



مجموعة جامعة
الجميع الذكية
للتعليم القابضة

MIDOCEAN
UNIVERSITY

Accounting for Managers

Prepared by Dr. Sara Ahmed

MGM 341

Lecture 3



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Chapter 2: Building Blocks of Managerial Accounting

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Chapter
02

Learning objectives

- Distinguish among Service, merchandising and manufacturing companies
- Distinguish between direct and indirect costs
- Identify the inventoriable product costs and period costs for merchandising and manufacturing companies
- Prepare financial statements for service, merchandising and manufacturing companies
- Classify costs as fixed or variable and calculate total costs and average costs for different volumes
- Prepare income statements for a merchandising company using the traditional and contribution formats.

Most Common Business Sectors

The three common types of business sectors

- Service Companies
- Merchanting Companies
- Manufacturing companies



Service Business Sector

- Provide an intangible service only

Examples:

- Healthcare
- Insurance
- Banking
- Consulting
- No inventory



Merchandising Companies

- Resell tangible product purchased from suppliers
- Retailers vs. Wholesalers
- One inventory account-Merchandise

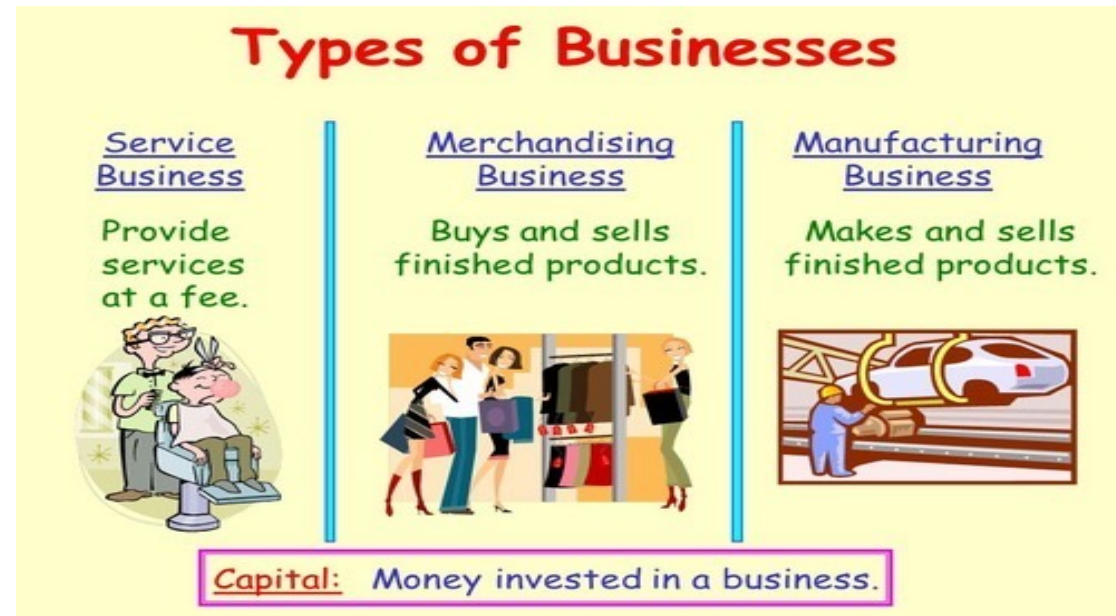
Manufacturing Companies Differ?

- Merchandising companies resell products they previously bought from suppliers.
 - Examples: Target, Walmart, grocery stores



Manufacturing Companies

- Use labor and other inputs to convert materials into finished goods
- Sell products to wholesalers, retailers and/or to the customer
- Three inventory accounts



Manufacturing Companies: Inventory levels



- Three inventory accounts
 - ❖ Raw materials
 - ❖ Work in progress
 - ❖ Finished goods

Cost Concepts for Service Companies

The cost concepts described are generally applicable to service organizations.

For example, the cost of beverages for passengers of Southwest Airlines is a variable cost based on number of passengers.

Direct costs

- Costs that can be easily and conveniently traced to a unit of product or other cost object.
- Examples: direct material and direct labor

Indirect costs

- Costs that cannot be easily and conveniently traced to a unit of product or other cost object.
- Example: manufacturing overhead

Common costs

- Indirect costs incurred to support a number of cost objects. These costs cannot be traced to any individual cost object.

- Cost objects may include the following:
 - ❖ Individual units
 - ❖ Product divisions
 - ❖ Geographic segments
 - ❖ Departments (HR, R&D, other)

Types of Cost Classifications

Direct versus Indirect

Direct costs

- **Costs traceable to a single cost object.**
- **Examples: material and labor cost for a product.**

Indirect costs

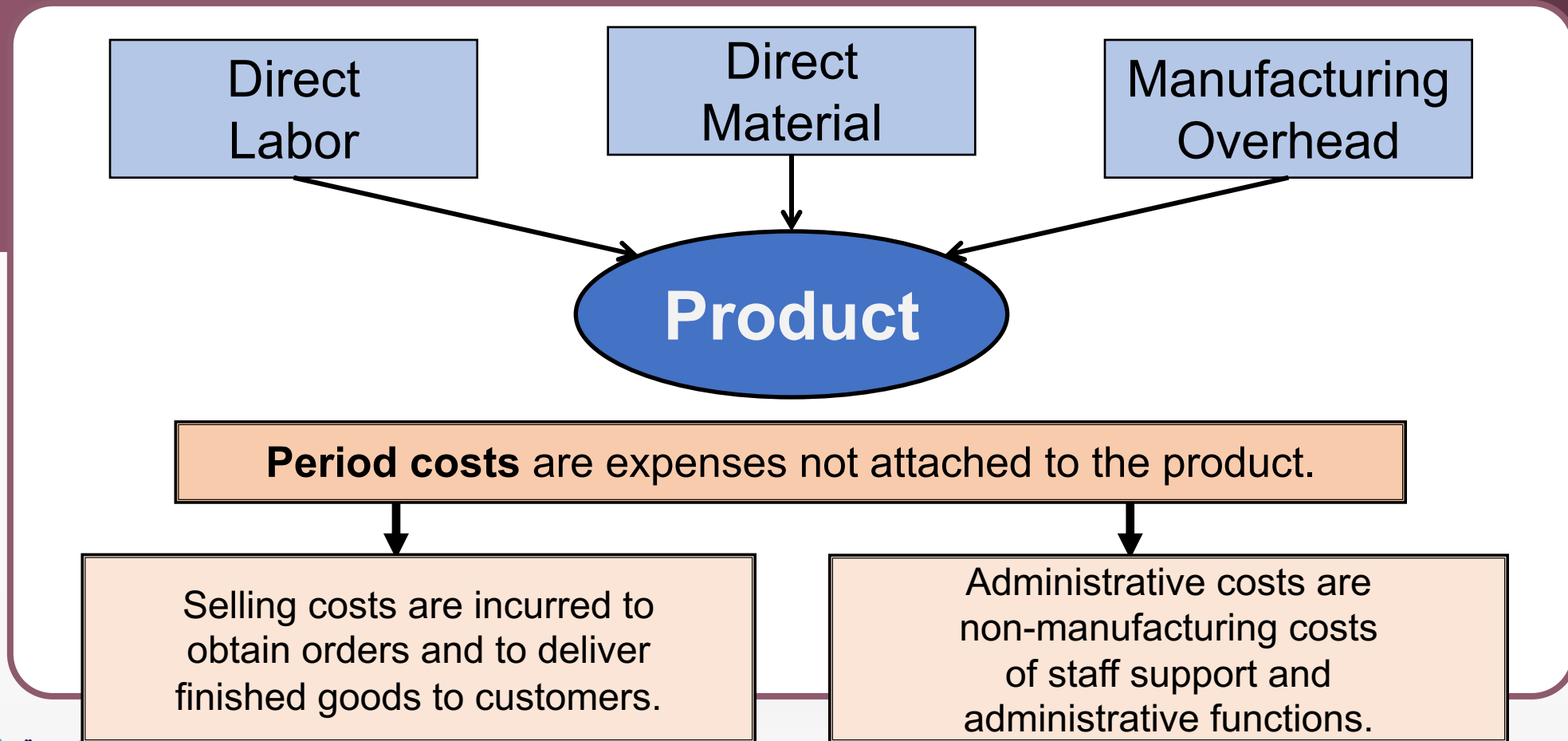
- **Costs that cannot be traced to a single cost object.**
- **Example: maintenance expenditure benefiting two or more departments.**

Product costs includes all the costs that are involved in acquiring or making a product.

Product costs “attach” to a unit of product as it is purchased or manufactured and they stay attached to each unit of product as long as it remains in inventory awaiting sale.

Types of Cost Classifications

Product versus Period Costs



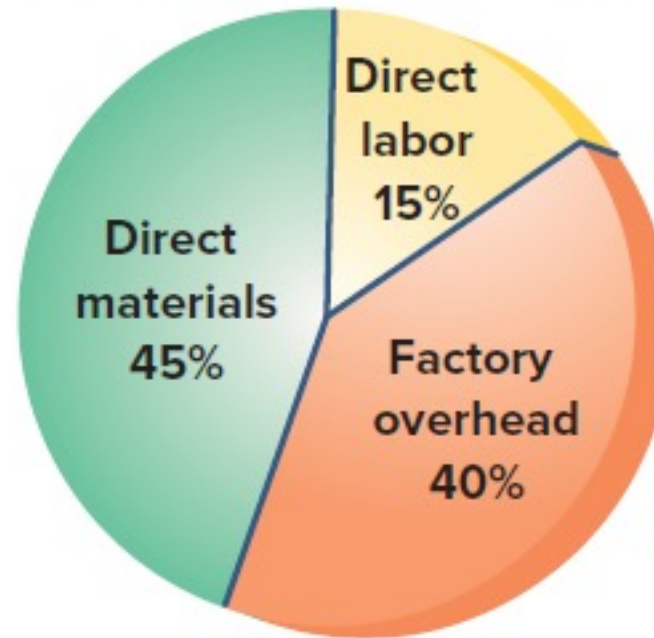
Merchandising Cost Reporting

Inventoriable Product cost:

Only Purchase price from suppliers
+ Freight in
+ import duties or tariffs

Managerial Reporting

Typical Manufacturing Costs



Direct Materials

Direct materials costs are the expenditures for direct materials that are separately and readily traced through the manufacturing process to finished goods.

Example:
**Steel used in the
frame of a
mountain bike.**

Direct Labor

Direct labor costs are the wages and salaries for direct labor that are separately and readily traced through the manufacturing process to finished goods.

Example:
**Wages paid to a
mountain bike
assembly worker.**

Manufacturing Overhead

All manufacturing costs except direct material and direct labor. These costs **cannot** be readily traced to finished products.

Includes **indirect materials** that cannot be easily or conveniently traced to specific units of product.

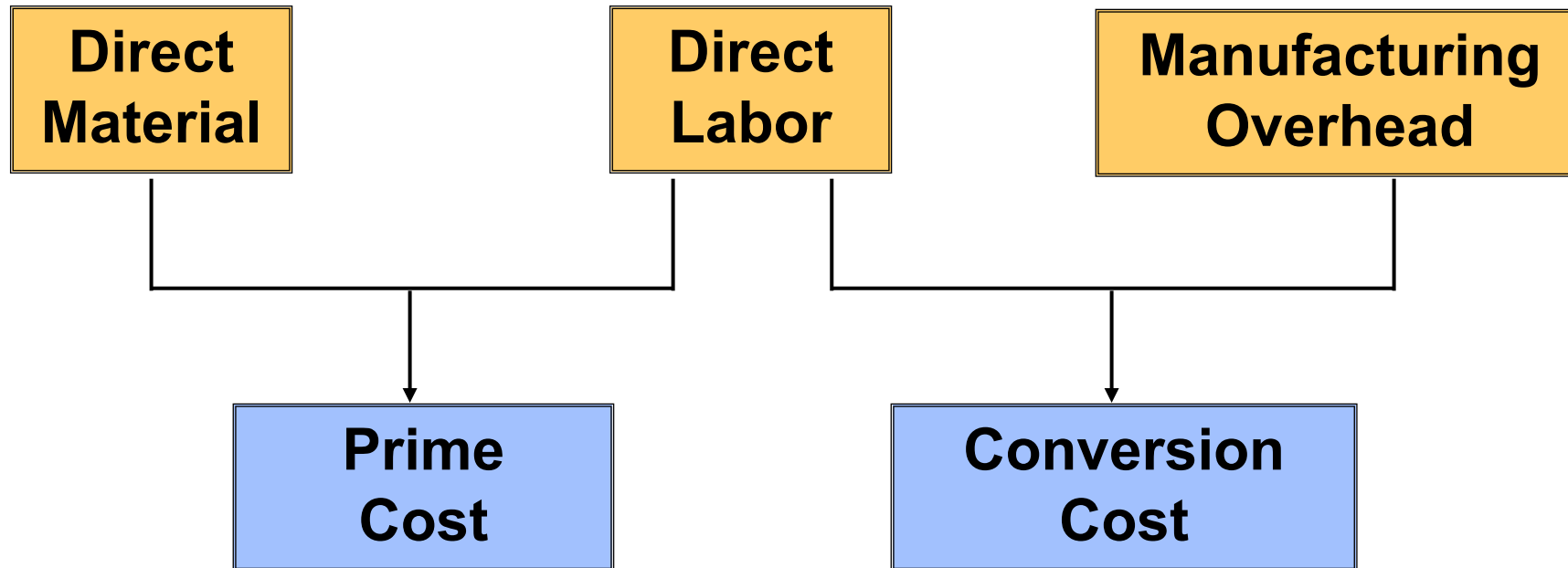
Includes **indirect labor** that cannot be easily or conveniently traced to specific units of product

Manufacturing Overhead – Examples

- Examples of manufacturing overhead:
 - Depreciation of manufacturing equipment
 - Utility costs
 - Property taxes
 - Insurance premiums incurred to operate a manufacturing facility
- Only those indirect costs associated with *operating the factory* are included in manufacturing overhead.

Prime and Conversion Costs

Manufacturing costs are often combined as follows:



Manufacturing costs are often classified as follows:

- Prime cost
 - Direct materials
 - Direct labor
- Conversion cost
 - Direct labor
 - Manufacturing overhead

Manufacturing Product Costs

For manufacturing companies, product costs include:

- **Raw materials:** includes any materials that go into the final product.
- **Work in process:** consists of units of product that are only partially complete and will require further work before they are ready for sale to the customer.
- **Finished goods costs:** consists of completed units of product that have not yet been sold to customers.

Transfer of Product Costs

- When direct materials are used in production, their costs are transferred from Raw Materials to Work in Process.
- Direct labor and manufacturing overhead costs are added to Work in Process to convert direct materials into finished goods.
- Once units of product are completed, their costs are transferred from Work in Process to Finished Goods.
- When a manufacturer sells its finished goods to customers, the costs are transferred from Finished Goods to Cost of Goods Sold.

Non-manufacturing Costs

Selling Costs

The costs incurred to secure customer orders and get the finished product to the customer. Selling costs can either be direct or indirect costs.

Administrative Costs

The costs associated with the *general management* of an organization rather than with the manufacturing or selling. Administrative costs can be either direct or indirect costs.

Non-manufacturing Costs

- Recorded as expenses on the income statement when incurred.
- Expenses are period cost.
- Selling and administrative expenses.
- Not part of Factory Overhead because they are not incurred in manufacturing products.

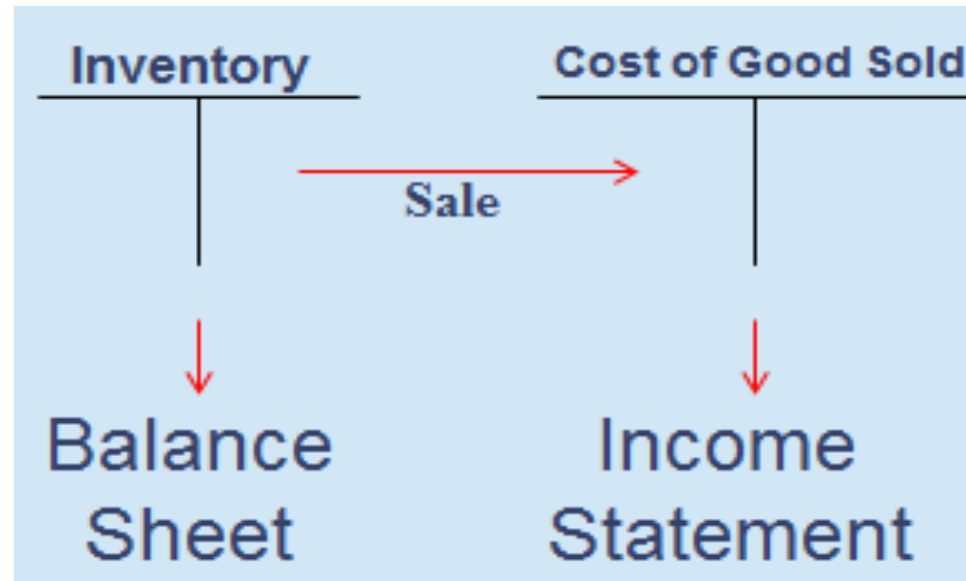
Cost Classifications for Preparing Financial Statements

Product costs include direct materials, direct labor, and manufacturing overhead.

Period costs include all selling costs and administrative costs.

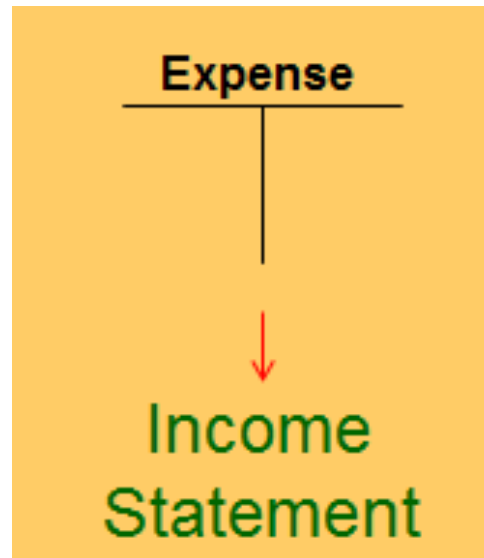
Cost Classifications for Preparing Financial Statements

Product costs include direct materials, direct labor, and manufacturing overhead.



Cost Classifications for Preparing Financial Statements

Period costs include all selling costs and administrative costs.



Quick Check

Which of the following costs would be considered a period rather than a product cost in a manufacturing company?

- A. Manufacturing equipment depreciation.
- B. Property taxes on corporate headquarters.
- C. Direct materials costs.
- D. Electrical costs to light the production facility.
- E. Sales commissions.

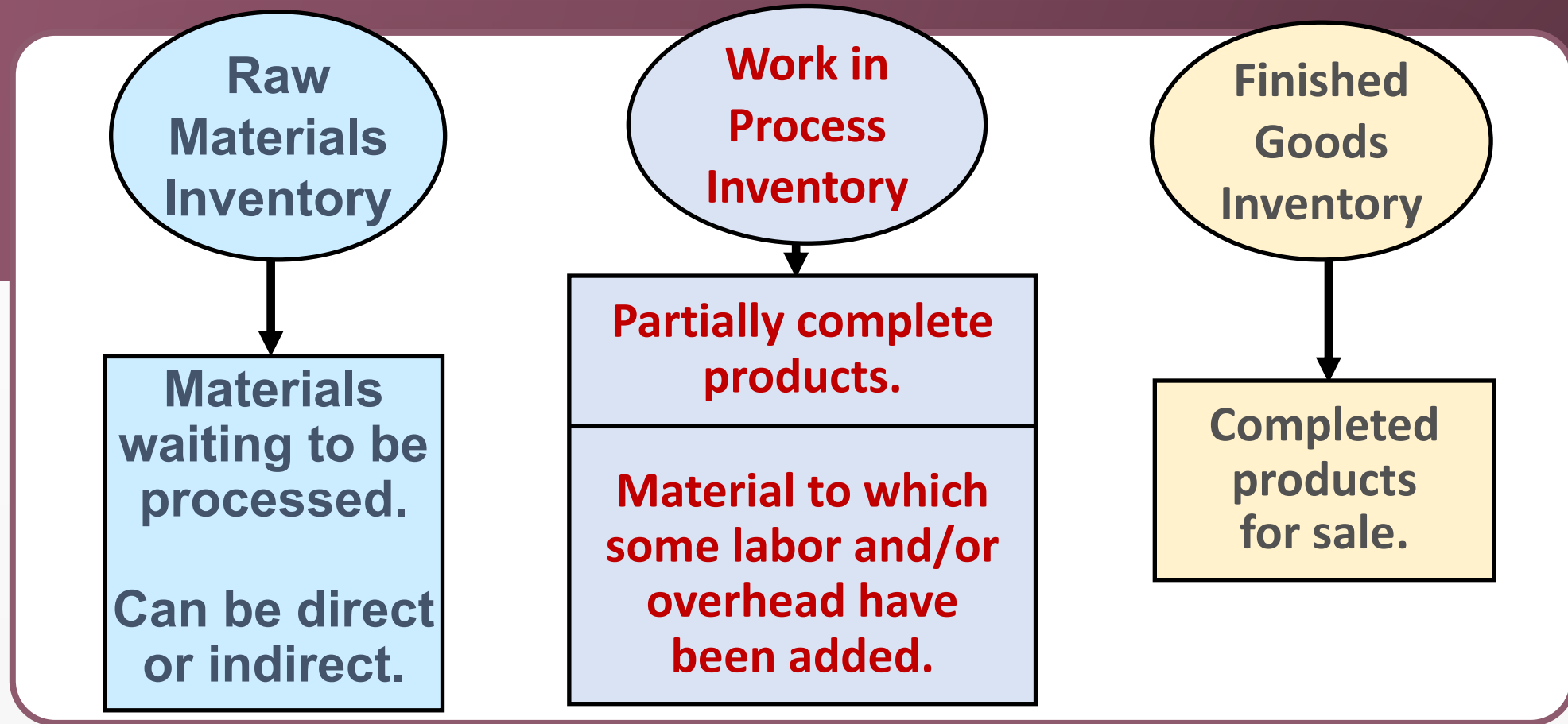
Merchandisers . . .

- ❖ Buy finished goods.
- ❖ Sell finished goods.

Manufacturers . . .

- ❖ Buy raw materials.
- ❖ Produce and sell finished goods.

Manufacturer's Balance Sheet



Chapter 02

Balance Sheets for Manufacturers, Merchandisers and Servicers

NORTHEAST AIR (Service Provider) Balance Sheet (partial) December 31, 2019	
Assets	
Current assets	
Cash	\$11,000
Accounts receivable, net	30,150
Supplies	350
Prepaid insurance	300
Total current assets	<u>\$41,800</u>

TELE-MART (Merchandiser) Balance Sheet (partial) December 31, 2019	
Assets	
Current assets	
Cash	\$11,000
Accounts receivable, net	30,150
Merchandise inventory	21,000
Supplies	350
Prepaid insurance	300
Total current assets	<u>\$62,800</u>

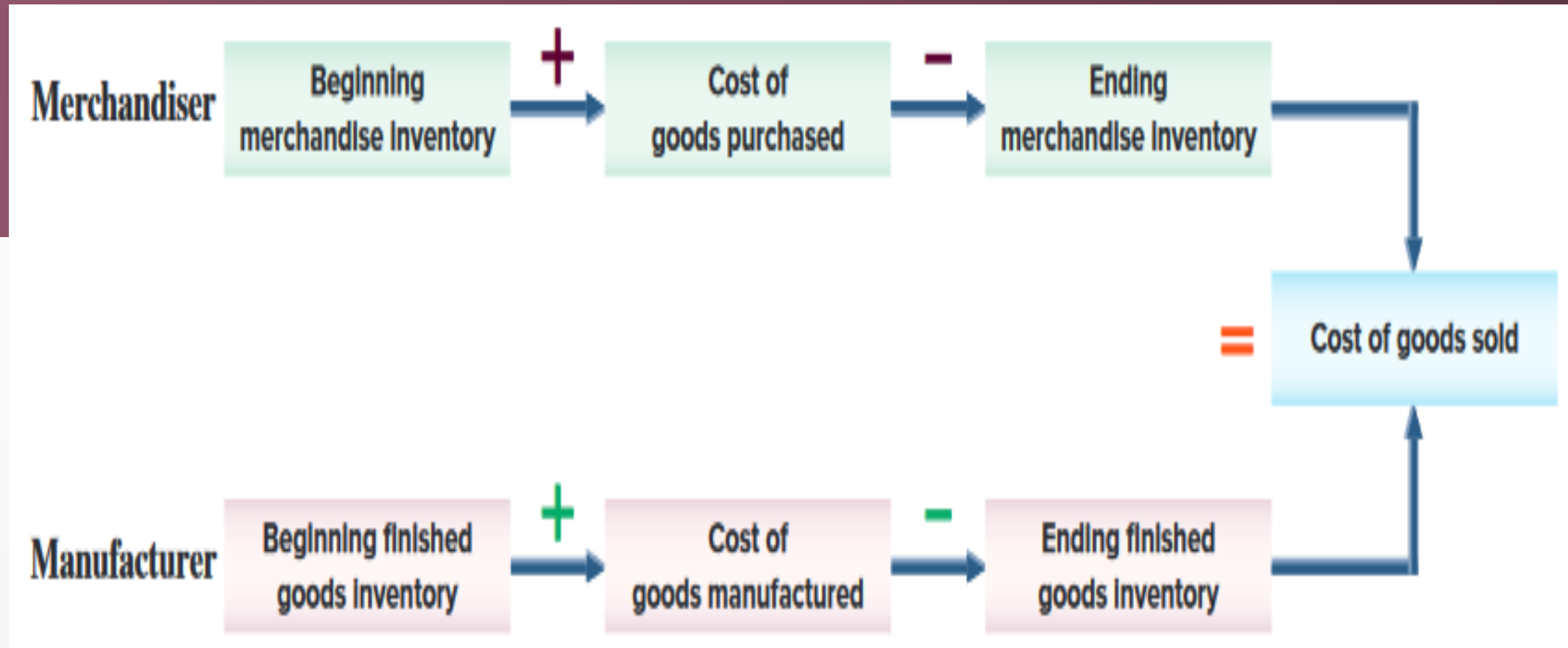
ROCKY MOUNTAIN BIKES Balance Sheet (partial) December 31, 2019	
Assets	
Current assets	
Cash	\$11,000
Accounts receivable, net	30,150
Raw materials inventory	9,000
Work in process inventory	7,500
Finished goods inventory	10,300
Factory supplies	350
Prepaid insurance	300
Total current assets	<u>\$68,600</u>

The primary difference is inventory.

Balance Sheets for Manufacturers, Merchandisers and Servicers

Balance Sheet Differences

Type of Company	Inventory Accounts
Service Company	None
Merchandiser	Merchandise Inventory
Manufacturer	Raw materials, work in process, and finished goods inventory



Cost of Goods Sold for a Merchandiser and Manufacturer

Merchandising (Tele-Mart) Company

Cost of goods sold	
Beginning <i>merchandise</i> inventory	\$ 14,200
Cost of merchandise <i>purchased</i>	234,150
Goods available for sale	248,350
Less ending <i>merchandise</i> inventory	12,100
Cost of goods sold	<u>\$236,250</u>

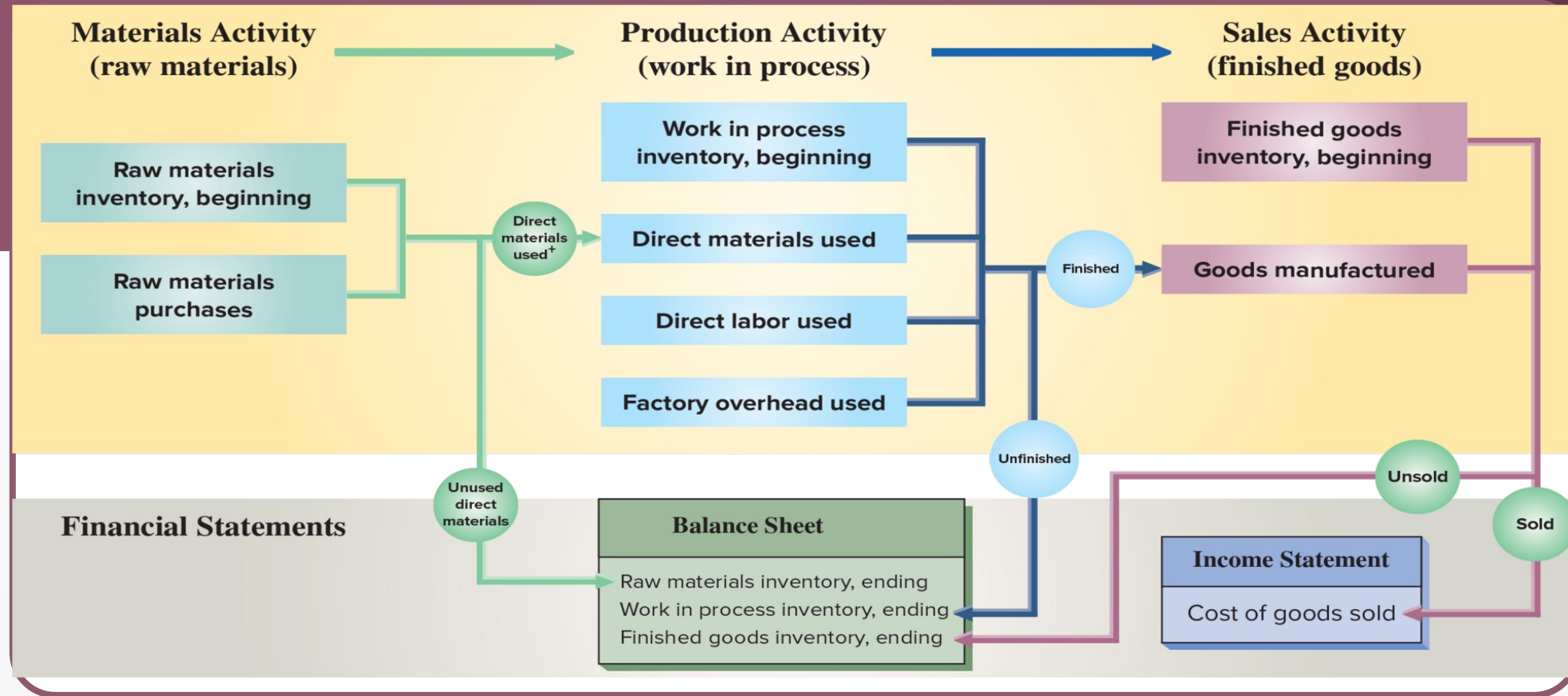
Cost of goods sold for manufacturers differs *only slightly* from cost of goods sold for merchandisers.

Manufacturing (Rocky Mtn. Bikes) Company

Cost of goods sold	
Beginning <i>finished goods</i> inventory	\$ 11,200
Cost of goods <i>manufactured</i>*	170,500
Goods available for sale	181,700
Less ending <i>finished goods</i> inventory	10,300
Cost of goods sold	<u>\$171,400</u>

Chapter 02

Flow of Manufacturing Activities



Summarizes the types and amounts of costs incurred in a company's manufacturing process.

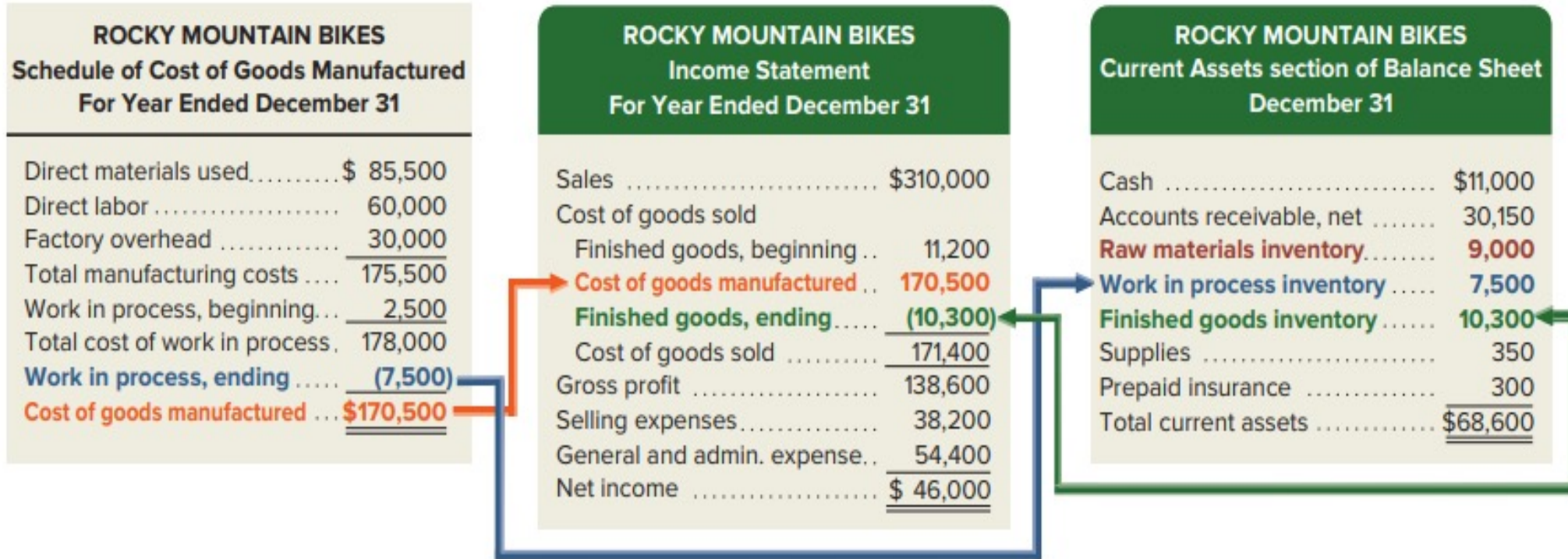
	Direct Materials Used
+	Direct Labor
+	<u>Factory Overhead</u>
=	Total Manufacturing Costs
+	Beginning Work in Process
–	<u>Ending Work in Process</u>
=	Cost of Goods Manufactured

Key Calculations in Schedule of Cost of Goods Manufactured

$$\text{Total manufacturing costs} = \text{Direct materials used} + \text{Direct labor used} + \text{Factory overhead used}$$


$$\text{Cost of goods manufactured} = \text{Total manufacturing costs} + \text{Beginning work in process inventory} - \text{Ending work in process inventory}$$

Manufacturing Cost Flows Across Accounting Reports



Income Statement: Service Company

Income Statement for a Service Company

- Simplest income statement
- All costs are period costs

eNOW! Income Statement Year Ended December 31, 2017		
Revenues		\$ 160,000
Operating expenses:		
Salary expense	\$106,000	
Office rent expense	18,000	
Depreciation expense—furniture and equipment	3,500	
Marketing expense	<u>2,500</u>	
Total operating expenses		<u>(130,000)</u>
Operating income		<u>\$ 30,000</u>

Income Statement: Merchandising Company

Income Statement of a Merchandiser

- Separates product costs from period costs

APEX SHOWROOMS Income Statement Year Ended December 31, 2017		
Sales revenues		\$ 150,000
Cost of goods sold:		
Beginning inventory	\$ 9,500	
Purchases, freight-in, and import duties	<u>110,000</u>	
Cost of goods available for sale	119,500	
Ending inventory	<u>(13,000)</u>	
Cost of goods sold		<u>106,500</u>
Gross profit		43,500
Operating expenses:		
Showroom rent expense	5,000	
Sales salary expense	<u>4,000</u>	<u>9,000</u>
Operating income		<u>\$ 34,500</u>

Income Statement for a Manufacturer

TOP-FLITE Income Statement Year Ended December 31, 2017		
Sales revenues		\$ 65,000
Cost of goods sold:		
Beginning finished goods inventory	\$ 6,000	
Cost of goods manufactured*	<u>42,000</u>	
Cost of goods available for sale	48,000	
Ending finished goods inventory	<u>(8,000)</u>	
Cost of goods sold		<u>40,000</u>
Gross profit		25,000
Operating expenses:		
Sales salary expense	3,000	
Delivery expense	<u>7,000</u>	<u>10,000</u>
Operating income		<u>\$ 15,000</u>

COGM Calculation: Manufacturer

TOP-FLITE		
Schedule of Cost of Goods Manufactured		
Year Ended December 31, 2017		
Beginning work in progress inventory	\$ 9,000	\$ 2,000
Add: Direct materials used		
Beginning raw materials inventory*		
Purchases of direct materials including freight-in and any import duties	<u>27,000</u>	
Available for use	36,000	
Ending raw materials inventory	<u>(22,000)</u>	
Direct materials used		\$14,000
Direct labour		19,000
Manufacturing overhead:		
Indirect materials	\$ 1,500	
Indirect labour	3,500	
Depreciation—plant and equipment	3,000	
Plant utilities, insurance, and property taxes	<u>4,000</u>	
Manufacturing overhead		<u>12,000</u>
Total manufacturing costs incurred during year		<u>45,000</u>
Total manufacturing costs to account for		47,000
Less: Ending work in process inventory		<u>(5,000)</u>
Costs of goods manufactured		<u>\$ 42,000</u>

Income Statement differences

Type of Company	Inventoriable Product Costs	Period Costs
Service Company	None	All costs along the value chain
Merchandiser	Purchases plus cost of freight, import duties, etc.	All costs except total purchases
Manufacturer	DM, DL, MOH	All costs except DM, DL, MOH
Accounting Treatment	Inventory on balance sheet until sold	Immediately expense

Manufacturing Companies' Inventory Accounts (1 of 3)

Raw Materials Inventory

Beginning inventory	\$ 9,000
<u>+ Direct materials purchased plus freight-in*</u>	27,000
= Direct materials available for use	36,000
<u>- Ending inventory</u>	(22,000)
= Direct materials used*	\$ 14,000

This number becomes
Direct Materials Used
in the Work-in-process account

Manufacturing Companies' Inventory Accounts (2 of 3)

From Raw Materials	
Work in Process Inventory	
Beginning inventory	\$ 2,000
+ Direct materials used	\$14,000
+ Direct labour	19,000
+ Manufacturing overhead	<u>12,000</u>
<u>Total manufacturing costs incurred during the year</u>	<u>45,000</u>
= Total manufacturing costs to account for	47,000
<u>- Ending inventory</u>	<u>(5,000)</u>
= Cost of goods manufactured	\$ 42,000

COGM is sent to the Finished Goods account

Manufacturing Companies' Inventory Accounts (3 of 3)

From Work-in-process account

Finished Goods Inventory	
Beginning inventory	\$ 6,000
<u>+ Cost of goods manufactured</u>	42,000
= Cost of goods available for sale	48,000
<u>- Ending inventory</u>	(8,000)
= Cost of goods sold	\$ 40,000

Cost Classifications for Predicting Cost Behavior

Cost behavior refers to how a cost will react to changes in the level of activity.

The most common classifications are:

- **Variable costs.**
- **Fixed costs.**
- **Mixed costs.**

Variable Cost

A cost that varies, in total, in direct proportion to changes in the level of activity.

A variable cost per unit is constant.

Fixed Cost

A cost that remains constant, in total, regardless of changes in the level of the activity.

If expressed on a per unit basis, the average fixed cost per unit varies inversely with changes in activity.

Fixed Costs and the Relevant Range

The relevant range of activity pertains to fixed cost as well as variable costs. For example, assume office space is available at a rental rate of \$30,000 per year in increments of 1,000 square feet.

Fixed costs would increase in a step fashion at a rate of \$30,000 for each additional 1,000 square feet.

Comparison of Cost Classifications for Predicting Cost Behavior

Behavior of Cost (within the relevant range)

Cost	In Total	Per Unit
Variable	Total variable cost Increase and decrease in proportion to changes in the activity level.	Variable cost per unit remains constant.
Fixed	Total fixed cost is not affected by changes in the activity level within the relevant range.	Fixed cost per unit decreases as the activity level rises and increases as the activity level falls.

Which of the following costs would be variable with respect to the number of ice cream cones sold at a Baskin & Robbins? (There may be more than one correct answer.)

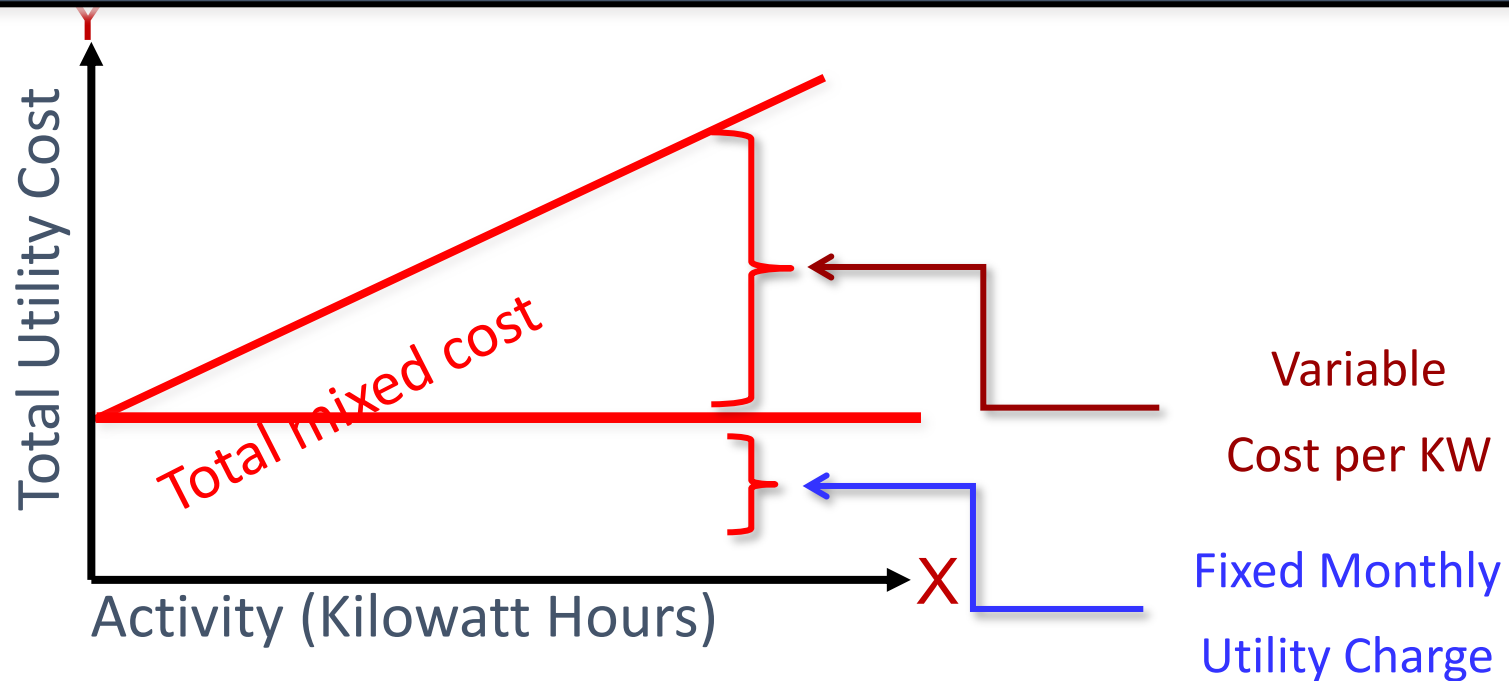
- A. The cost of lighting the store.
- B. The wages of the store manager.
- C. The cost of ice cream.
- D. The cost of napkins for customers.

Which of the following costs would be variable with respect to the number of ice cream cones sold at a Baskin & Robbins? (There may be more than one correct answer.)

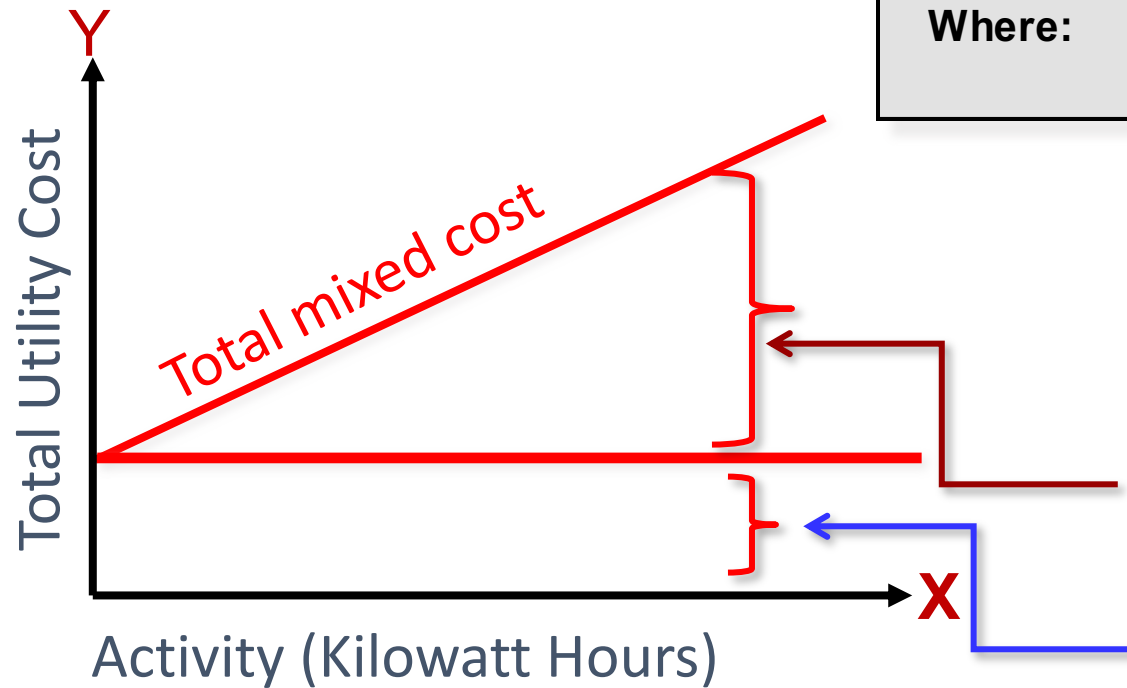
- A. The cost of lighting the store.
- B. The wages of the store manager.
- C. The cost of ice cream.
- D. The cost of napkins for customers.

Mixed Costs

A mixed cost contains both variable and fixed elements. Consider the example of utility cost.



Mixed Costs



The total mixed cost line can be expressed as an equation: $Y = a + bX$

Where:

- Y = The total mixed cost.
- a = The total fixed cost (the vertical intercept of the line).
- b = The variable cost per unit of activity (the slope of the line).
- X = The level of activity.

Variable
Cost per KW
Fixed Monthly
Utility Charge

Mixed Costs – An Example

If your fixed monthly utility charge is \$40, your variable cost is \$0.03 per kilowatt hour, and your monthly activity level is 2,000 kilowatt hours, what is the amount of your utility bill?

$$Y = a + bX$$

$$Y = \$40 + (\$0.03 \times 2,000)$$

$$Y = \mathbf{\$100}$$

Comparison of the Contribution Income Statement with the Traditional Income Statement

Traditional Format		Contribution Format	
Sales	\$ 100,000	Sales	\$ 100,000
Cost of goods sold	70,000	Variable expenses	60,000
Gross margin	\$ 30,000	Contribution margin	\$ 40,000
Selling & admin. expenses	20,000	Fixed expenses	30,000
Net operating income	\$ 10,000	Net operating income	\$ 10,000

Used primarily for
external reporting.

Used primarily by
management.

Uses of the Contribution Format

The contribution income statement format is used as an internal planning and decision-making tool. We will use this approach for:

1. Cost-volume-profit analysis
2. Segmented reporting of profit data
3. Budgeting
4. Special decisions such as pricing and make-or-buy analysis

Unit cost calculation

ABC Company has total variable costs of \$50,000 and total fixed costs of \$30,000 in May, which it incurred while producing 10,000 widgets. The cost per unit is:

$$(\$30,000 \text{ Fixed costs} + \$50,000 \text{ variable costs}) \div 10,000 \text{ units} = \$8 \text{ cost per unit}$$

In the following month, ABC produces 5,000 units at a variable cost of \$25,000 and the same fixed cost of \$30,000. The cost per unit is:

$$(\$30,000 \text{ Fixed costs} + \$25,000 \text{ variable costs}) \div 5,000 \text{ units} = \$11/\text{unit}$$



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Thank You

