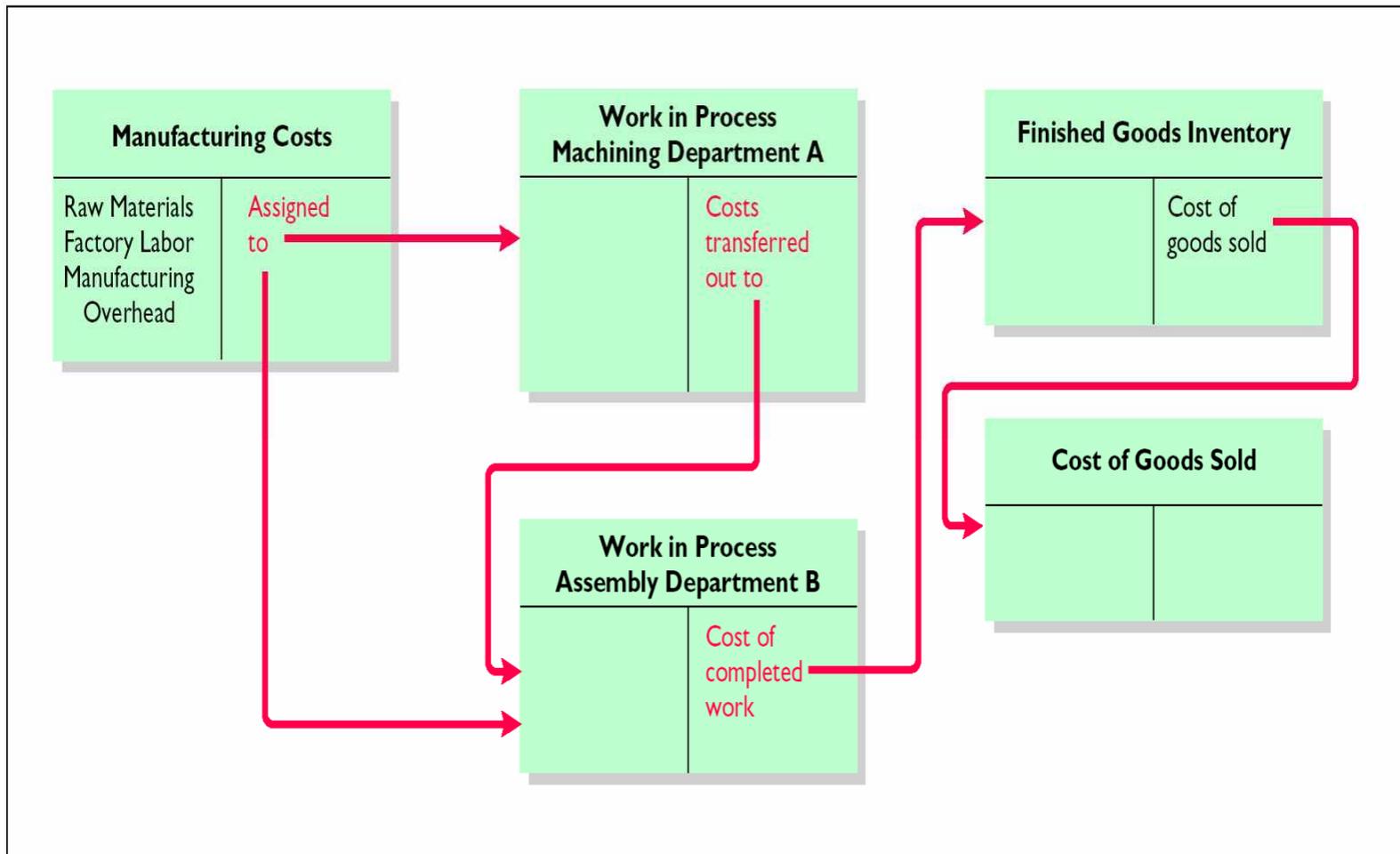
Feature	Job Order Cost Accounting	Process Cost Accounting
• Work in process accounts	One for each job	One for each process
• Summary of manufacturing costs	Job cost sheets	Production cost reports
• Determination of total manufacturing costs	Each job	Each period
• Unit cost computation	Cost of each job ÷ 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	XXXX	
	Work in Process – Assembly	XXXX	
	Raw Materials Inventory		XXXX
	(To record materials used)		

# 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	800,000			
Total Units	900,000			
Units transferred out	700,000			
Work in process, June 30	200,000	100%	60%	
Total Units	900,000			

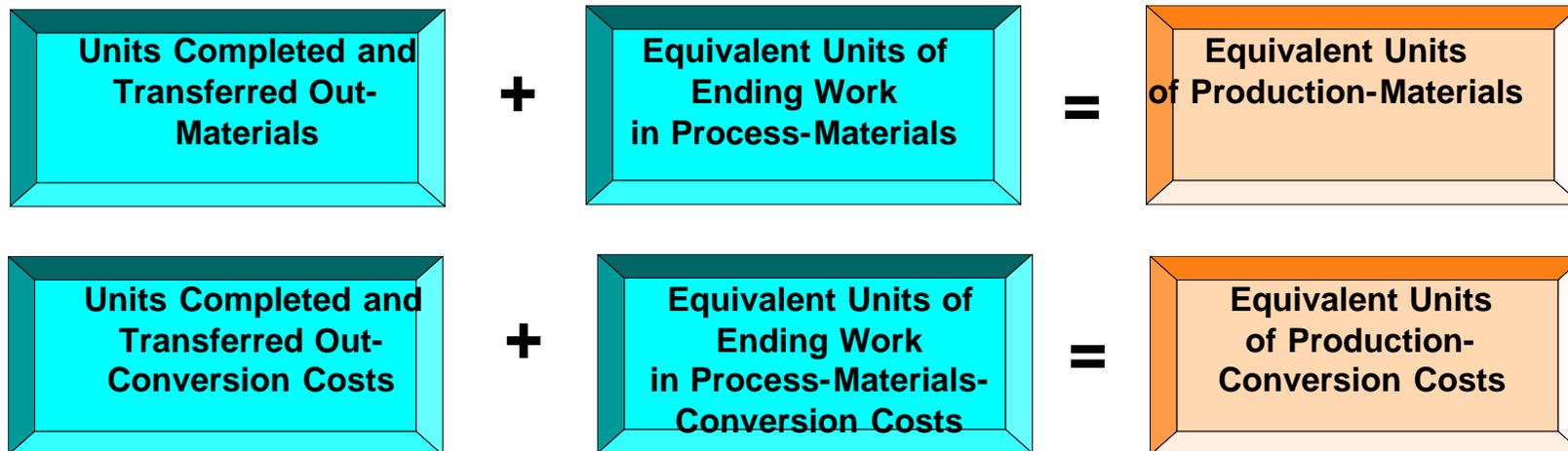
**Assume the beginning work in process is 100% complete as to materials cost and 70% complete as to conversion costs. The ending work in process is 100% complete as to materials cost and 60% complete as to conversion cost.**

# 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>	

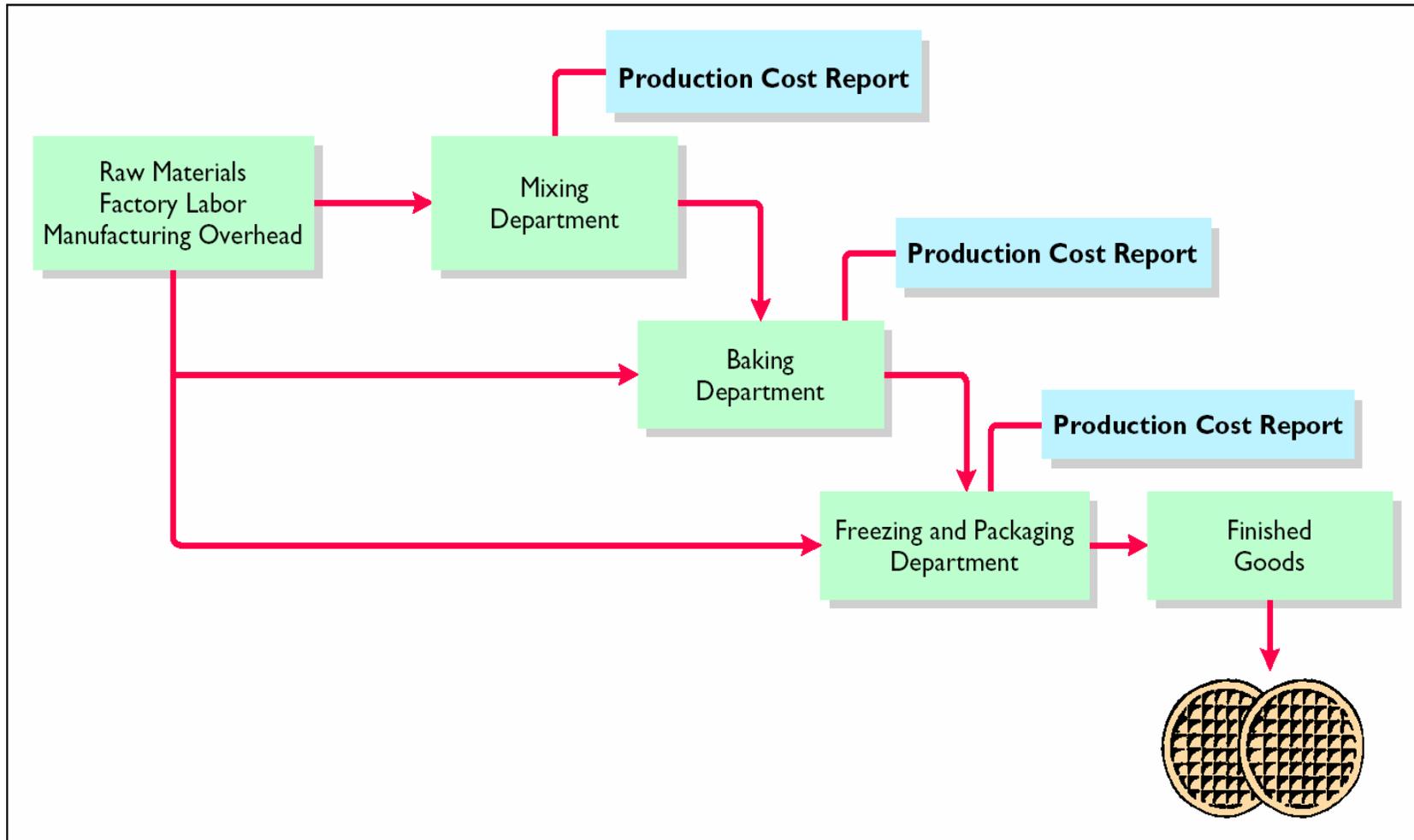
**In computing equivalent units, the beginning work in process is not part of the equivalent units of production formula. The units transferred out to the Baking Department are fully complete as to both materials and conversion costs. The ending work in process is fully complete as to materials, but 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

<b>Mixing Department</b>			
<b>Units :</b>			
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			
<b>Costs :</b>			
Work in process, June 1			
Direct materials: 100% complete			\$50,000
Conversion Costs: 70% complete			\$35,000
Cost of work in process, June 1			\$85,000
Costs incurred during production in June			
Direct Materials			\$400,000
Conversion Costs			\$170,000
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.**

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>
<b>Total equivalent Units</b>	<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				
					Equivalent Units	
		Physical Units	Materials	Conversion Costs		
<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

<b>Mixing Department</b>					
<b>Production Cost Report</b>					
<b>For the Month Ended June 30, 2005</b>					
<b>Equivalent Units</b>					
<b>Costs</b>		<b>Materials</b>	<b>Conversion Costs</b>		<b>Total</b>
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

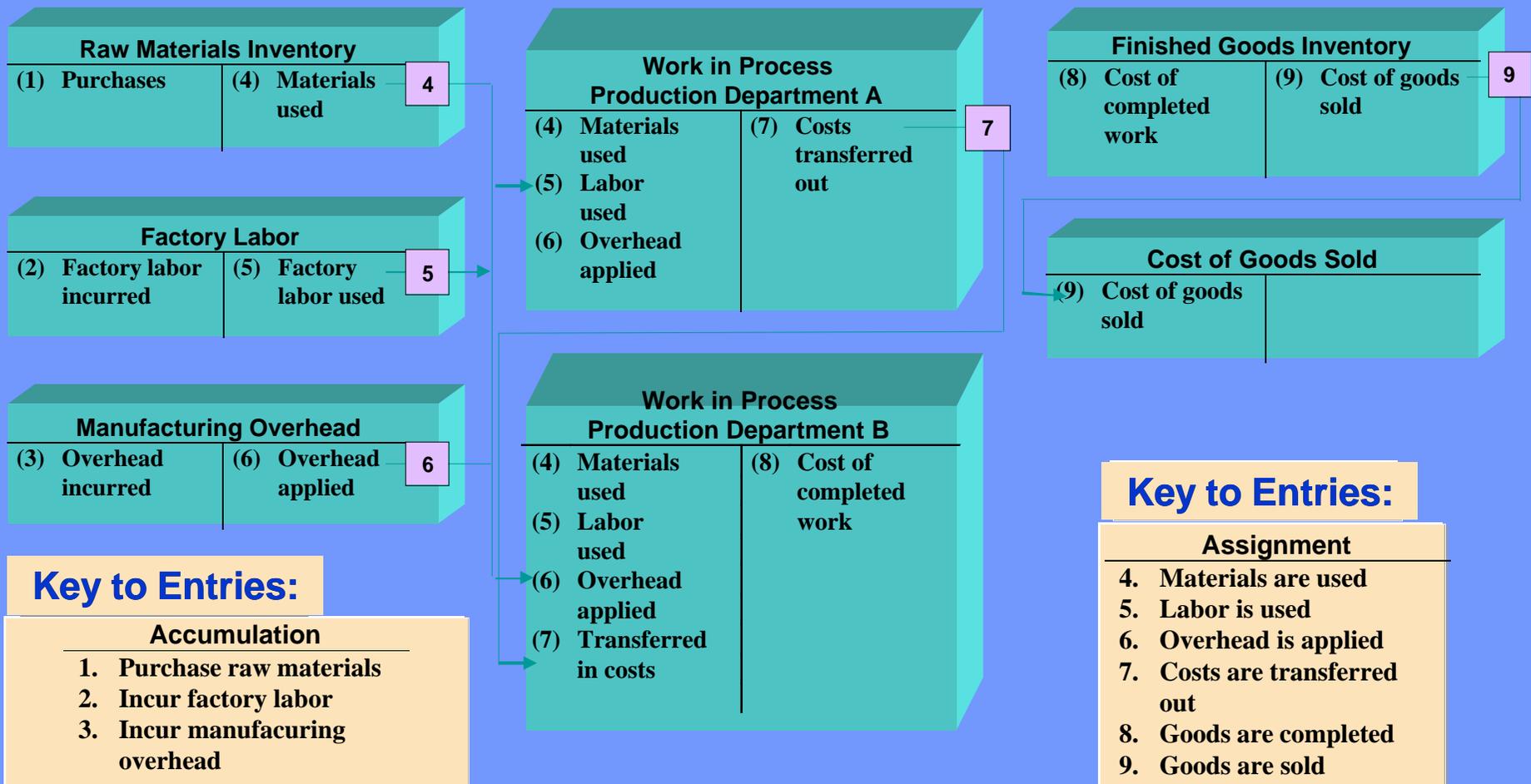
# COST RECONCILIATION SCHEDULE MIXING DEPARTMENT

**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.**

<b>Mixing Department</b>			
<b>Cost Reconciliation Schedule</b>			
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
<b>Total costs</b>			<b>\$655,000</b>

# 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.**

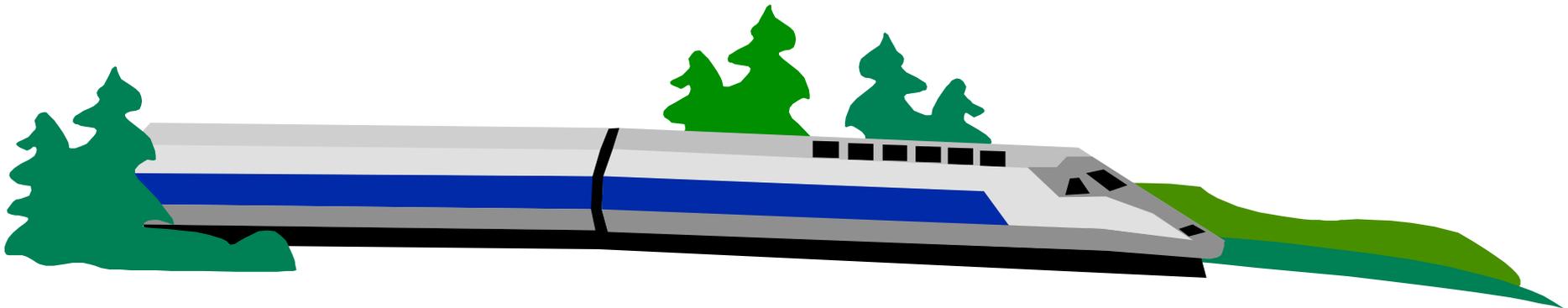
- **There are 3 important elements:**

- **Dependable suppliers**
- **Multi-skilled work force**
- **A total quality control system**

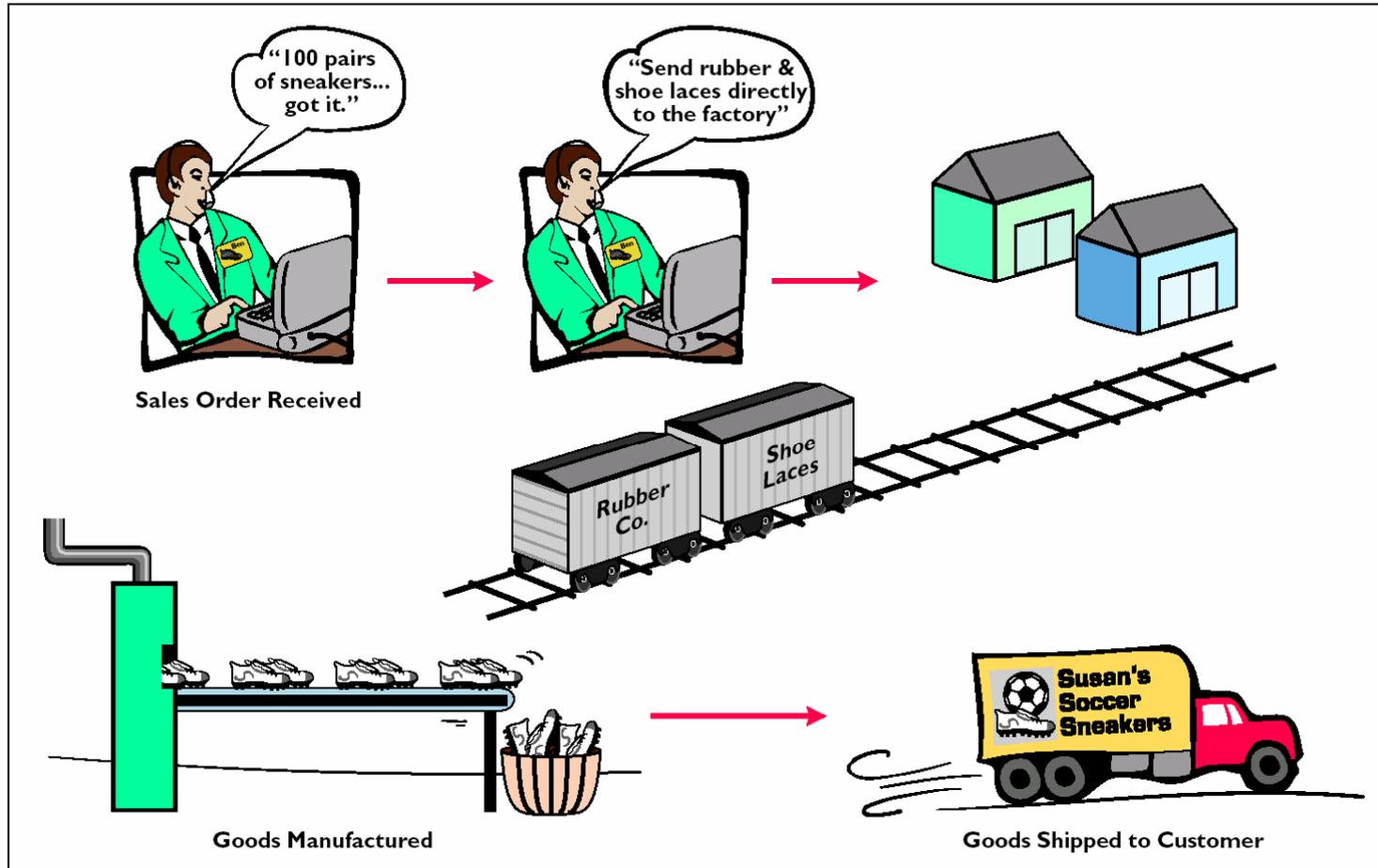
# CONTEMPORARY DEVELOPMENTS JUST-IN-TIME PROCESSING

## 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.

<b>Activity</b>	<b>Cost Driver</b>
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



Accounting Principles, 7<sup>th</sup> Edition

Weygandt • Kieso • Kimmel

## Chapter 23

# Cost-Volume-Profit Relationships

Prepared by Naomi Karolinski  
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Marianne Bradford  
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# 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.**

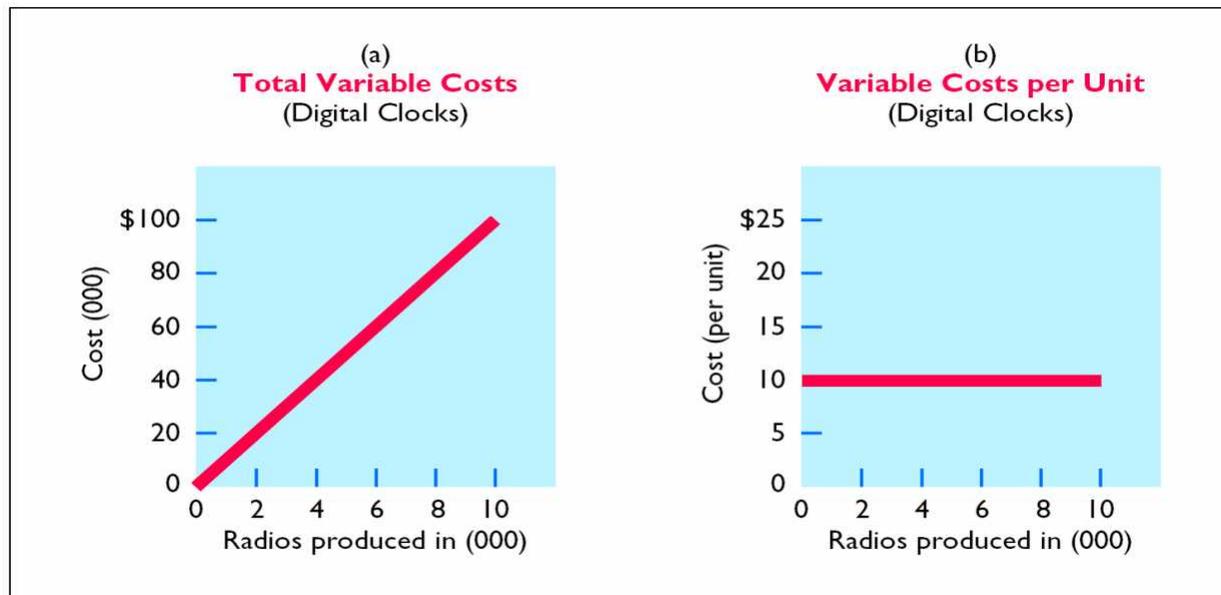
# COST BEHAVIOR ANALYSIS

- **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

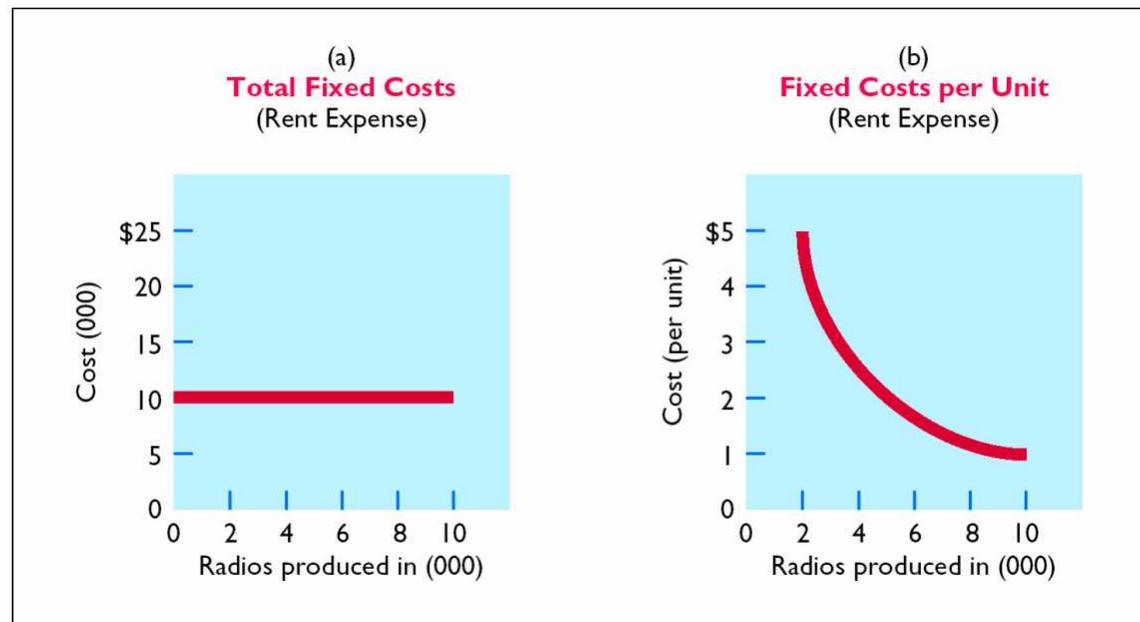
## Study Objective 1

- **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

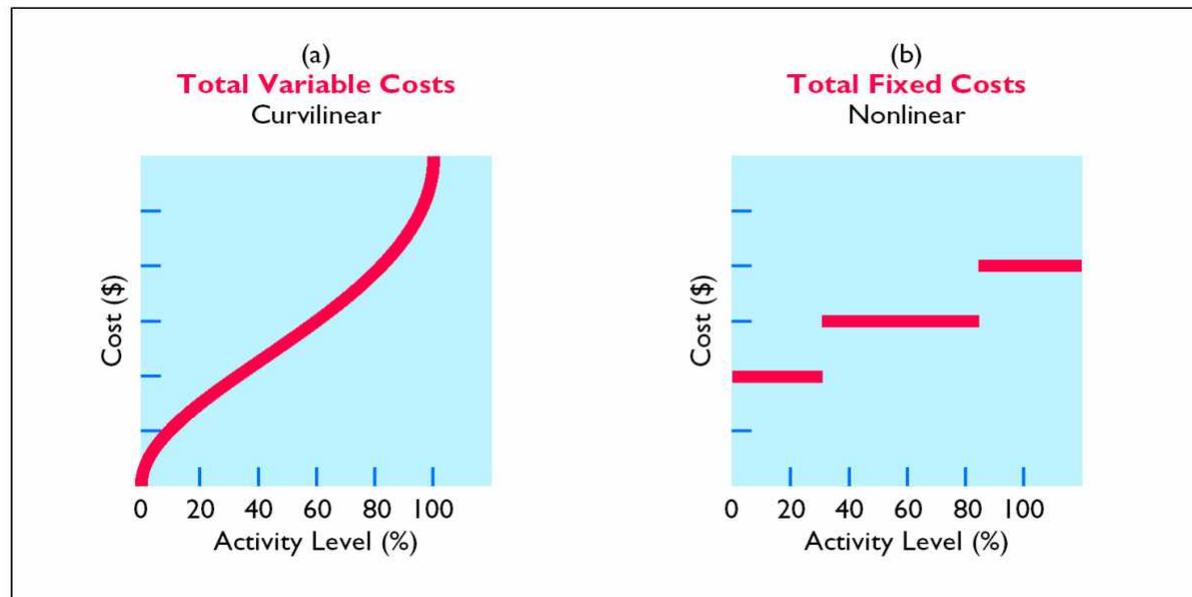
- **Fixed costs** are costs that remain the same in total regardless of changes in the activity level. Since fixed costs remain constant in total as activity changes, therefore **fixed costs per unit vary inversely with activity**.
- Damon Company leases all of its productive facilities at a cost of **\$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

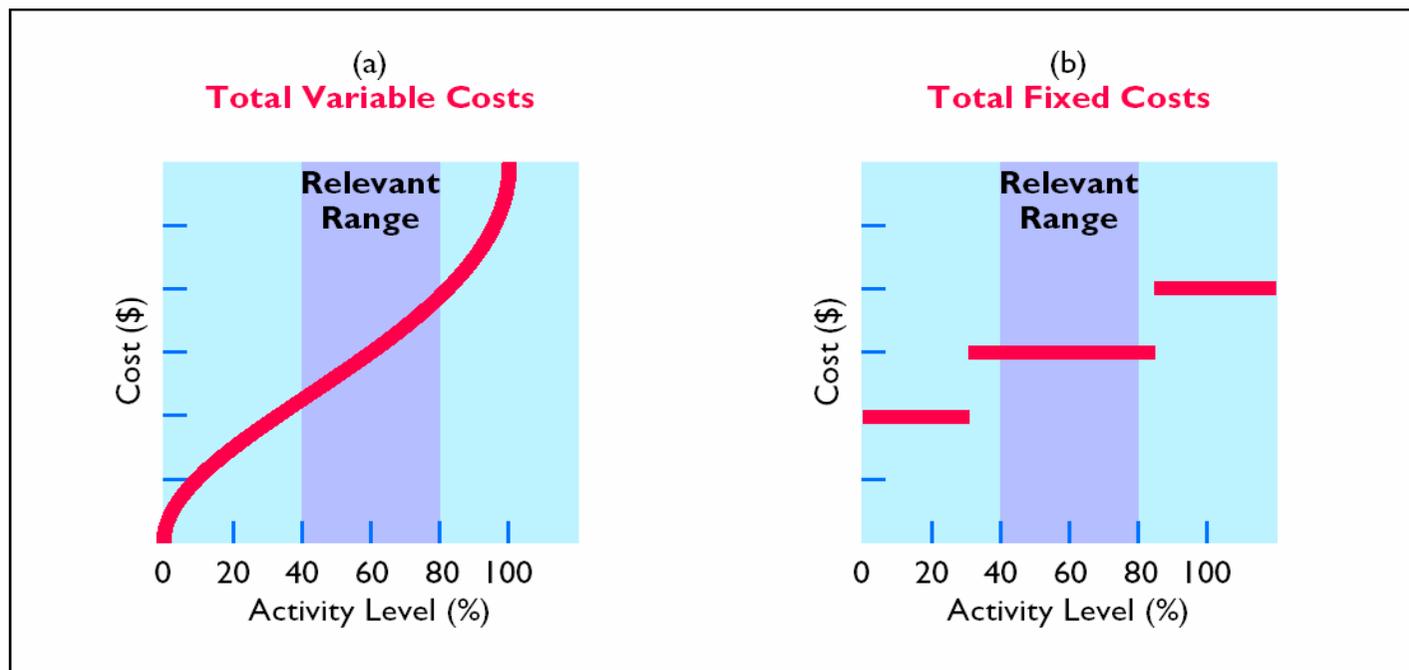
## Study Objective 2

- 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

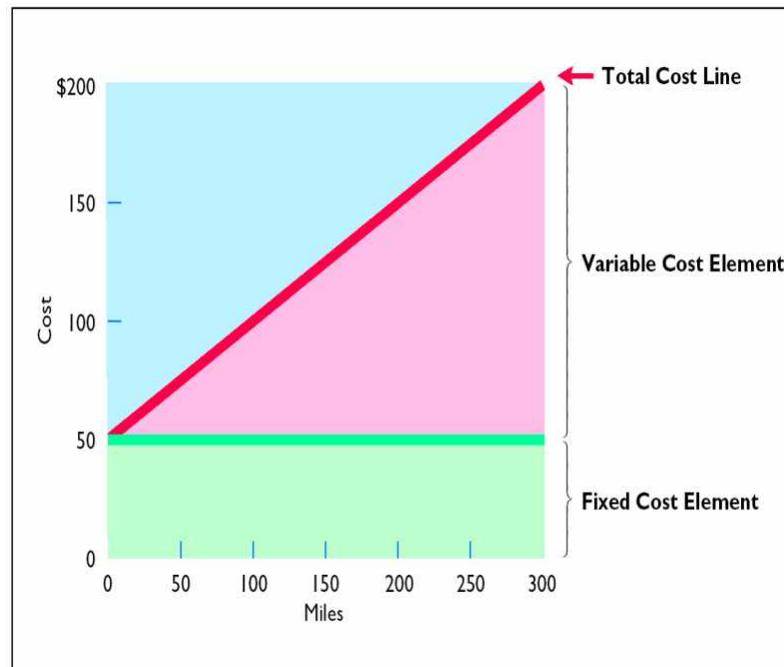
The **relevant range** of the activity index is the range over which a company expects to operate during a year. Within this range, a straight-line relationship normally exists for both fixed and variable costs.



# 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:**

	<b>Activity Level</b>	
	<b>High</b>	<b>Low</b>
<b>Total cost</b>	<b>\$ 63,000</b>	<b>\$ 30,000</b>
<b>Less: Variable costs</b>		
<b>50,000 X \$1.10</b>	<b>55,000</b>	
<b>20,000 X \$1.10</b>		<b>22,000</b>
<b>Total fixed costs</b>	<b>\$ 8,000</b>	<b>\$ 8,000</b>

# 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.**

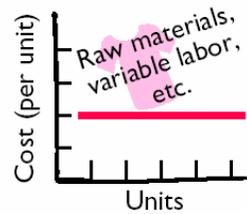
# COMPONENTS OF CVP ANALYSIS



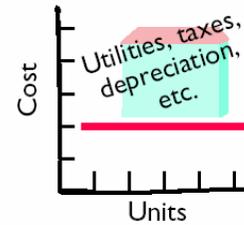
**Volume or level of activity**



**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** ( $1,000 \times \$500$ ) and variable costs are **\$300,000** ( $1,000 \times \$300$ ).
- Thus, **CM** is **\$200,000** computed as follows:

	–		=	
<b>\$500,000</b>	–	<b>\$300,000</b>	=	<b>\$200,000</b>

# 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:

<b>Unit selling price</b>	<b>\$</b>	<b>500</b>
<b>Unit variable costs</b>		<b>300</b>
<b>Total monthly fixed costs</b>		<b>200,000</b>

# 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. 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** ( $\$200,000 \div 40\%$ ).

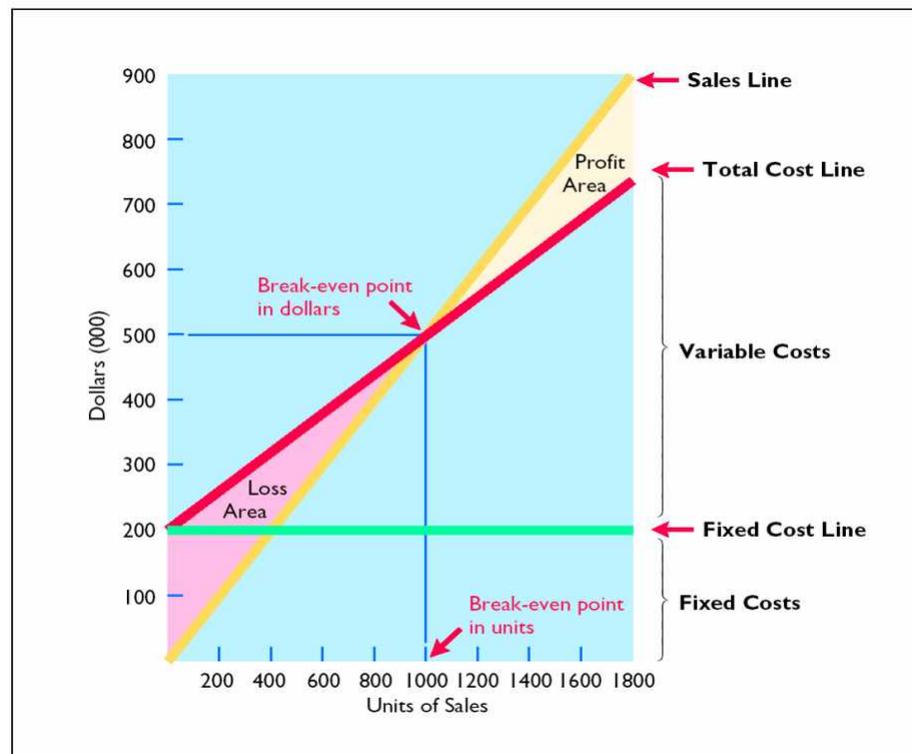
$$\boxed{\text{Fixed Costs}} \div \boxed{\text{Contribution Margin Ratio}} = \boxed{\text{Break-even Point in Dollars}}$$

# 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

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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:**

$$\begin{array}{ccc} \begin{array}{|c|} \hline \text{Margin of Safety} \\ \text{in Dollars} \\ \hline \end{array} & \div & \begin{array}{|c|} \hline \text{Actual (Expected)} \\ \text{Sales} \\ \hline \end{array} & = & \begin{array}{|c|} \hline \text{Margin of Safety} \\ \text{Ratio} \\ \hline \end{array} \\ \$250,000 & \div & \$750,000 & = & 33\% \end{array}$$

# 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** ( $[\$200,000 + \$120,000] \div .40$ ).

The diagram illustrates the formula for required sales. It consists of four rectangular boxes arranged horizontally, connected by mathematical symbols. The first box is orange and contains the text "Required Sales". To its right is an equals sign (=). The second box is cyan and contains "Variable Costs". To its right is a plus sign (+). The third box is cyan and contains "Fixed Costs". To its right is another plus sign (+). The final box is cyan and contains "Target Net Income".

$$\text{Required Sales} = \text{Variable Costs} + \text{Fixed Costs} + \text{Target Net Income}$$

# 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 connected by mathematical symbols. The first box, on the left, is cyan and contains the text "Fixed Costs + Target Net Income". To its right is a division symbol (÷). The second box, also cyan, contains the text "Contribution Margin Ratio". To its right is an equals sign (=). The final box, on the right, 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.**

<b>Unit selling price</b>	<b>\$ 500</b>
<b>Unit variable cost</b>	<b>\$ 300</b>
<b>Total fixed costs</b>	<b>\$200,000</b>
<b>Break-even sales</b>	<b>\$500,000 or 1,000 units</b>

# 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** [ $\$500 - (\$500 \times 10\%)$ ]. 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:

<b>Fixed Costs</b>	<b>÷</b>	<b>Contribution Margin per Unit</b>	<b>=</b>	<b>Break-even Sales</b>
<b>\$200,000</b>	<b>÷</b>	<b>\$150</b>	<b>=</b>	<b>1,333 units (rounded)</b>

# 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 X 30%**)], and **variable cost per unit** is now **\$210** [**\$300** – (**\$300,000 X 30%**)].  
The **new break-even point** is **897 units**:

<b>Fixed costs</b>	<b>÷</b>	<b>Contribution Margin per Unit</b>	<b>=</b>	<b>Break-even Sales</b>
<b>\$260,000</b>	<b>÷</b>	<b>(\$500 - \$210)</b>	<b>=</b>	<b>897 units (rounded)</b>

# 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**:

	<u>Variable</u>	<u>Fixed</u>	<u>Total</u>
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
	<u>\$ 480,000</u>	<u>\$ 200,000</u>	<u>\$ 680,000</u>

# 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
<b>Contribution margin</b>	<b>320,000</b>
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>



Accounting Principles, 7<sup>th</sup> Edition

Weygandt • Kieso • Kimmel

## Chapter 24

# Budgetary Planning

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Bryant College

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# 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

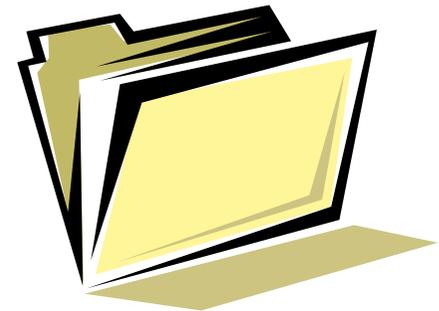
- **Budget**

- 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.

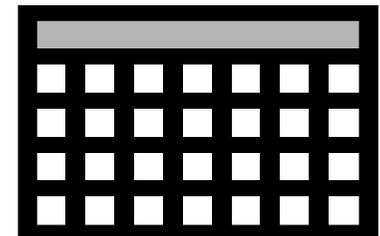
# Essentials of Effective Budgeting

## 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

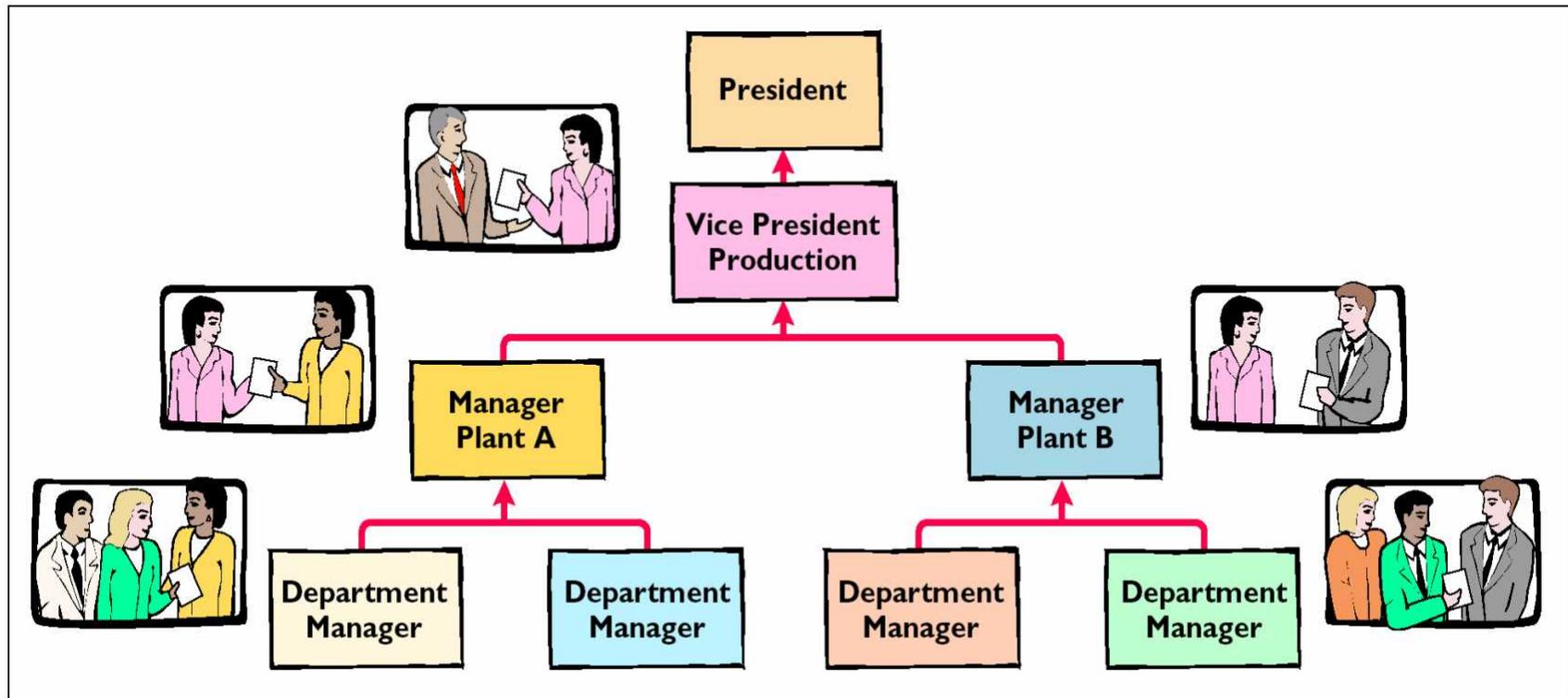


# The Budgeting Process

## **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

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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:

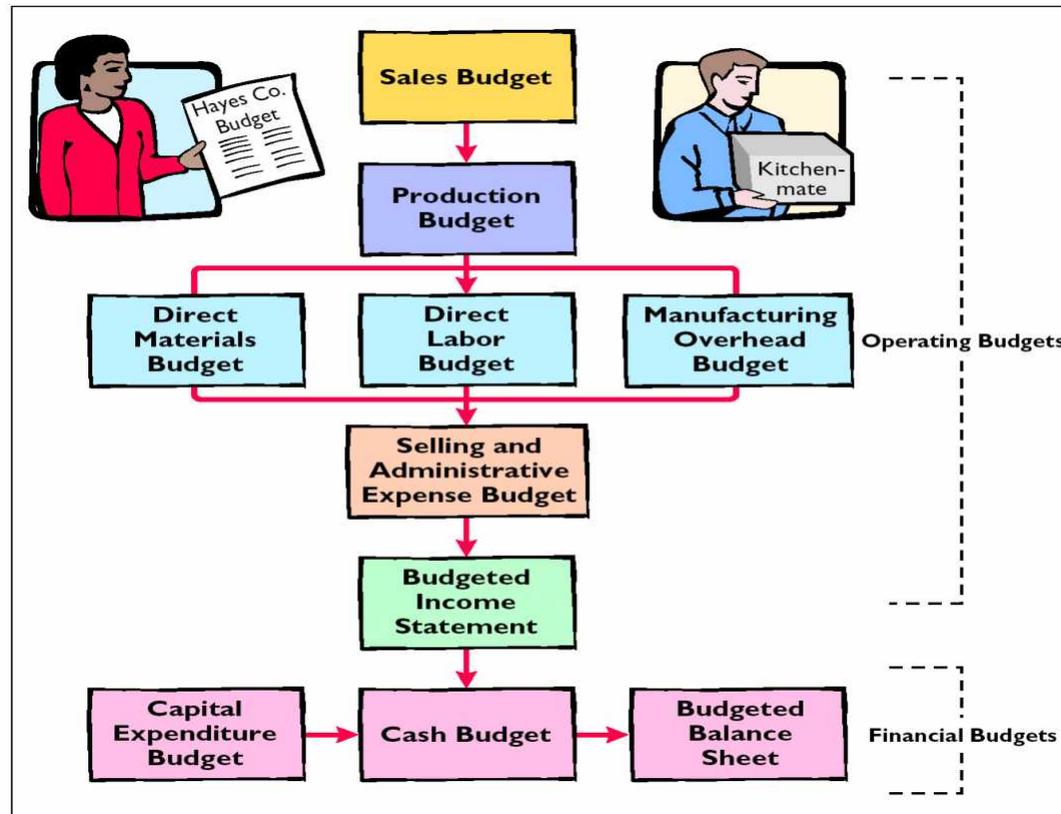
- a. same amount of detail.
- b. longer time period.**
- c. same emphasis.
- d. same time period.

# 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

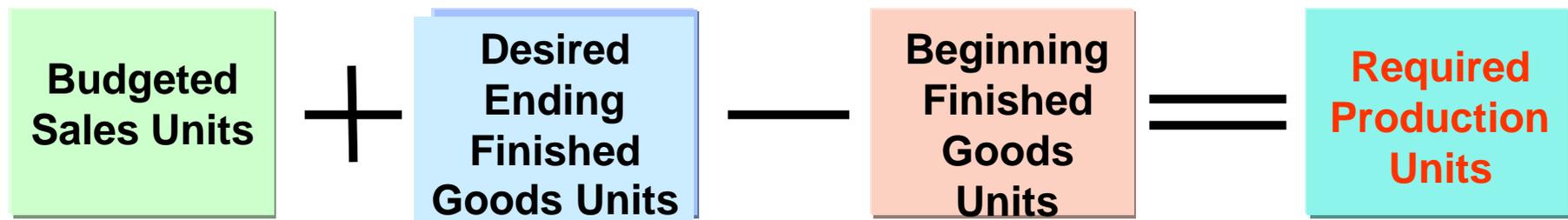
The **sales budget** is prepared by multiplying the expected unit sales volume for each product by its anticipated unit selling price.

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:

<b>HAYES COMPANY</b>					
<b>Sales Budget</b>					
<b>For the Year Ending December 31, 2005</b>					
	<u>Quarter</u>				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>Year</u>
<b>Expected unit sales</b>	<b>3,000</b>	<b>3,500</b>	<b>4,000</b>	<b>4,500</b>	<b>15,000</b>
<b>Unit selling price</b>	<b>\$60</b>	<b>\$60</b>	<b>\$60</b>	<b>\$60</b>	<b>\$60</b>
<b>Total sales</b>	<b>\$180,000</b>	<b>\$210,000</b>	<b>\$240,000</b>	<b>\$270,000</b>	<b>\$900,000</b>

# 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>	
<b>Required production units</b>		<b>3,100</b>	<b>3,600</b>	<b>4,100</b>	<b>4,600</b>	<b>15,400</b>

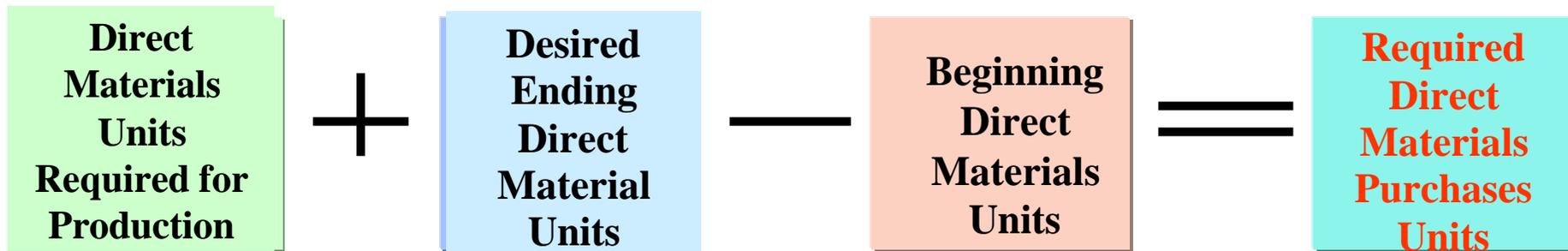
  

**20% of next quarter's sales**

**Expected 2006 1st Q sales**  
5,000 units x 20%

# 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 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 4<sup>th</sup> 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>	
<b>Total cost of direct materials purchases</b>	<b>\$25,200</b>	<b>\$29,200</b>	<b>\$33,200</b>	<b>\$37,200</b>	<b>\$124,800</b>

 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.

<b>HAYES COMPANY</b>					
<b>Direct Labor Budget</b>					
<b>For the Year Ending December 31, 2005</b>					
<b>QUARTER</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Year</b>
<b>Units to be produced (from Production Budget)</b>	3,100	3,600	4,100	4,600	
<b>Direct Labor time (hours) per unit</b>	2	2	2	2	
<b>Total required direct labor hours</b>	6,200	7,200	8,200	9,200	
<b>Direct labor cost per hour</b>	\$10	\$10	\$10	\$10	
<b>Total direct labor cost</b>	<b>\$62,000</b>	<b>\$72,000</b>	<b>\$82,000</b>	<b>\$92,000</b>	<b>\$308,000</b>

# 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**

<b>HAYES COMPANY</b>					
<b>Manufacturing Overhead Budget (Variable portion)</b>					
<b>For the Year Ending December 31, 2005</b>					
	<b>Quarter</b>				
	<b><u>1</u></b>	<b><u>2</u></b>	<b><u>3</u></b>	<b><u>4</u></b>	<b><u>Year</u></b>
<b>Variable costs</b>					
<b>Indirect materials</b>	<b>\$6,200</b>	<b>\$7,200</b>	<b>\$8,200</b>	<b>\$9,200</b>	<b>\$30,800</b>
<b>Indirect labor</b>	<b>8,680</b>	<b>10,080</b>	<b>11,480</b>	<b>12,880</b>	<b>43,120</b>
<b>Utilities</b>	<b>2,480</b>	<b>2,880</b>	<b>3,280</b>	<b>3,680</b>	<b>12,320</b>
<b>Maintenance</b>	<b><u>1,240</u></b>	<b><u>1,440</u></b>	<b><u>1,640</u></b>	<b><u>1,840</u></b>	<b><u>6,160</u></b>
	<b>\$18,600</b>	<b>\$21,600</b>	<b>\$24,600</b>	<b>\$ 92,400</b>	<b>Total variable costs</b>

# 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.

<b>HAYES COMPANY</b>					
<b>Manufacturing Overhead Budget (Fixed portion and Totals)</b>					
<b>For the Year Ending December 31, 2005</b>					
	<u>Quarter</u>				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>Year</u>
<b>Fixed Costs</b>					
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	<u>5,700</u>	<u>5,700</u>	<u>5,700</u>	<u>5,700</u>	<u>22,800</u>
<b>Total fixed</b>	<u>38,500</u>	<u>38,500</u>	<u>38,500</u>	<u>38,500</u>	<u>154,000</u>
<b>Total manufacturing overhead</b>	<u>\$57,100</u>	<u>\$60,100</u>	<u>\$63,100</u>	<u>\$66,100</u>	<u>\$246,400</u>
<b>Direct labor hours</b>	6,200	7,200	8,200	9,200	30,800
<b>Manufacturing overhead rate per direct labor hour (\$246,400 / 30,800) = \$8.00</b>					

# 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.

<b>HAYES COMPANY</b>					
<b>Selling and Administrative Expense Budget</b>					
<b>For the Year Ending December 31, 2005</b>					
	<u>Quarter</u>				
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>Year</u>
<b>Variable expenses</b>					
<b>Sales Commissions</b>	<b>\$9,000</b>	<b>\$10,500</b>	<b>\$12,000</b>	<b>\$13,500</b>	<b>\$45,000</b>
<b>Freight-out</b>	<b>3,000</b>	<b>3,500</b>	<b>4,000</b>	<b>4,500</b>	<b>15,000</b>
<b>Total variable</b>	<b><u>12,000</u></b>	<b><u>14,000</u></b>	<b><u>16,000</u></b>	<b><u>18,000</u></b>	<b><u>60,000</u></b>
<b>Fixed expenses</b>	<b><u>30,000</u></b>	<b><u>30,000</u></b>	<b><u>30,000</u></b>	<b><u>30,000</u></b>	<b><u>120,000</u></b>
<b>Total selling and adm. ex.</b>	<b>\$42,000</b>	<b>\$44,000</b>	<b>\$46,000</b>	<b>\$48,000</b>	
	<b>\$180,000</b>				

# 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.

<b>Cost of One Kitchen -mate</b>				
<b><u>Cost Element</u></b>	<b><u>Illustration</u></b>	<b><u>Quantity</u></b>	<b><u>Unit Cost</u></b>	<b><u>Total</u></b>
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
<b>Total unit cost</b>				<b>\$44.00</b>

# 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><u>\$ 47,900</u></u>

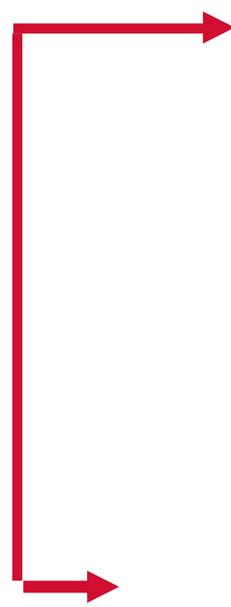
# Preparing the Financial Budgets

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

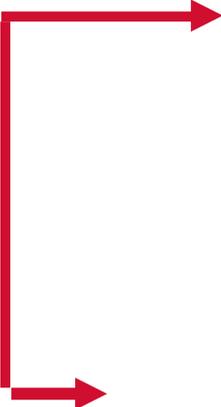


<b>ANY COMPANY Cash Budget</b>	
<b>Beginning cash balance</b>	<b><u>\$X,xxx</u></b>
<b>Add: Cash receipts (Itemized)</b>	<b><u>X,xxx</u></b>
<b>Total available cash</b>	<b>X,xxx</b>
<b>Less: Cash disbursements (Itemized)</b>	<b><u>X,xxx</u></b>
<b>Excess (deficiency) of available cash over cash disbursements</b>	<b>X,xxx</b>
<b>Financing</b>	<b><u>X,xxx</u></b>
<b>Ending cash balance</b>	<b><u>\$X,xxx</u></b>

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.

<b>Schedule of Expected Collections from Customers</b>				
	<b>Quarter</b>			
	<u><b>1</b></u>	<u><b>2</b></u>	<u><b>3</b></u>	<u><b>4</b></u>
Accounts receivable, 12/31/01	<b>\$ 60,000</b>			
First quarter (\$180,000)	<b>108,000</b>	<b>\$72,000</b>		
Second quarter (\$210,000)		<b>126,000</b>	<b>\$ 84,000</b>	
Third quarter (\$240,000)			<b>144,000</b>	<b>\$96,000</b>
Fourth quarter (\$270,000)				<b>162,000</b>
<b>Total collections</b>	<b><u>\$168,000</u></b>	<b><u>\$198,000</u></b>	<b><u>\$228,000</u></b>	<b><u>\$258,000</u></b>

# 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



<b>Schedule of Expected Payments for Direct Materials</b>				
	<b>Quarter</b>			
	<u><b>1</b></u>	<u><b>2</b></u>	<u><b>3</b></u>	<u><b>4</b></u>
<b>Accounts Payable, 12/31/04</b>	<b>\$10,600</b>			
<b>First quarter (\$25,200)</b>	<b>12,600</b>	<b>\$12,600</b>		
<b>Second quarter (\$29,200)</b>		<b>14,600</b>	<b>\$14,600</b>	
<b>Third quarter (\$33,200)</b>			<b>16,600</b>	<b>\$16,600</b>
<b>Fourth quarter (\$37,200)</b>				<b>18,600</b>
<b>Total payments</b>	<b><u>\$23,200</u></b>	<b><u>\$27,200</u></b>	<b><u>\$31,200</u></b>	<b><u>\$35,200</u></b>

# 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:

<b>HAYES COMPANY</b>				
<b>Cash Budget</b>				
<b>For the Year Ending December 31, 2005</b>				
	<u>Quarter</u>			
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
<b>Beginning cash balance</b>	<b>\$38,000</b>	<b>\$25,500</b>	<b>\$15,000</b>	<b>\$19,400</b>
<b>Add: Receipts</b>				
<b>Collections from customers</b>	<b>168,000</b>	<b>198,000</b>	<b>228,000</b>	<b>258,000</b>
<b>Sale of securities</b>	<b><u>2,000</u></b>	<b><u>0</u></b>	<b><u>0</u></b>	<b><u>0</u></b>
<b>Total receipts</b>	<b><u>170,000</u></b>	<b><u>198,000</u></b>	<b><u>228,000</u></b>	<b><u>258,000</u></b>
<b>Total available cash</b>	<b><u>208,000</u></b>	<b><u>223,500</u></b>	<b><u>243,000</u></b>	<b><u>277,400</u></b>

# 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

<b>HAYES COMPANY</b>				
<b>Cash Budget</b>				
<b>For the Year Ending December 31, 2005</b>				
	<u>Quarter</u>			
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
<b>Less: Disbursements</b>				
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>
<b>Total disbursements</b>	<b><u>182,500</u></b>	<b><u>211,500</u></b>	<b><u>220,500</u></b>	<b><u>239,500</u></b>

**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.

<b>HAYES COMPANY</b>				
<b>Cash Budget</b>				
<b>For the Year Ending December 31, 2005</b>				
	<u>Quarter</u>			
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
<b>Total available cash</b>	<b>208,000</b>	<b>223,500</b>	<b>243,000</b>	<b>277,400</b>
<b>Total disbursements</b>	<b>182,500</b>	<b>211,500</b>	<b>220,500</b>	<b>239,500</b>
<b>Excess (deficiency) of available cash over disbursements</b>	<b>25,500</b>	<b>12,000</b>	<b>22,500</b>	<b>37,900</b>
<b>Financing</b>				
<b>Borrowings</b>	<b>0</b>	<b>3,000</b>	<b>0</b>	<b>0</b>
<b>Repayments-plus \$100 interest</b>	<b>0</b>	<b>0</b>	<b>3,100</b>	<b>0</b>
<b>Ending cash balance</b>	<b><u>\$25,500</u></b>	<b><u>\$15,000</u></b>	<b><u>\$19,400</u></b>	<b><u>\$37,900</u></b>

# 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:**

<b>Building and equipment</b>	<b>\$182,000</b>
<b>Accumulated depreciation</b>	<b>\$28,800</b>
<b>Common Stock</b>	<b>\$225,000</b>
<b>Retained earnings</b>	<b>\$46,480</b>



# 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><u>\$337,980</u></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>
<b>Total liabilities and stockholders' equity</b>	<b><u>\$ 337,980</u></b>

# Budgeting in Non-Manufacturing Companies

STUDY OBJECTIVE 6

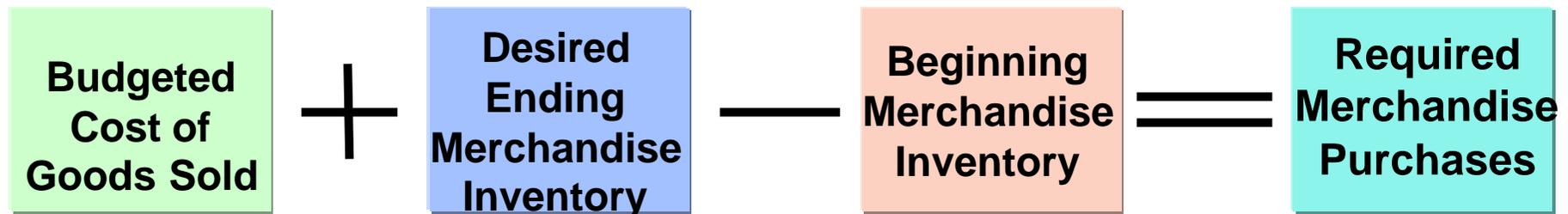
**Budgets may also be used in by:**

- **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:

<b>Budgeted cost of goods sold (budgeted sales for July, \$300,000 x 70%)</b>	<b>\$210,000</b>
<b>Desired ending merchandise inventory (budgeted cost of goods sold for August, (\$320,000 x 70% x 30%)</b>	<b><u>67,200</u></b>
<b>Total</b>	<b>277,200</b>
<b>Less: Beginning merchandise inventory (budgeted sales for July, \$300,000 x 70% x 30%)</b>	<b><u>63,000</u></b>
<b>Required merchandise purchase for July</b>	<b><u>\$214,000</u></b>

# 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.



Accounting Principles, 7<sup>th</sup> 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:*

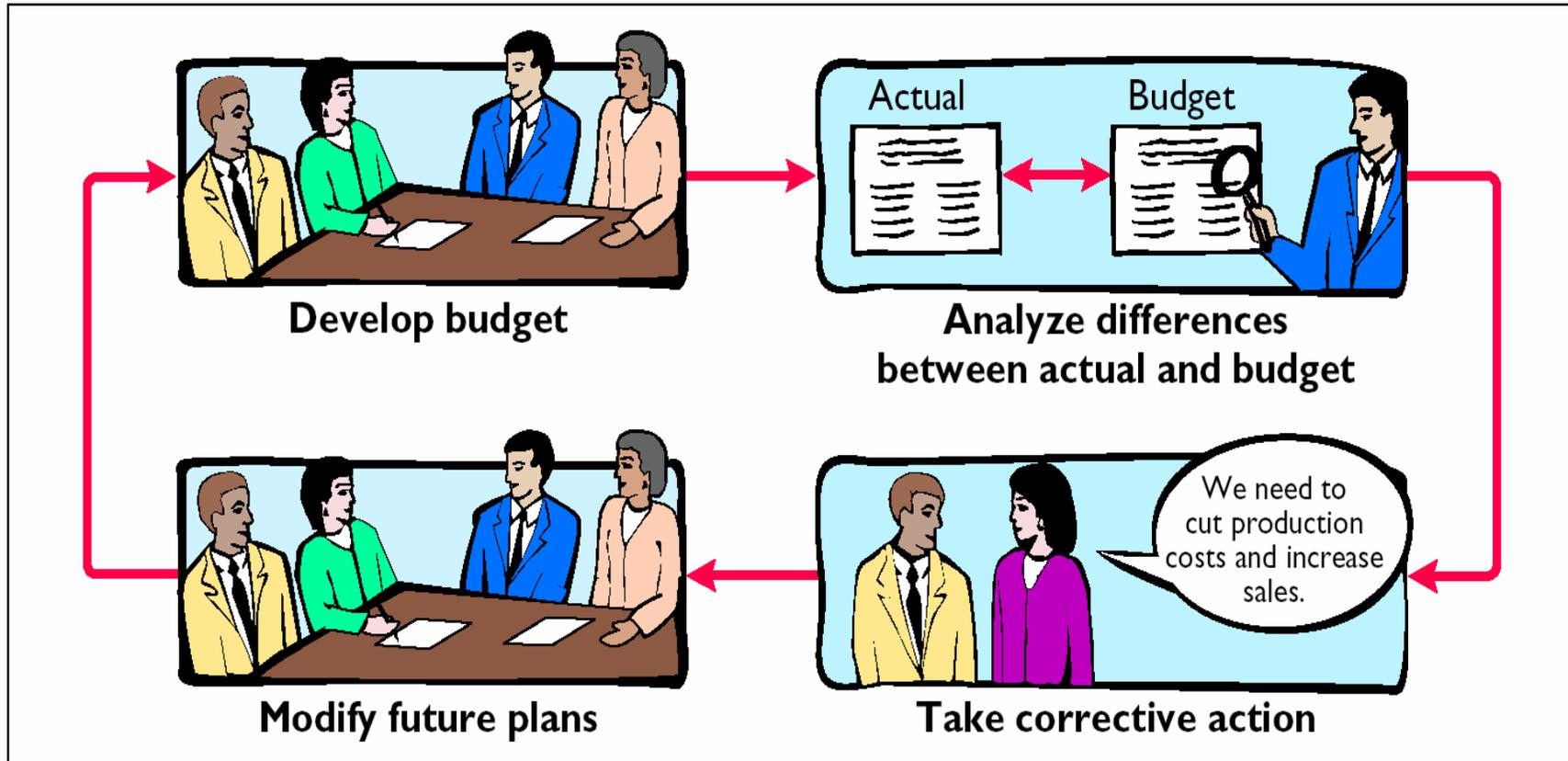
- 6 Identify the content of responsibility reports for profit centers.**
- 7 Explain the basis and formula used in evaluating performance in investment centers.**

# 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

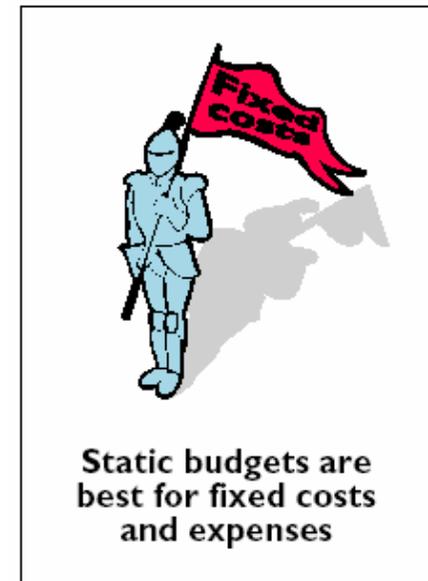
<b><u>Name of Report</u></b>	<b><u>Frequency</u></b>	<b><u>Purpose</u></b>	<b><u>Primary Recipient(s)</u></b>
<b>Sales</b>	<b>Weekly</b>	<b>Determine whether sales goals are being met</b>	<b>Top management and sales manager</b>
<b>Labor</b>	<b>Weekly</b>	<b>Control direct and indirect labor costs</b>	<b>Vice president of production and production department managers</b>
<b>Scrap</b>	<b>Daily</b>	<b>Determine efficient use of materials</b>	<b>Production manager</b>
<b>Department Overhead costs</b>	<b>Monthly</b>	<b>Control overhead costs</b>	<b>Department manager</b>
<b>Selling expenses</b>	<b>Monthly</b>	<b>Control selling expenses</b>	<b>Sales manager</b>
<b>Income Statement</b>	<b>Monthly and quarterly</b>	<b>Determine whether income objectives are being met</b>	<b>Top manager</b>

**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:

<b>Sales</b>	<b>First Quarter</b>	<b>Second Quarter</b>	<b>Total</b>
<b>Budgeted</b>	<b>\$180,000</b>	<b>\$210,000</b>	<b>\$390,000</b>
<b>Actual</b>	<b>179,000</b>	<b>199,500</b>	<b>378,500</b>
<b><i>Difference</i></b>	<b><i>\$1,000</i></b>	<b><i>\$10,500</i></b>	<b><i>\$11,500</i></b>

# 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			
			<u>Difference</u>
			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

<b>HAYES COMPANY</b>			
<b>Sales Budget</b>			
<b>For the Quarter Ended June 30, 2005</b>			
<b>Second Quarter</b>			
			<b>Difference</b>
			<b>Favorable F</b>
<b>Product Line</b>	<b>Budget</b>	<b>Actual</b>	<b>Unfavorable U</b>
<b>Kitchen-mate</b>	<b>\$210,000</b>	<b>\$199,500</b>	<b>\$10,500 U</b>

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

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A static budget is useful in controlling costs when cost behavior is:

- a. mixed.
- b. fixed.
- c. variable.
- d. linear.

# Review

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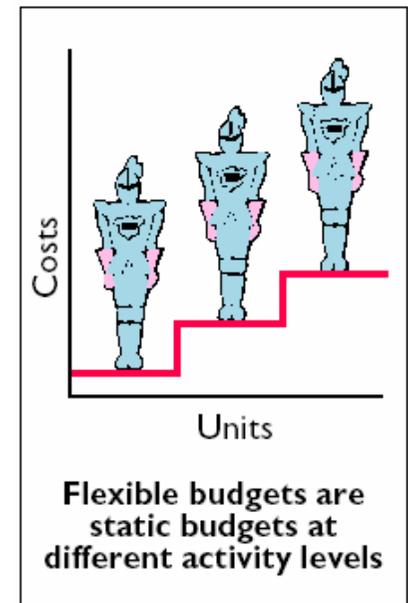
A static budget is useful in controlling costs when cost behavior is:

- 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

<b>BARTON STEEL</b>	
<b>Manufacturing Overhead Budget (Static)</b>	
<b>Forging Department</b>	
<b>For the Year Ended December 31, 2005</b>	
<b>Budgeted production in units(steel ingots)</b>	<b>10,000</b>
<b>Budget costs</b>	
<b>Indirect material</b>	<b>\$ 250,000</b>
<b>Indirect labor</b>	<b>260,000</b>
<b>Utilities</b>	<b>190,000</b>
<b>Depreciation</b>	<b>280,000</b>
<b>Property taxes</b>	<b>70,000</b>
<b>Supervision</b>	<b><u>50,000</u></b>
<b>(Budget based on 10,000 units of production)</b>	<b><u>\$1,100,000</u></b>

**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.

<b>BARTON STEEL</b> <b>Manufacturing Overhead Budget Report (Static)</b> <b>Forging department</b> <b>For the Year Ended December 31,2005</b>			
			<b>Difference</b>
			<b>Favorable F</b>
	<b>Budget</b>	<b>Actual</b>	<b>Unfavorable U</b>
<b>Production in units</b>	<b>10,000</b>	<b>12,000</b>	
<b>Costs</b>			
<b>Indirect materials</b>	\$ 250,000	\$ 295,000	\$ 45,000 U
<b>Indirect labor</b>	260,000	312,000	52,000 U
<b>Utilities</b>	190,000	225,000	35,000 U
<b>Depreciation</b>	280,000	280,000	-0-
<b>Property taxes</b>	70,000	70,000	-0-
<b>Supervision</b>	50,000	50,000	-0-
	<b>\$1,100,000</b>	<b>\$1,232,000</b>	<b>\$132,000</b>

# 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.

<b>BARTON STEEL –Forging Department</b>			
<b>Manufacturing Overhead Budget Report (Flexible)</b>			
<b>For the Year Ended December 31,2005</b>			
			<b>Difference</b>
			<b>Favorable F</b>
	<b>Budget</b>	<b>Actual</b>	<b>Unfavorable U</b>
<b>Production in units</b>	<b><u>12,000</u></b>	<b><u>12,000</u></b>	
<b>Variable Costs</b>			
<b>Indirect materials</b>	<b>\$300,000</b>	<b>\$ 295,000</b>	<b>\$ 5,000 F</b>
<b>Indirect labor</b>	<b>312,000</b>	<b>312,000</b>	<b>-0-</b>
<b>Utilities</b>	<b><u>228,000</u></b>	<b><u>225,000</u></b>	<b>3,000 F</b>
<b>Total variable</b>	<b><u>840,000</u></b>	<b><u>832,000</u></b>	<b><u>8,000 F</u></b>
<b>Fixed Costs</b>			
<b>Depreciation</b>	<b>280,000</b>	<b>280,000</b>	<b>-0-</b>
<b>Property taxes</b>	<b>70,000</b>	<b>70,000</b>	<b>-0-</b>
<b>Supervision</b>	<b><u>50,000</u></b>	<b><u>50,000</u></b>	<b>-0-</b>
<b>Total fixed</b>	<b><u>400,000</u></b>	<b><u>400,000</u></b>	<b><u>-0-</u></b>
<b>Total costs</b>	<b><u>\$1,240,000</u></b>	<b><u>\$1,232,000</u></b>	<b><u>\$8,000 F</u></b>

# 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	<u>60,000/120,000</u>	<u>.50</u>
<b>Total</b>		<u><b>\$4.00</b></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

<b>FOX MANUFACTURING COMPANY</b> <b>Flexible Monthly Manufacturing Overhead Budget</b> <b>Finishing Department</b> <b>For the Year 2005</b>					
Activity Level	<u>8,000</u>	<u>9,000</u>	<u>10,000</u>	<u>11,000</u>	<u>12,000</u>
<b>Variable Costs</b>					
<b>Indirect materials</b>	\$12,000	\$13,500	\$15,000	\$16,500	\$18,000
<b>Indirect labor</b>	16,000	18,000	20,000	22,000	24,000
<b>Utilities</b>	<u>4,000</u>	<u>4,500</u>	5,000	5,500	6,000
<b>Total variable</b>	<u>32,000</u>	<u>36,000</u>	<u>40,000</u>	<u>44,000</u>	<u>48,000</u>
<b>Fixed Costs</b>					
<b>Depreciation</b>	15,000	15,000	15,000	15,000	15,000
<b>Property taxes</b>	5,000	5,000	5,000	5,000	5,000
<b>Supervision</b>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>
<b>Total fixed</b>	<u>30,000</u>	<u>30,000</u>	<u>30,000</u>	<u>30,000</u>	<u>30,000</u>
<b>Total costs</b>	<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**

<b>Fixed Costs</b>	<b>+</b>	<b>Variable Costs</b>	<b>=</b>	<b>Total Budgeted Costs</b>
<b>\$30,000</b>		<b>\$4.00 x 8,622</b>		<b>\$64,488</b>

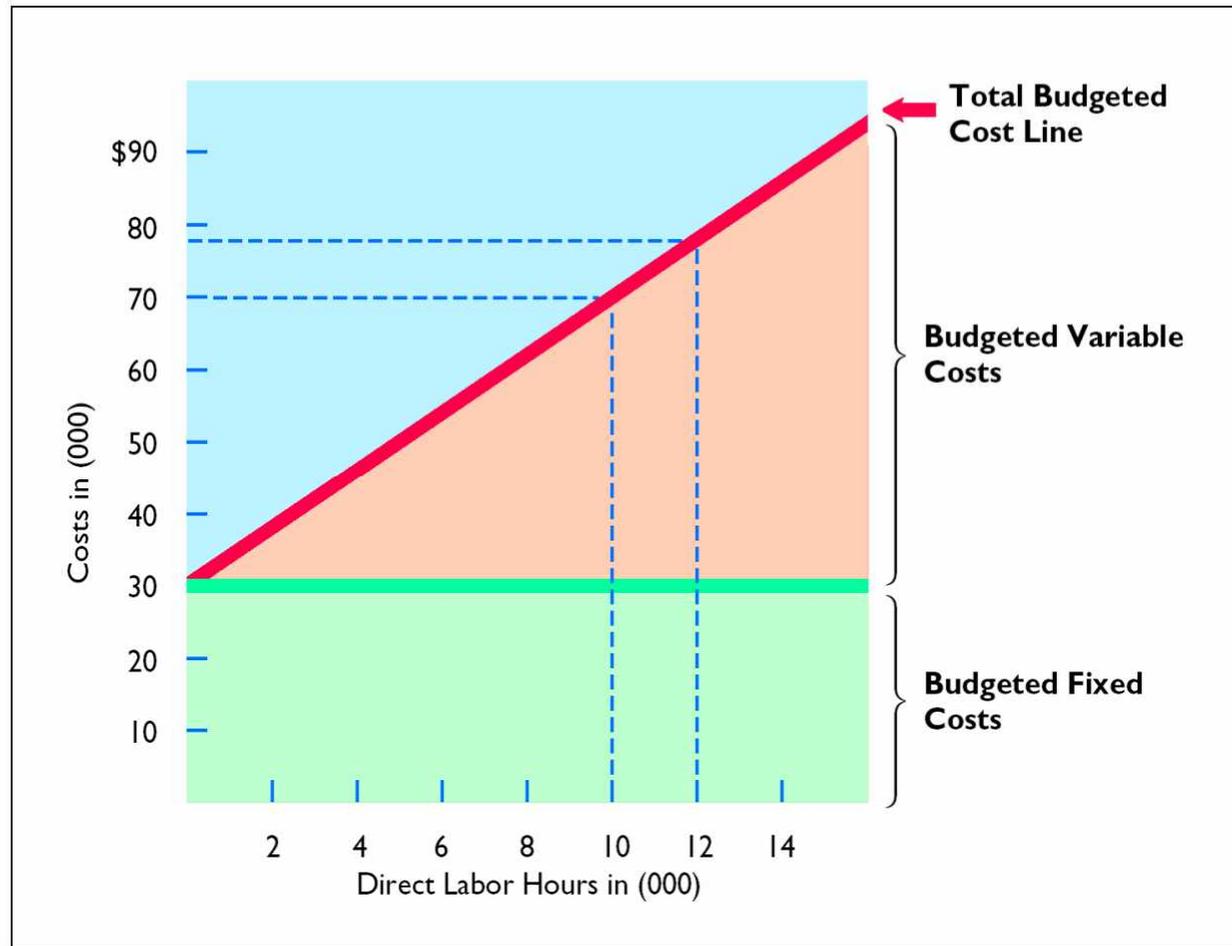
# Flexible Budget Reports

**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

<b>FOX MANUFACTURING COMPANY</b> <b>Flexible Manufacturing Overhead Budget Report</b> <b>Finishing Department</b> <b>For the Month Ended January 31, 2005</b>			
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.

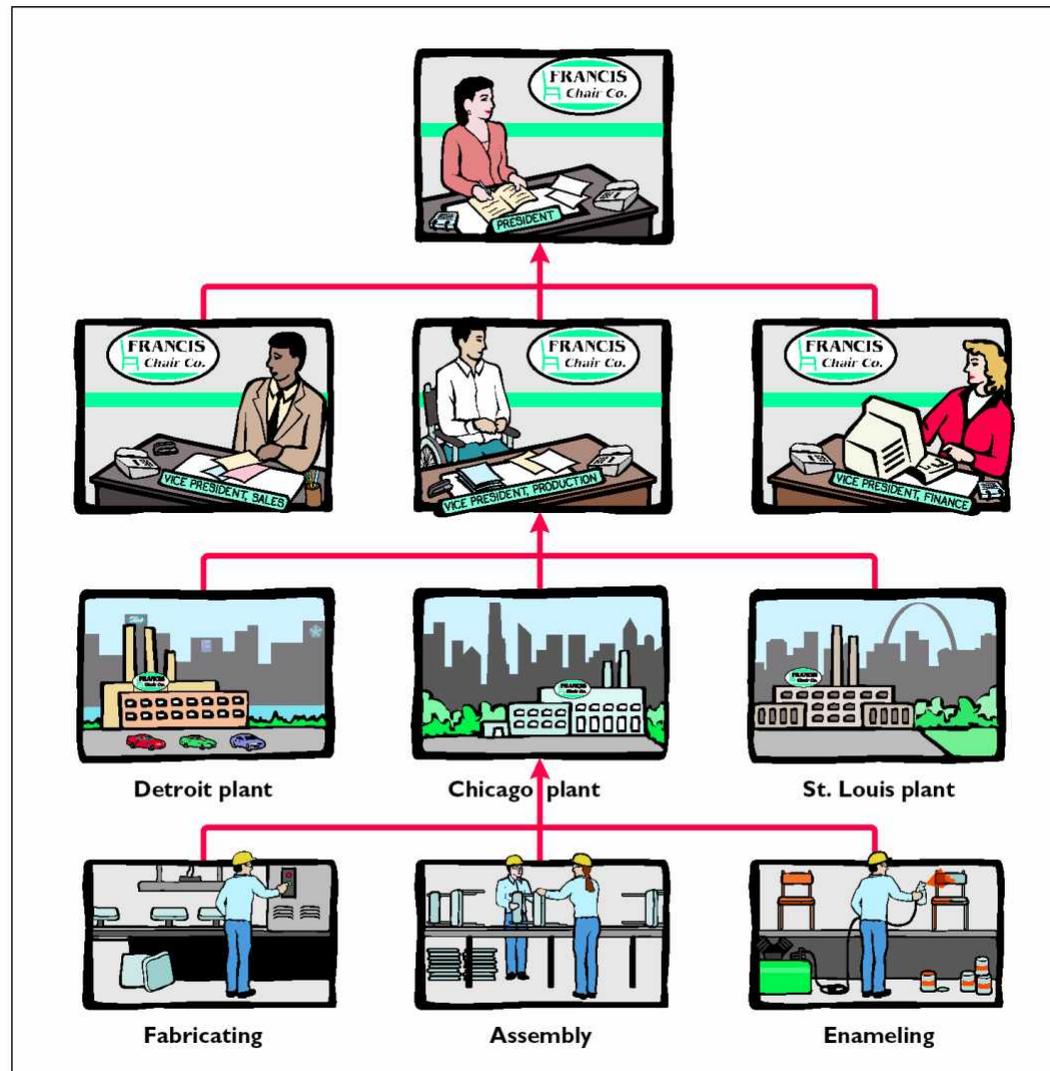


# Responsibility Reporting System

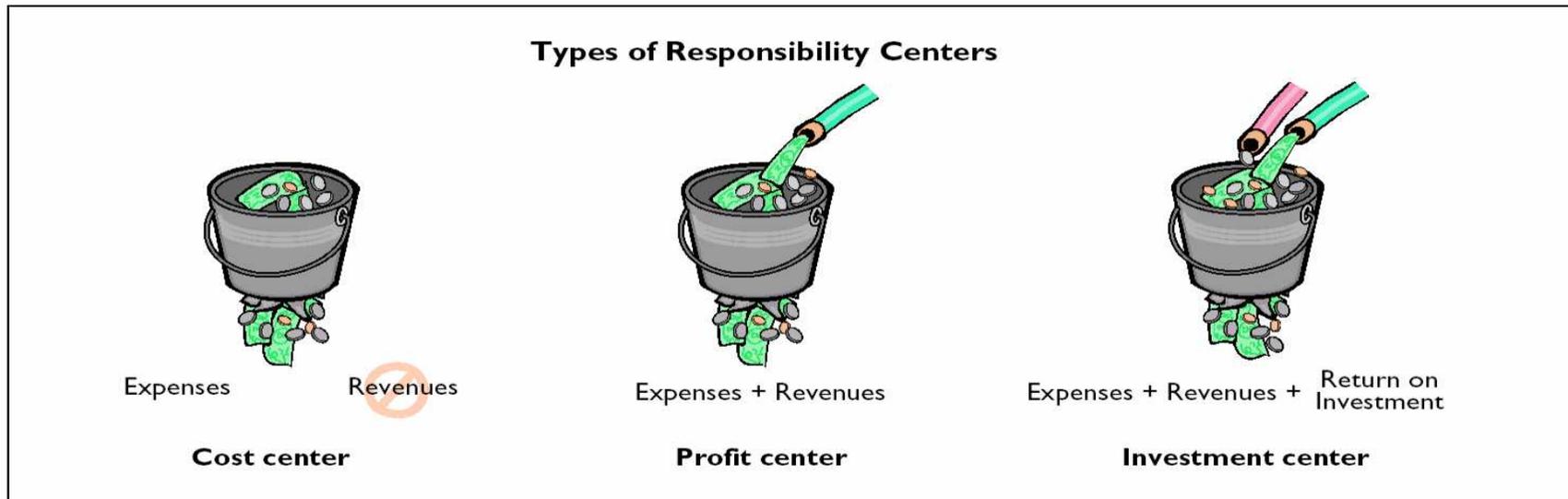
- **Involves preparation of a report for each level of responsibility in the company's organization chart.**
- **Permits management by exception each level of responsibility.**



# 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.

<b>FOX MANUFACTURING COMPANY</b>			
<b>Finishing Department</b>			
<b>Responsibility Report</b>			
<b>For the Month Ended January 31, 2005</b>			
<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
<b>Supervision</b>	<b>4,000</b>	<b>4,000</b>	<b>-0-</b>
	<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

<b>MANTLE MANUFACTURING COMPANY</b> <b>Marine Division</b> <b>Responsibility Report</b> <b>For the Year Ended December 31, 2005</b>			
	Budget	Actual	Difference Favorable F Unfavorable U
<b>Sales</b>	<b><u>\$1,200,000</u></b>	<b><u>\$1,150,000</u></b>	<b><u>\$50,000 U</u></b>
<b>Variable Costs</b>			
<b>Costs of goods sold</b>	<b>500,000</b>	<b>490,000</b>	<b>10,000 F</b>
<b>Selling and administrative</b>	<b><u>160,000</u></b>	<b><u>156,000</u></b>	<b><u>4,000 F</u></b>
<b>Total</b>	<b><u>660,000</u></b>	<b><u>646,000</u></b>	<b><u>14,000 F</u></b>
<b>Contribution margin</b>	<b><u>540,000</u></b>	<b><u>504,000</u></b>	<b><u>36,000 U</u></b>
<b>Controllable fixed costs</b>			
<b>Cost of goods sold</b>	<b>100,000</b>	<b>100,000</b>	<b>-0-</b>
<b>Selling and administrative</b>	<b><u>80,000</u></b>	<b><u>80,000</u></b>	<b><u>-0-</u></b>
<b>Total</b>	<b><u>180,000</u></b>	<b><u>180,000</u></b>	<b><u>-0-</u></b>
<b>Controllable margin</b>	<b><u>\$360,000</u></b>	<b><u>\$324,000</u></b>	<b><u>\$36,000 U</u></b>

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>	4,000 F
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>
<b>Other fixed costs</b>	<b>60,000</b>	<b>60,000</b>	<b>-0-</b>
<b>Total</b>	<b><u>240,000</u></b>	<b><u>240,000</u></b>	<b><u>-0-</u></b>
<b>Controllable margin</b>	<b><u>\$300,000</u></b>	<b><u>264,000</u></b>	<b><u>\$36,000 U</u></b>

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
<b>Return on Investment</b>	<b>15%</b>	<b>13.2%</b>	<b>1.8%</b>

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:**

<b>Sales</b>	<b>\$ 2,000,000</b>
<b>Variable cost</b>	<b><u>1,100,000</u></b>
<b>Contribution margin(45%)</b>	<b>900,000</b>
<b>Controllable fixed costs</b>	<b>300,000</b>
<b>Controllable margin(a)</b>	<b><u>\$600,000</u></b>
<b>Average operating assets(b)</b>	<b>\$ 5,000,000</b>
<b>Return on investment (a)÷(b)</b>	<b>12%</b>

# 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.



Accounting Principles, 7<sup>th</sup> 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



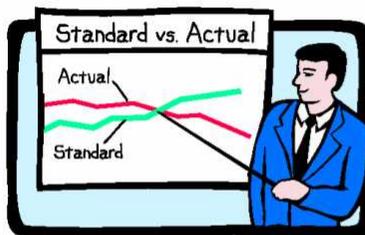
Facilitate management planning



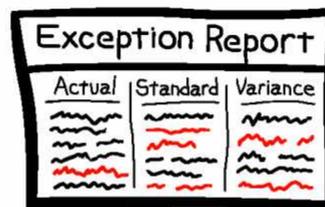
Promote greater economy by making employees more "cost-conscious"



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, a 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>

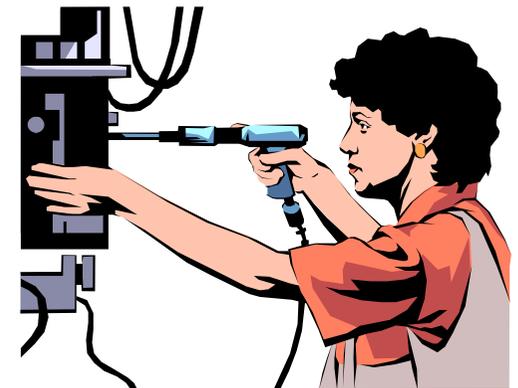
# Total Direct Materials Cost/Unit

- The standard direct materials cost per unit is calculated as follows for a gallon of Weed-O:

<b>STANDARD DIRECT MATERIALS PRICE</b>	<b>X</b>	<b>STANDARD DIRECT MATERIALS QUANTITY</b>	<b>=</b>	<b>STANDARD DIRECT MATERIALS COST PER UNIT</b>
<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**

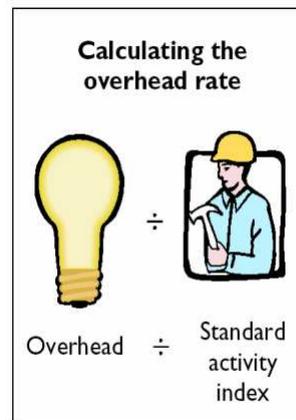
**2.0 hours =**

**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 x 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>
<b>Total</b>	<u>\$132,000</u>		26,400		<u>\$5.00</u>

# Standard Cost Per Gallon of Weed-O

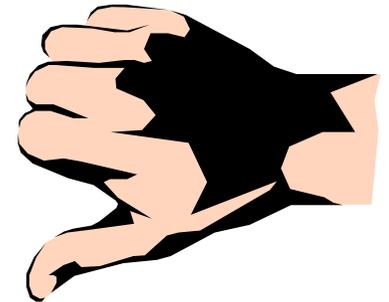
The **total standard cost per unit** is the sum of the standard costs of direct materials, direct labor, and manufacturing overhead. For Xonic, Inc., the total standard cost per gallon of Weed-O is **\$42**, as shown on the following standard cost card:



<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

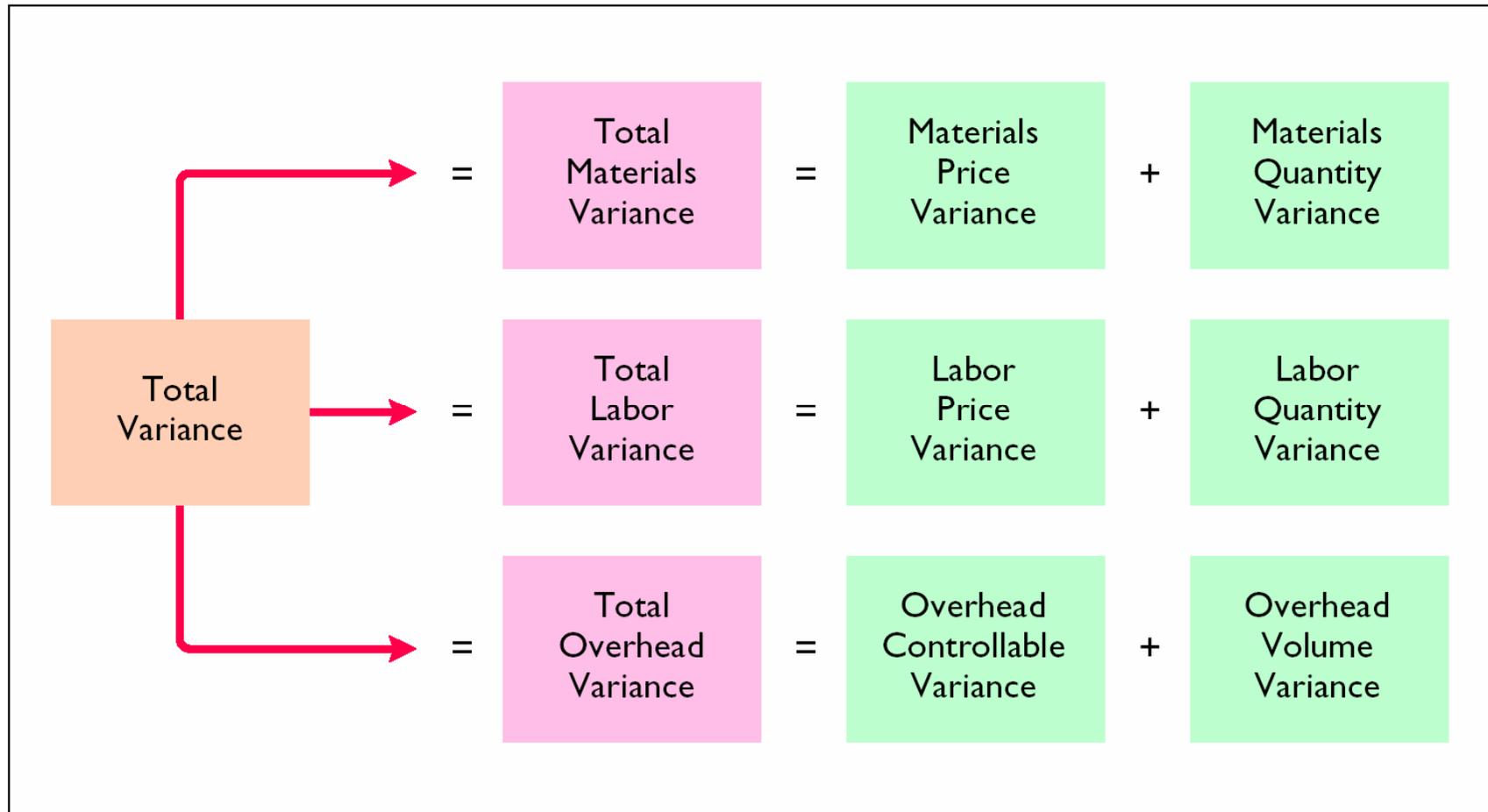
**UNFAVORABLE**

# 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:

$$\begin{array}{l} \text{Actual Quantity} \\ \text{x Actual Price} \\ \text{(AQ) x (AP)} \end{array} - \begin{array}{l} \text{Standard Quantity} \\ \text{x Standard Price} \\ \text{(SQ) x (SP)} \end{array} = \begin{array}{l} \text{Total Materials} \\ \text{Variance} \\ \text{(TMV)} \end{array}$$

$$(4,200 \times \$3.10) - (4,000 \times \$3.00) = \$1,020 \text{ U}$$

# 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:

$$\begin{array}{ccc} \text{Actual Quantity} & & \text{Actual Quantity} \\ \text{x Actual Price} & - & \text{x Standard Price} \\ \text{(AQ) x (AP)} & & \text{(SQ) x (SP)} \\ \hline & = & \text{Materials Price} \\ & & \text{Variance} \\ & & \text{(MPV)} \end{array}$$

$$(4,200 \times \$3.10) - (4,200 \times \$3.00) = \$420 \text{ U}$$

# 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:

$$\begin{array}{ccc} \text{Actual Quantity} & & \text{Standard Quantity} \\ \text{x Standard Price} & - & \text{x Standard Price} \\ \text{(AQ) x (SP)} & & \text{(SQ) x (SP)} \\ & & = \\ & & \text{Materials} \\ & & \text{Quantity} \\ & & \text{Variance} \\ & & \text{(MQV)} \end{array}$$

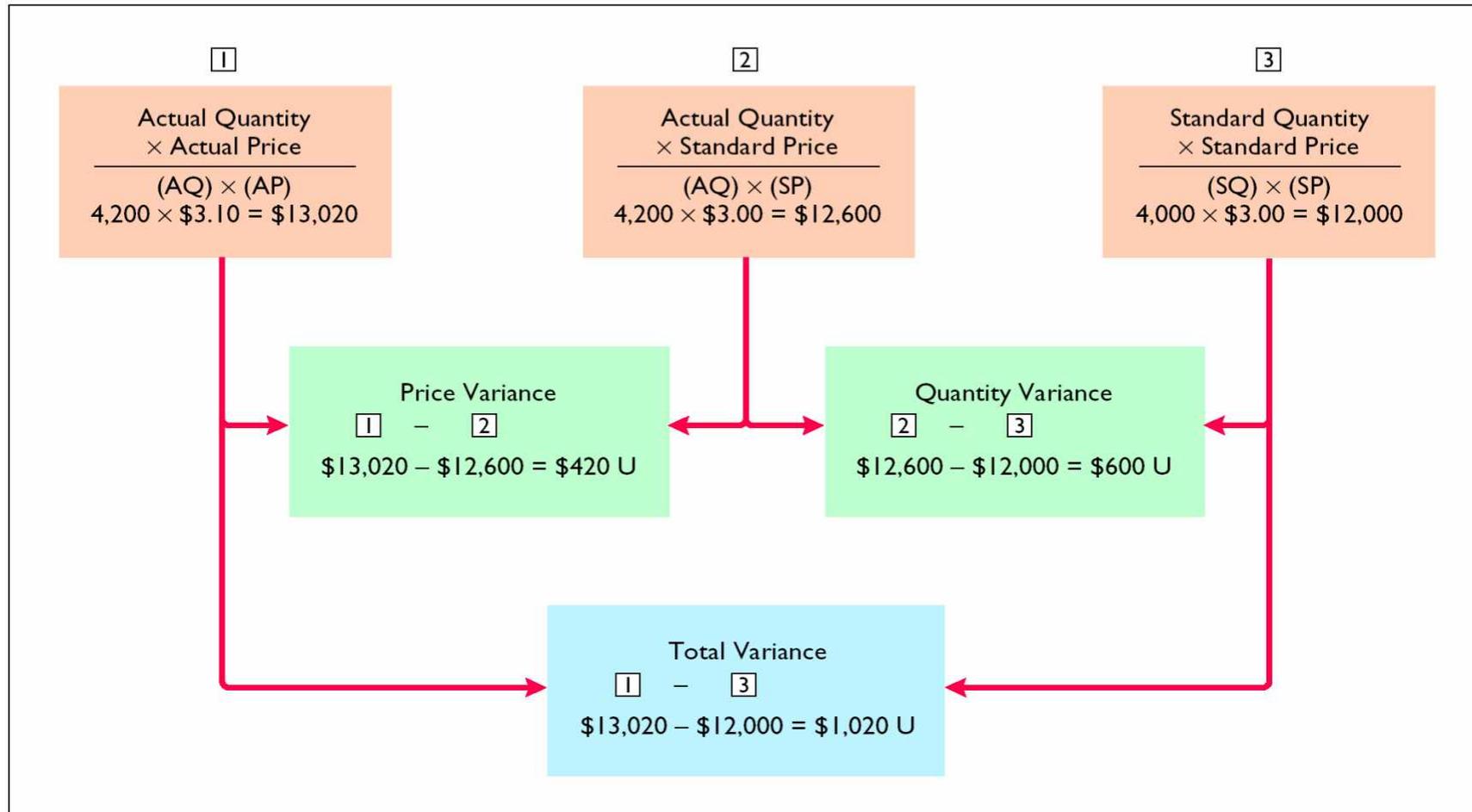
$$(4,200 \times \$3.00) - (4,000 \times \$3.00) = \$600 \text{ U}$$

## Summary of Materials Variance

**The total materials variance of \$1,020 (U), therefore, consists of the following:**

<b>Materials price variance</b>	<b>\$ 420 U</b>
<b>Materials quantity variance</b>	<b><u>600 U</u></b>
<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:

$$\begin{array}{ccc} \text{Actual Hours} & & \text{Standard Hours} \\ \text{x Actual Rate} & - & \text{x Standard Rate} \\ \text{(AH) x (AR)} & & \text{(SH) x (SR)} \\ & = & \text{Total Labor} \\ & & \text{Variance} \\ & & \text{(TLV)} \end{array}$$

$$(2,100 \times \$9.80) - (2,000 \times \$10.00) = \$580 \text{ U}$$

# 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:

$$\begin{array}{ccc} \text{Actual Hours} & & \text{Standard Hours} \\ \text{x Standard Rate} & - & \text{x Standard Rate} \\ \text{(AH) x (SR)} & & \text{(SH) x (SR)} \\ & & = \\ & & \text{Labor} \\ & & \text{Quantity} \\ & & \text{Variance} \\ & & \text{(LQV)} \end{array}$$

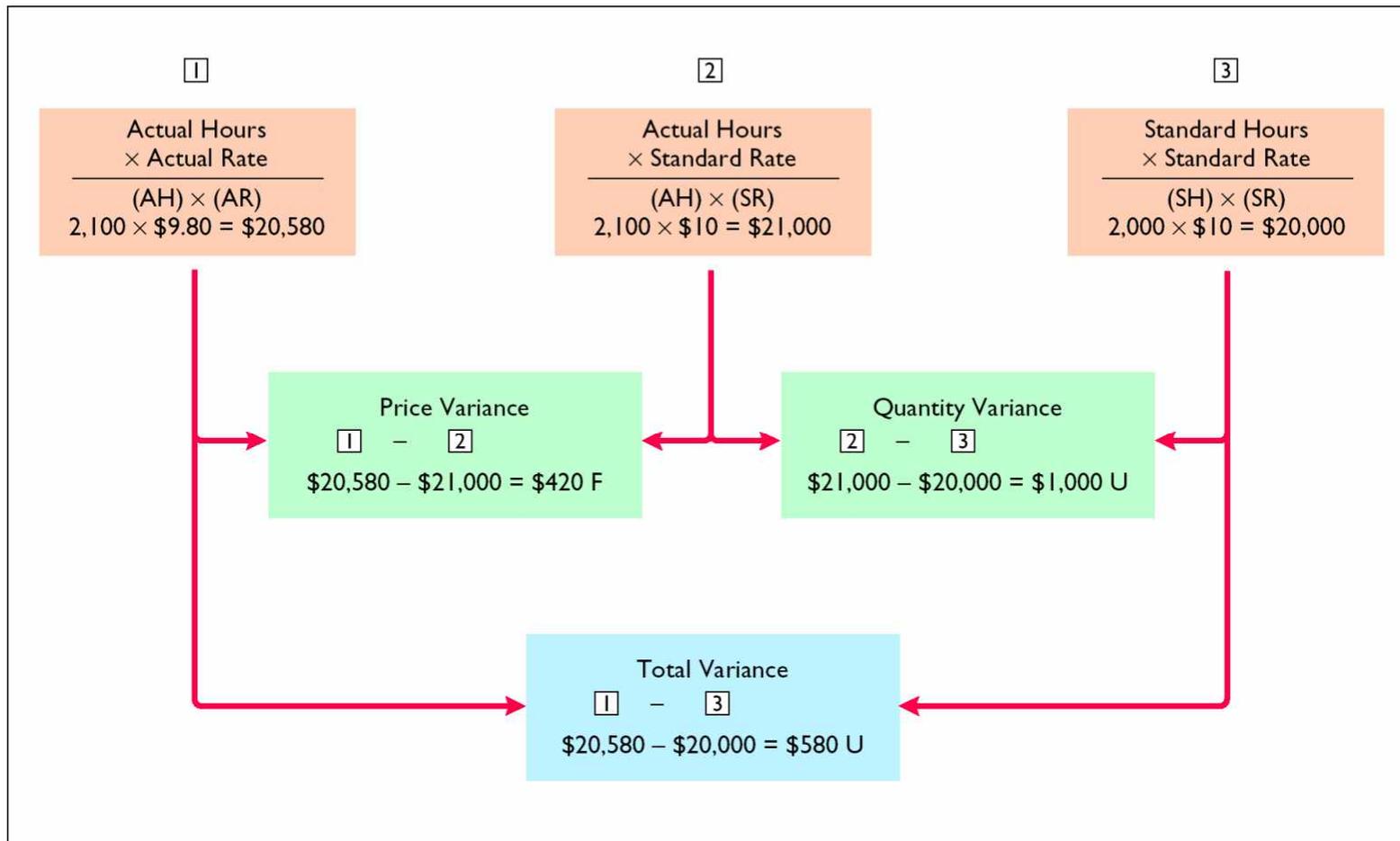
$$(2,100 \times \$10.00) - (2,000 \times \$10.00) = \$1,000 \text{ U}$$

# 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** :

Actual Overhead	—	Overhead Budgeted based on Standard Hours Allowed	=	Overhead Controllable Variance
<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
<b>\$10,400</b>	-	<b>\$10,000</b>	=	<b>\$400 U</b>

# Flexible Budget Using Standard Direct Labor Hours

XONIC, INC.				
Flexible Manufacturing Overhead Budget				
Activity Index				
Standard direct labor hours	<u>1,800</u>	<u><b>2,000</b></u>	<u>2,200</u>	<u>2,400</u>
Costs				
Variable costs				
Indirect materials	\$1,800	<b>\$ 2,000</b>	\$ 2,200	\$ 2,400
Indirect labor	2,700	<b>3,000</b>	3,300	3,600
Utilities	<u>900</u>	<u><b>1,000</b></u>	<u>1,100</u>	<u>1,200</u>
Total variable	<u>5,400</u>	<u><b>6,000</b></u>	<u>6,600</u>	<u>7,200</u>
Fixed costs				
Supervision	3,000	<b>3,000</b>	3,000	3,000
Depreciation	<u>1,400</u>	<u><b>1,400</b></u>	<u>1,400</u>	<u>1,400</u>
Total fixed	<u>4,400</u>	<u><b>4,400</b></u>	<u>4,400</u>	<u>4,400</u>
Total costs	<u>\$9,800</u>	<u><b>\$10,400</b></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.

<b>Overhead budgeted</b>		
Variable costs	\$6,000	
<b>Fixed costs</b>	<b><u>4,400</u></b>	\$10,400
<b>Overhead applied</b>		
Variable costs (2,000 x \$3)	<u>6,000</u>	
<b>Fixed costs (2,000 x \$2)</b>	<b><u>4,000</u></b>	<u>10,000</u>
<b>Overhead volume variance - unfavorable</b>		<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:

Fixed  
Overhead  
Rate

**X**

Normal Capacity  
Hours - Standard  
Hours Allowed

**=**

Overhead  
Volume  
Variance

**\$2**

**x**

**(2,200 - 2,000 ) =**

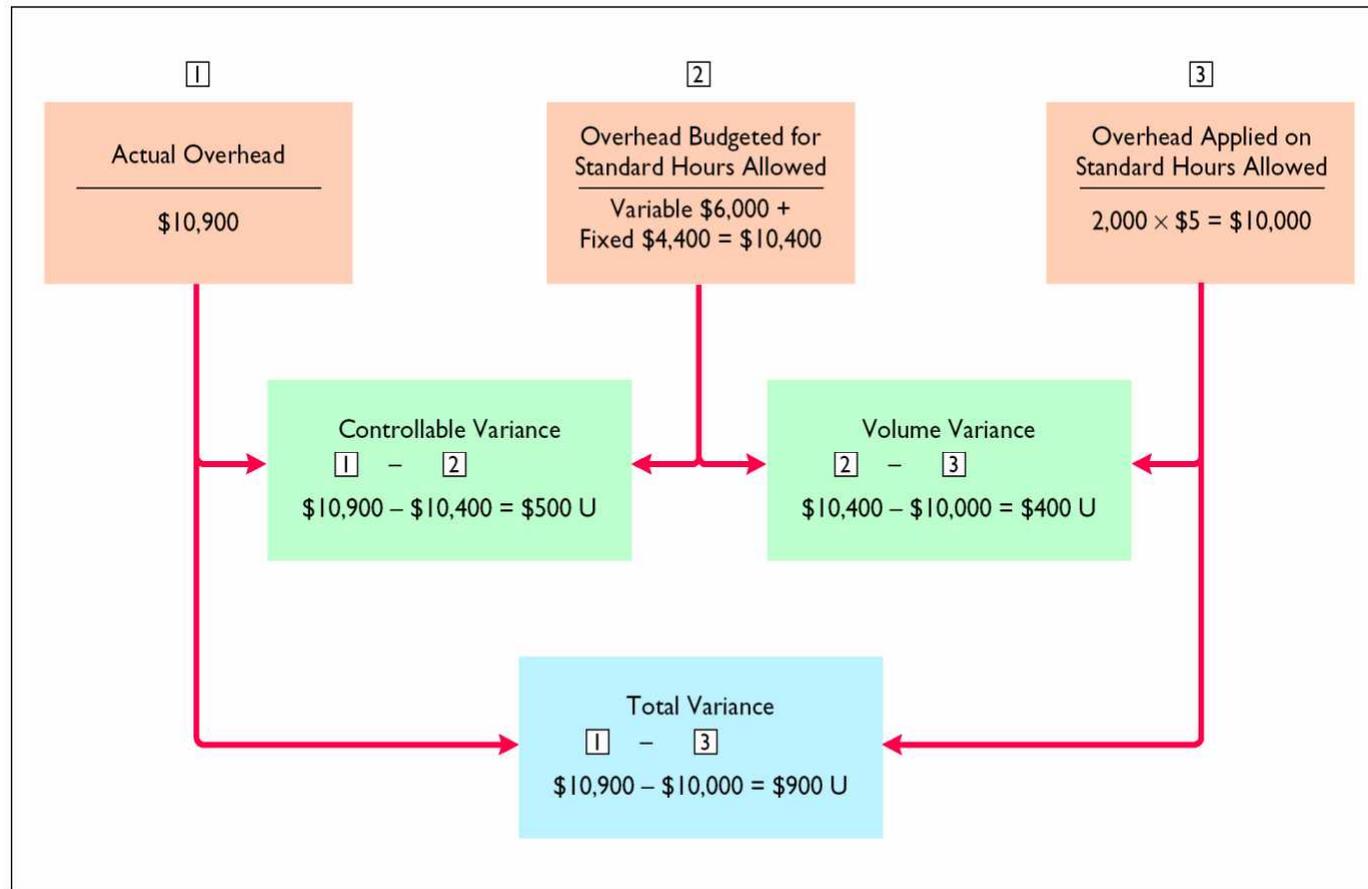
**\$400 U**

## 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>(To record purchase of materials)</b>		<b>13,020</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>
<b>(To record direct labor costs)</b>		

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.**

<b>Work in Process Inventory</b>	<b>12,000</b>	
<i>Materials Quantity Variance</i>	<b>600</b>	
<b>Raw Materials Inventory</b>		<b>12,600</b>
(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.**



The table shows a journal entry with three rows. The first row is a debit to Finished Goods Inventory for 42,000, indicated by a red arrow pointing to the account name. The second row is a credit to Work in Process Inventory for 42,000, indicated by a black arrow pointing to the amount. The third row is a description: "(To record transfer of completed work to finished goods)".

<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

---

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.



Accounting Principles, 7<sup>th</sup> Edition

Weygandt • Kieso • Kimmel

## Chapter 27

# Incremental Analysis and Capital Budgeting

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# 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



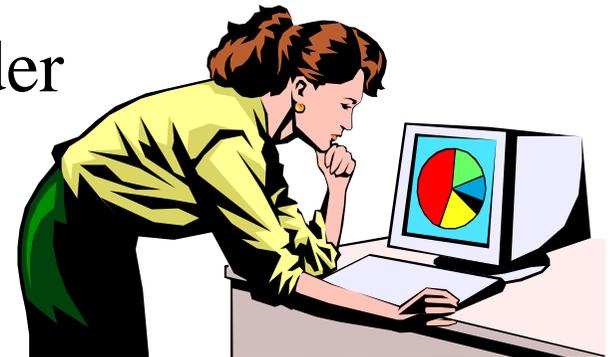
# Incremental Analysis

## 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	Net Income Increase (Decrease)
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-	28,000
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

---

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>	<b><u>\$50.00</u></b>	<b><u>\$60.00</u></b>	<b><u>\$10.00</u></b>
<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>	<b><u>\$35.00</u></b>	<b><u>\$43.40</u></b>	<b><u>\$(8.40)</u></b>
<b>Net income/unit</b>	<b><u>\$15.00</u></b>	<b><u>\$16.60</u></b>	<b><u>\$ 1.60</u></b>

## 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>	(120,000)
<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>
Sales	\$800,000	\$300,000	\$ 100,000	\$1,200,000
Variable expense	<u>520,000</u>	<u>210,000</u>	90,000	<u>820,000</u>
Contribution margin	280,000	90,000	10,000	380,000
Fixed Expenses	<u>80,000</u>	<u>50,000</u>	30,000	<u>160,000</u>
Net income	<u>\$200,000</u>	<u>\$ 40,000</u>	\$(20,000)	<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>-</u>
Net income	<u>\$(20,000)</u>	<u>\$(30,000)</u>	<u>0</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:

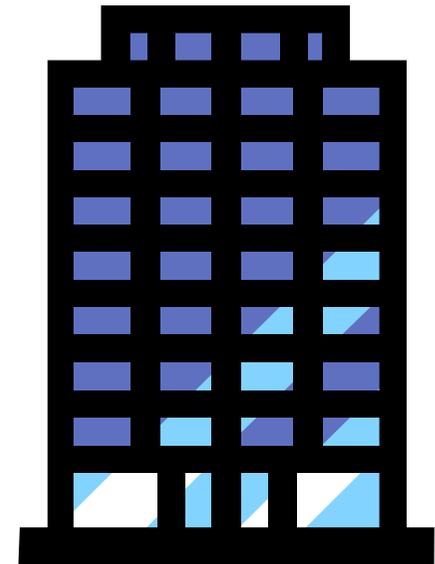
	<u>Produce Deluxe Sets</u>	<u>Produce Standard Sets</u>
Machine hours (a)	600	600
Contribution margin per unit of limited resource (b)	<u>\$2</u>	<u>\$3</u>
Contribution margin (a) x (b)	<u><u>\$1,200</u></u>	<u><u>\$1,800</u></u>

## **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)	<b>\$145,000</b>	
Depreciation expense ( $\$130,000 / 10$ )	<b>13,000</b>	
Selling and administrative expenses	<b><u>22,000</u></b>	<b><u>180,000</u></b>
<b>Income before income taxes</b>		<b>20,000</b>
<b>Income tax expense</b>		<b><u>7,000</u></b>
<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:

$$\begin{array}{ccccc} \text{Expected Annual} & & \text{Average} & & \text{Annual Rate} \\ \text{Net Income} & \div & \text{Investment} & = & \text{of Return} \end{array}$$

$$\begin{array}{ccccc} \$13,000 & / & \$65,000 & = & 20\% \end{array}$$

**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**

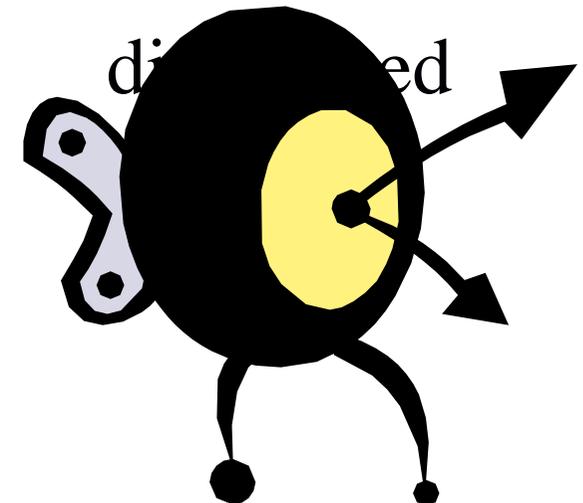
When the payback technique is used to decide among acceptable alternative projects, the shorter the payback period, the more attractive the investment. *This is true for two reasons:*

- 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

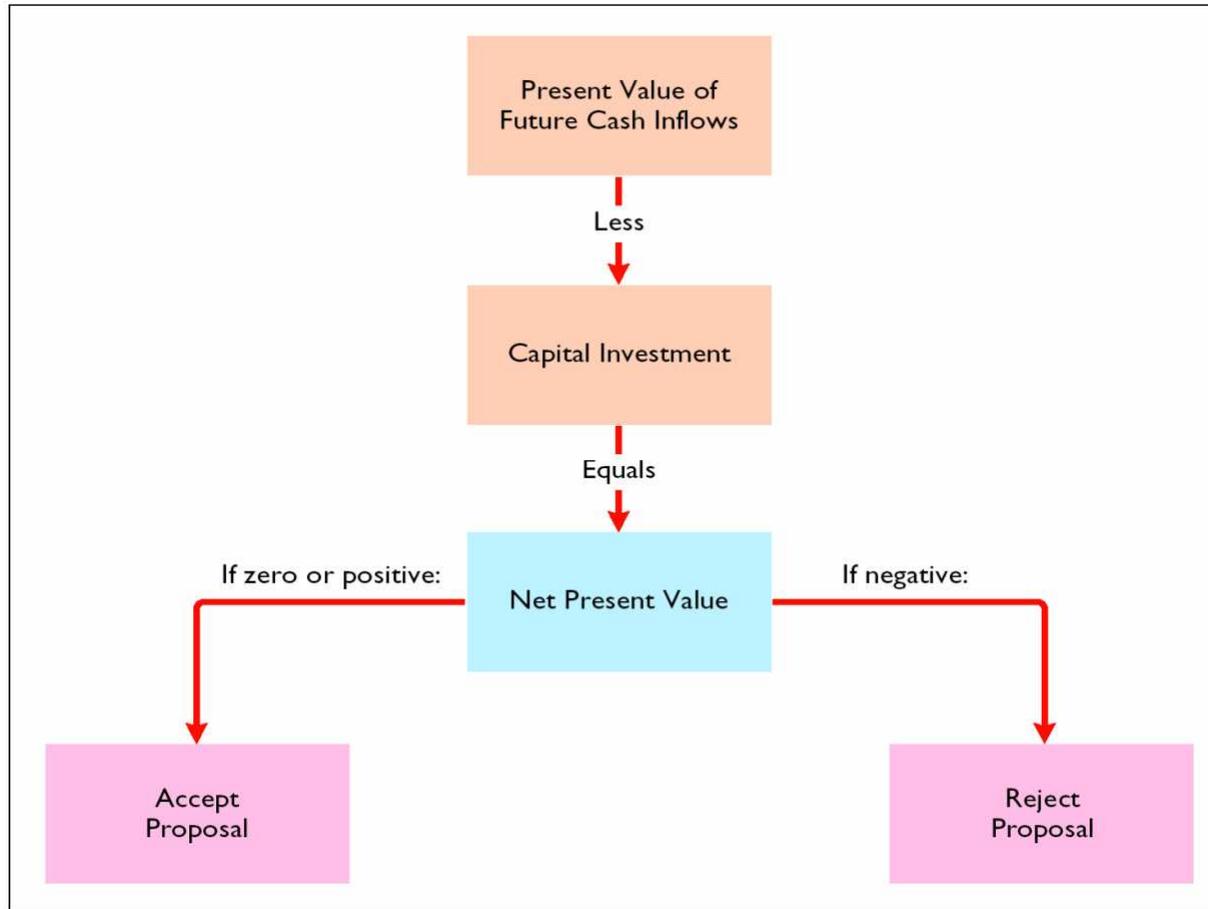
- The **discounted cash flow technique** is generally recognized as the best conceptual approach to making capital budgeting decisions.
- This technique considers both the estimated *total cash inflows* and the *time value of money*.
- Two methods are used with the cash flow technique:
  - 1) net present 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	
Discount factor for 10 periods	12%	15%
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>
<b>Present value of future cash inflows:</b>	<b>\$146,906</b>	<b>\$130,488</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>\$16,906</u></b>	<b><u>\$488</u></b>

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

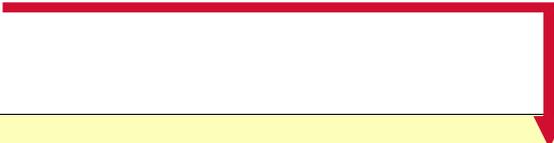
**The computation for the Tappan Company, assuming equal annual cash inflows is:**

<b>Capital Investment</b>	<b>÷</b>	<b>Annual Cash Inflows</b>	<b>=</b>	<b>Internal Rate of Return Factor</b>
<b>\$130,000</b>	<b>/</b>	<b>\$26,000</b>	<b>=</b>	<b>5.0</b>

# Internal Rate of Return Method

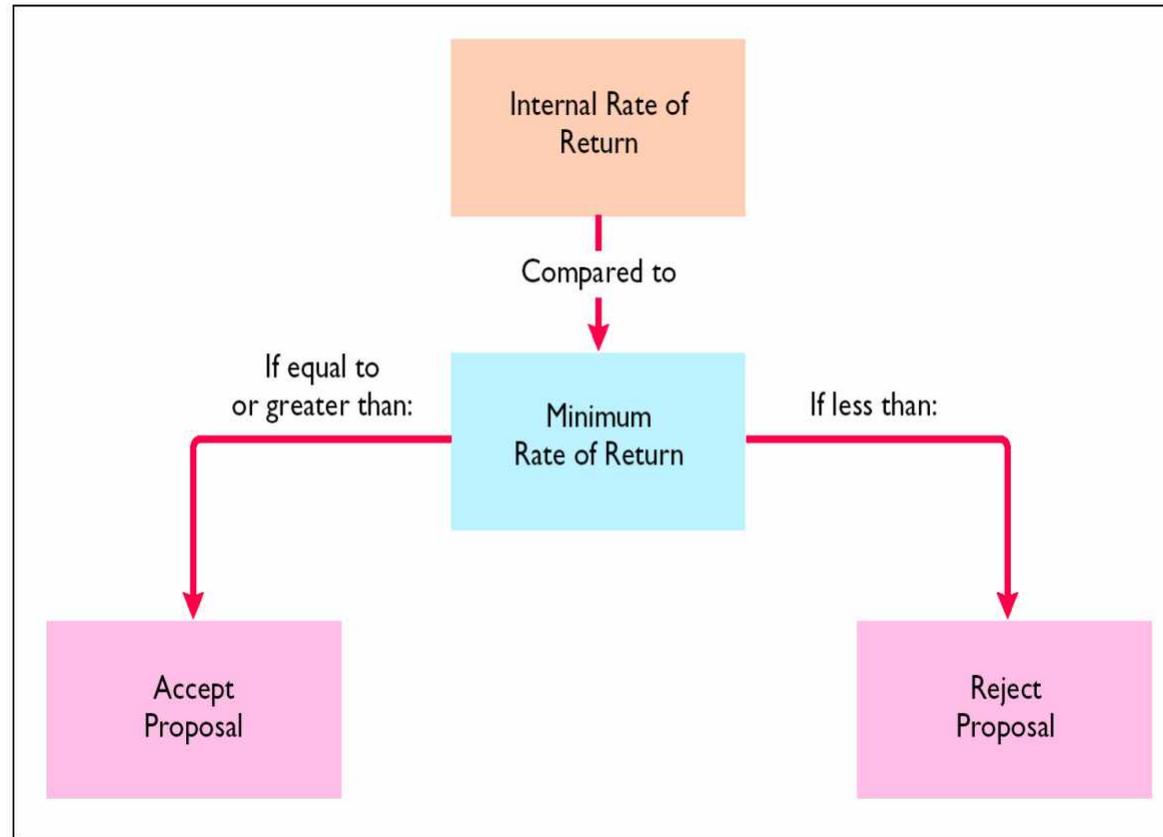
**STEP 2.** Use the factor and the present value of an annuity of 1 table to find **the internal rate of return**.

- 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:

<b>Item</b>	<b><u>Net Present Value</u></b>	<b><u>Internal Rate of Return</u></b>
<b>1. Objective</b>	<b>Compute net present value</b>	<b>Compute internal rate of return</b>
<b>2. Decision rule</b>	<b>If net present value is zero or positive, accept the proposal; if net present value is negative, reject the proposal</b>	<b>If internal rate of return is equal to <math>r_0</math> 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.</b>

# 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.**

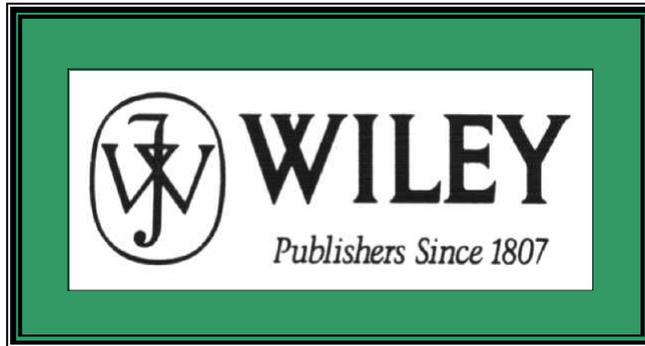
# Review

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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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