

*Chapter*

2

# **Cost Terms, Concepts, and Classifications**

# LEARNING OBJECTIVES

After studying this chapter, you should be able to:

1. **Identify** and give examples of each of the three basic cost elements involved in the manufacture of a product.
2. **Distinguish** between product costs and period costs and give examples of each.
3. **Prepare** a schedule of cost of goods manufactured in good form.
4. **Explain** the flow of direct materials cost, direct labour cost, and manufacturing overhead cost from the point of origin to sale of the completed product.

# LEARNING OBJECTIVES

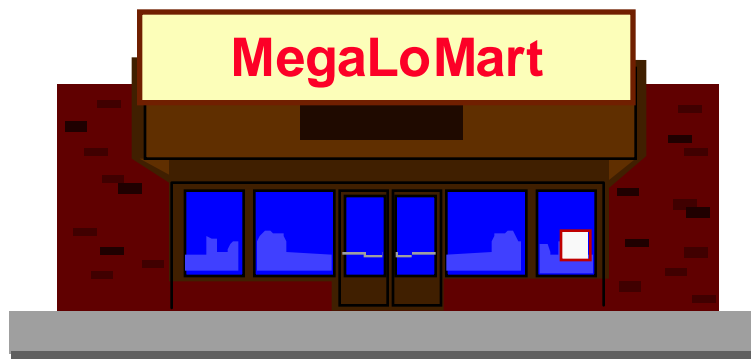
After studying this chapter, you should be able to:

5. **Identify** and give examples of variable costs and fixed costs and explain the difference in their behaviour.
6. **Define** and give examples of direct and indirect costs.
7. **Define** and give examples of cost classification used in making decisions: differential costs, opportunity costs and sunk costs.
8. (Appendix 2A) **Properly** classify labour costs associated with idle time, overtime, and fringe benefits.

# Comparing Merchandising and Manufacturing Activities

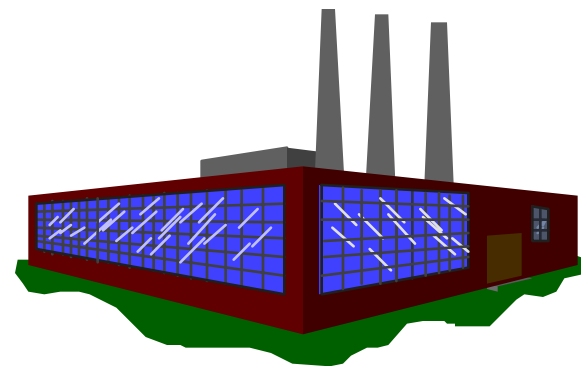
## Merchandisers . . .

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



## Manufacturers . . .

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



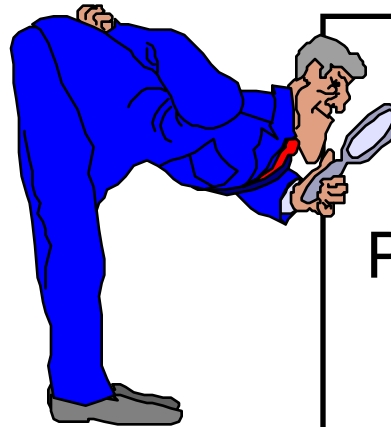
# Manufacturing Cost Concepts

*Our focus changes from financial  
statement costs to product costs*



## Financial Accounting

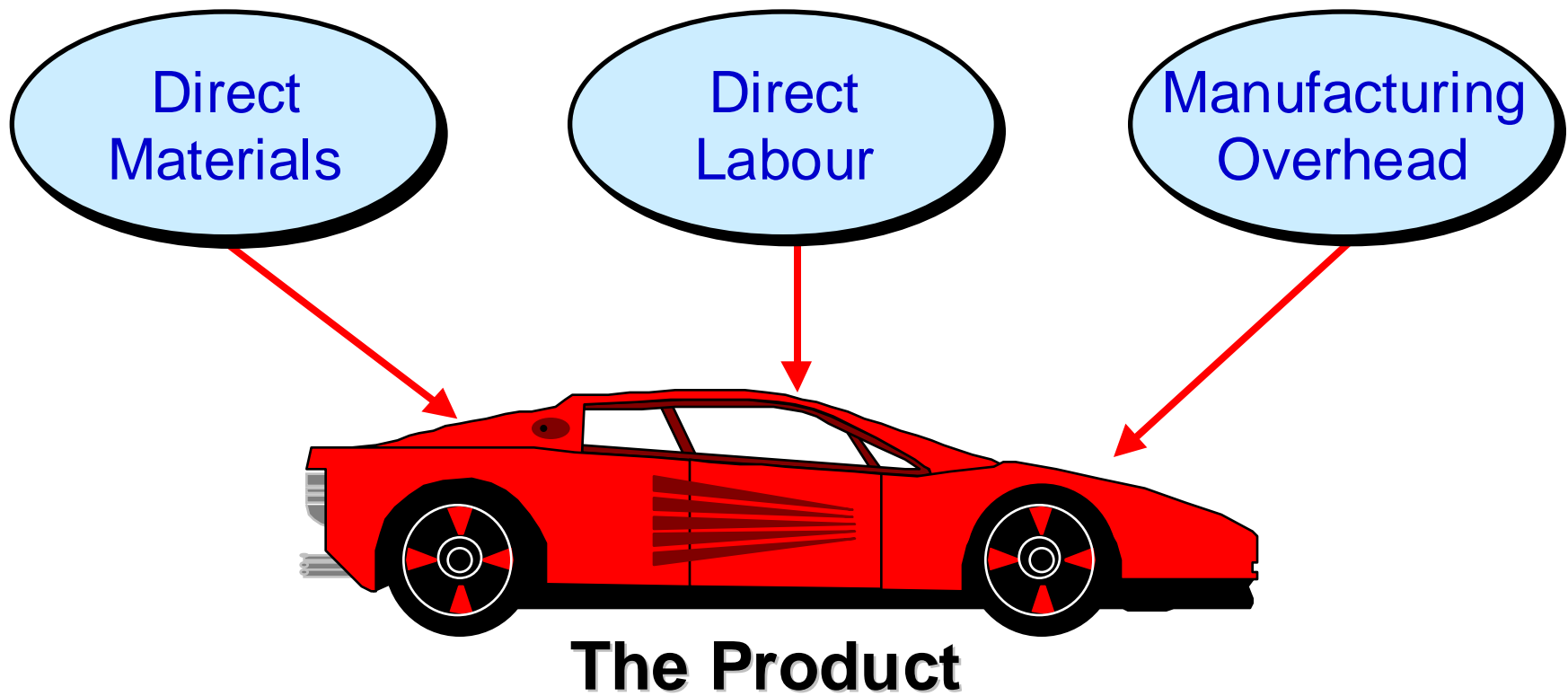
Cost is a measure of resources used or given up to achieve a stated purpose.



## Managerial Accounting

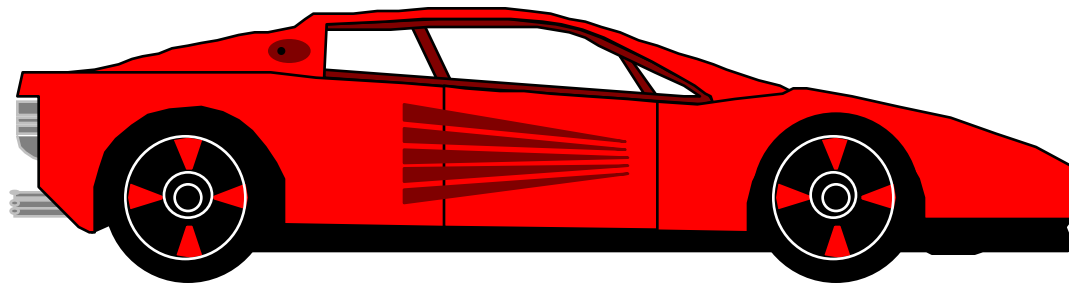
Product costs are the costs a company assigns to units produced.

# Manufacturing Costs



# Direct Materials

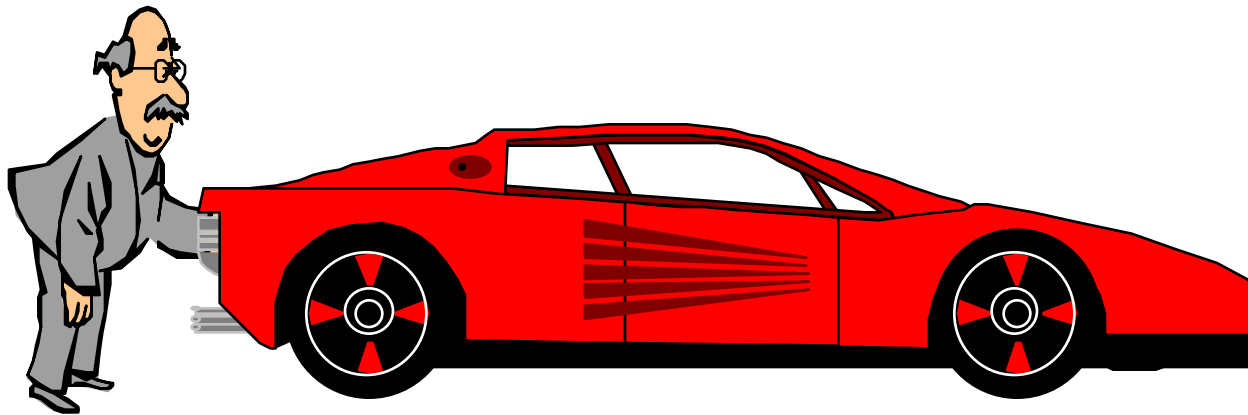
Those materials that become an integral part of the product and that can be conveniently traced directly to it.



**Example: A radio installed in an automobile**

# Direct labour

Those labour costs that can be easily traced to individual units of product.



**Example: Wages paid to automobile assembly workers**



# Manufacturing Overhead

Manufacturing costs that **cannot** be traced directly to specific units produced.

**Examples: Indirect labour and indirect materials**

**Wages paid to employees who are not directly involved in production work.**

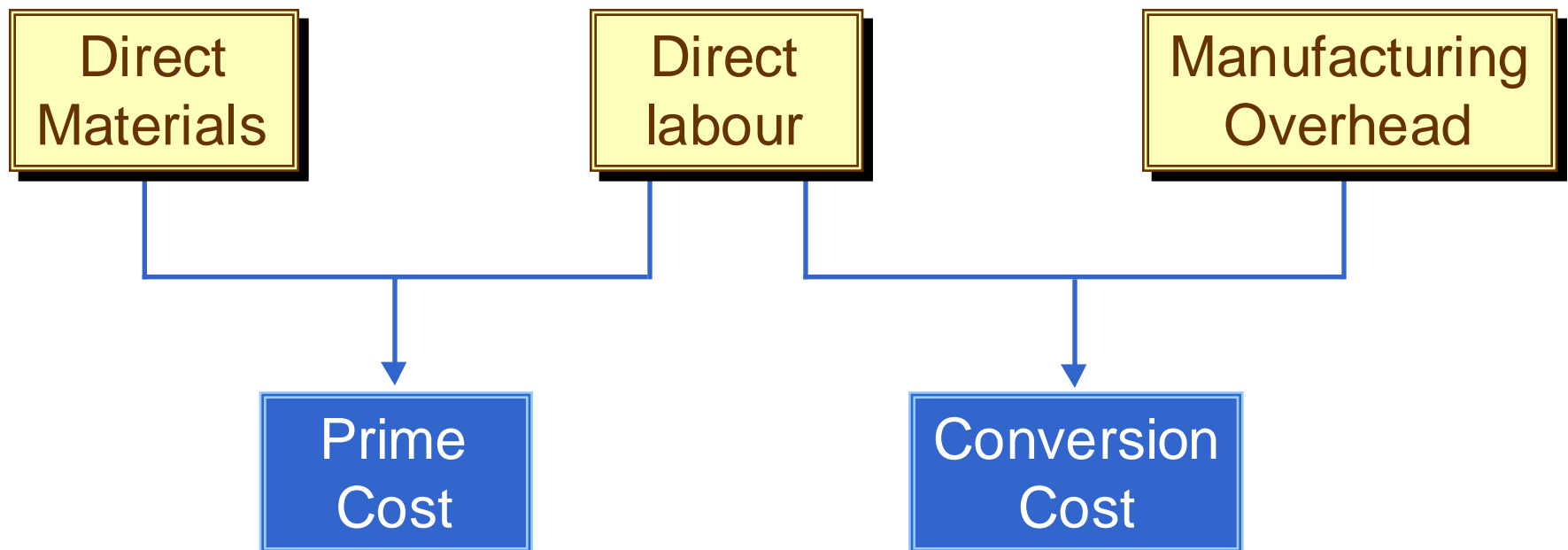
**Examples:** maintenance workers, janitors and security guards.

**Materials used to support the production process.**

**Examples:** lubricants and cleaning supplies used in the automobile assembly plant.

# Classifications of Costs

Manufacturing costs are often combined as follows:



# Nonmanufacturing Costs

## Marketing and selling costs . . .

- ❖ Costs necessary to get the order and deliver the product.

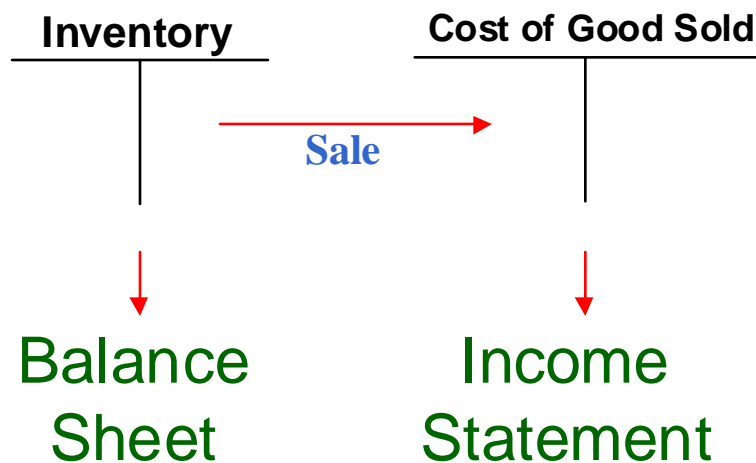
## Administrative costs . . .

- ❖ All executive, organizational, and clerical costs.

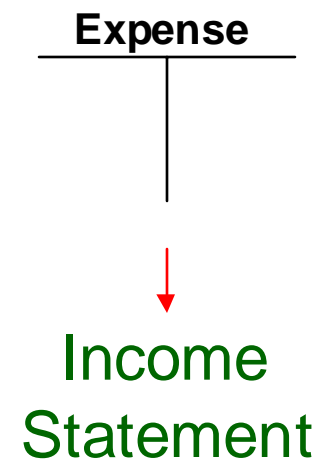


# Product Costs Versus Period Costs

**Product costs** include direct materials, direct labour, and manufacturing overhead.



**Period costs** are not included in product costs. They are expensed on the income statement.



# Balance Sheet

## Merchandiser

### Current Assets

- ❖ Cash
- ❖ Receivables
- ❖ Prepaid Expenses
- ❖ Merchandise Inventory

## Manufacturer

### Current Assets

- ❖ Cash
- ❖ Receivables
- ❖ Prepaid Expenses
- ❖ Inventories
  - Raw Materials
  - Work in Process
  - Finished Goods

# Balance Sheet

## Merchandiser

### Current Assets

- ❖ Cash
- ❖ Receivables
- ❖ Prepaid Expenses

- ❖ **Partially complete products – some material, labour, or overhead has been added.**

## Manufacturer

### Current Assets

- ❖ Cash

**Materials waiting to be processed.**

- ❖ Inventories

Raw Materials

Work in Process

Finished Goods

**Completed products awaiting sale.**

# The Income Statement

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

## Merchandising Company

Cost of goods sold:

Beg. merchandise inventory	\$ 14,200
+ Purchases	<u>234,150</u>
Goods available for sale	\$248,350
- Ending merchandise inventory	<u>(12,100)</u>
= Cost of goods sold	<u>\$236,250</u>

## Manufacturing Company

Cost of goods sold:

Beg. finished goods inv.	\$ 14,200
+ Cost of goods manufactured	<u>234,150</u>
Goods available for sale	\$248,350
- Ending finished goods inventory	<u>(12,100)</u>
= Cost of goods sold	<u>\$236,250</u>

# Manufacturing Cost Flows

Costs

**Material Purchases**



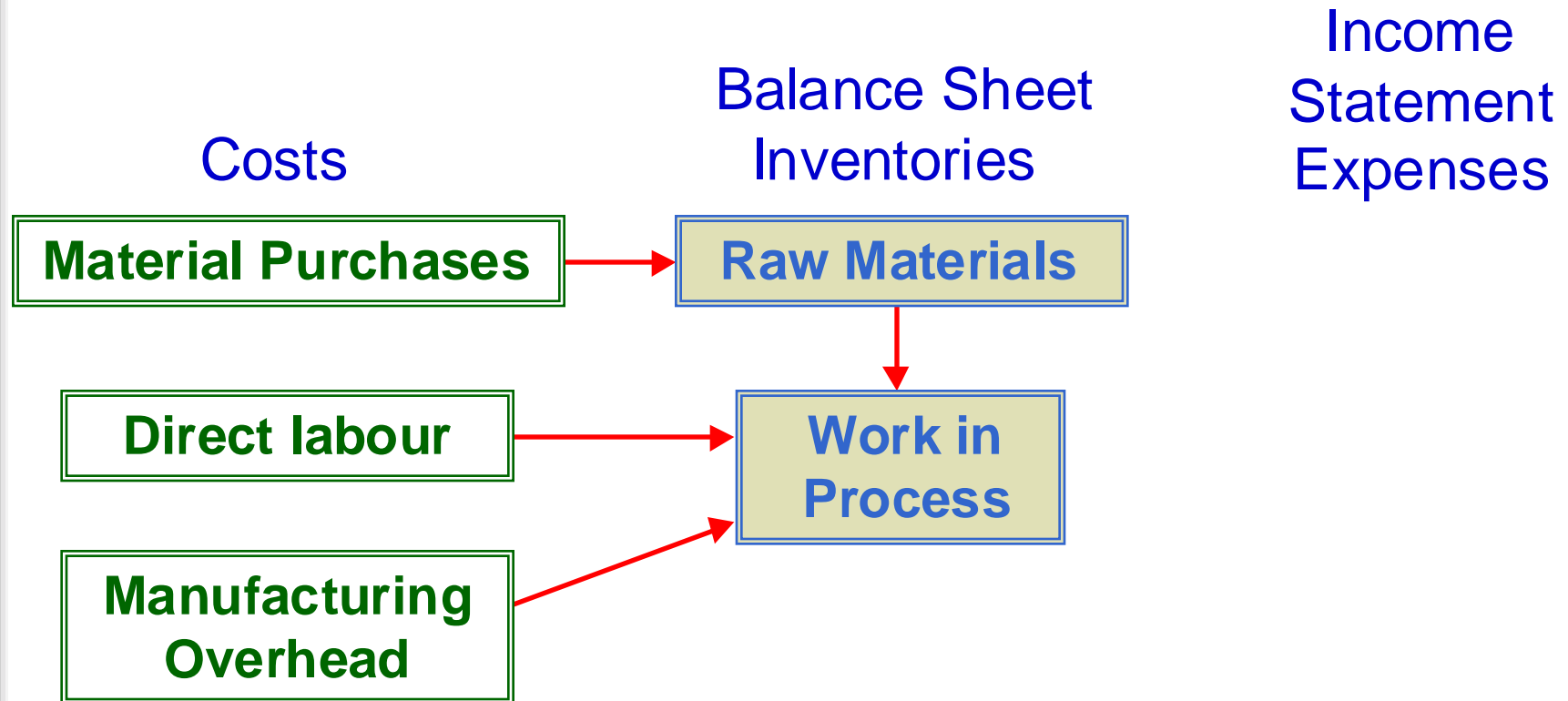
Balance Sheet  
Inventories

**Raw Materials**

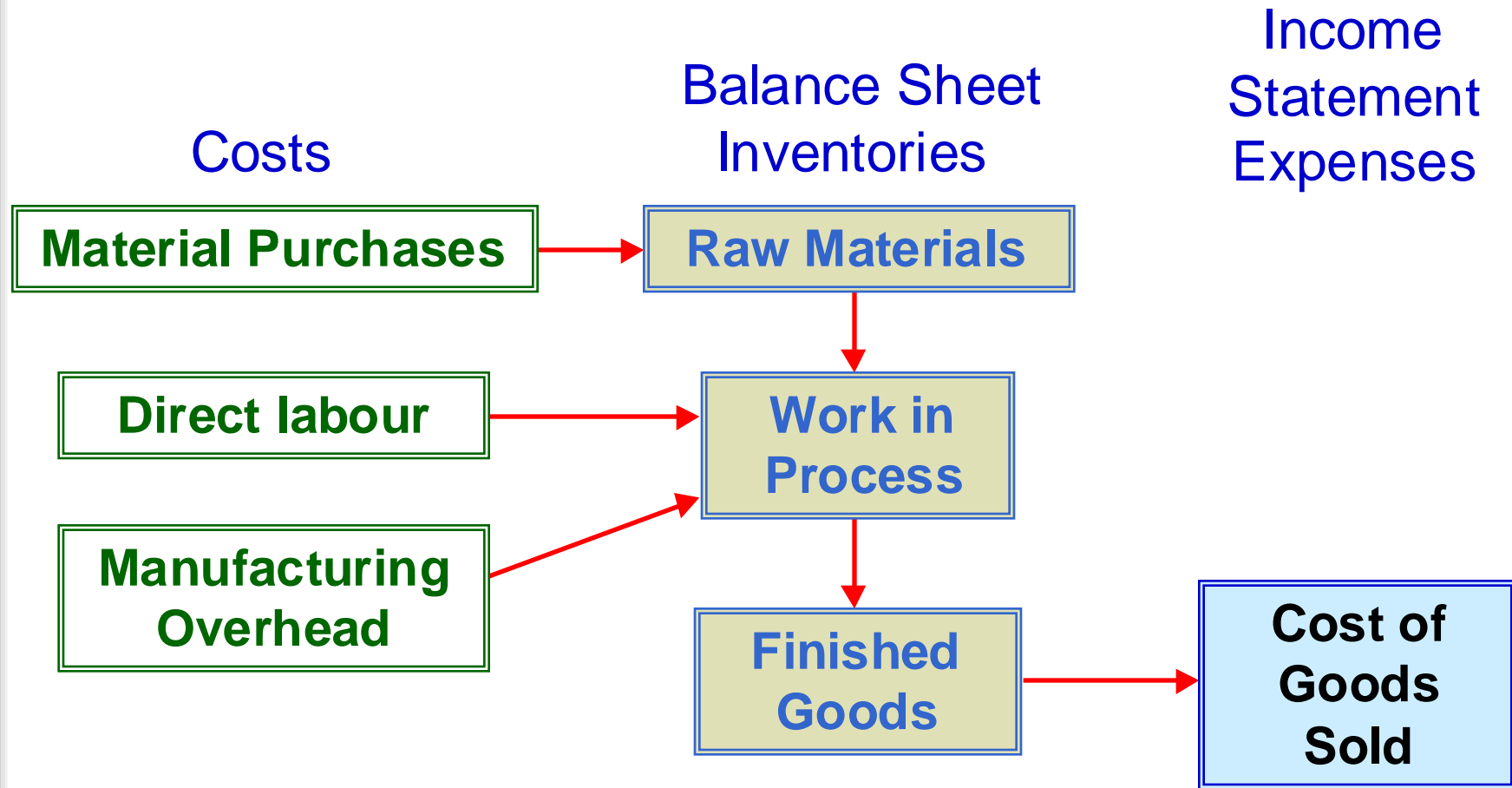
Income  
Statement  
Expenses



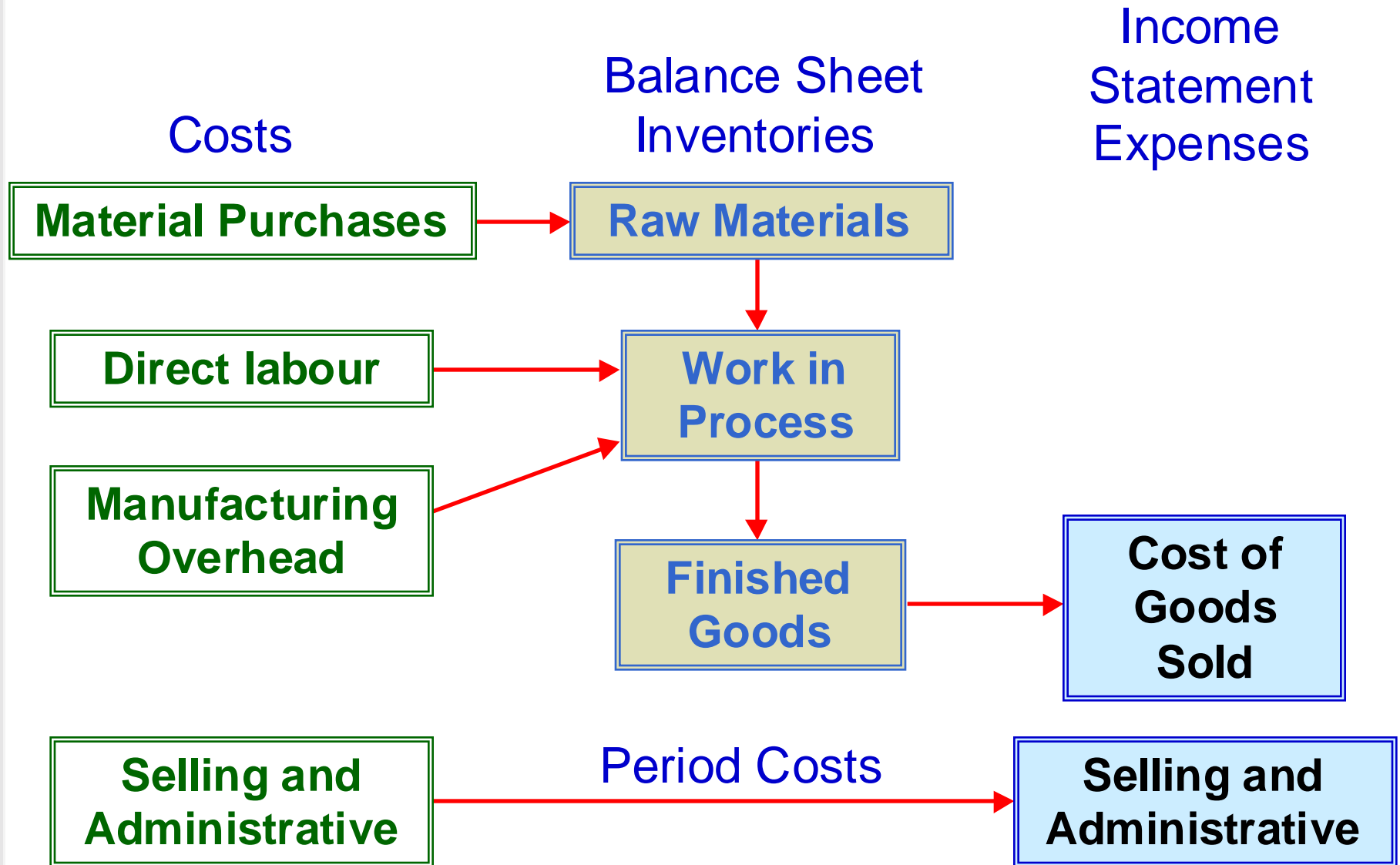
# Manufacturing Cost Flows



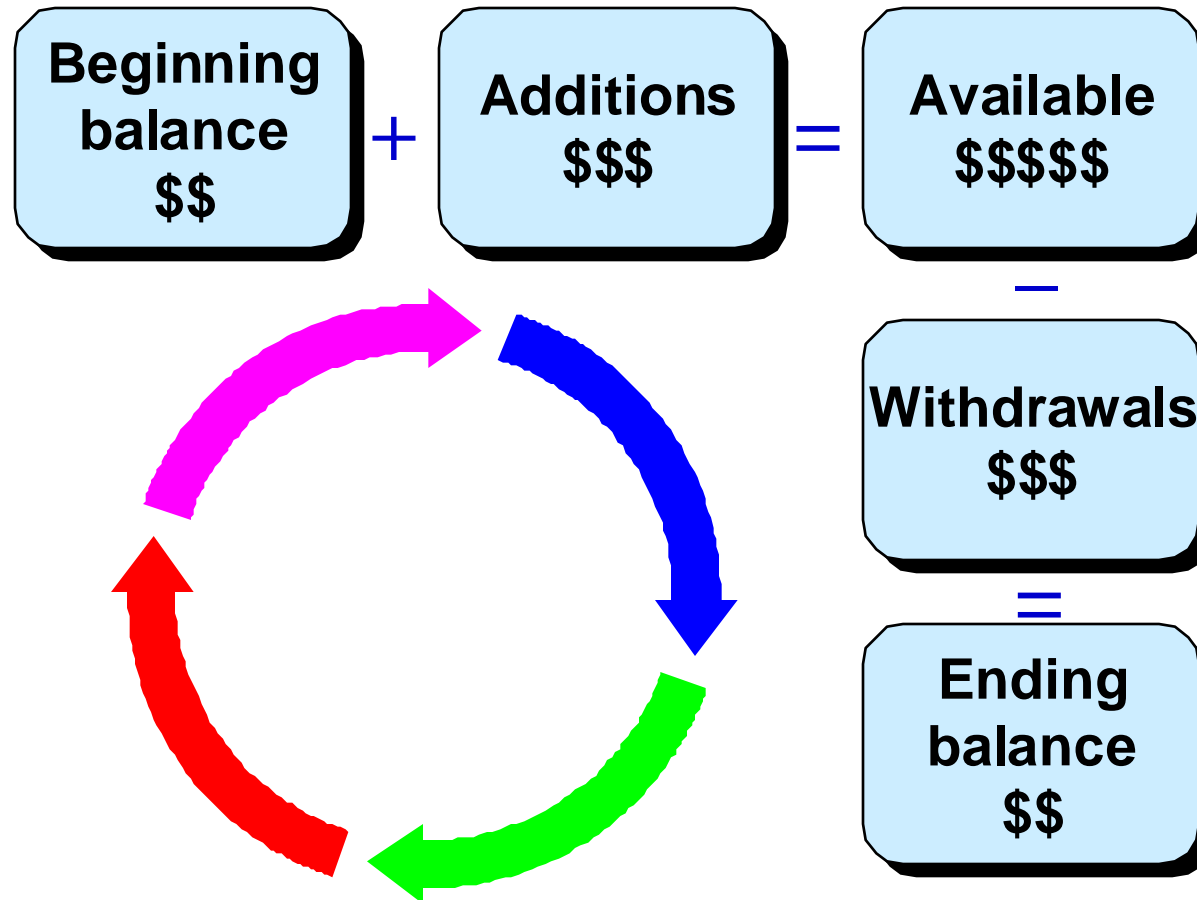
# Manufacturing Cost Flows



# Manufacturing Cost Flows



# Inventory Flows



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# Product Costs - A Closer Look

Raw Materials	Manufacturing Costs	Work In Process
Beginning raw materials inventory		
+ Raw materials purchased		
= Raw materials available for use in production		
– Ending raw materials inventory		
= <b>Raw materials used in production</b>	<b>Direct materials</b>	

As items are removed from raw materials inventory and placed into the production process, they are called direct materials.

# Product Costs - A Closer Look

## Raw Materials

Beginning raw materials inventory  
 + Raw materials purchased  
 = Raw materials available for use in production  
 – Ending raw materials inventory  
 = Raw materials used in production

## Manufacturing Costs

Direct materials  
 + Direct labour  
 + Mfg. overhead  
 = Total manufacturing costs

## Work In Process

Conversion costs are costs incurred to convert the direct material into a finished product.

# Product Costs - A Closer Look

<u>Raw Materials</u>	<u>Manufacturing Costs</u>	<u>Work In Process</u>
Beginning raw materials inventory	Direct materials	Beginning work in process inventory
+ Raw materials purchased	+ Direct labour	
	+ <u>Mfg. overhead</u>	+ <b>Total manufacturing costs</b>
= Raw materials available for use in production	= <b><u>Total manufacturing costs</u></b>	= Total work in process for the period
- Ending raw materials inventory		
= <b><u>Raw materials used in production</u></b>		

**All manufacturing costs incurred during the period are added to the beginning balance of work in process.**



# Product Costs - A Closer Look

## Raw Materials

Beginning raw materials inventory  
 + Raw materials purchased  
 = Raw materials available for use in production  
 – Ending raw materials


## Manufacturing Costs

Direct materials  
 + Direct labour  
 + Mfg. overhead  
 = Total manufacturing costs

## Work In Process

Beginning work in process inventory  
 + Total manufacturing costs  
 = Total work in process for the period  
 – Ending work in process inventory  
 = Cost of goods manufactured.

**Costs associated with the goods that are completed during the period are transferred to finished goods inventory.**



# Product Costs - A Closer Look

<u>Work In Process</u>	<u>Finished Goods</u>
Beginning work in process inventory	Beginning finished goods inventory
+ Manufacturing costs for the period	+ <b>Cost of goods manufactured</b>
= Total work in process for the period	= Cost of goods available for sale
- Ending work in process inventory	- Ending finished goods inventory
= <b>Cost of goods manufactured</b>	<b>Cost of goods sold</b>

# Resource Flows

Beginning raw materials inventory was \$32,000. During the month, \$276,000 of raw material was purchased. A count at the end of the month revealed that \$28,000 of raw material was still present. What is the cost of direct material used?

- a. \$276,000
- b. \$272,000
- c. \$280,000
- d. \$ 2,000

# Resource Flows

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- a. \$276,000
- b. \$272,000
- c. \$280,000**
- d. \$ 2,000

Beg. raw materials	\$ 32,000
+ Raw materials purchased	276,000
= Raw materials available for use in production	\$ 308,000
– Ending raw materials inventory	28,000
= Raw materials used in production	<u>\$ 280,000</u>

# Resource Flows

Direct materials used in production totaled \$280,000. Direct labour was \$375,000 and factory overhead was \$180,000. What were total manufacturing costs incurred for the month?

- a. \$555,000
- b. \$835,000
- c. \$655,000
- d. Cannot be determined.

# Resource Flows

Direct materials used in production totaled \$280,000. Direct labour was \$375,000 and factory overhead was \$180,000. What was the total manufacturing cost for the month?

- a. \$555,000
- b. \$835,000**
- c. \$655,000
- d. Cannot be determined.

<b>Direct Materials</b>	<b>\$ 280,000</b>
<b>+ Direct Labour</b>	<b>375,000</b>
<b>+ Mfg. Overhead</b>	<b>180,000</b>
<b>= Mfg. Costs Incurred</b>	
<b>for the Month</b>	<b>\$ 835,000</b>

# Resource Flows

Beginning work in process was \$125,000. Manufacturing costs incurred for the month were \$835,000. There were \$200,000 of partially finished goods remaining in work in process inventory at the end of the month. What was the cost of goods manufactured during the month?

- a. \$1,160,000
- b. \$ 910,000
- c. \$ 760,000
- d. Cannot be determined.

# Resource Flows

Beginning work in process was \$125,000. Manufacturing costs incurred for the month were \$835,000. There were \$200,000 of partially finished goods remaining in work in process inventory at the end of the month. What was the cost of goods manufactured during the month?

- a. \$1,160,000
- b. \$ 910,000
- c. \$ 760,000**
- d. Cannot be determined

Beginning work in process inventory	\$ 125,000
+ Mfg. costs incurred for the period	835,000
= Total work in process during the period	\$ 960,000
– Ending work in process inventory	200,000
= Cost of goods manufactured	<u>\$ 760,000</u>



# Cost Classifications for Predicting Cost Behaviour

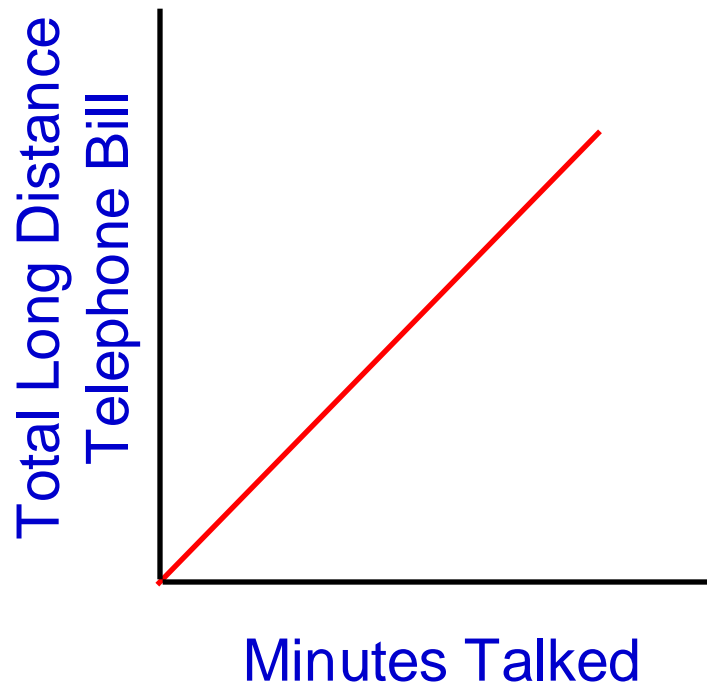


How a cost will react to changes in the level of business activity.

- ❖ Total **variable costs** change when activity changes.
- ❖ Total **fixed costs** remain unchanged when activity changes.

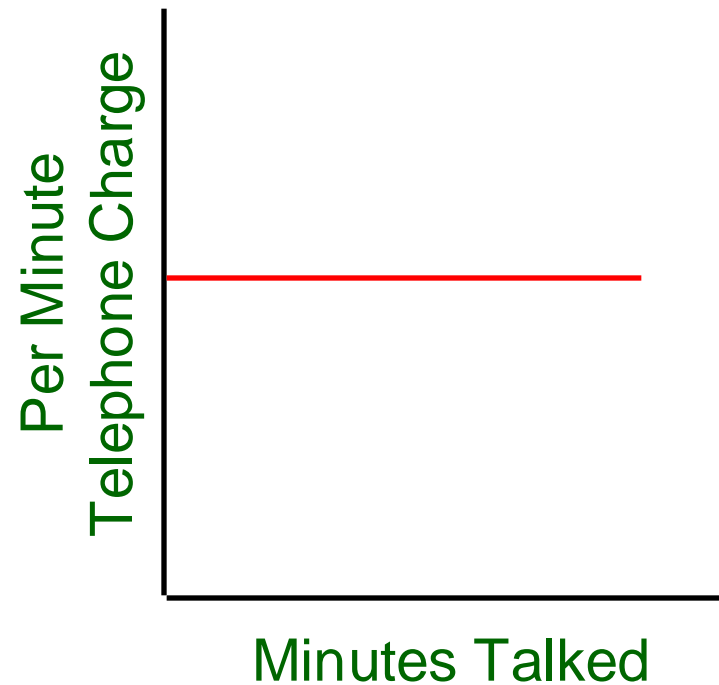
# Total Variable Cost

Your **total long distance** telephone bill is based on how many minutes you talk.



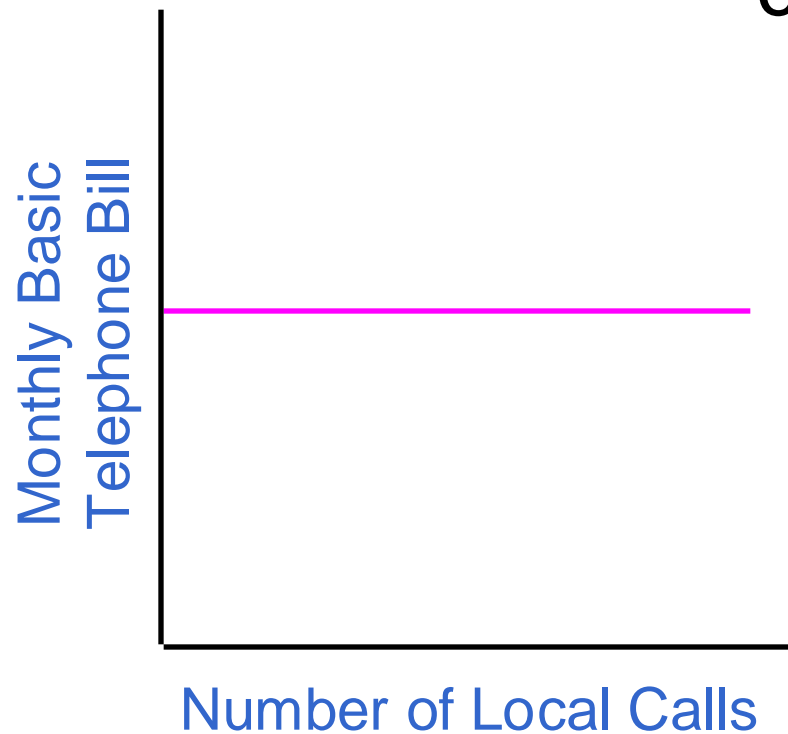
# Variable Cost Per Unit

The **cost per long distance minute** talked is constant. For example, 10 cents per minute.



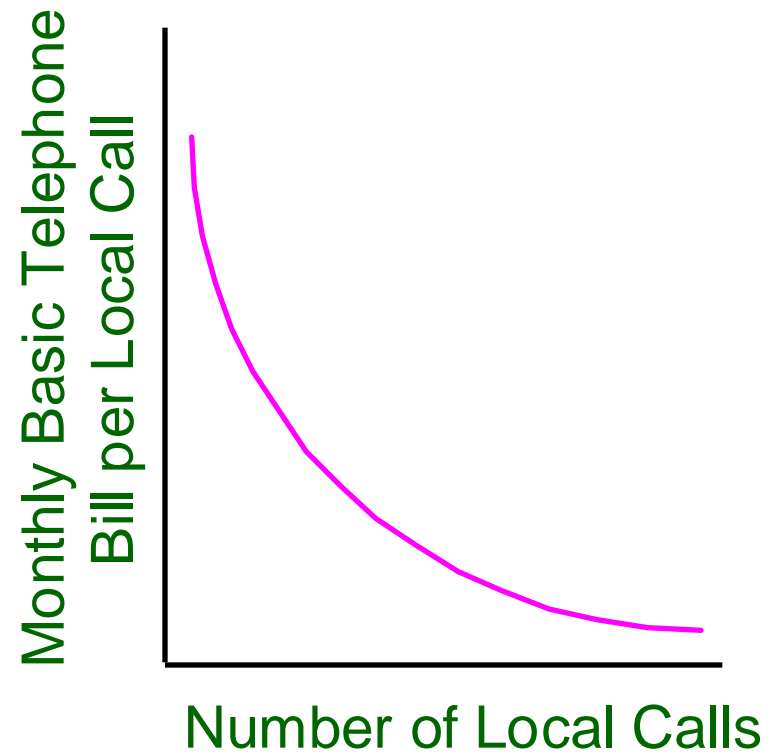
# Total Fixed Cost

Your monthly **basic telephone bill** probably does not change when you make more local calls.



# Fixed Cost Per Unit

The average cost **per local call** decreases as more local calls are made.



# Cost Classifications for Predicting Cost Behaviour

Behaviour of Cost (within the relevant range)		
Cost	In Total	Per Unit
Variable	Total variable cost changes as activity level changes.	Variable cost per unit remains the same over wide ranges of activity.
Fixed	Total fixed cost remains the same even when the activity level changes.	Fixed cost per unit goes down as activity level goes up.

# Cost Behaviour

Fixed costs are usually characterized by:

- a. Unit costs that remain constant.
- b. Total costs that increase as activity decreases.
- c. Total costs that increase as activity increases.
- d. Total costs that remain constant.

# Cost Behaviour

Fixed costs are usually characterized by:

- a. Unit costs that remain constant.
- b. Total costs that increase as activity decreases.
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# Cost Behaviour

- Variable costs are usually characterized by:
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  - b. Total costs that increase as activity decreases.
  - c. Total costs that increase as activity increases.
  - d. Total costs that remain constant.

# Cost Behaviour

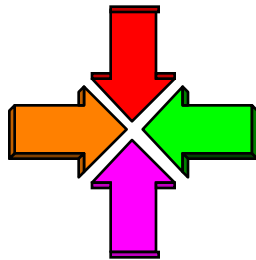
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# Direct Costs and Indirect Costs

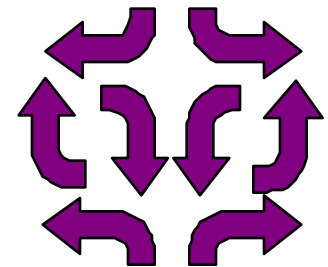
## Direct costs

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



## Indirect costs

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



# Differential Costs and Revenues

Costs and revenues that differ among alternatives.

**Example:** You have a job paying \$1,500 per month in your hometown. You have a job offer in a neighbouring city that pays \$2,000 per month. The commuting cost to the city is \$300 per month.

**Differential revenue is:**  
 **$\$2,000 - \$1,500 = \$500$**

# Differential Costs and Revenues

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**Example:** You have a job paying \$1,500 per month in your hometown. You have a job offer in a neighbouring city that pays \$2,000 per month. The commuting cost to the city is \$300 per month.

**Differential revenue is:**

$$\text{\$2,000} - \text{\$1,500} = \text{\$500}$$

**Differential cost is:**

**\$300**

# Opportunity Costs

The potential benefit that is given up when one alternative is selected over another.

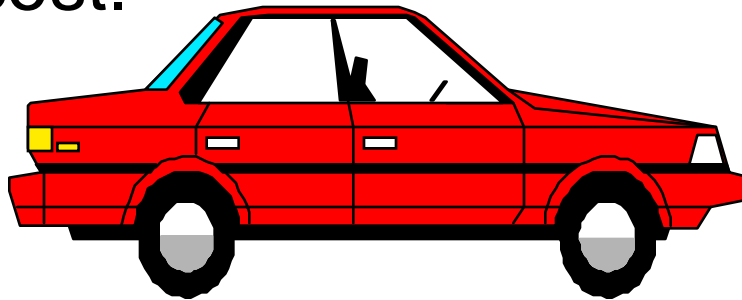
**Example:** If you were not attending college, you could be earning \$15,000 per year. Your opportunity cost of attending college for one year is \$15,000.



# Sunk Costs

Sunk costs cannot be changed by any decision. They are not differential costs and should be ignored when making decisions.

**Example:** You bought an automobile that cost \$10,000 two years ago. The \$10,000 cost is sunk because whether you drive it, park it, trade it, or sell it, you cannot change the \$10,000 cost.



*Appendix*

2A

# **Further Classification of Labour Costs**



# Idle Time

Cost of direct labour workers who are unable to perform their assignments due to machine breakdowns, materials shortages, power failures and other circumstances beyond their control

**Example:** A worker is paid \$10 per hour for a 40-hour work-week and is idle for 2 hours per week due to machine breakdowns, labour would be broken down as follows:

Direct labour (38 hours x \$10)	\$380
Manufacturing overhead (2 hrs x \$10)	20
Total labour cost for the week	<u>\$400</u>

# Overtime Premium

Overtime premiums paid to ***all*** factory workers are usually considered to be part of manufacturing overhead.

**Example:** A worker is paid \$10 per hour for a 40-hour work-week and receives time and one half for overtime hours. This week, the worker worked 44 hours and had no idle time.

Direct labour (44 hours x \$10)	\$440
Manufacturing overhead (4 hrs x \$5)	<u>20</u>
Total labour cost for the week	<u><u>\$400</u></u>

# Labour Fringe Benefits

Employment-related costs paid by the employer are treated as either manufacturing overhead or sometimes, for the fringe benefits related to direct labour, as part of the cost of direct labour.

## Examples of fringe benefits:

Insurance programs, retirement plans, Canada pension plan, employment insurance, workers' compensation, and hospitalization plans.

# End of Chapter 2

