



# BACHELOR of ECONOMICS



**Thammasat University  
Faculty of Economics  
Bachelor of Economics (International Program)**

# AC 201

## Fundamental Accounting

**Semester 1/2015**

### Course Materials

**Topics:**

Chapter 7 Reporting and Interpreting  
Cost of Goods Sold and Inventory

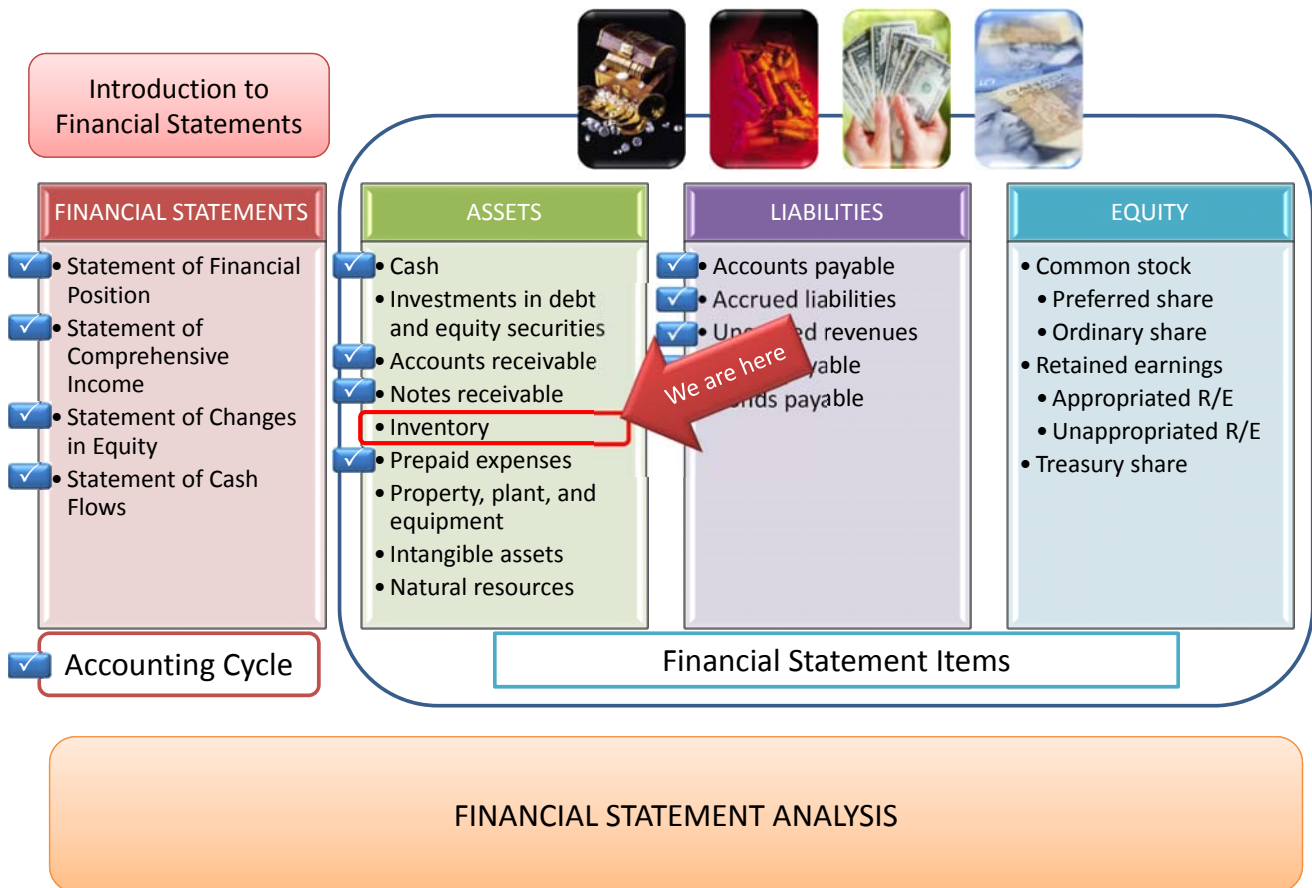
**Session:**

Session #7

**Instructor:**

Ajarn Santana Singhasaneh





AC201 Fundamental Accounting



**BACHELOR**  
of **ECONOMICS**



**CHAPTER 7:  
REPORTING AND INTERPRETING  
COST OF GOODS SOLD  
AND INVENTORY**

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## Understanding the Business



Primary Goals of Inventory Management

Provide sufficient quantities of high-quality inventory.

Minimize the costs of carrying inventory.

### Statement of Financial Position

Assets:  
Current assets:  
Inventory - net xxx

### Statement of Income

Net sales	xxx
Less: Cost of goods sold	<u>xxx</u>
Gross profit	xx

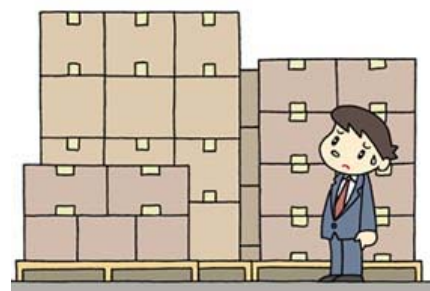
Value at lower of cost or net realizable value (NRV)

When inventories are sold and revenue is recognized, the carrying amount of those inventories is recognized as an expense (often called cost-of-goods-sold).

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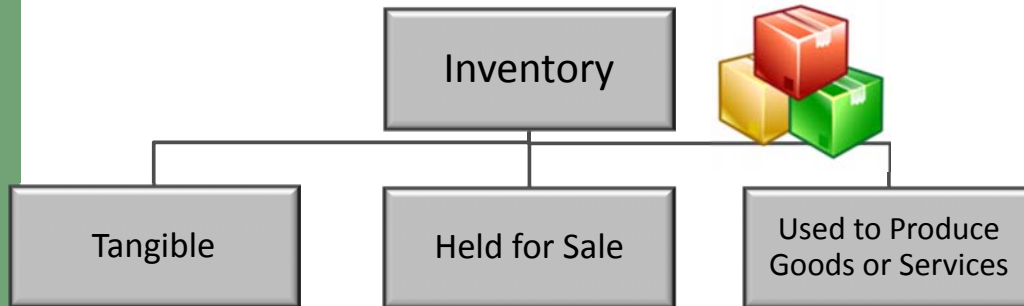
## Nature of Inventory and Cost of Good Sold



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## Items Included in Inventory



**Inventory** is tangible property that is

- (a) held for sale in the ordinary course of business;
- (b) in the process of production for such sale; or
- (c) in the form of material or supplies to be consumed in the production process or in the rendering of services.



## Items Included in Inventory

### **Merchandisers** (Wholesale or Retail Businesses)

- **Merchandise Inventory:**

Goods (or merchandise) held for resale in the normal course of business.

- The goods usually are acquired in a finished condition and are ready for sale without further processing.

### **Manufacturers**

- **Raw Materials Inventory:**

Items acquired for processing into finished goods.

- These items are included in raw materials inventory until they are used, at which point they become part of work in process inventory.

- **Work in Process Inventory:**

Goods in the process of being manufactured but not yet complete.

- When completed, work in process inventory becomes finished goods inventory.

- **Finished Goods Inventory:**

Manufactured goods that are complete and ready for sale.



## Inventory Cost

### Cost includes

- costs of purchase (including invoice price, taxes, freight/transport, and handling) net of trade discounts received
- costs of conversion (including fixed and variable manufacturing overheads)
- other costs incurred in bringing the inventories to their present location and condition (inspection costs, preparation costs)

### Cost does NOT include

- abnormal waste
- storage costs
- administrative overheads unrelated to production
- selling costs
- foreign exchange differences arising directly on the recent acquisition of inventories invoiced in a foreign currency
- interest cost when inventories are purchased with deferred settlement terms.

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## Flow of Inventory Costs

STAGE 1: PURCHASING/  
PRODUCTION ACTIVITIES

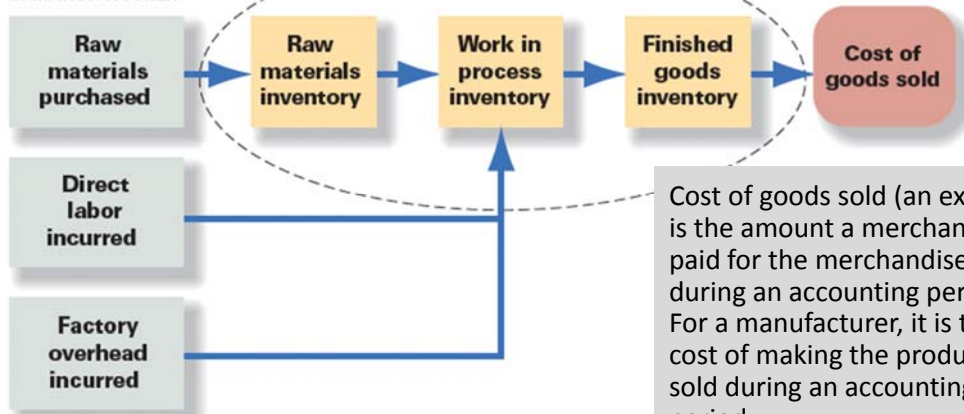
STAGE 2: ADDITIONS TO INVENTORY ON  
THE BALANCE SHEET

STAGE 3: SALE-  
COST OF GOODS SOLD  
ON INCOME STATEMENT

### A. MERCHANTISER



### B. MANUFACTURER

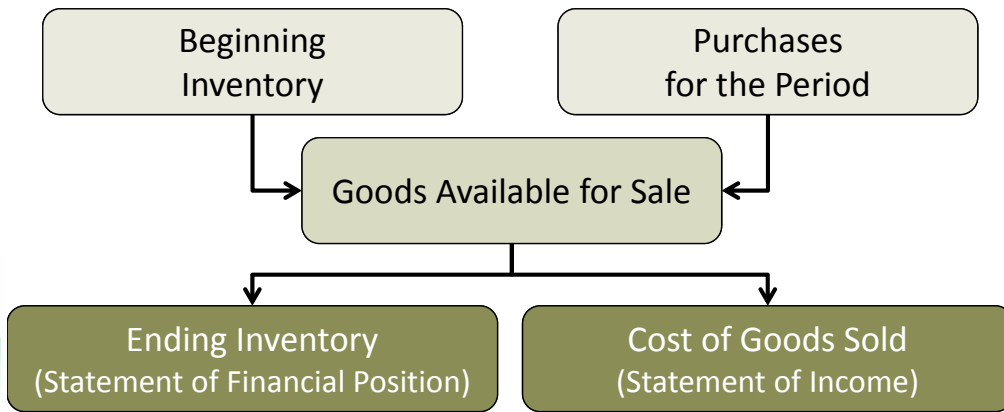


Cost of goods sold (an expense) is the amount a merchandiser paid for the merchandise it sold during an accounting period. For a manufacturer, it is the cost of making the products it sold during an accounting period.

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## Cost of Goods Sold Equation



Cost of Goods Sold Equation:

Beginning inventory	
+ Purchases of goods during the period	
<hr/>	
Goods Available for Sale	
- Ending inventory	
<hr/>	
Cost of goods sold	

If three of these four values are known, the cost of goods sold equation can be used to solve for the fourth value.



## Perpetual & Periodic Inventory Systems (1)

The amount of cost of goods sold and ending inventory can be determined by using one of two different inventory systems: perpetual or periodic.

### Perpetual Inventory System

- One keeping **continual** track of additions or deletions in materials, work-in-process, and cost of goods sold on a day-to-day basis.
- Physical inventory counts are usually taken at least once a year in order to check on the validity of the book records.
- Cost of goods sold is kept on a day-to-day basis rather than being determined periodically.

### Periodic Inventory System

- One that does **NOT** require a day-to-day record of inventory changes.
- Cost of materials used and costs of goods sold **cannot** be calculated until ending inventories, determined by physical count, are subtracted from the sum of beginning inventories and purchases (or cost of goods available for sales)



## Perpetual & Periodic Inventory Systems (2)

### Perpetual Inventory System

Provides up-to-date inventory records.

All movements in inventory are recorded in *"Inventory"* account.

Provides up-to-date cost of goods sold records.

In a **Periodic Inventory System**, ending inventory and cost of goods sold are determined at the end of the accounting period based on a **physical count**.

All movements in inventory are recorded in *"Purchases"* account.

At year end, inventory balance is adjusted to a **physical inventory count**



## Perpetual & Periodic Inventory Systems (3)

### Perpetual Inventory System

- *Perpetual inventory system record cost of goods sold when inventory is sold and keep inventory at its current balance throughout the year.*
  - Therefore, there is NO need to record a year-end inventory adjustment unless the perpetual records disagree with the physical inventory count.
  - A separate cost of goods sold calculation is unnecessary since cost of goods sold is recorded whenever inventory is sold.

### Periodic Inventory System

- *In periodic inventory system, the inventory account keeps its beginning balance until the end of period adjustment to the physical inventory count.*

- Therefore, a separate cost of goods sold calculation is necessary.

Beginning inventory	xx
+ Purchases	<u>xx</u>
= Cost of goods available for sale	xx
- Ending inventory	<u>xx</u>
= <b>Cost of goods sold</b>	<u><b>xx</b></u>



## Perpetual & Periodic Inventory Systems (4)

• Beginning inventory	200 units @ \$10	= \$2,000
• Purchased	700 units @ \$10	= \$7,000
• Sold	400 units @ \$25	= \$10,000
• Ending inventory	500 units @ \$10	= \$5,000

Perpetual Inventory System	Periodic Inventory System
1. Beginning inventory 200 units @ \$10 Inventory account shows \$2,000	Inventory account shows \$2,000
<b>Differences</b>	
2. Purchased 700 units @ \$10 <b>Dr. Inventory 7,000</b> Cr. Accounts payable 7,000	<b>Dr. Purchases 7,000</b> Cr. Accounts payable 7,000
3. Sold 400 units @ \$25 Dr. Accounts receivable 10,000 Cr. Sales revenue 10,000 <b>Dr. Cost of goods sold 4,000</b> Cr. Inventory 4,000	Dr. Accounts receivable 7,000 Cr. Sales revenue 7,000 <b>---- No entry ----</b>
4. Physically count number of units on hand at end of period <b>---- No entry ----</b> Inventory account shows \$5,000 Cost of goods sold account shows \$4,000	<b>Dr. Cost of goods sold 4,000</b> Ending inventory 5,000 Cr. Beginning inventory 2,000 Purchases 7,000

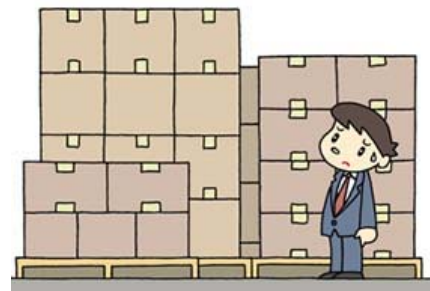


## Perpetual & Periodic Inventory Systems (5)

	Perpetual Inventory System	Periodic Inventory System
Beginning inventory	Carried over from prior period	Carried over from prior period
Add: Purchases	Accumulated in the <b>Inventory account</b>	Accumulated in the <b>Purchases account</b>
Less: Ending inventory	Perpetual record updated at every sale	Measured at end of period by <b>physical inventory count</b>
Cost of goods sold	Measured at every sale based on perpetual record	<b>Computed</b> as a residual amount at end of period



## Inventory Costing Methods



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## Physical Flows v/s Cost Flows

### ***Physical Flows***

- Refers to the actual physical movement of goods in the operations of a company.

### ***Cost Flows***

- Refers to the association of costs with their assumed flow in the operations of a company.



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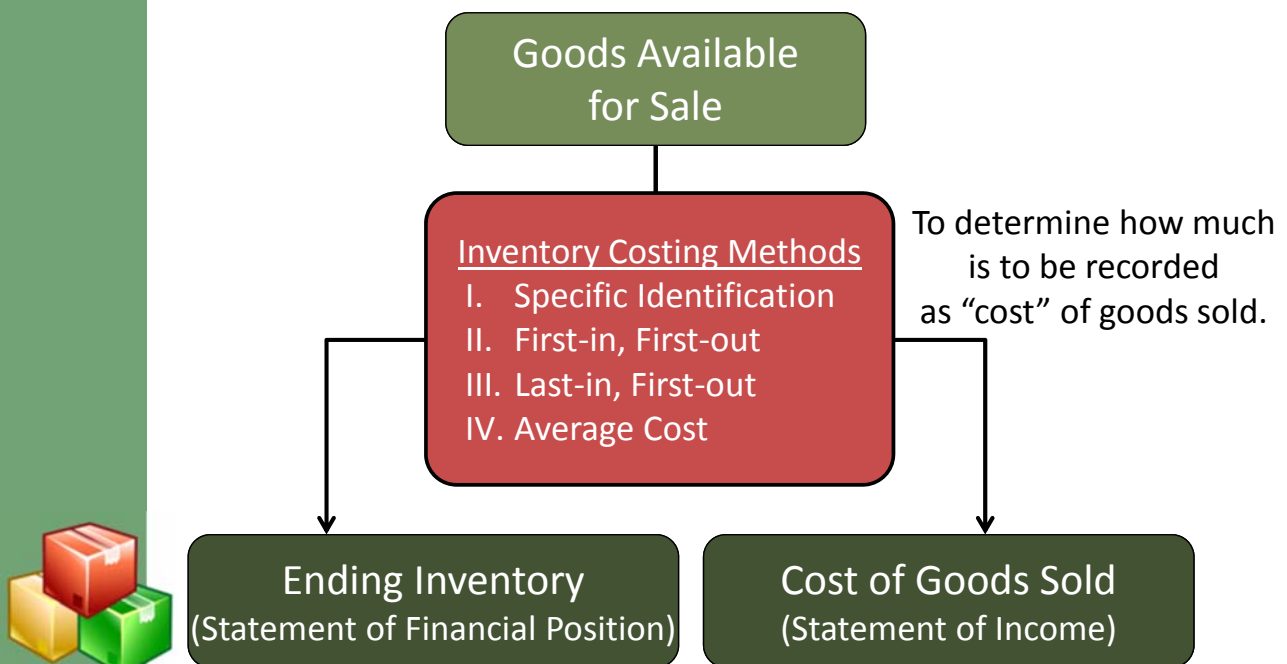


## Inventory Costing Methods (1)

Specific Identification	Cost Flow Assumptions The choice of an inventory costing method is <b>NOT</b> based on the physical flow of goods.		
The cost of each item sold is <b>individually identified</b> and recorded as cost of goods sold. This method requires keeping track of the purchase cost of each item.	First-in, First-out (FIFO)	Last-in, First-out (LIFO)	Average Cost
	Assumes that the earliest goods purchased (the <b>first</b> ones in) are the first goods sold.	Assumes that the most recently purchased goods (the <b>last</b> ones in) are the first goods sold.	Uses the average unit cost of the goods available for sale for both cost of goods sold and ending inventory.
	↑ Not used in Thailand		



## Inventory Costing Methods (2)





## Specific Identification Method



Inventory method that considers the sale and cost of each item specifically.

When units are sold, the **specific cost** of the unit sold is added to cost of goods sold.



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## Example – Inventory Costing

We will use this data throughout our inventory examples.

Computers, Inc. Mouse Pad Inventory As of December 31, 2014			
Date	Units	\$ per Unit	Total \$
Beginning Inventory	1,000	5.25	5,250.00
Purchases:			
Jan 3	500	5.30	2,650.00
Jun 20	300	5.60	1,680.00
Sep 15	250	5.80	1,450.00
Nov 29	200	5.90	1,180.00
Goods Available for Sale	2,250		12,210.00
Ending Inventory	1,200		?
Cost of Goods Sold	1,050		?

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## FIFO: First-In, First-Out Method (1)

Inventory method in which the oldest remaining items are assumed to have been the first sold.



Oldest Unit Costs

Cost of Goods Sold



Recent Unit Costs

Ending Inventory



## FIFO: First-In, First-Out Method (2)

The costs of the **oldest purchases** are allocated to **cost of goods sold**.  
Start with 1,000 units from beginning inventory  
and add units purchased until you reach 1,050 units sold.

Given Information			Ending Inventory	Cost of Goods Sold
Beg. Inv.	1,000	@ 5.25		↓ 1,000 @ 5.25
Jan 3	500	@ 5.30		↓ 50 @ 5.30
Jun 20	300	@ 5.60		
Sep 15	250	@ 5.80		
Nov 29	200	@ 5.90		
	<u>2,250</u>	Units	<u>1,200</u> Units	<u>1,050</u> Units
				<u>\$ 5,515</u> Cost

We have allocated the cost to all 1,050 units sold.



## FIFO: First-In, First-Out Method (3)

The costs of the **most recent purchases** are in **ending inventory**.  
 Start with 200 units from Nov 29 and add units purchased until you reach 1,200 units in ending inventory.

Given Information			Ending Inventory		Cost of Goods Sold		
Beg. Inv.	1,000	@ 5.25			1,000	@ 5.25	
Jan 3	500	@ 5.30	↑	450	@ 5.30	50	@ 5.30
Jun 20	300	@ 5.60		300	@ 5.60		
Sep 15	250	@ 5.80		250	@ 5.80		
Nov 29	200	@ 5.90		200	@ 5.90		
	<u>2,250</u>	Units		<u>1,200</u>	Units	<u>1,050</u>	Units
				<u>\$ 6,695</u>	Cost	<u>\$ 5,515</u>	Cost

Now we have allocated the cost to all 1,200 units in ending inventory.



## FIFO: First-In, First-Out Method (4)

Here is the cost of ending inventory and cost of goods sold using FIFO.

Computers, Inc. Mouse Pad Inventory As of December 31, 2014			
Date	Units	\$ per Unit	Total \$
Beginning Inventory	1,000	5.25	5,250.00
Purchases:			
Jan 3	500	5.30	2,650.00
Jun 20	300	5.60	1,680.00
Sep 15	250	5.80	1,450.00
Nov 29	200	5.90	1,180.00
Goods Available for Sale	2,250		12,210.00
Ending Inventory	1,200		6,695.00
Cost of Goods Sold	1,050		5,515.00



## LIFO: Last-In, First-Out Method (1)

Inventory method in which the most recently acquired items are assumed to have been the first sold.



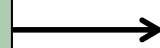
Oldest Unit Costs



Ending Inventory



Recent Unit Costs



Cost of Goods Sold



## LIFO: Last-In, First-Out Method (2)

The costs of the **most recent purchases** are allocated to **cost of goods sold**. Start with 200 units from Nov 29 and add units purchased until you reach 1,050 units sold.

Given Information				Ending Inventory	Cost of Goods Sold
Beg. Inv.	1,000	@	5.25		
Jan 3	500	@	5.30		↑ 300 @ 5.30
Jun 20	300	@	5.60		300 @ 5.60
Sep 15	250	@	5.80		250 @ 5.80
Nov 29	200	@	5.90		200 @ 5.90
	<u>2,250</u>	Units		<u>1,200</u> Units	<u>1,050</u> Units
					<b>\$ 5,900 Cost</b>

We have allocated the cost to all 1,050 units sold.



## LIFO: Last-In, First-Out Method (3)

The costs of the **oldest purchases** are in **ending inventory**.  
 Start with 1,000 units in beginning inventory and add units purchased until you reach 1,200 units in ending inventory.

Given Information		Ending Inventory	Cost of Goods Sold
Beg. Inv.	1,000 @ 5.25	1,000 @ 5.25	
Jan 3	500 @ 5.30	200 @ 5.30	300 @ 5.30
Jun 20	300 @ 5.60		300 @ 5.60
Sep 15	250 @ 5.80		250 @ 5.80
Nov 29	200 @ 5.90		200 @ 5.90
	<u>2,250</u> Units	<u>1,200</u> Units	<u>1,050</u> Units
		<b>\$ 6,310 Cost</b>	<b>\$ 5,900 Cost</b>

Now we have allocated the cost to all 1,200 units in ending inventory. 27



## LIFO: Last-In, First-Out Method (4)

Here is the cost of ending inventory and cost of goods sold using LIFO.

Computers, Inc. Mouse Pad Inventory As of December 31, 2014			
Date	Units	\$ per Unit	Total \$
Beginning Inventory	1,000	5.25	5,250.00
Purchases:			
Jan 3	500	5.30	2,650.00
Jun 20	300	5.60	1,680.00
Sep 15	250	5.80	1,450.00
Nov 29	200	5.90	1,180.00
Goods Available for Sale	2,250		12,210.00
Ending Inventory	1,200		6,310.00
Cost of Goods Sold	1,050		5,900.00



## Average Cost Method (1)

Inventory method that takes cost of goods available for sale and divide it by the number of units available for sale to determine an average cost per unit.

$$\text{Average Cost per Unit} = \frac{\text{Cost of Goods Available for Sale}}{\text{Number of Units Available for Sale}}$$

The average cost is used for **both** cost of goods sold **and** ending inventory.



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## Average Cost Method (2)

Computers, Inc.  
Mouse Pad Inventory  
As of December 31, 2014

Date	Units	\$ per Unit	Total \$
Beginning Inventory	1,000	5.25	5,250.00
Purchases:			
Jan 3	500	5.30	2,650.00
Jun 20	300	5.60	1,680.00
Sep 15	250	5.80	1,450.00
Nov 29	200	5.90	1,180.00
<b>Goods Available for Sale</b>	<b>2,250</b>		<b>12,210.00</b>
<b>Ending Inventory</b>	<b>1,200</b>		<b>6,512.00</b>
<b>Cost of Goods Sold</b>	<b>1,050</b>		<b>5,698.00</b>

Average Cost =  $12,210 / 2,250 = 5.4267$

<----  $1,200 \times 5.4267$

<----  $1,050 \times 5.4267$

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## Comparison of Methods

**Computers, Inc.**  
Income Statement  
For Year Ended December 31, 2014

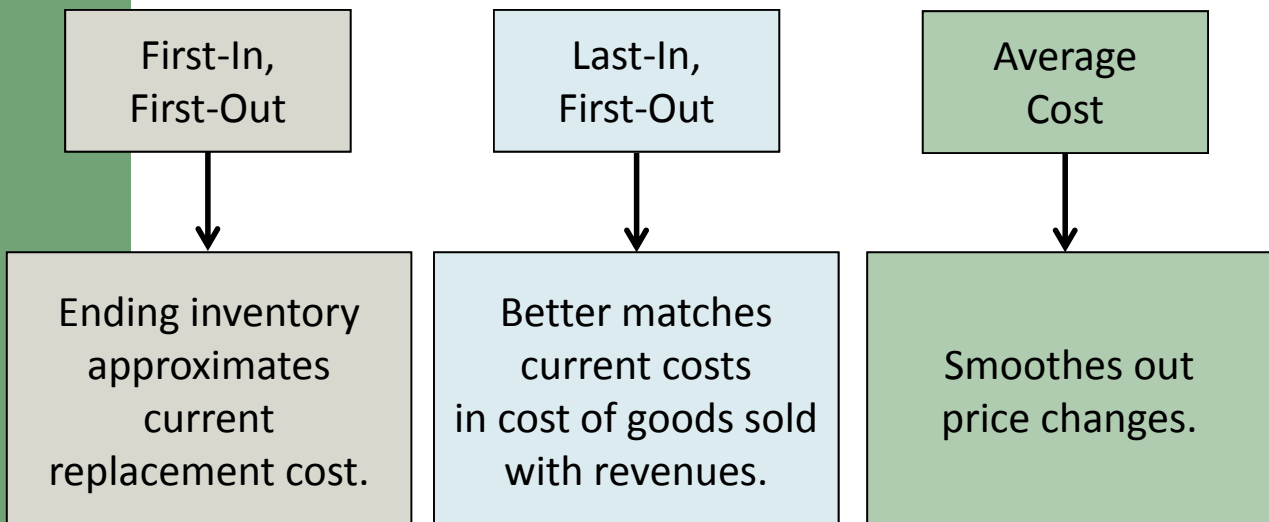
	FIFO	LIFO	Weighted Average
Net sales	\$ 25,000	\$ 25,000	\$ 25,000
Cost of goods sold:			
Merchandise inventory, beginning	5,250	5,250	5,250
Net purchases	6,960	6,960	6,960
Goods available for sale	12,210	12,210	12,210
Merchandise inventory, ending	(6,695)	(6,310)	(6,512)
Cost of goods sold	5,515	5,900	5,698
Gross profit	19,485	19,100	19,302
Operating expenses	(750)	(750)	(750)
Income before taxes	18,735	18,350	18,552
Income taxes expense (30%)*	(5,621)	(5,505)	(5,566)
Net income	\$ 13,114	\$ 12,845	\$ 12,986

\* Tax expense amounts were rounded.



## Financial Statement Effects of Costing Method

### Advantages of Methods





## International Perspective LIFO and International Comparisons

While U.S. GAAP allows companies to choose between FIFO, LIFO, and weighted average inventory methods, International Financial Reporting Standards (IFRS) currently **prohibit the use of LIFO**.

GAAP allows different inventory accounting methods to be used for different types of inventory items.

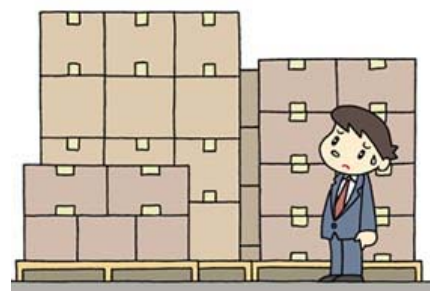
IFRS requires that the same method be used for all inventory items that have a similar nature and use.

These differences can create comparability problems when one attempts to compare companies across international borders.

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## Valuation at Lower of Cost or Net Realizable Value



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## Valuation at Lower of Cost or Net Realizable Value (1)

Ending inventory is reported at the **lower of cost or net realizable value.**

**Net realizable value (NRV)** is the estimated selling price in the ordinary course of business less the estimated costs of completion and the estimated costs necessary to make the sale.



The company will recognize a "holding" loss in the current period rather than the period in which the item is sold. This practice is **Conservative.**



## Valuation at Lower of Cost or Net Realizable Value (2)

Items	FIFO Inventory at Cost	Inventory at NRV	Lower of Cost or NRV Applied on the Basis of		
			Total Inventory	Inventory Category	Individual Items
			[A]	[B]	[C]
Computer equipment:					
Intel chips	160,000	180,000			160,000
Hard Disk drives	40,000	30,000			30,000
Total equipment	200,000	210,000		200,000	
Computer accessories:					
Optical mouse	24,000	15,000			15,000
Key board	66,000	60,000			60,000
Key board	90,000	75,000		75,000	
Total accessories	290,000	285,000	285,000	275,000	265,000

Inventory valuation that should be used

Difference = 290,000 – 285,000 = 5,000  
Need the following adjustment to record the write down

**Basis 1:** LCNRV rule is applied on the basis of **TOTAL INVENTORY**

Date	Account Title & Explanation	Debit	Credit
Dec 31	Cost of goods sold (EXP+, SE-)	5,000	
	Inventory (A-)		5,000
	To write down the inventory to NRV		



## Valuation at Lower of Cost or Net Realizable Value (3)

Items	FIFO Inventory at Cost	Inventory at NRV	Lower of Cost or NRV Applied on the Basis of		
			Total Inventory	Inventory Category	Individual Items
			[A]	[B]	[C]
Computer equipment:					
Intel chips	160,000	180,000			160,000
Hard Disk drives	40,000	30,000			30,000
Total equipment	200,000	210,000		200,000	
Computer accessories:					
Optical mouse	24,000	15,000			15,000
Optical mouse	66,000	60,000			60,000
Key board	90,000	75,000		75,000	
Total accessories	290,000	285,000	285,000	275,000	265,000

Inventory valuation that should be used

Difference  
= 290,000 – 275,000  
= 15,000  
Need the following adjustment to record the write down

**Basis 2:** LCNRV rule is applied on the basis of **INVENTORY CATEGORY**

Date	Account Title & Explanation	Debit	Credit
Dec 31	Cost of goods sold (EXP+, SE-)	15,000	
	Inventory (A-)		15,000
	To write down the inventory to NRV		



## Valuation at Lower of Cost or Net Realizable Value (4)

Items	FIFO Inventory at Cost	Inventory at NRV	Lower of Cost or NRV Applied on the Basis of		
			Total Inventory	Inventory Category	Individual Items
			[A]	[B]	[C]
Computer equipment:					
Intel chips	160,000	180,000			160,000
Hard Disk drives	40,000	30,000			30,000
Total equipment	200,000	210,000		200,000	
Computer accessories:					
Optical mouse	24,000	15,000			15,000
Optical mouse	66,000	60,000			60,000
Key board	90,000	75,000		75,000	
Total accessories	290,000	285,000	285,000	275,000	265,000

Inventory valuation that should be used

Difference  
= 290,000 – 265,000  
= 25,000  
Need the following adjustment to record the write down

**Basis 3:** LCNRV rule is applied on the basis of **INDIVIDUAL ITEMS**

Date	Account Title & Explanation	Debit	Credit
Dec 31	Cost of goods sold (EXP+, SE-)	25,000	
	Inventory (A-)		25,000
	To write down the inventory to NRV		



## Inventory Turnover Ratio

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

Average Inventory is  
(Beginning Inventory + Ending Inventory) ÷ 2



This ratio reflects how many times average inventory was produced and sold during the period. A higher ratio indicates that inventory moves more quickly thus reducing storage and obsolescence costs.

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## End of Chapter 6



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