



Inventory Accounting & Valuation



Course content



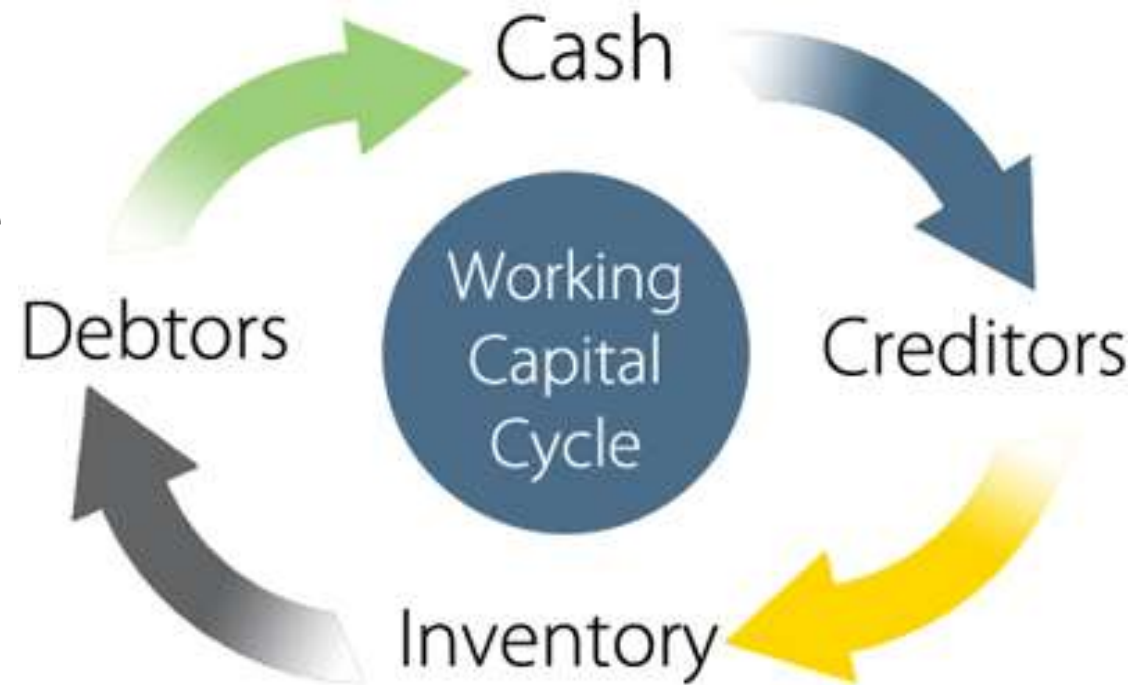
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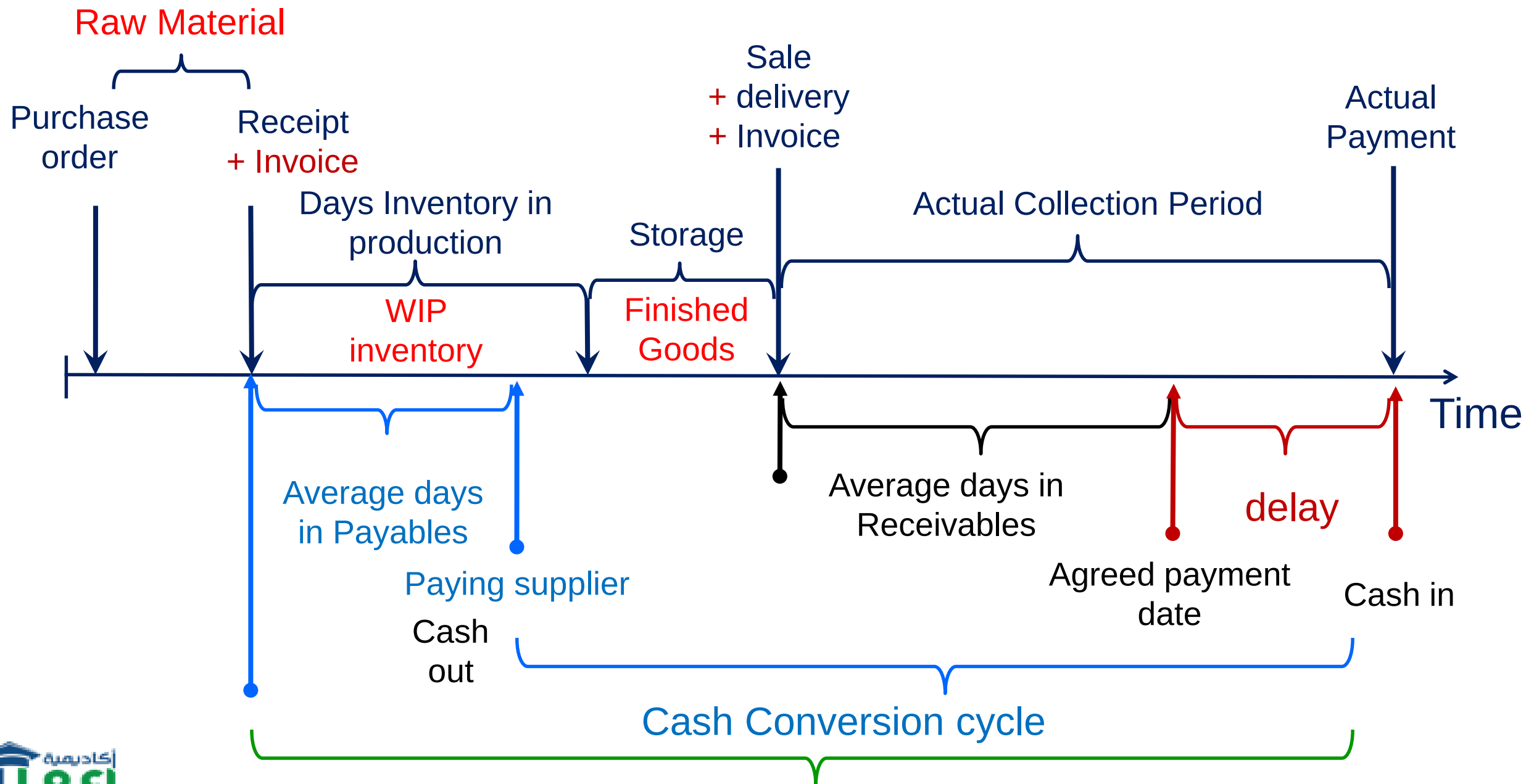
1. Exploring the operating cycle of companies & where is inventory there
2. Inventory components in both manufacturing & merchandizing companies.
3. The valuation of inventory when it is purchased and recorded, (accounting treatment)
4. The determination of which specific items of inventory are included in inventory at year end,
5. The frequency for calculating the value of inventory,
6. Methods of valuating inventory like (FIFO – LIFO – Weighted & Moving Average)
7. The recognition of permanent declines (*losses in value*) in the value of the inventory by using the lower of cost or market, and.

The Operating cycle

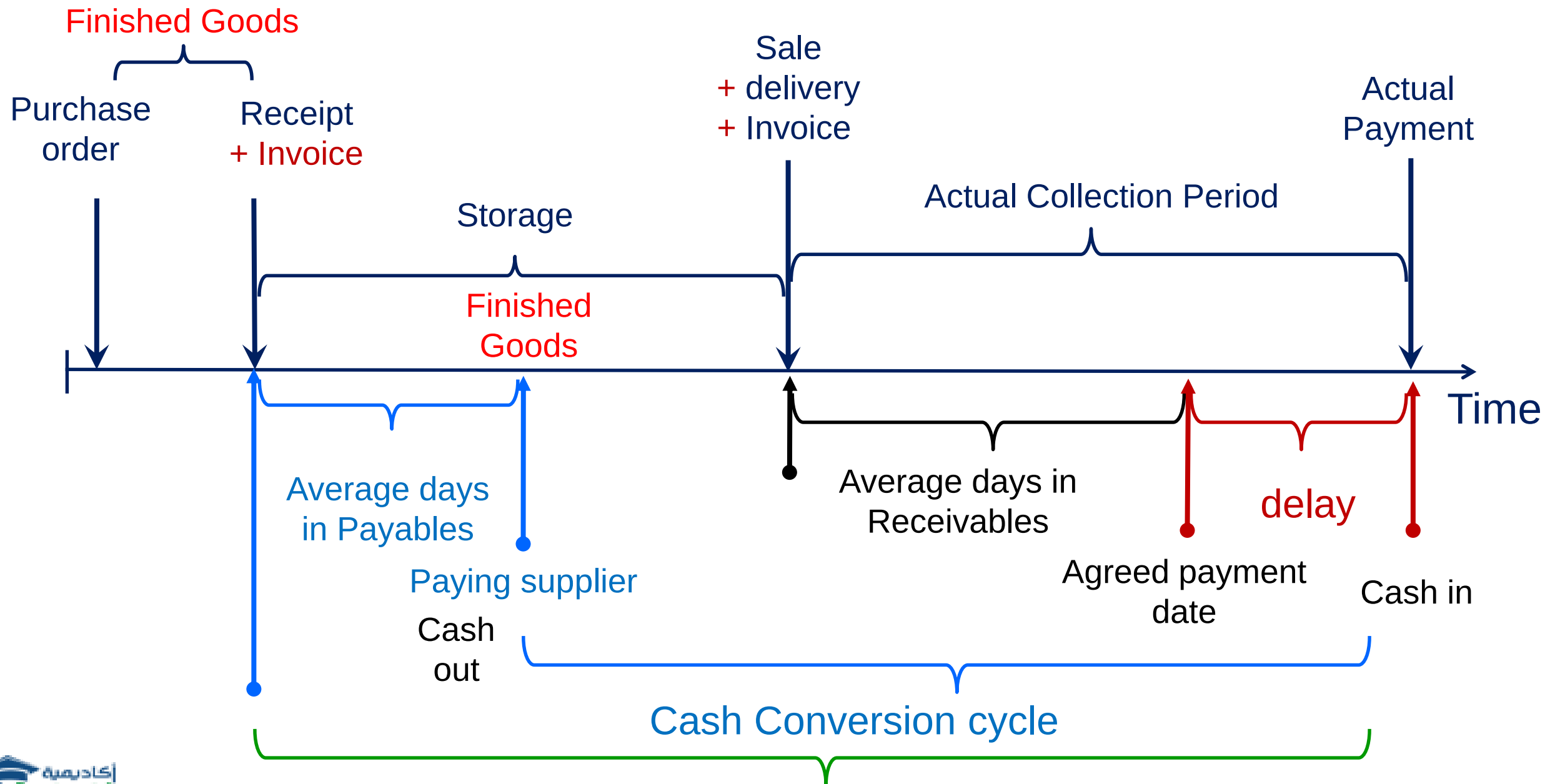
In “Manufacturing companies” it is average length of time it takes to process raw materials, then produce the final product, sell it to the customer and collect the value of this product ...

In “merchandizing companies” the average period of time it takes to buy goods and sell them to customers and then collect The value of these goods ...





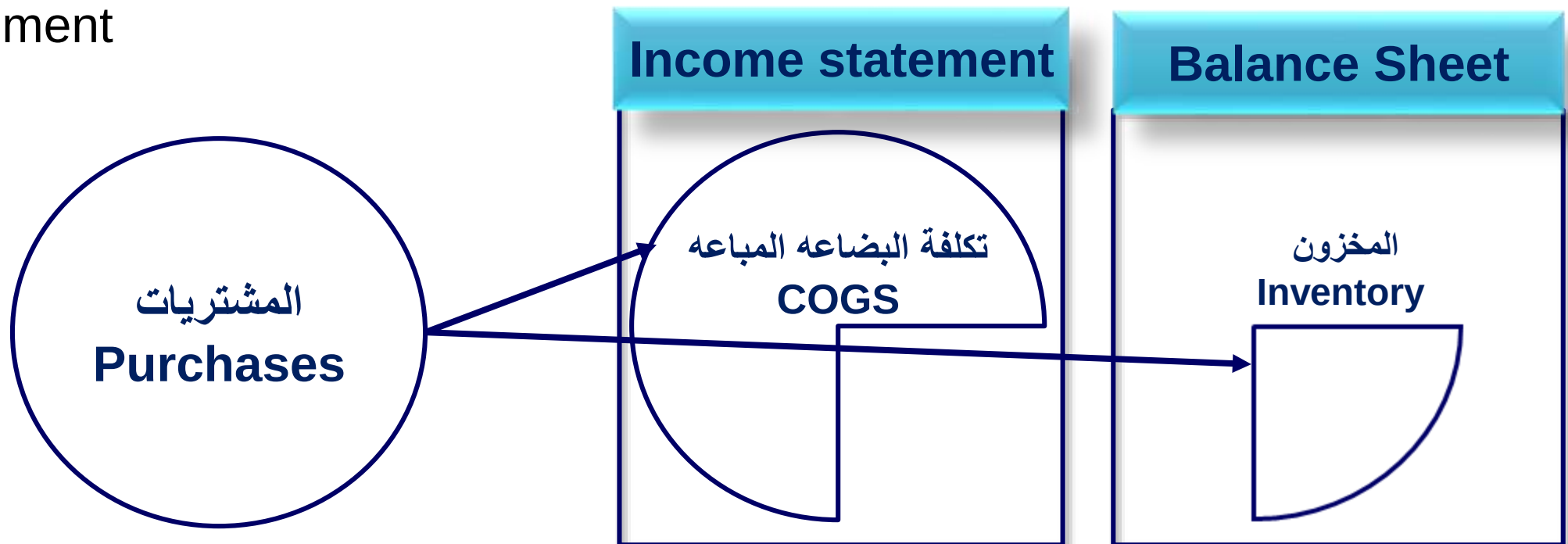
Operating Cycle in Manufacturing companies



Operating Cycle in Merchandizing companies

Inventory

Inventory is possibly one of the most important and largest items of the current assets on the balance sheet for Merchandising or Manufacturing companies. Inventory shows up on the balance sheet as an asset, but it is also an important item that affects the calculation of COGS on the income statement



Inventory

A simple company have the following inventory & sales data What kind of journal entries are involved to record the sales and the related costs:

- 1/1 Inventory on the Balance Sheet costing 6,000 CU.
- 2/1 Sold that inventory for 10,000 CU.

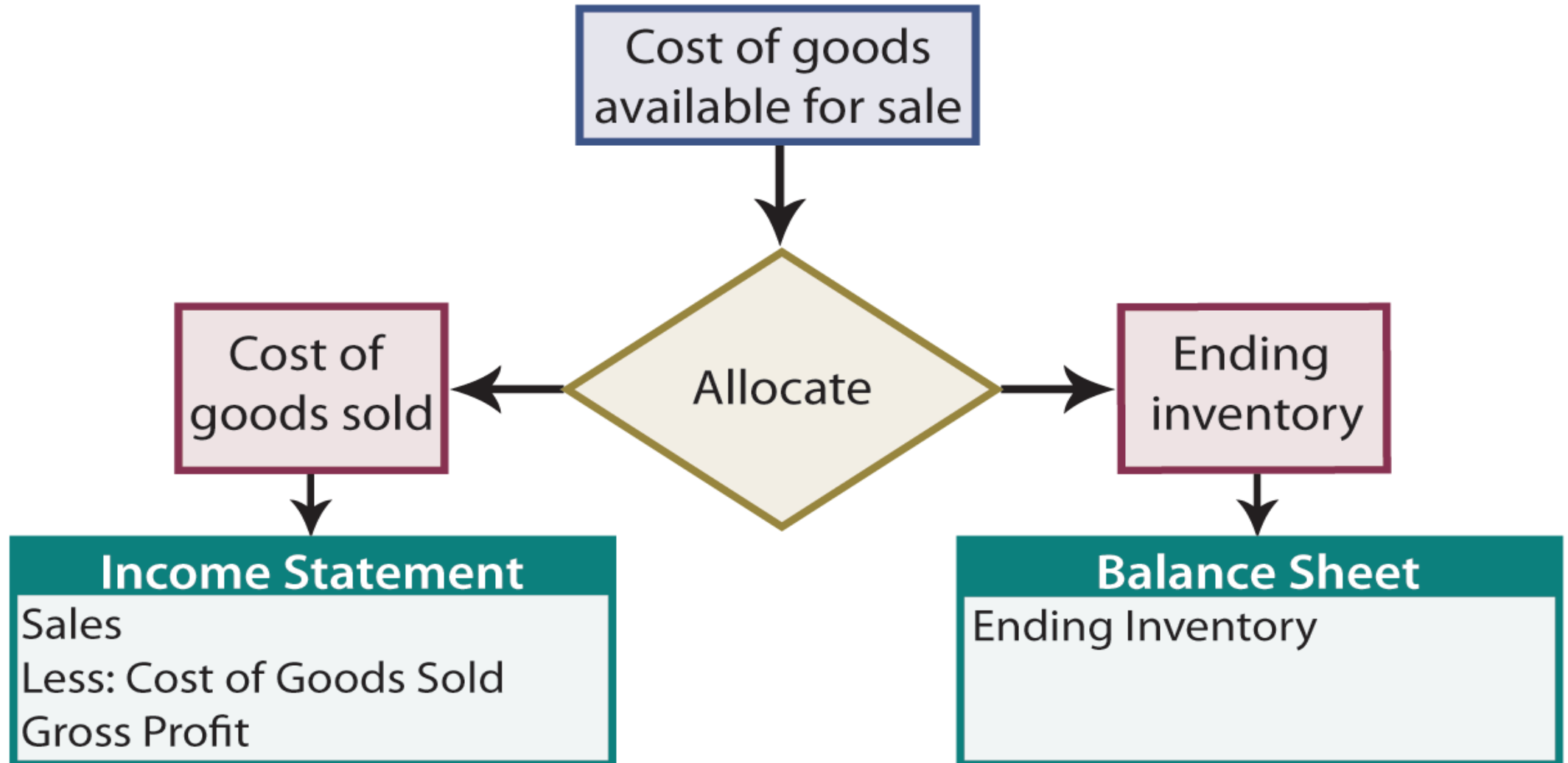
Date	Description	Debit	Credit
2/1	COGS Inventory <i>To record inventory cost (to I/S)</i>	6,000	6,000
2/1	Cash or A/R Sales Revenues <i>To record the sale Condition</i>	10,000	10,000

Inventory

This is A typical situation where we are merely faced with the allocation question what should be allocated to Cost of Goods Sold and what should be remaining in Ending Inventory on the face of the Balance sheet.



Inventory Cost Allocation



Inventory components



Inventory :

Is defined by nature as a tangible personal property It Is Either :

Raw Material (RM) To be used to produce finished goods to be sold.

Work In Process (WIP) inventory within the process of production getting prepared to be produced in a form suitable for sale.

Finished Goods (FG) held for sale in the ordinary course of business that will be a case u can see in merchandising & manufacturing companies.

Inventory components



Inventory Valuation

when recording inventory in our books, we are faced with the following question what should inventory cost include?

IN

Inventory should include all costs that are "ordinary and necessary" to put the goods "in place" and "in condition" for resale.

This means that inventory cost would include

- The invoice price,
- Freight-in, and
- Similar items relating to the general rule.

OUT

After finishing the production "carrying costs" like
Storage costs, and
Insurance on goods held awaiting sale.

- Would not be included in inventory accounts; instead those costs would be expensed as incurred as Selling & Marketing Expenses.
- Likewise, Freight-out and Sales Commissions would be expensed as a selling or marketing cost rather than being included with inventory.

Inventory Valuation



Inventory cost depends on the operation of the company. as we have

- A) Merchandizing Companies Basically buying FG inventory & Reselling it.
- B) Manufacturing Companies where a conversion process takes place to get the inventory in the selling shape
- C) Service Companies.

First let's see the operational face of companies to be able to select a valuation method to coincide with it.

1- Inventory in a Merchandizing Company:

It is a company that mainly purchase Finished Goods inventory (FG) with the intention of reselling it for a profit.

- Company operations has the following steps:
 1. Purchase inv.
 2. Marketing operation “selling & marketing costs that are Expensed”
 3. Sell inventory “selling & marketing costs that are Expensed”.

1- Inventory in a Merchandizing Company:



Purchase Inventory (inventory Costs)

All costs prior to receiving our inventory shall be included in inventory value as we agreed those costs include:

1. Freight.
2. Transit insurance.
3. Customs & import taxes.
4. Port storage fees.
5. Facilitation agents fees.

we are going to cover some Freight issues to get you up to speed

Freight Costs



Due to the increasing globalization of commerce & the increased usage of faster ways to move goods around the world not to mention the increase in oil & energy price freight most likely will represent 10% or little bit more of purchase price, that's why we take it seriously.

When a company purchase its stock of goods intended for sale from a manufacturer, there are 2 major types of freight costs agreements.

1. FOB Destination.
2. FOB Shipping point.

Freight Costs



1. FOB Destination.

The buyer pays when the goods arrives to his storage facilities so the purchase price is the total cost to the buyer.

Any costs before we receive the goods are totally the responsibility of the seller.

Under F.O.B Destination agreements

The Invoice Price includes every thing

2. FOB Shipping Point.

The possession of goods is transferred at seller's place which is the shipping point. All costs incurred after that point are responsibility of the buyer & should be included in the inventory cost.

Under FOB Shipping point agreements inventory cost should include everything till the goods are in our storage facilities such as:

- Purchase price.
- Freight costs.
- Transportation Insurance.
- Taxes, Royalties, Stamps, Customs, fees, etc.

Freight Costs



2- Inventory in a Manufacturing Company

This type of operation is characterized by 3 major types of inv.

1. RM or raw materials inventory.
2. WIP or Work in process inventory.
3. FG or Finished goods inventory.

Items to be included in the inventory valuation are:

- Direct material.
 - Direct labor
 - Direct and indirect factory overheads.
- } *Conversion
Cots*

2- Inventory in a Manufacturing Company



Company operations has the following steps:

- 1. Purchase inventory as raw materials** & the amount showing on the balance sheet is the cost of purchasing it.
- 2. A conversion process takes place** as the raw materials go into the production line & we start consuming costly resources & the pool of both costs become (WIP) INVENTORY.
- 3. Finished goods are produced.** Nothing to be added to inventory from that point on.

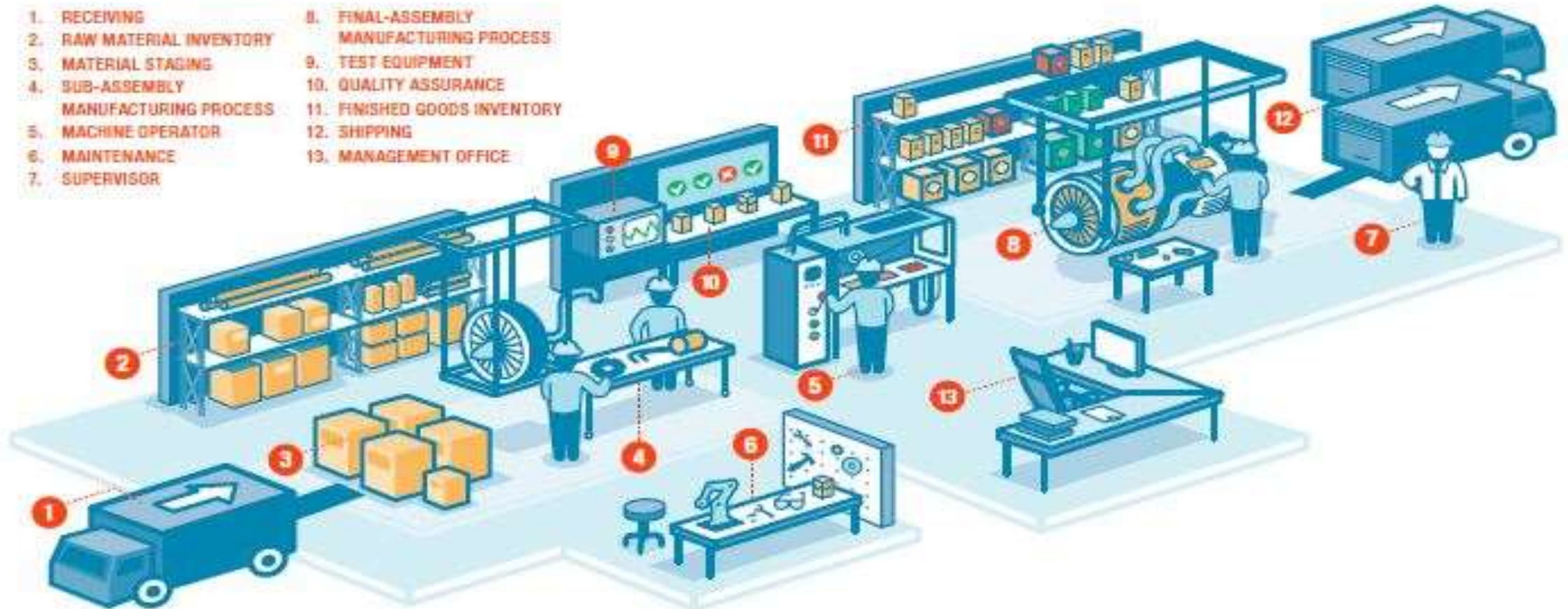
2- Inventory in a Manufacturing Company

RM once it gets into the production line it becomes WIP. We add all the production related costs (Direct labor , Direct & indirect Factory Overheads) such as:

1. Factory electricity.
2. Production personnel salaries.
3. Insurance on production line.
4. Machinery maintenance costs.
5. Production & storage facility rent during the process.

Whether we paid in cash or on credit “payable” until it becomes finished goods.

2- Inventory in a Manufacturing Company



2- Inventory in a Manufacturing Company

When the production process is complete, finished goods inventory starts to appear on the balance sheet.

Remember!

All costs after this point is categorized on the income statement under the line item called “Selling & Marketing Expense”.

Remember!

In our Course scope we are concerned with the classification of costs into inventoriable costs or not , but how that cost is calculated is a cost accounting issue that is out of our scope

2- Inventory in a Manufacturing Company



Interest Costs on loans used to purchase inventory, is it included?

As stated by the Accounting standards Borrowing costs are capitalized only for inventories that necessarily takes a substantial time period to get ready for its intended sale (From raw material Status to Finished goods status)

The standard does not specify the exact time period that is substantial. But as argued in FASB published case studies, they have permitted capitalization to cases where the conversion process took more than six months.

2- Inventory in a Manufacturing Company

Starting 1/1/2016 that interest is to be only capitalized (not Expensed) if the conversion process takes more than 6 months, (before that a company was free to capitalize or expense interest in that case).

Interest cost

*Purchase
Made on*

1/1

Conversion takes till

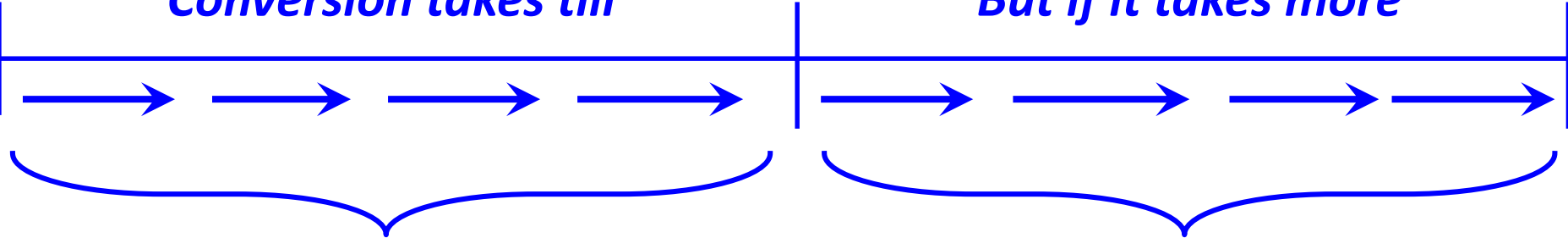
FG

30/6

But if it takes more

FG

30/12



Expense Interest

*If it takes less than 6
months to manufacture
the goods*

Capitalize Interest

*If it takes more than 6
months to manufacture
the goods*

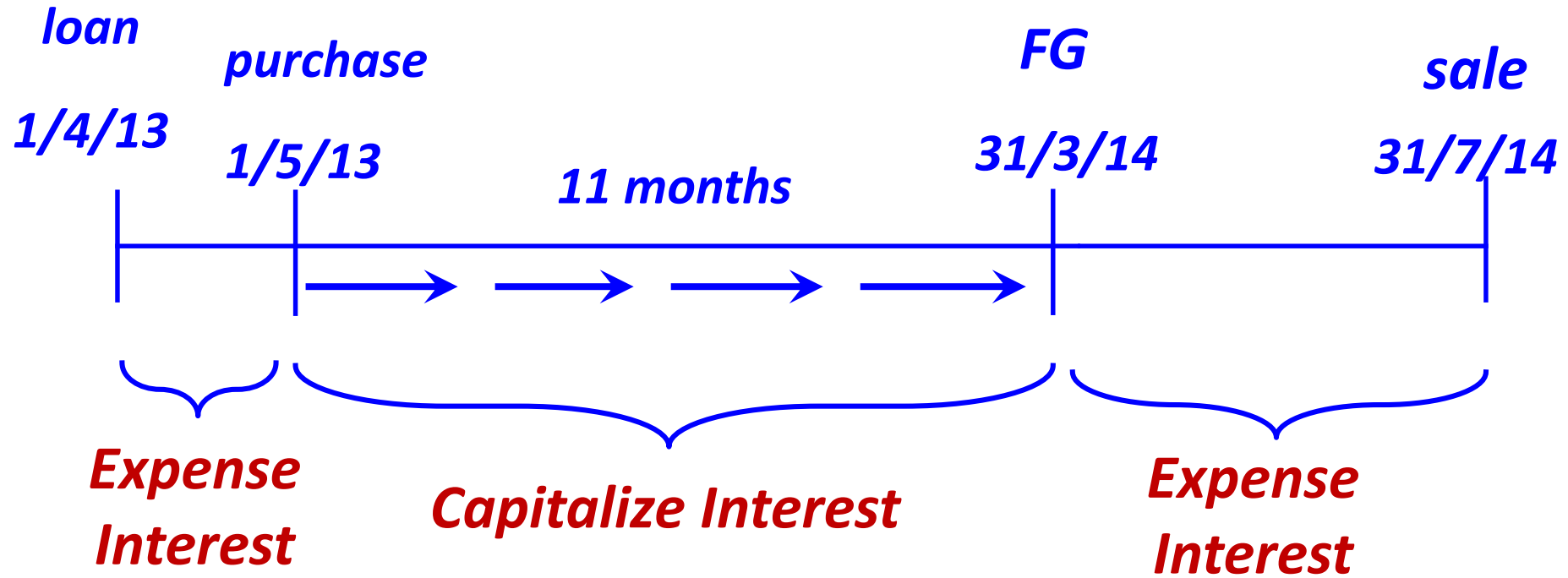
Borrowing Costs Exercise



On 1 April 2013, ABC company took out a loan to finance the purchase of its inventory. They actually purchased on May 1 2013. they started the manufacturing process & completed the product on 31 March 2014. the goods were sold on 1 July 2014. What's the period over which borrowing costs should be capitalized?

- A. 1 April 2013 – 31 March 2014.
- B. 1 April 2013 – 1 July 2014.
- C. 1 May 2013 – 31 March 2014.
- D. 1 May 2013 – 1 July 2014.
- E. None of the above.

Interest cost



Borrowing Costs Exercise

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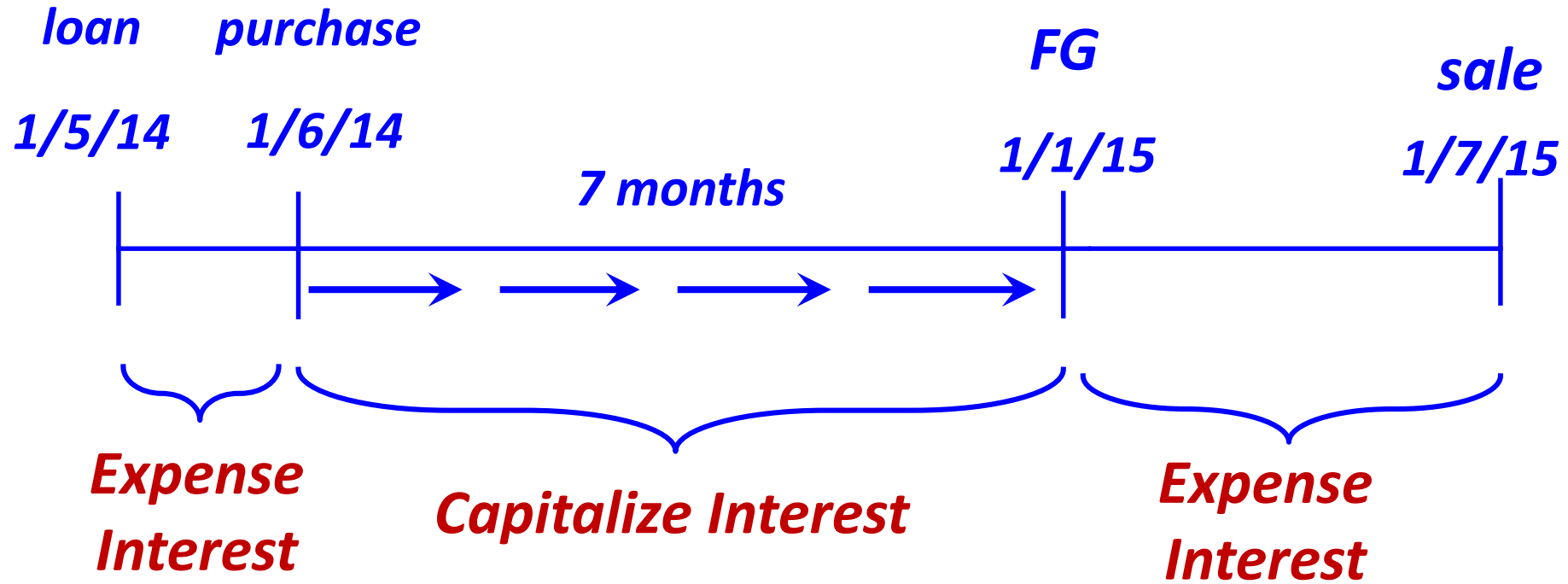
- A. 1 April 2013 – 31 March 2014.
- B. 1 April 2013 – 1 July 2014.
- ☒ C. 1 May 2013 – 31 March 2014.
- D. 1 May 2013 – 1 July 2014.
- E. None of the above.

Borrowing Costs Exercise

On 1 May 2014, the ABC company took out a loan to finance their production process. Payment to supplier is made on 1 June 2014 the date of receipt. The production process was completed on 1 Jan 2015. the goods were sold on the 1st of July 2015. What's the period over which borrowing costs should be capitalized?

- A. 1 May 2014 – 1 Jan 2015.
- B. 1 June 2014 – 1 July 2015.
- C. 1 June 2014 – 1 Jan 2015.
- D. 1 May 2014 – 1 July 2015.
- E. None of the above.

Interest cost



Borrowing Costs Exercise

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- ☒ C. 1 June 2014 – 1 Jan 2015.
- D. 1 May 2014 – 1 July 2015.
- E. None of the above.

2- Inventory in a Manufacturing Company

Example :

A textile company bought inventory for \$ 3000,000 of borrowed funds then started A manufacturing process that took 7 months to convert that stock into finished goods manufacturing costs amounted to 1000,000 were incurred during the conversion process and interest due to banks on the purchase loan is \$600,000 per year what is the cost of the finished goods inventory?

Solution		
Purchase cost	3,000,000	
Conversion cost (7 months)	1,000,000	
Interest cost (7 months)	350,000	(600,000 *7/12)
<i>Included only interest for production period</i>		
Finished Goods inventory total cost	4,350,000	

FX losses or Gains on loans to purchase inventory, are they included?

The standards does not permit Fx gain or losses to be capitalized on inventory simply because the purchase on credit decision is not an operational decision.

It is a financing decision that should be reflected outside the operating profit calculation so it cannot be reported inside the inventory cost.

FX Gains & Losses

Example

An Egy. Co. purchased a \$100,000 worth of merchandise on 1/1/2016 on credit. the prevailing rate that day was 7.5 EGP/\$ on payment day 1/2/2016 the exchange rate was 7.6 EGP/\$ what shall the company do?

what if the rate was 7.4 EGP/\$?

Journal entries

Date	Item	Dr	Cr
1 Jan	Inventory A/P <i>To record inv. Cost with prevailing rate</i>	750,000	750,000
1 Feb	A/P Fx Loss Cash <i>Payment with loss due to rate change</i>	750,000 10,000	760,000
1 Feb	A/P Fx Gain Cash <i>Recording gain & payment</i>	750,000	10,000 740,000

Recording Systems

Inventory Recording Systems



Periodic System

**Perpetual System
(Continuous)**

Periodic Inventory System



- Used (usually) in small size companies that does not have an advanced accounting system or uses a manual recording system.
- Accountants are not informed with inventory movement, purchases & sales till the end of the accounting period when the inventory is physically counted.
- Entries are made by the end of the period by the time we make a stock count.

Periodic Inventory System

- A purchases account is created for new inventory coming.
- Beginning inventory (BI) remains unchanged during the period.
- During the period accountants cannot see what is actually being sold due to the simplicity of the system they only make their matching at the end of the period.

Periodic inventory system

Purchase inventory



*Record in purchases
ACC.*



One unit sold



*Record the sales
revenue only*



End of Period

*Physical count
inventory
&*

*Calculate
COGS*



Periodic inventory system



Accounting Entries During the period:

We record purchases as they happen.

Date	Item	Dr	Cr
****	Purchases	XXXXXX	
	Cash or A/P		XXXXXX
	<i>Recording purchases as it happens.</i>		

Periodic inventory system

At the end of the Accounting period:

1. Make a physical count to get the value of ending inventory.
2. Collect purchase invoice to get total purchases amount.
3. close beginning inventory balance as it not realistic any more.
4. The COGS amount is the difference between the 2 sides “Plug Figure”

Periodic inventory system



Accounting Entries Year End:

Date	Item	Dr	Cr
****	Ending Inventory	XXXXXX	
	COGS	Plug	
	Purchases		XXXXXX
	Beginning Inventory		XXXXXX
	<i>Recording COGS & Adjust inv balance</i>		

Periodic inventory system



Example :

- On 31/12/2014 B/S inventory balance was 10,000 units priced at \$1.
- On 3/1/2015 the company purchased 20,000 units at a price of 1\$ per unit.
- On 4/1 /2015 purchased 30,000 units at \$1 / unit
- On 15/1/2015 purchased 40,000 units at \$1/ unit .
- On 31/1 an inventory count was conducted & we found only 15000 units at the storage facilities.

What is the value of COGS & Ending inventory

Periodic inventory system



“Note that the price could be different that will be discussed later, but for simplicity we will keep it unchanged”

This mean that:

1. Total purchases during the period are 90,000 units.
2. Total available goods for sale is (90,000 of Purchases + 10,000 of BI) adding-up to 100,000.
3. Sold units then must be (100,000 available - 15,000 EI) giving 85,000 units sold.

Periodic inventory system

Entries

Date	Description	Debit	Credit
3/1	Purchases Cash or A/P	20,000	20,000
4/1	Purchases Cash or A/P	30,000	30,000
15/1	Purchases Cash or A/P	40,000	40,000
31/1	Ending Inventory COGS (Plug) Beginning Inventory Purchases <i>To record COGS & Adjust Inventory balance</i>	15,000 85,000	10,000 90,000

Perpetual inventory system



- Used in larger size companies that have an advanced accounting system or uses a Computerized recording systems.
- Accountant's aware of inventory movements, purchases & sales on the spot.
- Entries are made timely. No need for the purchases account and credits goes directly to the inventory account.
- For every sale we reduce inventory and Increase COGS.

Perpetual inventory system

Purchase inventory



*Record directly to
inventory ACC.*



One unit sold

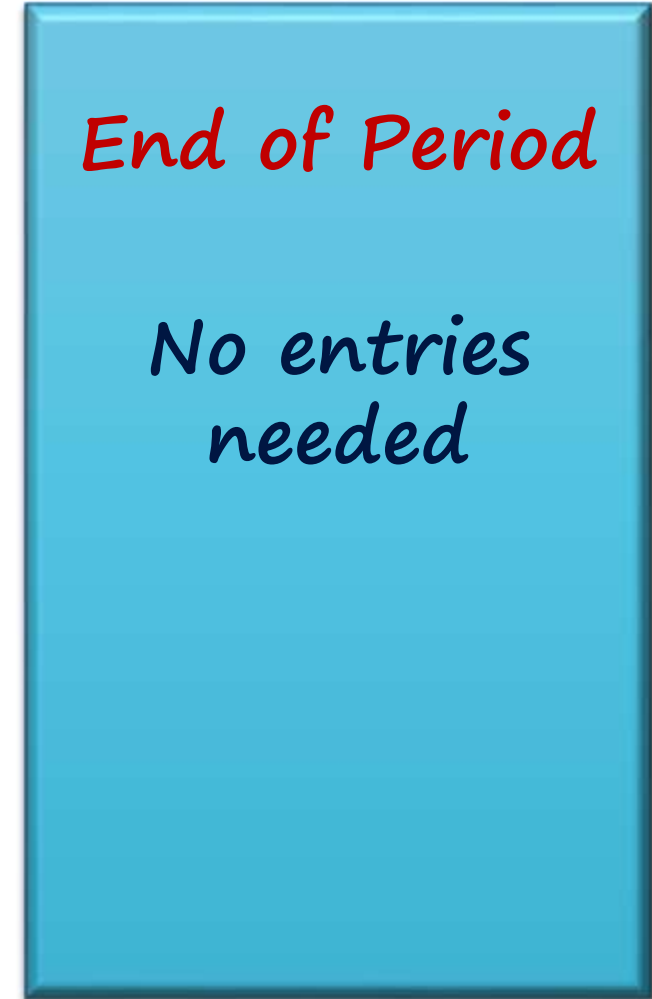


*Record the sales
revenue & COGS*



End of Period

*No entries
needed*



Perpetual inventory system

Accounting Entries During the period:

We record purchases as they happen directly into the Inventory Account.

Date	Item	Dr	Cr
****	Inventory Cash or A/P <i>Recording inventory as purchases happens.</i>	XXXXXX	XXXXXX

Perpetual inventory system

Upon each sale we record both the revenue and the cost:

1. Decrease the inventory account and increase COGS.
2. Record the sale proceeds as Revenue.

Date	Item	Dr	Cr
****	COGS Inventory <i>Recording COGS</i>	XXXXXX	XXXXXX
****	Cash or A/R Sales Revenue <i>Recording Revenue</i>	XXXXXX	XXXXXX

Perpetual inventory system



Example :

- On 31/12/2014 B/S inventory balance was 1,000 units priced at \$1000/unit.
- On 3/1/2015 the company purchased an additional 1,000 units at a price of \$1000 per unit.
- On 4/1 /2015 sold 500 units at \$1100 / unit

What is the value of COGS & Ending inventory for Jan

Perpetual inventory system

Entries

Date	Description	Debit	Credit
3/1	Inventory Cash or A/P	1000,000	1000,000
4/1	COGS Inventory	500,000	500,000
4/1	Cash or A/R Sales revenue	550,000	550,000

Show ledgers

Inventory Pricing Techniques



For the purpose of pricing ending inventory and identifying the Cost of goods sold we have the following techniques

1. Weighted Average method (periodic systems only).
2. Moving average (Perpetual systems only).
3. First In First out (FIFO).
4. Last In First Out (LIFO).

1- Weighted Average Inventory Pricing



Used only with Periodic inventory systems to account for different prices of inventory acquired during the period when calculating COGS & Ending Inventory at the end of the period.

The idea is to calculate the total value of Units available for sale (BI & purchases) then get a simple average cost per unit to be used in the valuation of ending inventory & GOGS respectively at the end of the period.

1- Weighted Average Inventory Pricing



$$\text{Weighted Average cost per unit} = \frac{\begin{array}{c} \downarrow \\ BI (\$ \text{ value}) + Purchases (\$ \text{ value}) \\ \downarrow \end{array}}{\begin{array}{c} BI (\text{ Units}) + Purchases (\text{ Units}) \\ \uparrow \qquad \qquad \uparrow \end{array}}$$

1- Weighted Average Inventory Pricing



Example :

given the following data about ABC Company what is the value of the following

- Weighted average cost per unit of ending inventory on Jan 31 .
- Total value of ending inventory on Jan 31.
- The amount calculated as COGS on Jan 31

Date	Activity	Description
Jan 1	Beginning inventory	10,000 units at \$1 /unit
Jan 8	Purchase	1,000 units at \$1.25 /unit
Jan 20	Purchase	4,000 units at \$1.50 / unit
Jan 31	Ending inventory count	1000

1- Weighted Average Inventory Pricing



$$\begin{aligned}\text{Weighted Average cost per unit} &= \frac{\text{BI } (10,000 \times \$1) + \text{Purchases } [(1000 \times 1.25) + (4000 \times 1.50)]}{\text{BI } (10,000 + \text{Purchases } (1000 + 4000))} \\ &= \frac{10,000 + [(1,250) + (6000)]}{15,000} = \frac{17,250}{15,000} = \$ 1.15 / \text{Unit}\end{aligned}$$

$$\text{Ending inventory cost} = 1000 \text{ units} \times \$ 1.15 / \text{unit} = \$ 1150$$

$$\begin{aligned}\text{COGS} &= \left(15,000 \text{ units Available} - 1,000 \text{ units EI} \right) \times \$ 1.15 / \text{Unit} \\ &= 14,000 \times 1.15 = \$ 16,100\end{aligned}$$

1- Weighted Average Inventory Pricing



Date	Description	Debit	Credit
31/1	Ending Inventory	1,150	
	COGS (Plug)	16,100	
	Beginning Inventory		10,000
	Purchases		7,250
	<i>To record COGS & Adjust Inventory</i>		

1- Weighted Average Inventory Pricing

Exercise

given the Following data about ABC Company what is the value of the following

1. Weighted average cost per unit of ending inventory on Jul 31 .
2. Total value of ending inventory on Jul 31.
3. The amount calculated as COGS on Jul 31



***Weighted Average
cost per unit***

$$= \frac{BI (\$ value) + Purchases (\$ value)}{BI (Units) + Purchases (Units)}$$

1- Weighted Average Inventory Pricing – EX2

Date		Tons	\$ per ton	\$ Total
1-Jul	Opening Inventory	10	20	200
4-Jul	Purchase (prod)	8	22	176
6-Jul	Sale	-9		
15-Jul	Purchase (prod)	6	24	144
18-Jul	Sale	-11		
23-Jul	Purchase (prod)	4	26	104
31-Jul	Closing Inventory	8		

1- Weighted Average Inventory Pricing – EX2

Goods Av. for sale

$$\text{Weighted Average cost per unit} = \frac{200 + 176 + 144 + 104}{10 + 8 + 6 + 4} = \frac{624}{28} = \$ 22.29 / \text{Unit}$$

$$\text{Ending inventory cost} = 8 \text{ units} \times \$ 22.29 / \text{unit} = \$ 178.32$$

$$\begin{aligned} \text{COGS} &= \left(624 \text{ units Available} - 178.32 \text{ EI} \right) \\ &= \$ 445.68 \end{aligned}$$

2- Moving Average Inventory Pricing



This Technique is used **only with perpetual inventory systems** to account for different prices of inventory acquired during the period when calculating COGS & Ending Inventory at the end of the period.

This process has only 2 simple steps

1. Calculate an average cost per unit of inventory each time we make **a Purchase** to adjust our cost per unit of inventory.
2. Each time **a Sale** is made COGS is calculated using the latest calculated Average.

2- Moving Average Inventory Pricing

Example :

Given the following data about ABC Company what is the value of the following

1. Moving average cost per unit of ending inventory on Jan 31 .
2. Value of ending inventory & calculated COGS on Jan 31

Date	Activity	Description
Jan 1	Beginning inventory	4,000 units at \$12 per unit
Jan 5	Purchase	6,000 units at \$16 per unit
Jan 7	Sale	7,000 units at \$22 per unit
Jan 10	Purchase	8,000 units at \$17 per unit
Jan 20	Sale	6,000 units at \$25 per unit

2- Moving Average Inventory Pricing



As we agreed before the steps are:

1. Calculate an average cost per unit each time we make a **Purchase**
2. COGS is calculated using the latest calculated Average each **Sale**.

As the calculation in the next illustration shows we will calculate an average cost per unit on the 5th of Jan & Again on 10th of Jan 10.

Because we are working in a perpetual inventory system we will also calculate COGS each time we make a sale transaction and reduce the inventory account with the same amount.

2- Moving Average Inventory Pricing

Date	Purchases			Sales			COGS			Balance		
	units	\$	Total	units	\$	Total	units	\$	Total	units	\$	Total
1-Jan										4,000	\$12.00	48,000

2- Moving Average Inventory Pricing

Date	Purchases			Sales			COGS			Balance		
	units	\$	Total	units	\$	Total	units	\$	Total	units	\$	Total
1-Jan										4,000	\$12.00	48,000
5-Jan										4,000	\$12.00	48,000
	6,000 X \$ 16.00 =		96,000							6,000	\$16.00	96,000
										10,000		144,000
										Moving Av. Cost now is \$ 144,000 / 10,000 = \$ 14.40 / U		
7-Jan				7,000 X \$ 22.00 =		154,000	7,000 X \$ 14.40 =		100,800	3,000	\$14.40	43,200
10-Jan										3,000	\$14.40	43,200
	8,000 X \$ 17.00 =		136,000							8,000	\$17.00	136,000
										11,000		179,200
										Moving Av. Cost now is \$ 179,200 / 11,000 = \$ 16.29 / U		
20-Jan				6,000 X \$ 25.00 =		150,000	6,000 X \$ 16.29 =		97,750	5,000	\$16.29	81,450
31-Jan	14,000		\$232,000	13,000		\$304,000	13,000		\$198,550	5,000	\$16.29	81,450
	Total Purchases			Total Sales			Total COGS			Value of ending inventory		

2- Moving Average Inventory Pricing

2- Moving Average Inventory Pricing

Inventory				
Date	Description	Debit	Credit	Balance
1-Jan	Balance			48,000
5-Jan	Purchase	96,000		144,000
7-Jan	Sale		100,800	43,200
10-Jan	Purchase	136,000		179,200
20-Jan	sale		97,750	81,450

ABC company
Balance sheet
31/1/20xx

Assets

....

inventory

81,450

....

Sales				
Date	Description	Debit	Credit	Balance
1-Jan	Balance			.....
7-Jan	sale		154,000	154,000
20-Jan	Sale		150,000	304,000

ABC company
Income Statment
31/1/20xx

net sales

304,000

COGS

(198,550)

Gross profit

105,450

....

COGS				
Date	Description	Debit	Credit	Balance
1-Jan	Balance			.....
7-Jan	sale	100,800		100,800
20-Jan	Sale	97,750		198,550

2- Moving Average Inventory Pricing

Exercise

given the Following data about ABC Company what is the value of the following

1. Moving average cost per unit of ending inventory on Jul 31 .
2. Total value of ending inventory on Jul 31.
3. The amount calculated as COGS on Jul 31

Date		Units	\$ per Unit	\$ Total
1-Jul	Opening Inventory	100	2	200
4-Jul	Sale	50	3	150
6-Jul	Purchase (prod)	150	2.133	320
15-Jul	Sale	50	3	150
18-Jul	Purchase (prod)	50	2.18	109

Moving Average Inventory Pricing – Exercise

Date	Purchases			Sales			COGS			Balance		
	units	\$	Total	units	\$	Total	units	\$	Total	units	\$	Total
1-Jul										100	\$2.00	200
4-Jul				50	\$3.00	150	50	\$2.00	100	50	\$2.00	100
6-Jul										50	\$2.00	100
	150	\$2.13	320							150	\$2.13	320
										200		420
										Moving Av. Cost now is $\$ 420 / 200 = \$ 2.1 / U$		
15-Jul				50	\$3.00	150	50	\$2.10	105	150	\$2.10	315
18-Jul										150	\$2.10	315
	50	\$2.18	109							50	\$2.18	109
										200		424
										Moving Av. Cost now is $\$ 424 / 200 = \$ 2.12 / U$		
31-Jan	200	\$	429	100	\$	300	100		\$205	200	\$2.12	424
	Total Purchases			Total Sales			Total COGS			Value of ending inventory		

Moving Average Inventory Pricing – Exercise

Inventory				
Date	Description	Debit	Credit	Balance
1-Jul	Balance			200
4-Jul	sale	100		100
6-Jul	Purchase		320	420
15-Jul	sale	105		315
18-Jul	Purchase		109	424

ABC company Balance sheet 31/1/20xx

Assets

....

inventory

....

424

Sales				
Date	Description	Debit	Credit	Balance
1-Jul	Balance			.....
4-Jul	sale		150	150
15-Jul	Sale		150	300

ABC company Income Statment 31/1/20xx

net sales

COGS

Gross profit

....

300

(205)

95

COGS				
Date	Description	Debit	Credit	Balance
1-Jan	Balance			.....
4-Jul	sale	100		100
15-Jul	Sale	105		205

Moving Average Inventory Pricing – Exercise 2

given the Following data about ABC Company what is the value of the following

1. Moving average cost per unit of ending inventory on Jul 31 .
2. Total value of ending inventory on Jul 31.
3. The amount calculated as COGS on Jul 31

Remember!

This process has only 2 simple steps

1. Calculate an average cost per unit of inventory each time we make
a Purchase to adjust our cost per unit of inventory.
2. Each time **a Sale** is made COGS is calculated using the latest calculated
Average.

Moving Average Inventory Pricing – Exercise 2

Date		Tons	\$ per ton	\$ Total
1-Jul	Opening Inventory	10	20	200
4-Jul	Purchase (prod)	8	22	176
6-Jul	Sale	-9		
15-Jul	Purchase (prod)	6	24	144
18-Jul	Sale	-11		
23-Jul	Purchase (prod)	4	26	104
31-Jul	Closing Inventory	8		

Date	Purchases			Sales			COGS			Balance		
	units	\$	Total	units	\$	Total	units	\$	Total	units	\$	Total
1-Jul										10	\$20.00	200
4-Jul										10	\$20.00	200
	8	\$22.00	176							8	\$22.00	176
										18		376
										Moving Av. Cost now is \$ 376 / 18 = \$ 20.2888 / U		
6-Jul				9	\$30.00	270	9	\$20.89	188	9	\$20.89	188
15-Jul										9	\$20.89	188
	6	\$24.00	144							6	\$24.00	144
										15		332
										Moving Av. Cost now is \$ 332 / 15 = \$ 22.13 / U		
18-Jul				11	\$30.00	330	11	\$22.13	243	4	\$22.13	89
23-Jul										4	\$22.13	89
	4	\$26.00	104							4	\$26.00	104
										8		193
										Moving Av. Cost now is \$ 193 / 8 = \$ 24.125 / U		
31-Jul	18		424	20	\$	600	20		431	8	\$24.13	193
	Total Purchases			Total Sales			Total COGS			Value of ending inventory		

Moving Average Inventory Pricing – Exercise 2

Inventory				
Date	Description	Debit	Credit	Balance
1-Jul	Balance			200
4-Jul	Purchase	176		376
6-Jul	sale		188	188
15-Jul	Purchase	144		332
18-Jul	Sale		243	89
23-Jul	Purchase	104		193

ABC company Balance sheet 31/7/20xx	
---	--

Assets

....

inventory

....

193

Sales				
Date	Description	Debit	Credit	Balance
1-Jul	Balance			.....
6-Jul	sale		270	270
18-Jul	Sale		330	600

ABC company Income Statment 31/7/20xx	
---	--

net sales

COGS

Gross profit

....

600

(431)

169

COGS				
Date	Description	Debit	Credit	Balance
1-Jul	Balance			.....
6-Jul	sale	188		188
18-Jul	Sale	243		431

Inventory Pricing Techniques

For the purpose of pricing ending inventory and identifying the Cost of goods sold we have the following techniques

1. Weighted Average method (periodic systems only).
2. Moving average (Perpetual systems only).
3. First In First out (FIFO).
4. Last In First Out (LIFO).

3- First In First out (FIFO)



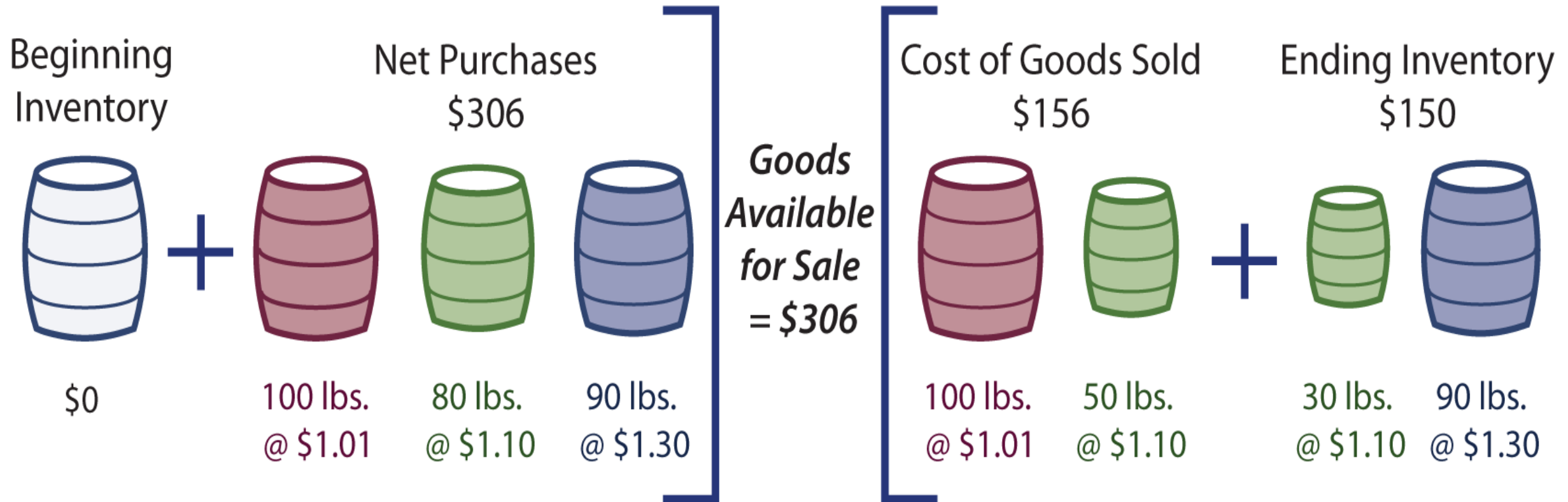
This Technique is used *with Both systems (perpetual & Periodic)* to account for different prices of inventory acquired during the period when calculating COGS & Ending Inventory at the end of the period.

With first-in, first-out, the oldest cost (i.e., the first in) is matched against revenue and assigned to cost of goods sold.

Conversely, the most recent purchases are assigned to units in ending inventory.

3- First In First out (FIFO)

The FIFO calculations would look like this:



3- First In First out (FIFO)



FIFO With Periodic Systems Example :

Given the following data about ABC Company what is the value of the following
- Value of ending inventory & calculated COGS on Jan 31

<i>Date</i>	<i>Activity</i>	<i>Description</i>
<i>Jan 1</i>	<i>Beginning inventory</i>	<i>4,000 units at \$12 per unit</i>
<i>Jan 5</i>	<i>Purchase</i>	<i>6,000 units at \$16 per unit</i>
<i>Jan 7</i>	<i>Sale</i>	<i>7,000 units at \$22 per unit</i>
<i>Jan 10</i>	<i>Purchase</i>	<i>8,000 units at \$17 per unit</i>
<i>Jan 20</i>	<i>Sale</i>	<i>6,000 units at \$25 per unit</i>

3- First In First out (FIFO)



$$\text{Goods Available for sale} = \text{BI (4000 x \$12)} + \text{Purchases [(6000 x \$16) + (8000 x \$17)]}$$

$$18,000 \text{ units} = 48,000 + 96,000 + 136,000 = 280,000$$

$$\text{Ending Inventory} = 18,000 - 13,000$$

$$5,000 \text{ units} = 5,000 \times 17 = 85,000$$

3- First In First out (FIFO)



$$\text{Sales} = (7,000 \times 22) + (6,000 \times 25)$$

$$= 304,000$$

$$\text{COGS} = 7,000 + 6,000$$

$$13,000 \text{ units} = (4000 \times 12) + (3,000 \times 16) + (3,000 \times 16) + (3,000 \times 17)$$

$$= 48,000 + 48,000 + 48,000 + 51,000$$

$$= 195,000$$

3- First In First out (FIFO)

Accounting Entries Year End:

Date	Item	Dr	Cr
31/1	Ending Inventory	85,000	
	COGS	195,000	
	Purchases		232,000
	Beginning Inventory		48,000
	<i>Recording COGS & Adjust inv balance</i>		

3- First In First out (FIFO)

Financial Statements

ABC company Income Statment 31/1/20xx			
Revenues			
	Net sales		304,000
COGS			
	Beginning Inventory	48,000	
+	Net Purchases	232,000	
=	Goods available for sale	280,000	
-	Ending Inventory	85,000	
	Cost Of Goods Sold		195,000
	Gross profit		109,000

ABC company Balance sheet 31/1/20xx		
Assets		
....		
inventory		85,000
....		



3- First In First out (FIFO)

FIFO With Periodic Systems --- Exercise 3:

- Given the following data about ABC Company what is the value of the following*
- Value of ending inventory & calculated COGS on Jan 31*

<i>Date</i>	<i>Activity</i>	<i>Description</i>
<i>Jan 1</i>	<i>Beginning inventory</i>	<i>100 units at \$ 3.20 per unit</i>
<i>Jan 5</i>	<i>Purchase</i>	<i>60 units at \$3.25 per unit</i>
<i>Jan 7</i>	<i>Purchase</i>	<i>40 units at \$ 3.35 per unit</i>
<i>Jan 10</i>	<i>Sale</i>	<i>110 units at \$ 4 per unit</i>

3- First In First out (FIFO) Exercise 3



$$\text{Goods Available for sale} = \text{BI } (100 \times \$3.20) + \text{Purchases } [(60 \times \$3.25) + (40 \times \$3.35)]$$

$$200 \text{ units} = 320 + 195 + 134 = 649$$

$$\text{Ending Inventory} = 200 - 110$$

$$90 \text{ units} = (50 \times 3.25) + (40 \times 3.35) = 296.5$$

$$\text{Sales} = (110 \times 4) = 440$$

3- First In First out (FIFO) Exercise 3



$$\text{COGS } 110 \text{ units} = (100 \times 3.20) + (10 \times 3.25) = 320 + 32.5 = 352.5$$

Accounting Entries Year End:

Date	Item	Dr	Cr
31/1	Ending Inventory	296.5	
	COGS	352.5	
	Purchases		329
	Beginning Inventory		320
	<i>Recording COGS & Adjust inv balance</i>		

3- First In First out (FIFO Perpetual)



FIFO With Perpetual Systems Example :

*Given the following data about ABC Company what is the value of the following
- Value of ending inventory & calculated COGS on Jan 31*

<i>Date</i>	<i>Activity</i>	<i>Description</i>
<i>Jan 1</i>	<i>Beginning inventory</i>	<i>4,000 units at \$12 per unit</i>
<i>Jan 5</i>	<i>Purchase</i>	<i>6,000 units at \$16 per unit</i>
<i>Jan 7</i>	<i>Sale</i>	<i>7,000 units at \$22 per unit</i>
<i>Jan 10</i>	<i>Purchase</i>	<i>8,000 units at \$17 per unit</i>
<i>Jan 20</i>	<i>Sale</i>	<i>6,000 units at \$25 per unit</i>

3- First In First out (FIFO Perpetual)

Date	Purchases			Sales			COGS			Balance		
	units	\$	Total	units	\$	Total	units	\$	Total	units	\$	Total
1-Jan										4,000	\$12.00	48,000
5-Jan										4,000	\$12.00	48,000
	6,000	\$16.00	96,000							6,000	\$16.00	96,000
												144,000
7-Jan				7,000	\$22.00	154,000	4,000	\$12.00	48,000			
							3,000	\$16.00	48,000			
									96,000	3,000	\$16.00	48,000
10-Jan										3,000	\$16.00	48,000
	8,000	\$17.00	136,000							8,000	\$17.00	136,000
												184,000
20-Jan				6,000	\$25.00	150,000	3,000	\$16.00	48,000			
							3,000	\$17.00	51,000			
									99,000	5,000	\$17.00	85,000
31-Jan				13,000		\$ 304,000	13,000		\$195,000	5,000	\$17.00	85,000
				Total Sales			Total COGS			Value of ending inventory		

3- First In First out (FIFO Perpetual)

FIFO With Perpetual Systems Example :

As we Agreed the journal entries during the year will be as follows

Inventory				
Date	Description	Debit	Credit	Balance
1-Jan	Balance			48,000
5-Jan	Purchase	96,000		144,000
7-Jan	Sale		96,000	48,000
10-Jan	Purchase	136,000		184,000
20-Jan	sale		99,000	85,000

COGS				
Date	Description	Debit	Credit	Balance
1-Jan	Balance			.....
7-Jan	sale	96,000		96,000
20-Jan	Sale	99,000		195,000

Sales				
Date	Description	Debit	Credit	Balance
1-Jan	Balance			.....
7-Jan	sale		154,000	154,000
20-Jan	Sale		150,000	304,000

3- First In First out (FIFO)

Financial Statements

ABC company Income Statment 31/1/20xx			
Revenues			
	Net sales		304,000
COGS			
	Beginning Inventory	48,000	
+	Net Purchases	232,000	
=	Goods available for sale	280,000	
-	Ending Inventory	85,000	
	Cost Of Goods Sold		195,000
	Gross profit		109,000

ABC company Balance sheet 31/1/20xx		
Assets		
....		
inventory		85,000
....		



Inventory Pricing Techniques



For the purpose of pricing ending inventory and identifying the Cost of goods sold we have the following techniques

1. Weighted Average method (periodic systems only).
2. Moving average (Perpetual systems only).
3. First In First out (FIFO).
4. Last In First Out (LIFO).

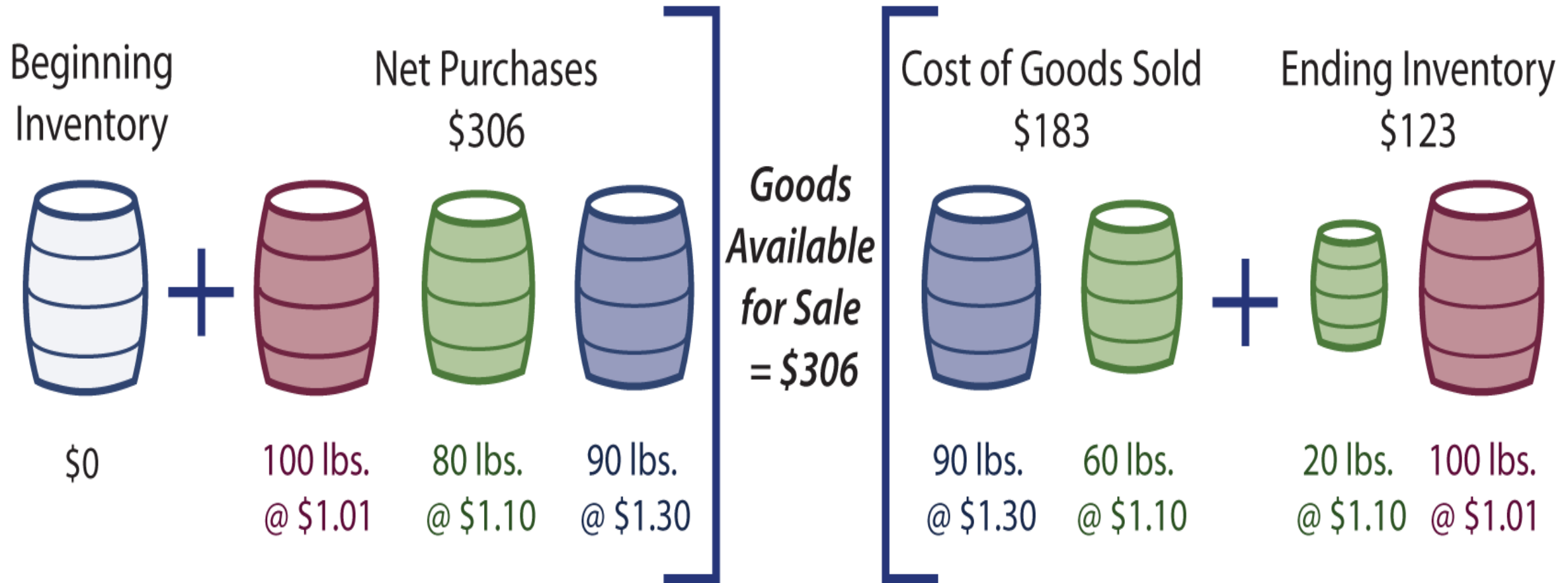
4- Last In First out (LIFO)

This Technique is used **with Both systems (perpetual & Periodic)** to account for different prices of inventory acquired during the period when calculating COGS & Ending Inventory at the end of the period.

Last-in, first-out is just the reverse of FIFO; recent costs are assigned to goods sold while the oldest costs remain in inventory

4- Last In First out (LIFO)

The LIFO calculations would look like this:



4- Last In First out (LIFO)

LIFO With Periodic Systems Example :

Given the following data about ABC Company what is the value of the following
- Value of ending inventory & calculated COGS on Jan 31

<i>Date</i>	<i>Activity</i>	<i>Description</i>
<i>Jan 1</i>	<i>Beginning inventory</i>	<i>4,000 units at \$12 per unit</i>
<i>Jan 5</i>	<i>Purchase</i>	<i>6,000 units at \$16 per unit</i>
<i>Jan 7</i>	<i>Sale</i>	<i>7,000 units at \$22 per unit</i>
<i>Jan 10</i>	<i>Purchase</i>	<i>8,000 units at \$17 per unit</i>
<i>Jan 20</i>	<i>Sale</i>	<i>6,000 units at \$25 per unit</i>

4- Last In First out (LIFO)

$$\text{Goods Available for sale} = \text{BI } (4000 \times \$12) + \text{Purchases } [(6000 \times \$16) + (8000 \times \$17)]$$

$$18,000 \text{ units} = 48,000 + 96,000 + 136,000 = 280,000$$

$$\text{COGS} = 7,000 + 6,000$$

$$13,000 \text{ units} = (7000 \times 17) + (1,000 \times 17) + (5,000 \times 16)$$

$$= 119,000 + 17,000 + 80,000$$

$$= 216,000$$

4- Last In First out (LIFO)

$$\text{Ending Inventory} = 18,000 - 13,000$$

$$5,000 \text{ units} = (4000 \times 12) + (1000 \times 16)$$

$$= 64,000$$

$$\text{Sales} = (7,000 \times 22) + (6,000 \times 25)$$

$$= 304,000$$

4- Last In First out (LIFO)

Accounting Entries Year End:

Date	Item	Dr	Cr
31/1	Ending Inventory	64,000	
	COGS	216,000	
	Purchases		232,000
	Beginning Inventory		48,000
	<i>Recording COGS & Adjust inv balance</i>		

Beginning Inventory	+	Net Purchases	=	Cost of goods available for sale	=	Ending Inventory	+	Cost of goods sold
\$48,000		\$232,000		\$280,000		\$64,000		\$216,000
4,000 @ \$12 each				4,000 @ \$12 each		4,000 @ \$12 each		
		6,000 @ \$16 each		6,000 @ \$16 each		1,000 @ \$16 each		5,000 @ \$16 each
		8,000 @ \$17 each		8,000 @ \$17 each				8,000 @ \$17 each

4- Last In First out (LIFO)

Financial Statements

ABC company Income Statment 31/1/20xx			
Revenues			
	Net sales		304,000
COGS			
	Beginning Inventory	48,000	
+	Net Purchases	232,000	
=	Goods available for sale	280,000	
-	Ending Inventory	64,000	
	Cost Of Goods Sold		216,000
	Gross profit		88,000

ABC company Balance sheet 31/1/20xx		
Assets		
....		
inventory		64,000
....		



4- Last In First out (LIFO)



LIFO With Periodic Systems Exercise 5:

Given the following data about ABC Company what is the value of the following

- Value of ending inventory & calculated COGS on Jan 31*

<i>Date</i>	<i>Activity</i>	<i>Description</i>
<i>Jan 1</i>	<i>Beginning inventory</i>	<i>100 units at \$ 3.20 per unit</i>
<i>Jan 5</i>	<i>Purchase</i>	<i>60 units at \$3.25 per unit</i>
<i>Jan 7</i>	<i>Purchase</i>	<i>40 units at \$ 3.35 per unit</i>
<i>Jan 10</i>	<i>Sale</i>	<i>110 units at \$ 4 per unit</i>

4- Last In First out (LIFO) Exercise 5

329

$$\text{Goods Available for sale} = \text{BI } (100 \times \$3.20) + \text{Purchases} [(60 \times \$3.25) + (40 \times \$3.35)]$$

$$200 \text{ units} = 320 + 195 + 134 = 649$$

$$\text{COGS } 110 \text{ units} = (40 \times 3.35) + (60 \times 3.25) + (10 \times 3.2)$$

$$= 134 + 195 + 32 = 361$$

$$\text{Ending Inventory} = 200 - 110$$

$$90 \text{ units} = (90 \times 3.2) = 288$$

4- Last In First out (LIFO) Exercise 5

$$\text{Sales} = (110 \times 4) = 440$$

Accounting Entries Year End:

Date	Item	Dr	Cr
31/1	Ending Inventory	288	
	COGS	361	
	Purchases		329
	Beginning Inventory		320
	<i>Recording COGS & Adjust inv balance</i>		

4- Last In First out (LIFO)

LIFO With Perpetual Systems Example :

Given the following data about ABC Company what is the value of the following
 - Value of ending inventory & calculated COGS on Jan 31

<i>Date</i>	<i>Activity</i>	<i>Description</i>
<i>Jan 1</i>	<i>Beginning inventory</i>	<i>4,000 units at \$12 per unit</i>
<i>Jan 5</i>	<i>Purchase</i>	<i>6,000 units at \$16 per unit</i>
<i>Jan 7</i>	<i>Sale</i>	<i>7,000 units at \$22 per unit</i>
<i>Jan 10</i>	<i>Purchase</i>	<i>8,000 units at \$17 per unit</i>
<i>Jan 20</i>	<i>Sale</i>	<i>6,000 units at \$25 per unit</i>

4- Last In First out (LIFO)

Date	Purchases			Sales			COGS			Balance		
	units	\$	Total	units	\$	Total	units	\$	Total	units	\$	Total
1-Jan										4,000	\$12.00	48,000
5-Jan										4,000	\$12.00	48,000
	6,000	\$16.00	96,000							6,000	\$16.00	96,000
												144,000
7-Jan				7,000	\$22.00	154,000	6,000	\$16.00	96,000			
							1,000	\$12.00	12,000			
									108,000	3,000	\$12.00	36,000
10-Jan										3,000	\$12.00	36,000
	8,000	\$17.00	136,000							8,000	\$17.00	136,000
												172,000
20-Jan				6,000	\$25.00	150,000	6,000	\$17.00	102,000			
									0	3,000	\$12.00	36,000
									102,000	2,000	\$17.00	34,000
31-Jan				13,000		\$ 304,000	13,000		\$210,000	5,000		70,000
				Total Sales			Total COGS			Value of ending inventory		

4- Last In First out (LIFO Perpetual)

Inventory				
Date	Description	Debit	Credit	Balance
1-Jan	Balance			48,000
5-Jan	Purchase	96,000		144,000
7-Jan	Sale		108,000	36,000
10-Jan	Purchase	136,000		172,000
20-Jan	sale		102,000	70,000

Sales				
Date	Description	Debit	Credit	Balance
1-Jan	Balance			.....
7-Jan	sale		154,000	154,000
20-Jan	Sale		150,000	304,000

COGS				
Date	Description	Debit	Credit	Balance
1-Jan	Balance			.....
7-Jan	sale	108,000		108,000
20-Jan	Sale	102,000		210,000

ABC company Balance sheet 31/1/20xx		
Assets		
....		
inventory		70,000
....		
ABC company Income Statment 31/1/20xx		
net sales		304,000
COGS		(210,000)
Gross profit		94,000
....		

4- Last In First out (LIFO Perpetual)

Exercise 6

given the Following data about ABC Company what is the value of the following

1. Total value of ending inventory on Jul 31.
2. The amount calculated as COGS on Jul 31

Remember!

This process has only 2 simple steps

1. Calculate inventory units each time we make **a Purchase**
2. Each time **a Sale** is made COGS is calculated using the latest purchased units

4- Last In First out (LIFO Perpetual)

Date		Tons	\$ per ton	\$ Total
1-Jul	Opening Inventory	10	20	200
4-Jul	Purchase (prod)	8	22	176
6-Jul	Sale	-9		
15-Jul	Purchase (prod)	6	24	144
18-Jul	Sale	-11		
23-Jul	Purchase (prod)	4	26	104
31-Jul	Closing Inventory	8		

4- Last In First out (LIFO Perpetual)

Date	Purchases			Sales			COGS			Balance		
	units	\$	Total	units	\$	Total	units	\$	Total	units	\$	Total
1-Jul										10	\$20.00	200
4-Jul										10	\$20.00	200
	8	\$22.00	176							8	\$22.00	176
										18		376
6-Jul				9	\$30.00	270	8	\$22.00	176			
							1	\$20.00	20			
							9		196	9	\$20.00	180
15-Jul										9	\$20.00	180
	6	\$24.00	144							6	\$24.00	144
										15		324
18-Jul				11	\$30.00	330	6	\$24.00	144	4	\$20.00	80
							5	\$20.00	100			
							11		244			
23-Jul										4	\$20.00	80
	4	\$26.00	104							4	\$26.00	104
										8		184
31-Jul				20	\$	600	20		440	8		184
	Total Sales			Total COGS			Value of ending inventory					

4- Last In First out (LIFO Perpetual)

Inventory				
Date	Description	Debit	Credit	Balance
1-Jul	Balance			200
4-Jul	Purchase	176		376
6-Jul	sale		196	180
15-Jul	Purchase	144		324
18-Jul	Sale		244	80
23-Jul	Purchase	104		184

Sales				
Date	Description	Debit	Credit	Balance
1-Jul	Balance			.....
6-Jul	sale		270	270
18-Jul	Sale		330	600

COGS				
Date	Description	Debit	Credit	Balance
1-Jul	Balance			.....
6-Jul	sale	196		196
18-Jul	Sale	244		440

ABC company Balance sheet 31/7/20xx		
Assets		
....		
inventory		184
....		
ABC company Income Statment 31/7/20xx		
net sales		600
COGS		(440)
Gross profit		160
....		

Lower Cost or Net Realizable Value rule

- Market method
Inventory can be valued at market price even if it is above cost. This usually occurs when:
 - Disposal is assured and market price is known (e.g., precious metals)

Lower Cost or Net Realizable Value rule

- Used when the utility of goods is no longer as great as its cost.
- Net Realizable Value equals selling price less selling costs & completion costs
- Compare cost to NRV and select the lower either for each individual item or for inventory as a whole.