

Accounting Principles

Prepared by Dr. Mohamed Hamouda

Lecture 4

جامعة الجميع الذكية

تسعى لتكون الكيان الأول الذي يتبنى مبدأ المجتمع التعليمي
التعاوني ويقدم العلم مقابل العمل لتنمية وبناء المجتمعات.

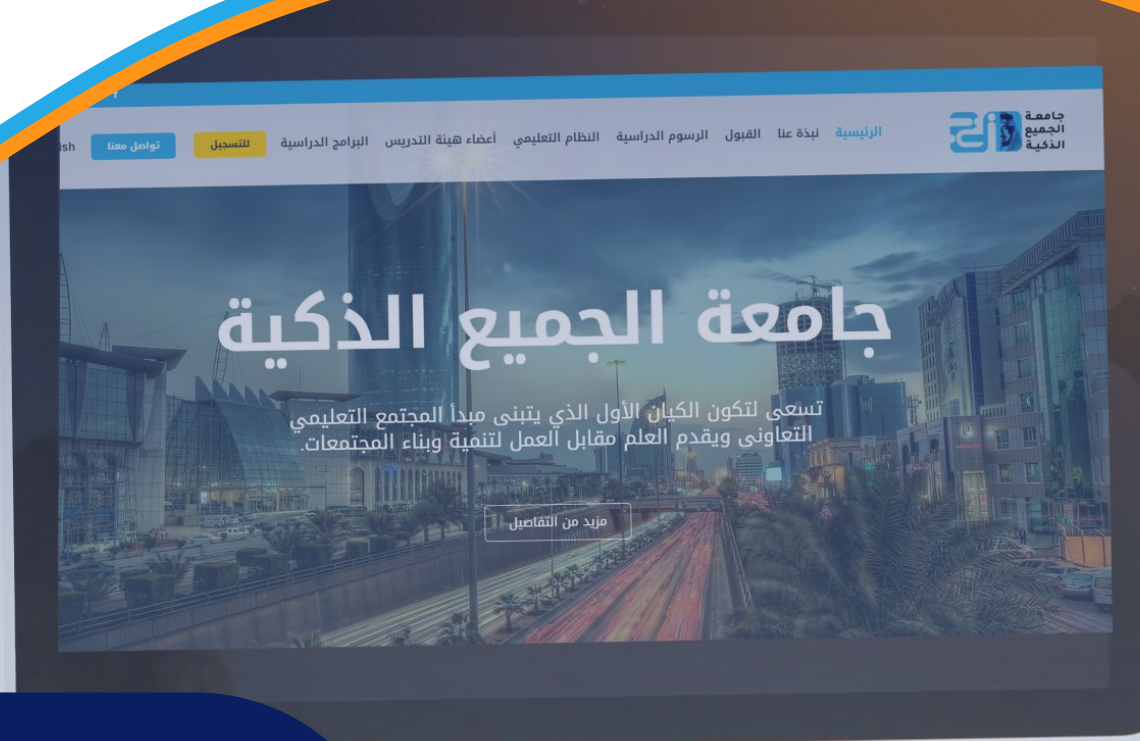
Inventory



جامعة الجميع الذكية
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Accounting Principles

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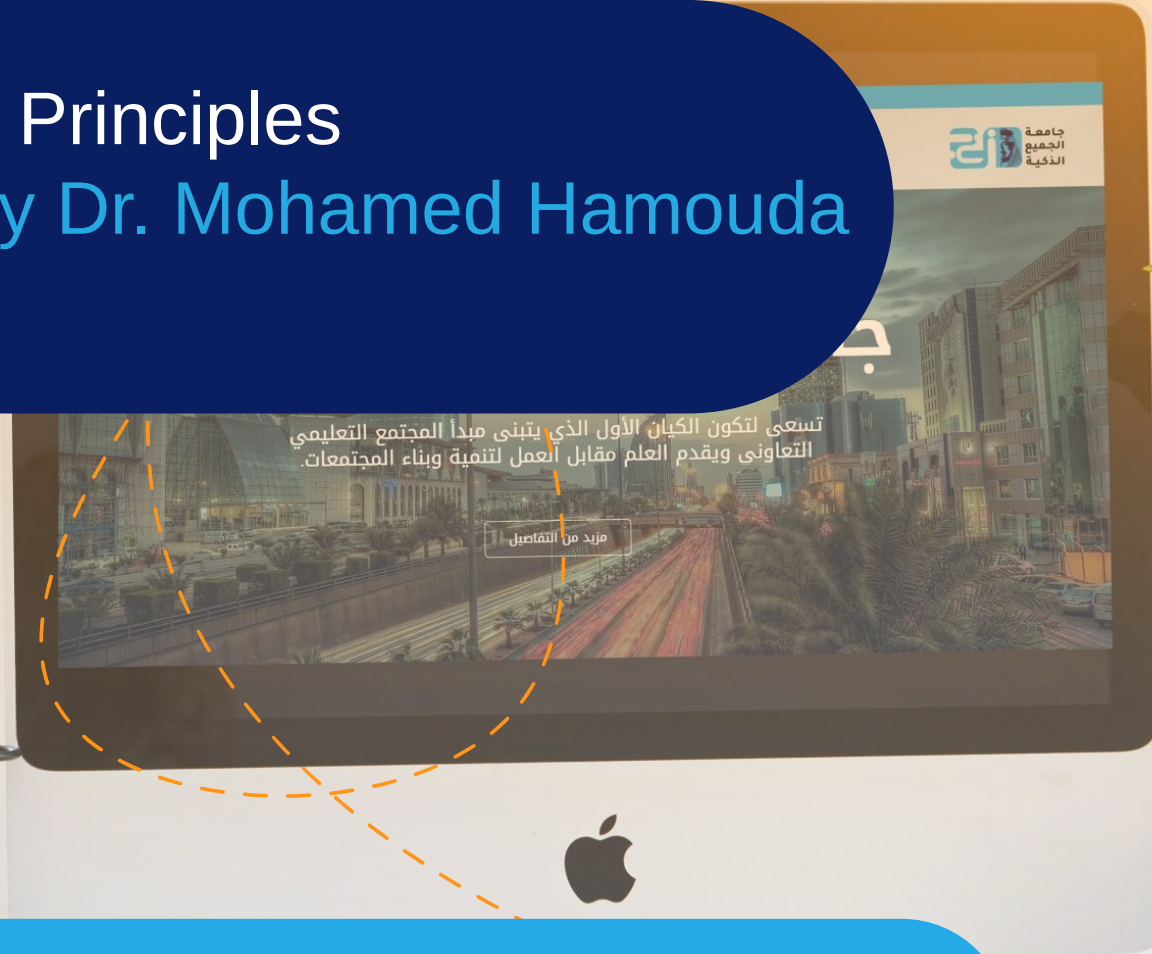
Lecture 4

Inventory

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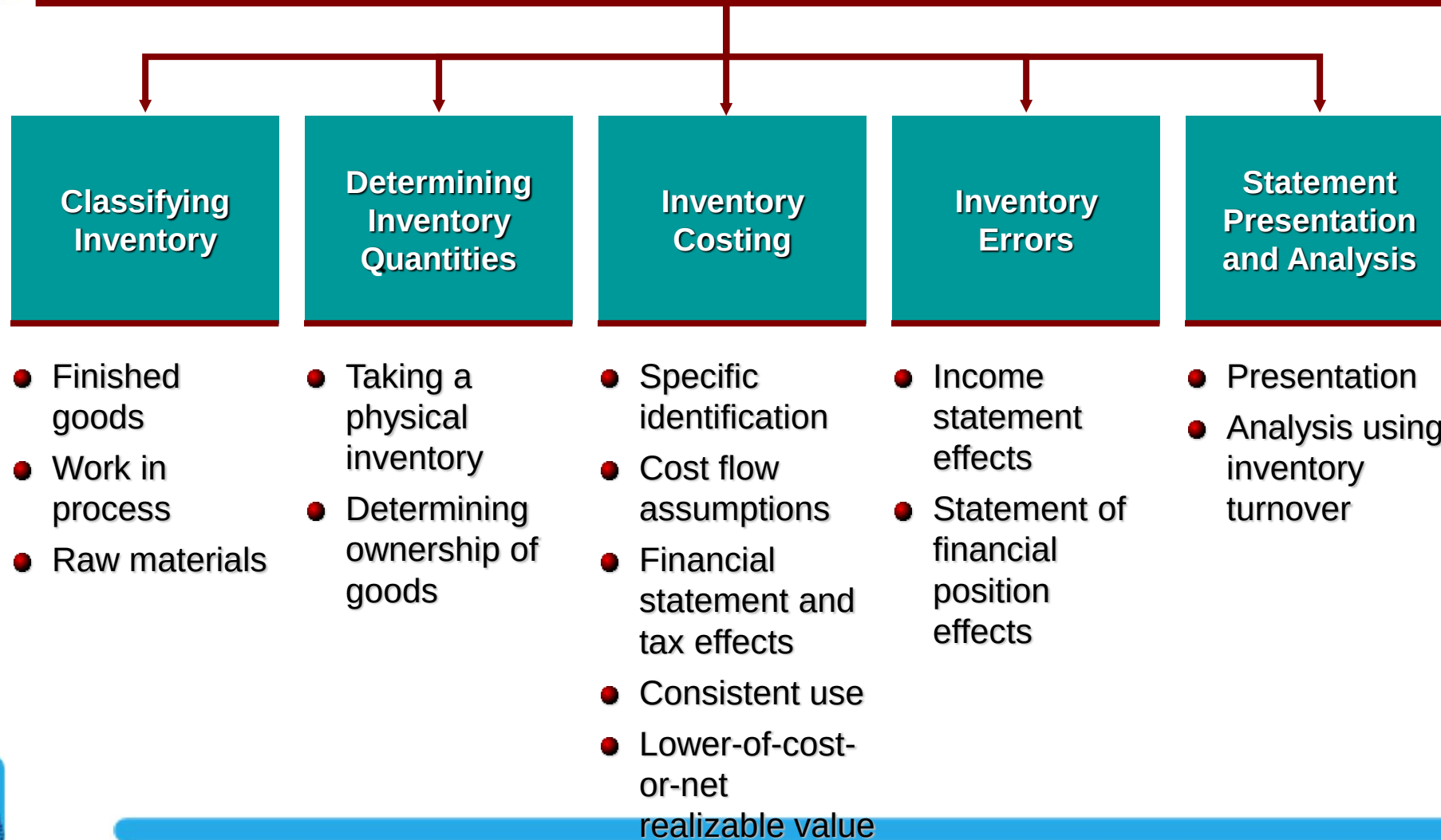
Lecture 4



جامعة الجميع الذكية
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Inventory

Inventories



Classifying Inventory

Merchandising Company

One Classification:

- Merchandise Inventory

Manufacturing Company

Three Classifications:

- Raw Materials
- Work in Process
- Finished Goods

Regardless of the classification, companies report all inventories under Current Assets on the statement of financial position.

Determining Inventory Quantities

Physical Inventory taken for two reasons:

Perpetual System

1. Check accuracy of inventory records.
2. Determine amount of inventory lost (wasted raw materials, shoplifting, or employee theft).

Periodic System

1. Determine the inventory on hand
2. Determine the cost of goods sold for the period.

Taking a Physical Inventory

Involves counting, weighing, or measuring each kind of inventory on hand.

Taken,

- when the business is closed or when business is slow.
- at end of the accounting period.

Determining Ownership of Goods

Goods in Transit

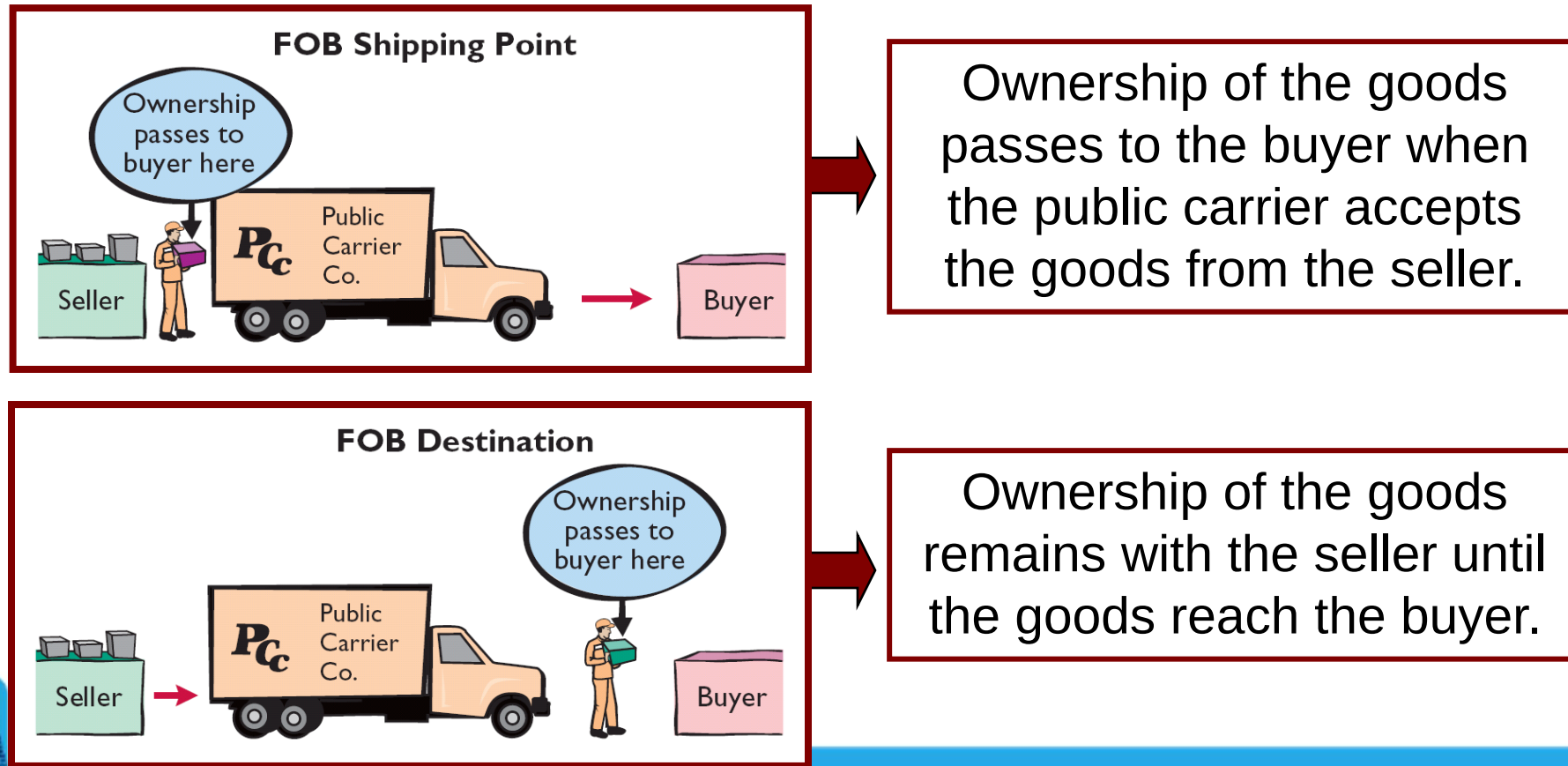
- Purchased goods not yet received.
- Sold goods not yet delivered.

Goods in transit should be included in the inventory of the company that has **legal title** to the goods. Legal title is determined by the **terms of sale**.

Determining Inventory Quantities

Goods in Transit

Illustration 6-1



Review Question

Goods in transit should be included in the inventory of the buyer when the:

- a. public carrier accepts the goods from the seller.
- b. goods reach the buyer.
- c. terms of sale are FOB destination.
- ☒ d. terms of sale are FOB shipping point.

Determining Ownership of Goods

Consigned Goods

- In some lines of business, it is common to hold the goods of other parties and try to sell the goods for them for a fee, but without taking ownership of goods.
- These are called **consigned goods**.

Unit costs can be applied to quantities on hand using the following costing methods:

- Specific Identification
- First-in, first-out (FIFO)
- Average-cost



**Cost Flow
Assumptions**

Specific Identification Method

An actual **physical flow costing method** in which items still in inventory are specifically costed to arrive at the total cost of the ending inventory.

- Practice is relatively rare.
- Most companies make assumptions (**Cost Flow Assumptions**) about which units were sold.

Illustration: Assume that Crivitz TV Company purchases three identical 46-inch TVs on different dates at costs of \$700, \$750, and \$800. During the year Crivitz sold two sets at \$1,200 each.

Illustration 6-2

Purchases

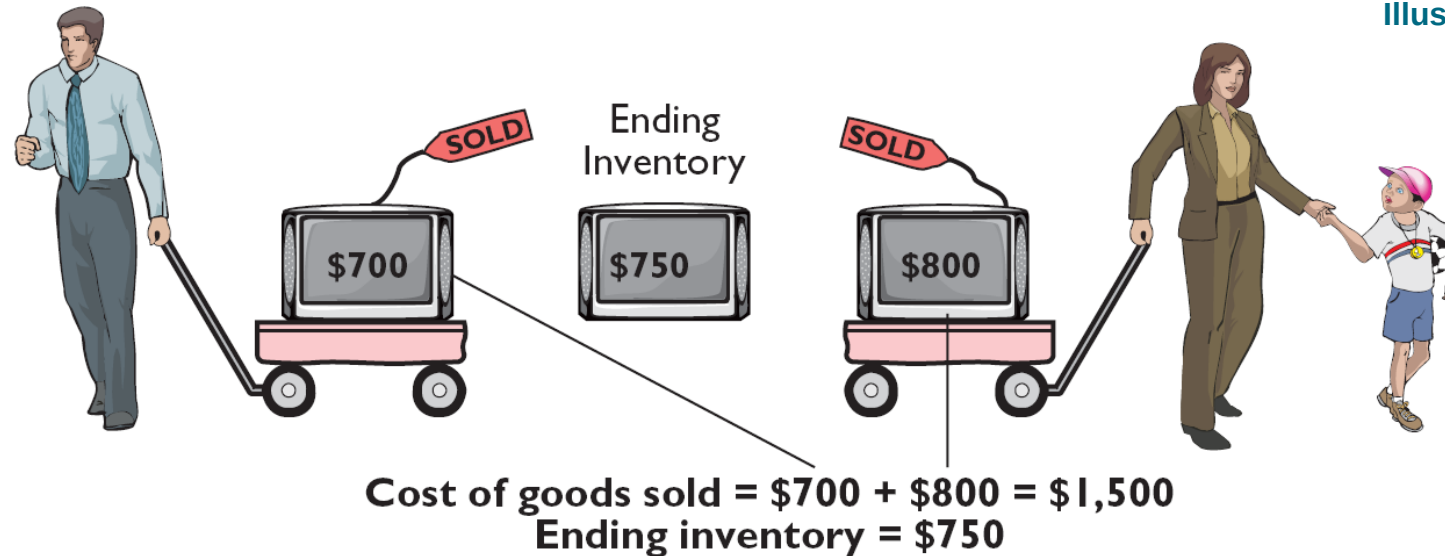
February 3	1 TV	at	\$700
March 5	1 TV	at	\$750
May 22	1 TV	at	\$800

Sales

June 1	2 TVs	for	\$2,400 ($\$1,200 \times 2$)
--------	-------	-----	--------------------------------

Illustration: If Crivitz sold the TVs it purchased on February 3 and May 22, then its cost of goods sold is \$1,500 (\$700 + \$800), and its ending inventory is \$750.

Illustration 6-3



Cost Flow Assumptions

Illustration 6-4

ISHIKAWA ELECTRONICS				
Astro Condensers				
<u>Date</u>	<u>Explanation</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Jan. 1	Beginning inventory	100	\$10	\$ 1,000
Apr. 15	Purchase	200	11	2,200
Aug. 24	Purchase	300	12	3,600
Nov. 27	Purchase	400	13	5,200
	Total	<u>1,000</u>		<u>\$12,000</u>

- Ishikawa uses a periodic inventory system.
- Physical inventory determined that Ishikawa sold 550 units and had 450 units in inventory at December 31.

“First-In-First-Out (FIFO)”

- **Earliest goods** purchased are first to be sold.
- Often parallels actual physical flow of merchandise.
- Generally good business practice to sell oldest units first.

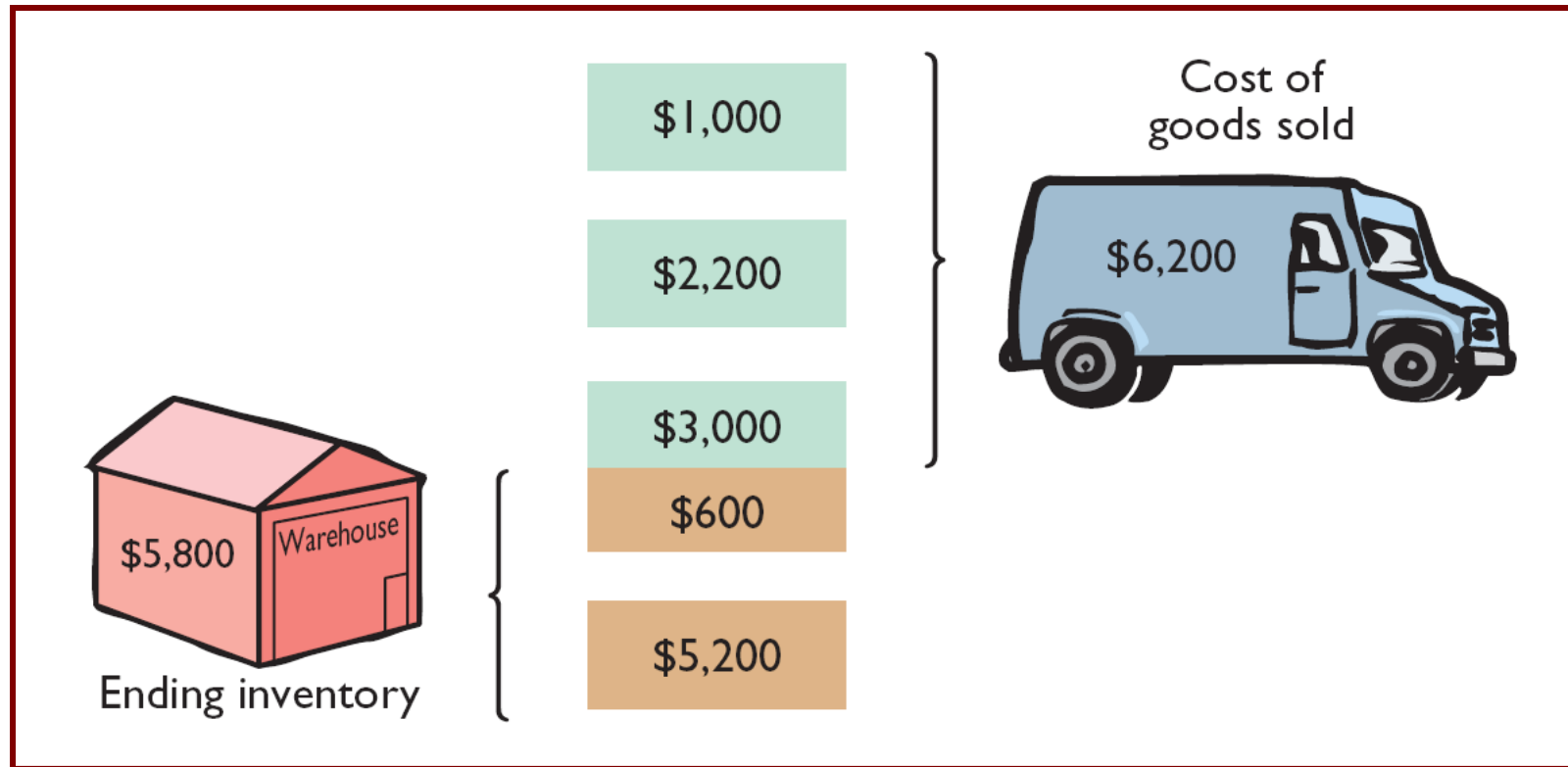
“First-In-First-Out (FIFO)”

Illustration 6-5

COST OF GOODS AVAILABLE FOR SALE				
<u>Date</u>	<u>Explanation</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Jan. 1	Beginning inventory	100	\$10	\$ 1,000
Apr. 15	Purchase	200	11	2,200
Aug. 24	Purchase	300	12	3,600
Nov. 27	Purchase	400	13	5,200
	Total	<u>1,000</u>		<u>\$12,000</u>
STEP 1: ENDING INVENTORY			STEP 2: COST OF GOODS SOLD	
<u>Date</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>	
				Cost of goods available for sale
				\$12,000
	<u> </u>	<u> </u>	<u> </u>	<u> </u>
	<u> </u>	<u> </u>	<u> </u>	<u> </u>

“First-In-First-Out (FIFO)”

Illustration 6-5



“Average-Cost”

- Allocates cost of goods available for sale on the basis of **weighted average unit cost** incurred.
- Assumes goods are similar in nature.
- Applies weighted average unit cost to the units on hand to determine cost of the ending inventory.

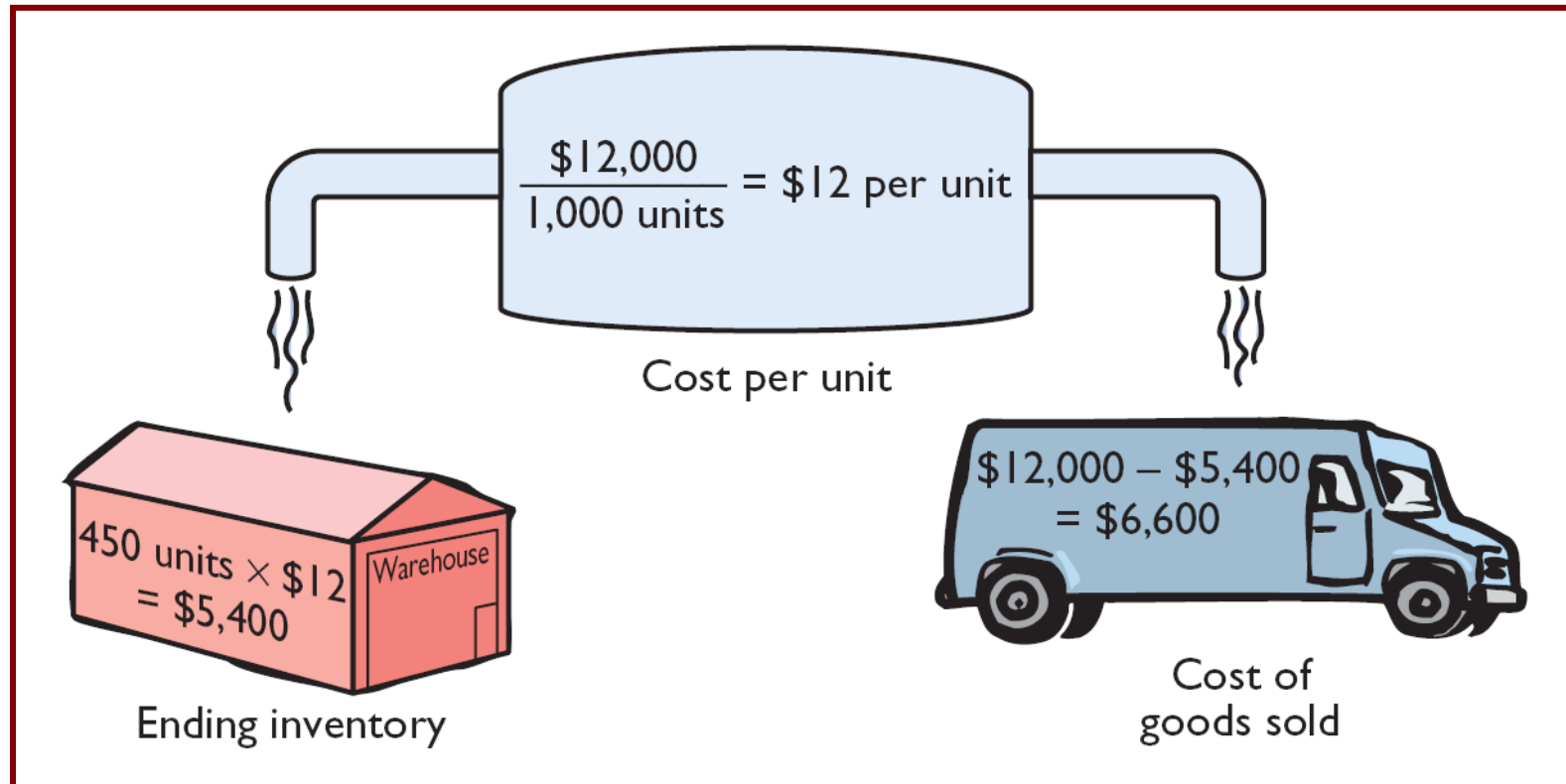
“Average Cost”

Illustration 6-8

COST OF GOODS AVAILABLE FOR SALE					
<u>Date</u>	<u>Explanation</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>	
Jan. 1	Beginning inventory	100	\$10	\$ 1,000	
Apr. 15	Purchase	200	11	2,200	
Aug. 24	Purchase	300	12	3,600	
Nov. 27	Purchase	400	13	5,200	
	Total	<u>1,000</u>		<u>\$12,000</u>	
STEP 1: ENDING INVENTORY			STEP 2: COST OF GOODS SOLD		
\$12,000	÷	1,000	=	\$12.00	Cost of goods available for sale \$12,000
<u>Units</u>		<u>Unit Cost</u>		<u>Total Cost</u>	

“Average Cost”

Illustration 6-8



Financial Statement and Tax Effects

Illustration 6-9

Income Statement Effects

ISHIKAWA ELECTRONICS		
Condensed Income Statements		
	<u>FIFO</u>	<u>Average-Cost</u>
Sales	\$11,500	\$11,500
Beginning inventory	1,000	1,000
Purchases	11,000	11,000
Cost of goods available for sale	12,000	12,000
Ending inventory	5,800	5,400
Cost of goods sold	6,200	6,600
Gross profit	5,300	4,900
Operating expenses	2,000	2,000
Income before income taxes ⁴	3,300	2,900
Income tax expense (30%)	990	870
Net income	\$ 2,310	\$ 2,030

Statement of Financial Statement Effects

- A major advantage of the FIFO method is that in a period of inflation, the costs allocated to ending inventory will approximate their current cost.
- A shortcoming of the average-cost method is that in a period of inflation, the costs allocated to ending inventory may be understated in terms of current cost.

Tax Effects

In a period of inflation:

- FIFO - inventory and net income higher.
- AVERAGE Cost - lower income taxes.

Review Question

In a period of rising prices, average cost will produce:

- a. higher net income than FIFO.
- b. the same net income as FIFO.
- c. lower net income than FIFO.
- ☒ d. net income is equal to the specific identification method.

Using Cost Flow Methods Consistently

- Method should be used consistently, enhances comparability.
- Although consistency is preferred, a company may change its inventory costing method.

Lower-of-Cost-or-Net Realizable Value

When the value of inventory is lower than its cost

- Companies can “write down” the inventory to its net realizable value in the period in which the price decline occurs.
- Net realizable value refers to the net amount that a company expects to realize (receive) from the sale of inventory.

Lower-of-Cost-or-Net Realizable Value

Illustration: Assume that Ken Tuckie TV has the following lines of merchandise with costs and market values as indicated.

Illustration 6-10

	<u>Cost</u>	<u>Net Realizable Value</u>	<u>Lower-of-Cost-or-Net Realizable Value</u>
Flatscreen TVs	\$60,000	\$55,000	\$ 55,000
Satellite radios	45,000	52,000	45,000
DVD recorders	48,000	45,000	45,000
DVDs	15,000	14,000	14,000
Total inventory			<u><u>\$159,000</u></u>

Common Cause:

- Failure to count or price inventory correctly.
- Not properly recognizing the transfer of legal title to goods in transit.
- Errors affect both the income statement and statement of financial position.

Income Statement Effects

Inventory errors affect the computation of cost of goods sold and net income.

Illustration 6-11

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

Illustration 6-12

<u>When Inventory Error:</u>	<u>Cost of Goods Sold Is:</u>	<u>Net Income Is:</u>
Understates beginning inventory	Understated	Overstated
Overstates beginning inventory	Overstated	Understated
Understates ending inventory	Overstated	Understated
Overstates ending inventory	Understated	Overstated

Income Statement Effects

Inventory errors affect the computation of cost of goods sold and net income **in two periods**.

- An error in ending inventory of the current period will have a **reverse effect on net income of the next accounting period**.
- Over the two years, the total net income is correct because the errors **offset each other**.
- The ending inventory depends entirely on the accuracy of taking and costing the inventory.

Chapter 04

Inventory Errors

Illustration 6-13

	2011		2012	
	Incorrect	Correct	Incorrect	Correct
Sales	\$ 80,000	\$ 80,000	\$ 90,000	\$ 90,000
Beginning inventory	20,000	20,000	12,000	15,000
Cost of goods purchased	40,000	40,000	68,000	68,000
Cost of goods available	60,000	60,000	80,000	83,000
Ending inventory	12,000	15,000	23,000	23,000
Cost of good sold	48,000	45,000	57,000	60,000
Gross profit	32,000	35,000	33,000	30,000
Operating expenses	10,000	10,000	20,000	20,000
Net income	\$ 22,000	\$ 25,000	\$ 13,000	\$ 10,000

Combined income for 2-year period is correct.

(\$3,000)
Net Income
understated

\$3,000
Net Income
overstated

Review Question

Understating ending inventory will overstate:

- a. assets.
- ☒ b. cost of goods sold.
- c. net income.
- d. equity.

Statement of Financial Position Effects

Effect of inventory errors on the statement of financial position is determined by using the accounting equation:

$$\text{Beginning Inventory} + \text{Cost of Goods Purchased} - \text{Ending Inventory} = \text{Cost of Goods Sold}$$

Illustration 6-11

Illustration 6-14

<u>Ending Inventory Error</u>	<u>Assets</u>	<u>Liabilities</u>	<u>Equity</u>
Overstated	Overstated	No effect	Overstated
Understated	Understated	No effect	Understated

Presentation

Statement of Financial Position - Inventory classified as current asset.

Income Statement - Cost of goods sold.

There also should be disclosure of

- 1) major inventory classifications,
- 2) basis of accounting (cost, or lower-of-cost-or-net realizable value), and
- 3) Cost method (specific identification, FIFO, or average-cost).

Analysis Using Inventory Turnover

Inventory management is a double-edged sword

1. **High Inventory Levels** - may incur high carrying costs (e.g., investment, storage, insurance, obsolescence, and damage).
2. **Low Inventory Levels** – may lead to stockouts and lost sales.

Inventory turnover measures the number of times on average the inventory is sold during the period.

$$\text{Inventory Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

Days in inventory measures the average number of days inventory is held.

$$\text{Days in Inventory} = \frac{\text{Days in Year (365)}}{\text{Inventory Turnover}}$$

Illustration: Esprit Holdings reported in its 2009 annual report a beginning inventory of HK\$3,170 million, an ending inventory of HK\$2,997 million, and cost of goods sold for the year ended June 30, 2009, of HK\$16,523 million. The inventory turnover formula and computation for Esprit Holdings are shown below.

Illustration 6-16

Cost of Goods Sold	÷	Average Inventory	=	Inventory Turnover
	÷	 	=	

Days in Inventory: Inventory turnover of times divided into 365 is approximately This is the approximate time that it takes a company to sell the inventory.

Key Differences

Inventories

- Both GAAP and IFRS permit the specific identification method where appropriate. IFRS requires that the specific identification method must be used where the inventory items are not interchangeable (i.e., can be specifically identified). If the inventory items are not specifically identifiable, a cost flow assumption is used. GAAP does not specify situations that require its use.
- GAAP permits the use of the last-in, first-out (LIFO) cost flow assumption for inventory valuation. IFRS prohibits its use. LIFO is frequently used by U.S. companies for tax purposes. U.S. regulations require that if LIFO is used for taxes, it must also be used for financial reporting. (See Appendix 6C.)

Cost Flow Methods in Perpetual Systems

Appendix 6A

Illustration 6A-1

ISHIKAWA ELECTRONICS					
Astro Condensers					
<u>Date</u>	<u>Explanation</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>	<u>Balance in Units</u>
1/1	Beginning inventory	100	\$10	\$ 1,000	100
4/15	Purchases	200	11	2,200	300
8/24	Purchases	300	12	3,600	600
9/10	Sale	550			50
11/27	Purchases	400	13	5,200	450
				<u>\$12,000</u>	

Assuming the **Perpetual** Inventory System, compute Cost of Goods Sold and Ending Inventory under FIFO and Average cost.

Cost Flow Methods in Perpetual Systems

“First-In-First-Out (FIFO)”

Illustration 6A-2

Date	Purchases	Cost of Goods Sold	Balance (in units and cost)
January 1			
April 15	(200 @ \$11) \$2,200		}
August 24	(300 @ \$12) \$3,600		}
September 10			}
November 27	(400 @ \$13) \$5,200		}

Answer on
notes page

**Cost of Goods
Sold**

Ending Inventory

Cost Flow Methods in Perpetual Systems

“Average Cost” (Moving-Average System)

Illustration 6A-3

<u>Date</u>	<u>Purchases</u>	<u>Cost of Goods Sold</u>	<u>Balance (in units and cost)</u>	
January 1			(100 @ \$10)	\$1,000
April 15	(200 @ \$11) \$2,200			
August 24	(300 @ \$12) \$3,600			
September 10				
November 27	(400 @ \$13) \$5,200			

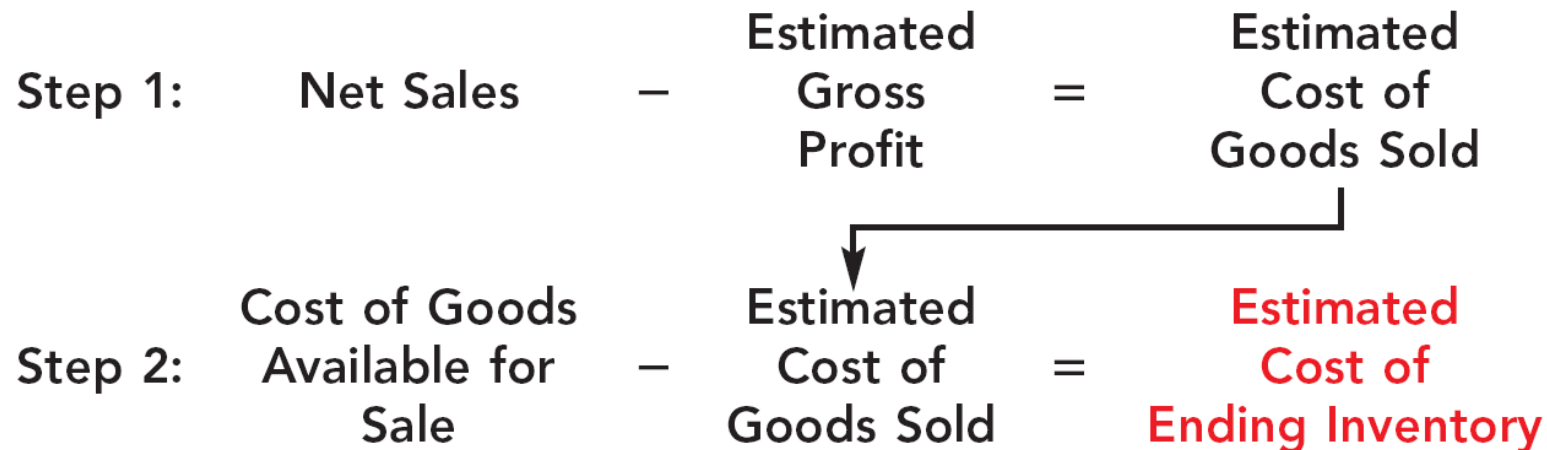
**Cost of Goods
Sold**

Ending Inventory

Gross Profit Method

The **gross profit method** estimates the cost of ending inventory by applying a gross profit rate to net sales.

Illustration 6B-1



Estimating Inventories

Illustration: Kishwaukee Company's records for January show net sales of \$200,000, beginning inventory \$40,000, and cost of goods purchased \$120,000. The company expects to earn a 30% gross profit rate. Compute the estimated cost of the ending inventory at January 31 under the gross profit method.

Step 1:

Net sales	\$200,000
Less: Estimated gross profit (30% × \$200,000)	<u>60,000</u>
Estimated cost of goods sold	<u><u>\$140,000</u></u>

Step 2:

Beginning inventory	\$ 40,000
Cost of goods purchased	<u>120,000</u>
Cost of goods available for sale	160,000
Less: Estimated cost of goods sold	<u>140,000</u>
Estimated cost of ending inventory	<u><u>\$ 20,000</u></u>

Illustration 6B-2

Retail Inventory Method

Company applies the cost-to-retail percentage to ending inventory at retail prices to determine inventory at cost.

Illustration 6B-3

Step 1:	Goods Available for Sale at Retail	–	Net Sales	=	Ending Inventory at Retail
Step 2:	Goods Available for Sale at Cost	÷	Goods Available for Sale at Retail	=	Cost-to- Retail Ratio
Step 3:	Ending Inventory at Retail	×	Cost-to- Retail Ratio	=	Estimated Cost of Ending Inventory

Estimating Inventories

Illustration:

Illustration 6B-4

	<u>At Cost</u>	<u>At Retail</u>
Beginning inventory	\$14,000	\$ 21,500
Goods purchased	<u>61,000</u>	<u>78,500</u>
Goods available for sale	<u><u>\$75,000</u></u>	<u>100,000</u>
Net sales		<u>70,000</u>
Step (1) Ending inventory at retail =		<u><u>\$ 30,000</u></u>
Step (2) Cost-to-retail ratio $\\$75,000 \div \\$100,000 = 75\%$		
Step (3) Estimated cost of ending inventory = $\\$30,000 \times 75\% =$	<u><u>\$22,500</u></u>	

Note that it is not necessary to take a physical inventory to determine the estimated cost of goods on hand at any given time.

“Last-In-First-Out (LIFO)”

- **Latest goods** purchased are first to be sold.
- Seldom coincides with actual physical flow of merchandise.
- Exceptions include goods stored in piles, such as coal or hay.
- Under IFRS, LIFO is not permitted for financial reporting purposes.

LIFO Inventory Method

Illustration

Illustration 6-4

ISHIKAWA ELECTRONICS Astro Condensers				
<u>Date</u>	<u>Explanation</u>	<u>Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>
Jan. 1	Beginning inventory	100	\$10	\$ 1,000
Apr. 15	Purchase	200	11	2,200
Aug. 24	Purchase	300	12	3,600
Nov. 27	Purchase	400	13	5,200
	Total	<u>1,000</u>		<u>\$12,000</u>

- Ishikawa uses a periodic inventory system.
- Physical inventory determined that Ishikawa sold 550 units and had 450 units in inventory at December 31.

LIFO Inventory Method

“Last-In-First-Out (LIFO)”

Illustration 6C-1

COST OF GOODS AVAILABLE FOR SALE					
Date	Explanation	Units	Unit Cost	Total Cost	
Jan. 1	Beginning inventory	100	\$10	\$ 1,000	
Apr. 15	Purchase	200	11	2,200	
Aug. 24	Purchase	300	12	3,600	
Nov. 27	Purchase	400	13	5,200	
	Total	1,000		\$12,000	
STEP 1: ENDING INVENTORY				STEP 2: COST OF GOODS SOLD	
Date	Units	Unit Cost	Total Cost	Cost of goods available for sale	
				\$12,000	

LIFO Inventory Method

“Last-In-First-Out (LIFO)”

Illustration 6C-1

