

# Similarities Between Job-Order and Process Costing

- Both systems assign material, labor, and overhead costs to products and they provide a mechanism for computing unit product costs.
- Both systems use the same manufacturing accounts, including Manufacturing Overhead, Raw Materials, Work in Process, and Finished Goods.
- The flow of costs through the manufacturing accounts is basically the same in both systems.

# Differences Between Job-Order and Process Costing

## Process costing:

1. Is used when a single product is produced on a continuing basis or for a long period of time. Job-order costing is used when many different jobs having different production requirements are worked on each period.
2. Systems accumulate costs by department. Job-order costing systems accumulated costs by individual jobs.
3. Systems compute unit costs by department. Job-order costing systems compute unit costs by job on the job cost sheet.

# Quick Check ✓

Process costing is used for products that are:

- a. Different and produced continuously.
- b. Similar and produced continuously.
- c. Individual units produced to customer specifications.
- d. Purchased from vendors.

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# Processing Departments

Any unit in an organization where materials, labor, or overhead are added to the product.

The activities performed in a processing department are *performed uniformly* on all units of production.

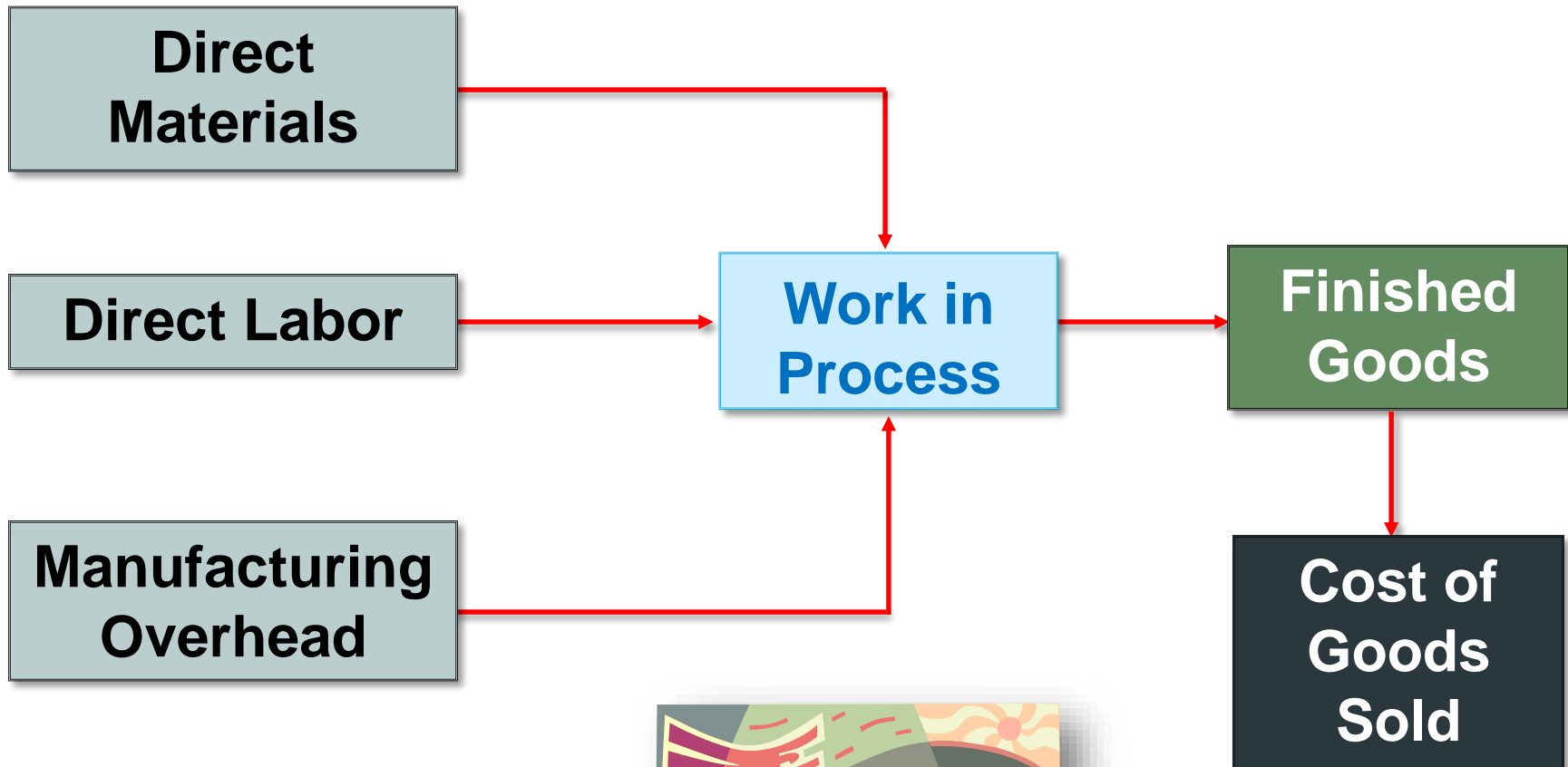
Furthermore, the output of a processing department must be *homogeneous*.

Products in a process costing environment typically flow in a sequence from one department to another.

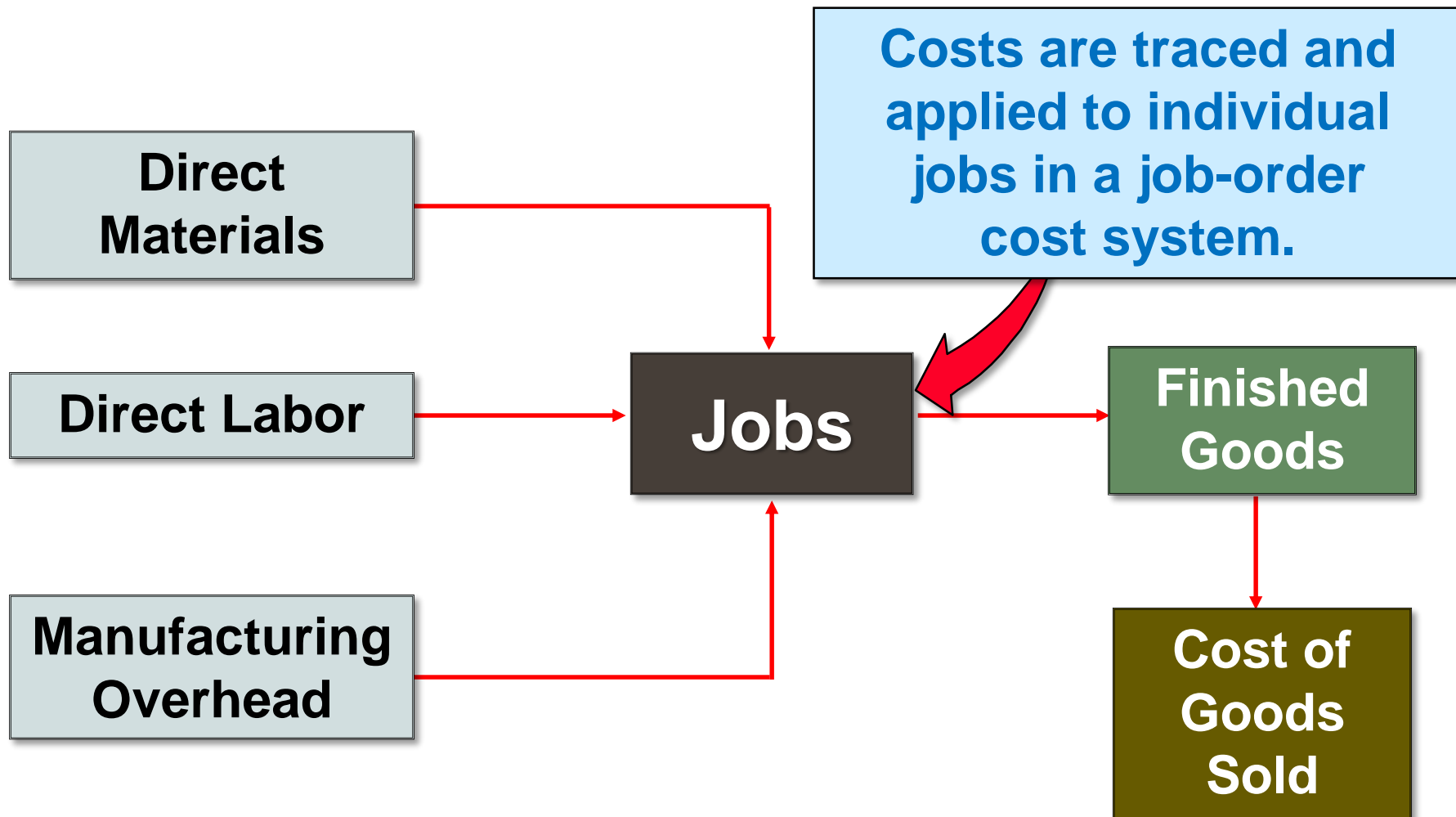
# Learning Objective

**Record the flow of materials, labor, and overhead through a process costing system.**

# The Flow of Materials, Labor, and Overhead Costs

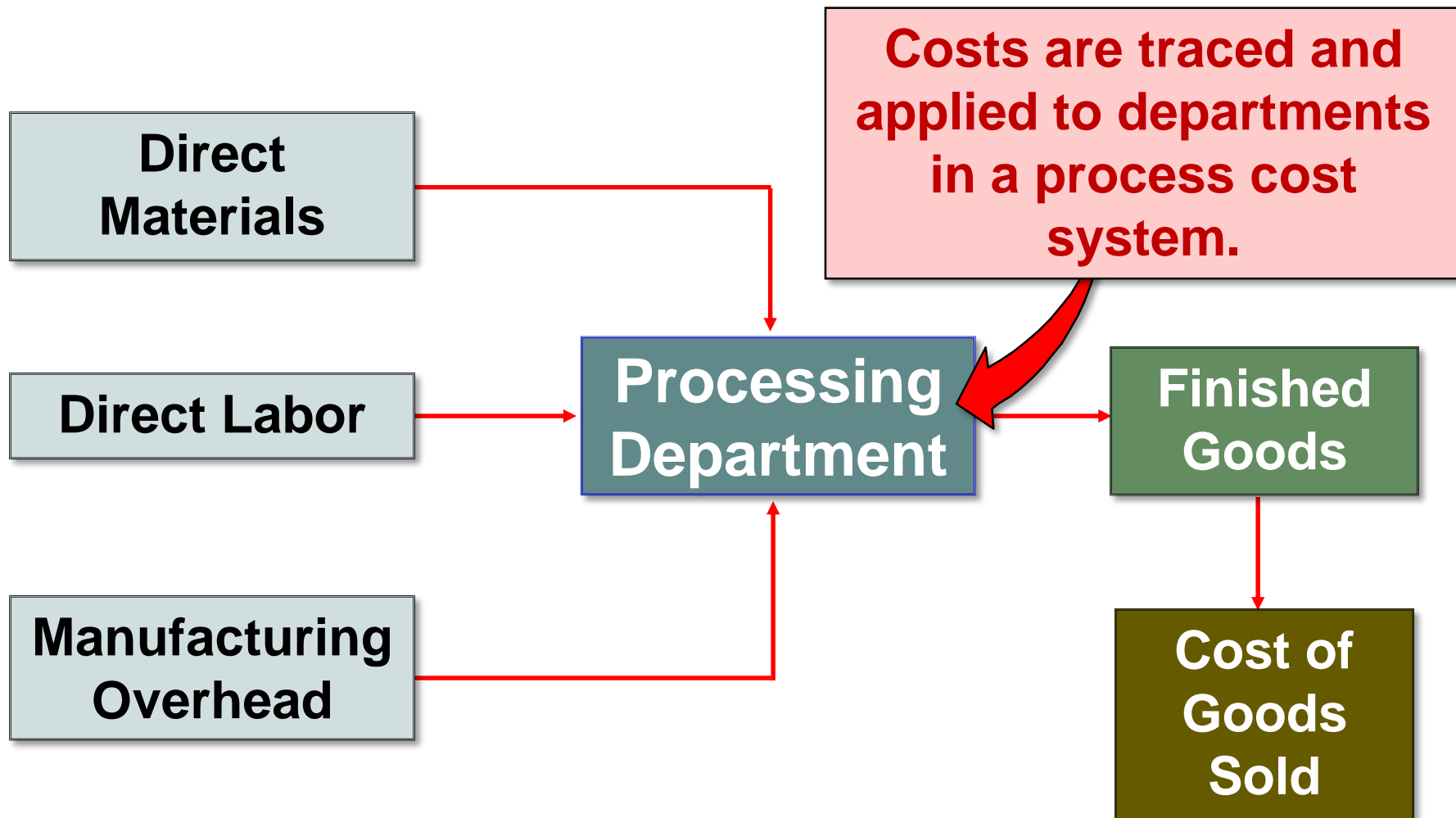


# The Flow of Costs in a Job-Order Costing System





# The Flow of Costs in a Processing Costing System



# T-Account and Journal Entry Views of Process Cost Flows

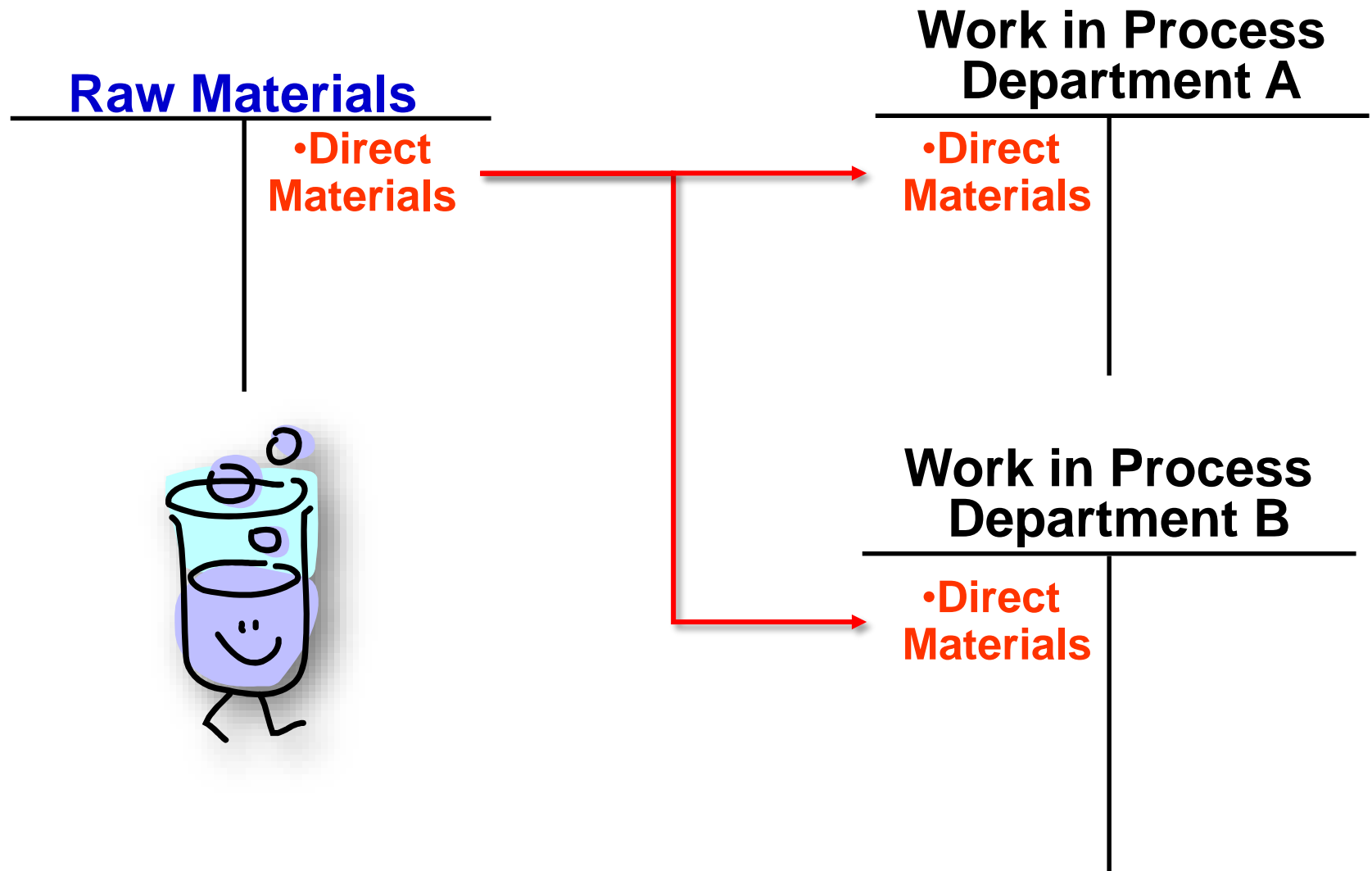
For purposes of this example, assume there are two processing departments –

Departments **A** and **B**.

We will use T-accounts and journal entries.



# Process Cost Flows: The Flow of Raw Materials (in T-account form)

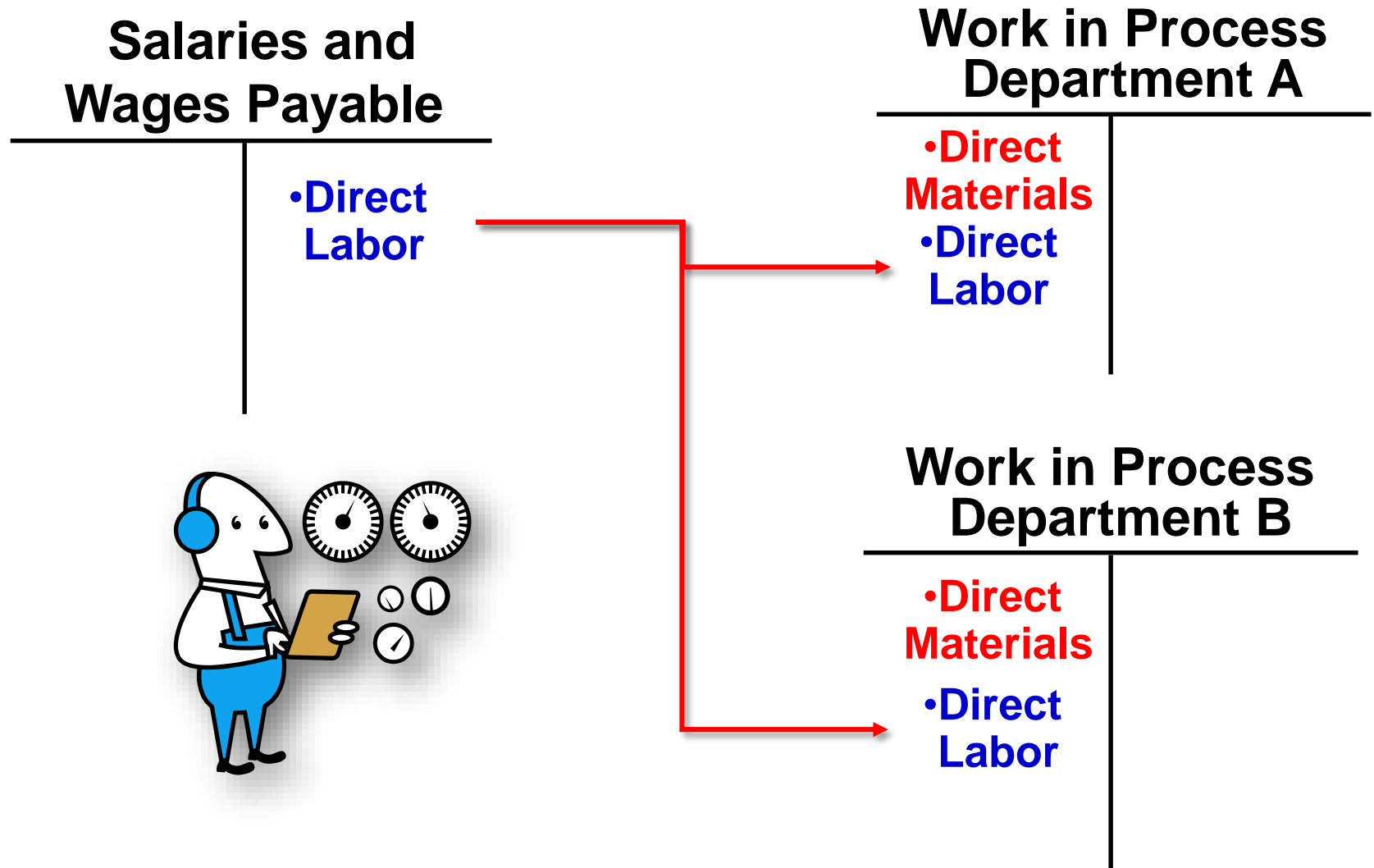


# Process Cost Flows: The Flow of Raw Materials (in journal entry form)

<b>Work in Process - Department A</b>	<b>XXXXX</b>	
<b>Work in Process - Department B</b>	<b>XXXXX</b>	
<b>Raw Materials</b>		<b>XXXXX</b>



# Process Cost Flows: The Flow of Labor Costs (in T-account form)

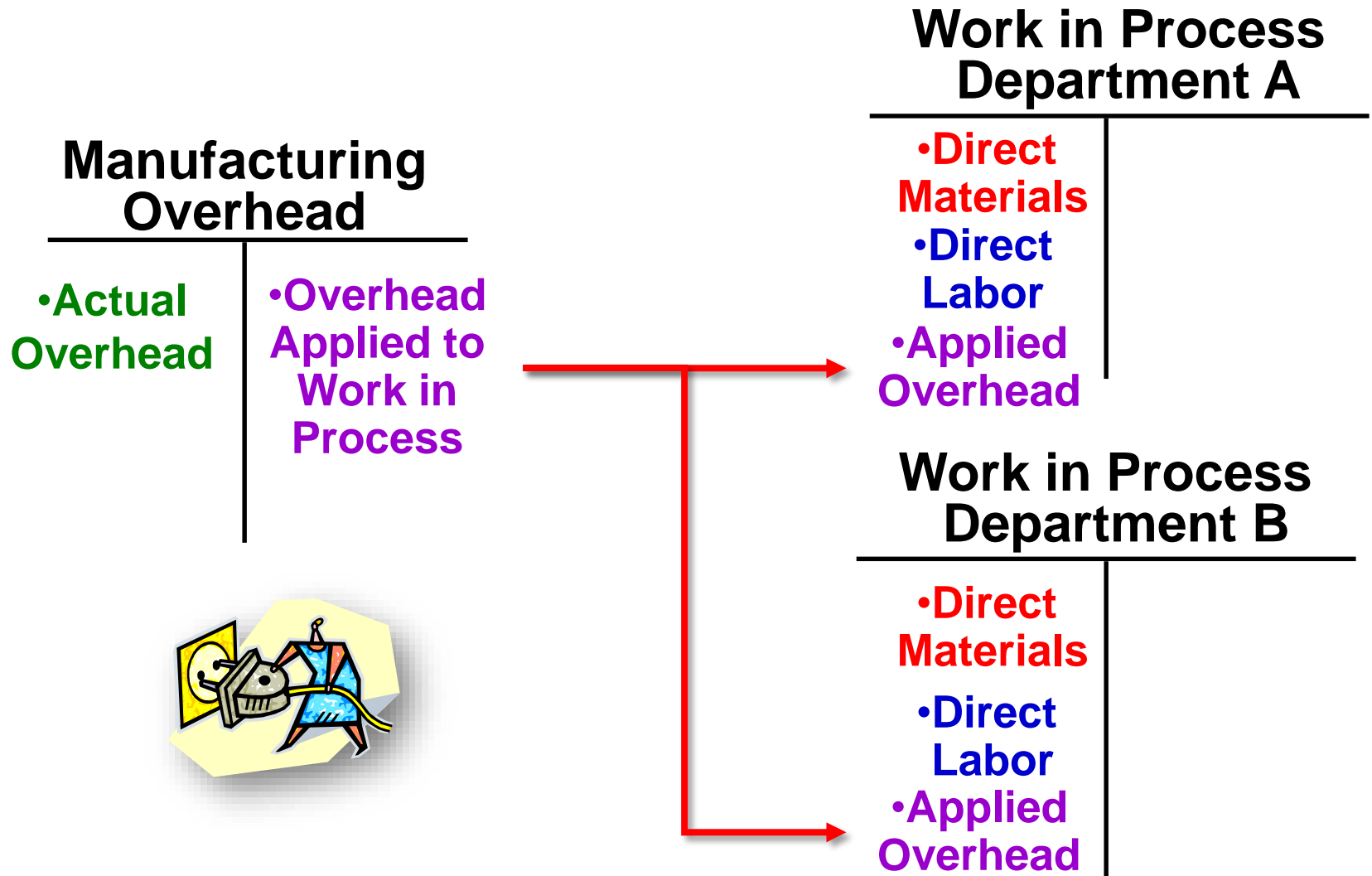


# Process Costing: The Flow of Labor Costs (in journal entry form)

<b>Work in Process - Department A</b>	<b>XXXXX</b>	
<b>Work in Process - Department B</b>	<b>XXXXX</b>	
<b>Salaries and Wages Payable</b>		<b>XXXXX</b>



# Process Cost Flows: The Flow of Manufacturing Overhead Costs (in T-account form)



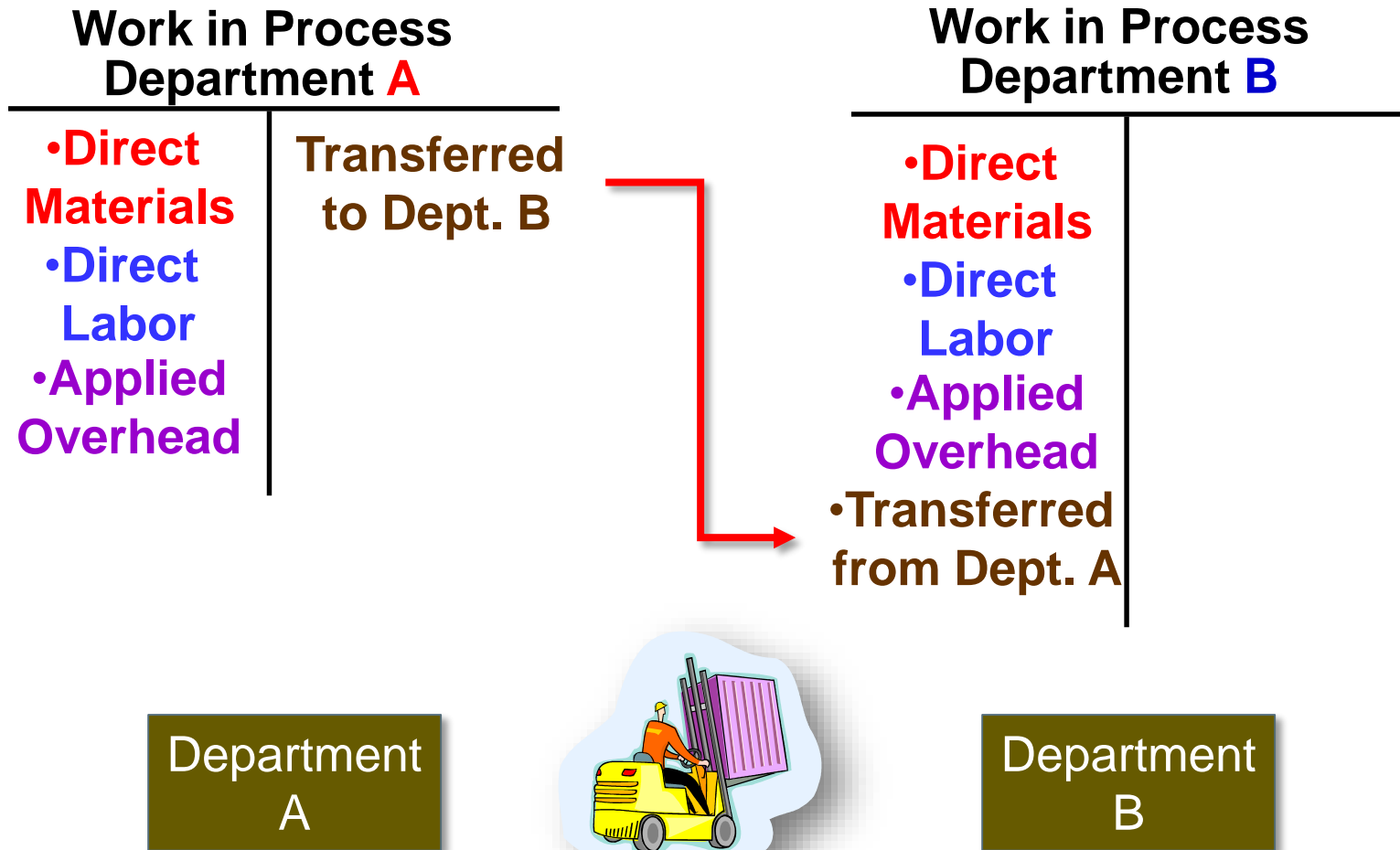
# Process Cost Flows: The Flow of Manufacturing Overhead Costs (in journal entry form)

<b>Work in Process - Department A</b>	<b>XXXXX</b>	
<b>Work in Process - Department B</b>	<b>XXXXX</b>	
<b>Manufacturing Overhead</b>		<b>XXXXX</b>





# Process Cost Flows: Transfers from WIP-Dept. A to WIP-Dept. B (in T-account form)

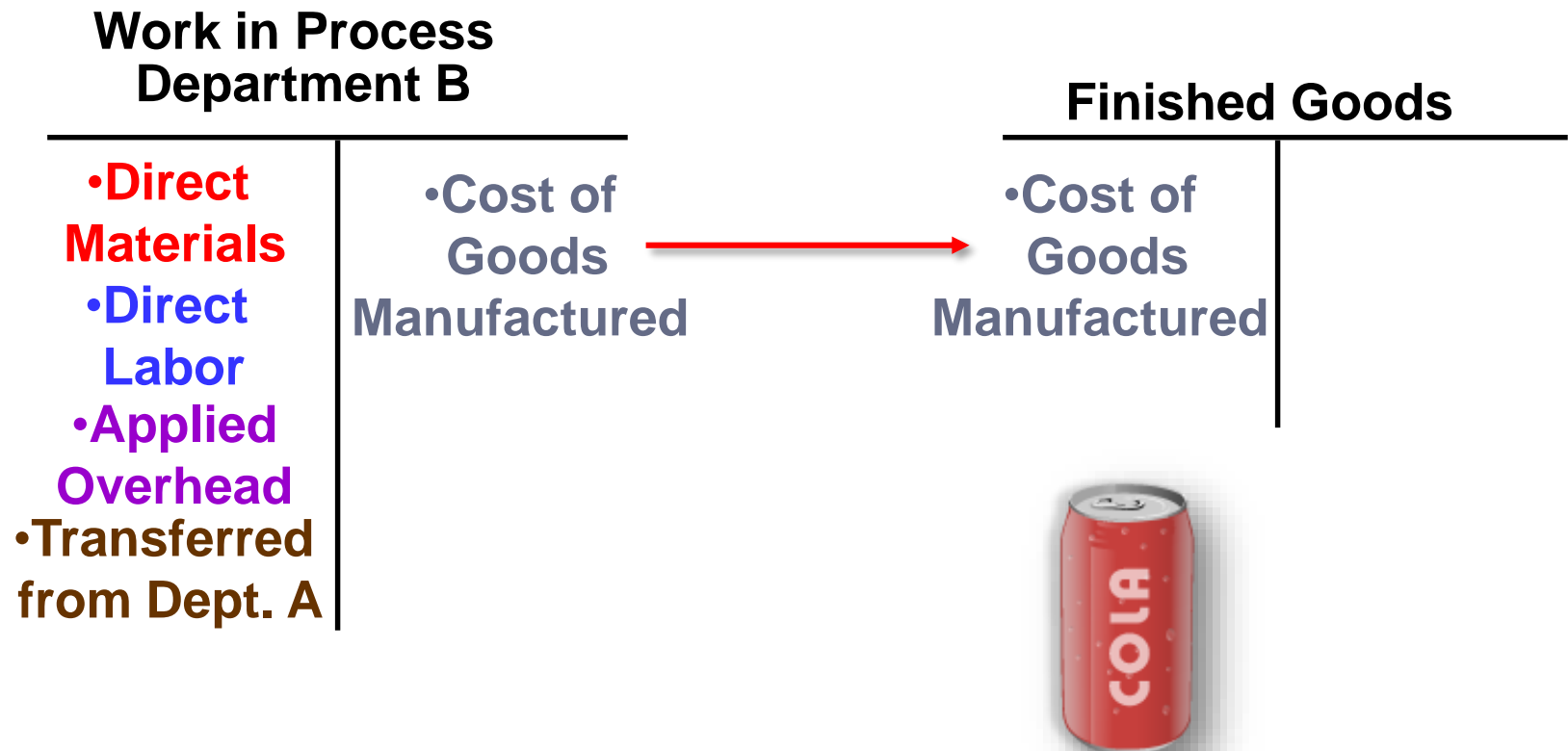


# Process Cost Flows: Transfers from WIP-Dept. A to WIP-Dept. B (in journal entry form)

<b>Work in Process - Department B</b>	<b>XXXXX</b>	
<b>Work in Process - Department A</b>		<b>XXXXX</b>



# Process Cost Flows: Transfers from WIP-Dept. B to Finished Goods (in T-account form)

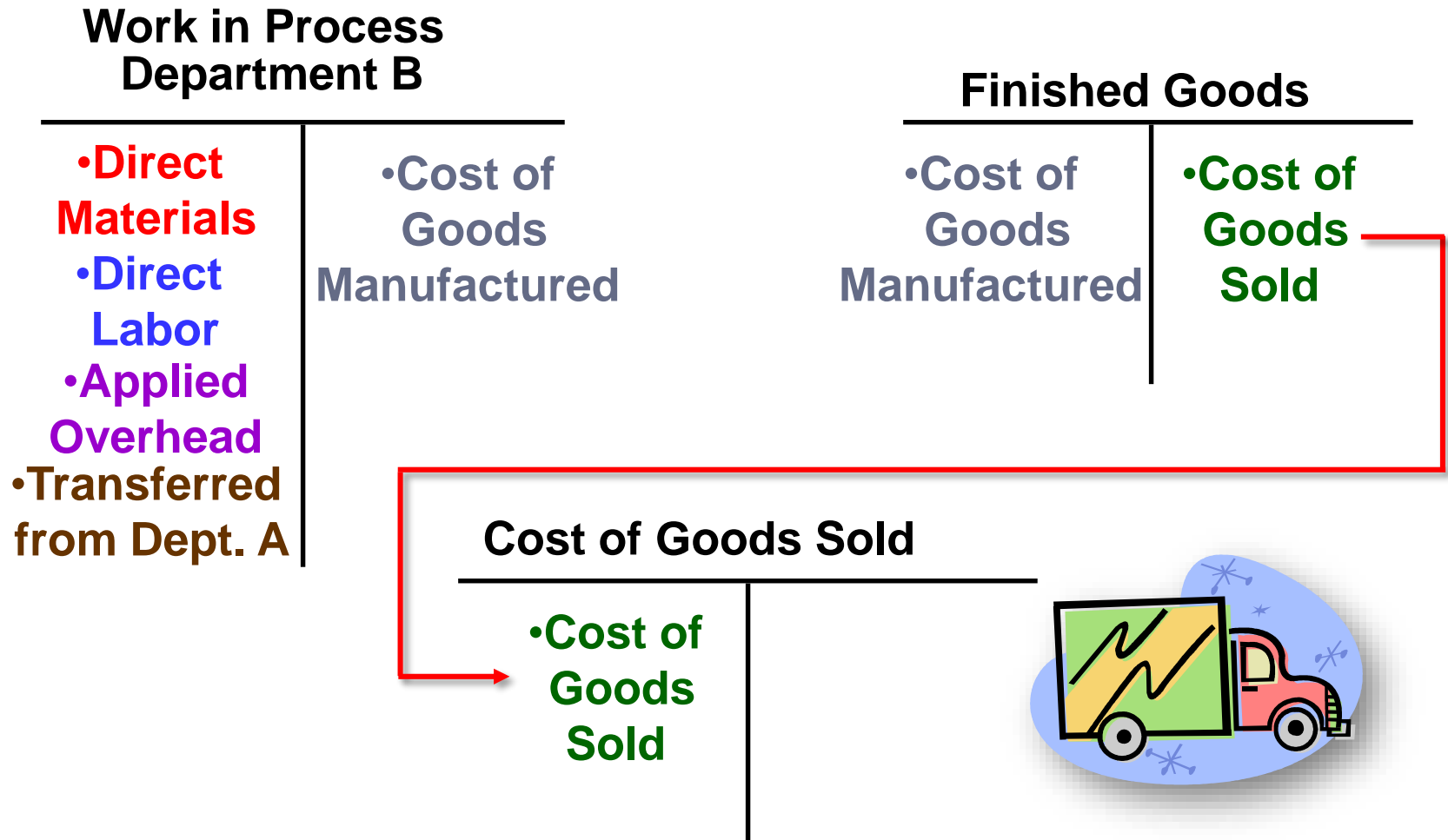


# Process Cost Flows: Transfers from WIP-Dept. B to Finished Goods (in journal entry form)

<b>Finished Goods</b>	<b>XXXXX</b>	
<b>Work in Process - Department B</b>		<b>XXXXX</b>



# Process Cost Flows: Transfers from Finished Goods to COGS (in T-account form)



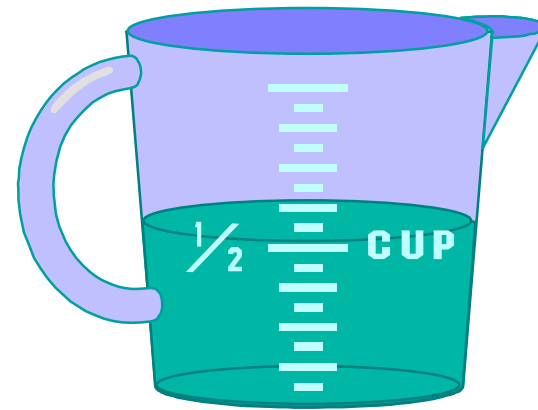
# Process Cost Flows: Transfers from Finished Goods to COGS (in journal entry form)

<b>Cost of Goods Sold</b>	<b>XXXXX</b>	
<b>Finished Goods</b>		<b>XXXXX</b>



# Equivalent Units of Production

Equivalent units are the product of the number of partially completed units and the percentage completion of those units.



These partially completed units complicate the determination of a department's output for a given period and the unit cost that should be assigned to that output.

# Equivalent Units – The Basic Idea

Two half completed products are ***equivalent to*** one complete product.



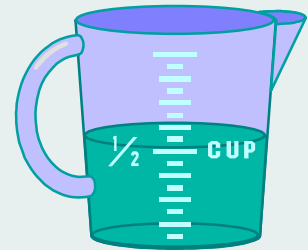
So, 10,000 units 70% complete are ***equivalent to*** 7,000 complete units.



# Quick Check ✓

For the current period, Jones started 15,000 units and completed 10,000 units, leaving 5,000 units in process 30 percent complete. How many equivalent units of production did Jones have for the period?  $10000 + 5000 \times 30\% = 11500$

- a. 10,000
- b. 11,500
- c. 13,500
- d. 15,000



# Calculating Equivalent Units

Equivalent units can be calculated two ways:

- ① The First-In, First-Out Method – FIFO is covered in the appendix to this chapter.
- ② **The Weighted-Average Method** – This method will be covered in the main portion of the chapter.



# Equivalent Units of Production

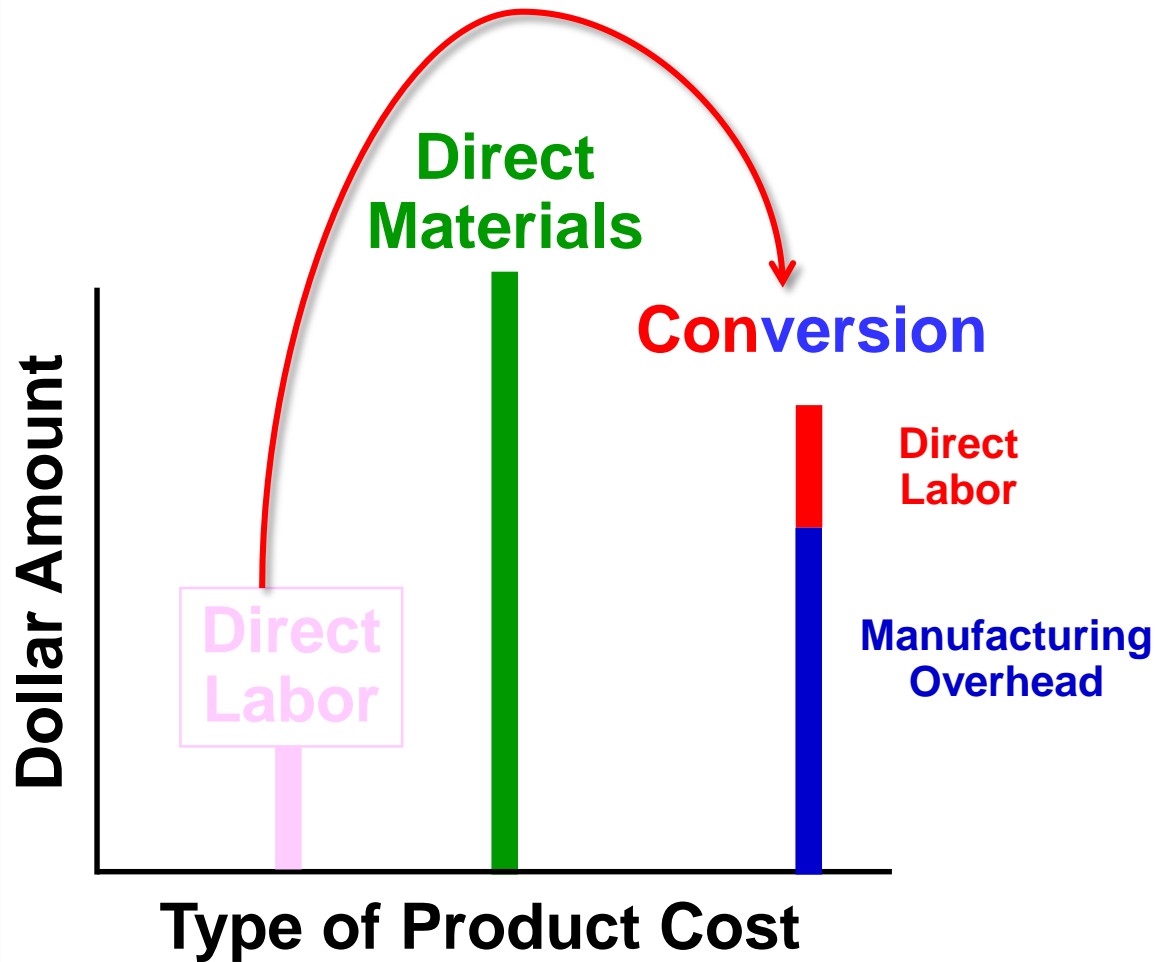
## Weighted-Average Method

### The weighted-average method . . .

1. Makes no distinction between work done in prior or current periods.
2. Blends together units and costs from prior and current periods.
3. Determines equivalent units of production for a department by adding together the number of units transferred out plus the equivalent units in **ending** Work in Process Inventory.



# Treatment of Direct Labor



Direct labor and manufacturing overhead may be combined into one classification of product cost called ***conversion costs***.

# Weighted-Average – An Example

Smith Company reported the following activity in the Assembly Department for the month of June:

	Units	Percent Completed	
		Materials	Conversion
Work in process, June 1	300	40%	20%
Units started into production in June	6,000		
Units completed and transferred out of Department A during June	5,400		
Work in process, June 30	900	60%	30%

# Weighted-Average – An Example

The first step in calculating the equivalent units is to identify the units completed and transferred out of Assembly Department in June (5,400 units)

	<u>Materials</u>	<u>Conversion</u>
<b>Units completed and transferred out of the Department in June</b>	<b>5,400</b>	<b>5,400</b>
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# Compute and Apply Costs

**Beginning Work in Process Inventory: 300 units**

**Materials: 40% complete \$ 6,119**

**Conversion: 20% complete \$ 3,920**

**Production started during June 6,000 units**

**Production completed during June 5,400 units**

**Costs added to production in June**

**Materials cost \$ 118,621**

**Conversion cost \$ 81,130**

**Ending Work in Process Inventory: 900 units**

**Materials: 60% complete**

**Conversion: 30% complete**

# Compute and Apply Costs

The formula for computing the cost per equivalent unit is:

$$\text{Cost per equivalent unit} = \frac{\text{Cost of beginning Work in Process Inventory} + \text{Cost added during the period}}{\text{Equivalent units of production}}$$





# Compute and Apply Costs

Here is a schedule with the cost and equivalent unit information.

	<u>Total Cost</u>	<u>Materials</u>	<u>Conversion</u>
<b>Cost to be accounted for:</b>			
<b>Work in process, June 1</b>			
<b>Cost added in Assembly</b>			
<b>Total cost</b>			
<b>Equivalent units</b>			

# Compute and Apply Costs

Here is a schedule with the cost and equivalent unit information.

$$\$124,740 \div 5,940 \text{ units} = \$21.00$$

$$\$85,050 \div 5,670 \text{ units} = \$15.00$$

	Total Cost	Materials	Conversion
Cost to be accounted for:			
Work in process, June 1	\$ 10,039	\$ 6,119	\$ 3,920
Cost added in Assembly	199,751	118,621	81,130
Total cost	<u>\$ 209,790</u>	<u>\$ 124,740</u>	<u>\$ 85,050</u>
Equivalent units		5,940	5,670
Cost per equivalent unit		<u>\$ 21.00</u>	<u>\$ 15.00</u>

$$\text{Cost per equivalent unit} = \$21.00 + \$15.00 = \$36.00$$

# Learning Objective

**Assign costs to units  
using the weighted-  
average method.**

# Applying Costs

<b>Assembly Department</b>			
<b>Cost of Ending WIP Inventory and Units Transferred Out</b>			
	<u><b>Materials</b></u>	<u><b>Conversion</b></u>	<u><b>Total</b></u>
<b>Ending WIP inventory:</b>			
<b>Equivalent units</b>	<b>540</b>	<b>270</b>	

# Applying Costs

<b>Assembly Department</b>			
<b>Cost of Ending WIP Inventory and Units Transferred Out</b>			
	<u><b>Materials</b></u>	<u><b>Conversion</b></u>	<u><b>Total</b></u>
<b>Ending WIP inventory:</b>			
<b>Equivalent units</b>	<b>540</b>	<b>270</b>	
<b>Cost per equivalent unit</b>	<b>\$ 21.00</b>	<b>\$ 15.00</b>	

# Applying Costs

<b>Assembly Department</b>			
<b>Cost of Ending WIP Inventory and Units Transferred Out</b>			
	<u><b>Materials</b></u>	<u><b>Conversion</b></u>	<u><b>Total</b></u>
<b>Ending WIP inventory:</b>			
<b>Equivalent units</b>	<b>540</b>	<b>270</b>	
<b>Cost per equivalent unit</b>	<b>\$ 21.00</b>	<b>\$ 15.00</b>	
<b>Cost of Ending WIP inventory</b>	<b>\$ 11,340</b>	<b>\$ 4,050</b>	<b>\$ 15,390</b>

# Computing the Cost of Units Transferred Out

<b>Assembly Department</b>			
<b>Cost of Ending WIP Inventory and Units Transferred Out</b>			
	<u><b>Materials</b></u>	<u><b>Conversion</b></u>	<u><b>Total</b></u>
<b>Ending WIP inventory:</b>			
<b>Equivalent units</b>	<b>540</b>	<b>270</b>	
<b>Cost per equivalent unit</b>	<b>\$ 21.00</b>	<b>\$ 15.00</b>	
<b>Cost of Ending WIP inventory</b>	<b>\$ 11,340</b>	<b>\$ 4,050</b>	<b>\$ 15,390</b>
<b>Units completed and transferred out:</b>			
<b>Units transferred</b>	<b>5,400</b>	<b>5,400</b>	

# Computing the Cost of Units Transferred Out

<b>Assembly Department</b>			
<b>Cost of Ending WIP Inventory and Units Transferred Out</b>			
	<u><b>Materials</b></u>	<u><b>Conversion</b></u>	<u><b>Total</b></u>
<b>Ending WIP inventory:</b>			
<b>Equivalent units</b>	<b>540</b>	<b>270</b>	
<b>Cost per equivalent unit</b>	<b>\$ 21.00</b>	<b>\$ 15.00</b>	
<b>Cost of Ending WIP inventory</b>	<b>\$ 11,340</b>	<b>\$ 4,050</b>	<b>\$ 15,390</b>
<b>Units completed and transferred out:</b>			
<b>Units transferred</b>	<b>5,400</b>	<b>5,400</b>	
<b>Cost per equivalent unit</b>	<b>\$ 21.00</b>	<b>\$ 15.00</b>	



# Computing the Cost of Units Transferred Out

<b>Assembly Department</b>			
<b>Cost of Ending WIP Inventory and Units Transferred Out</b>			
	<u><b>Materials</b></u>	<u><b>Conversion</b></u>	<u><b>Total</b></u>
<b>Ending WIP inventory:</b>			
<b>Equivalent units</b>	<b>540</b>	<b>270</b>	
<b>Cost per equivalent unit</b>	<b>\$ 21.00</b>	<b>\$ 15.00</b>	
<b>Cost of Ending WIP inventory</b>	<b>\$ 11,340</b>	<b>\$ 4,050</b>	<b>\$ 15,390</b>
<b>Units completed and transferred out:</b>			
<b>Units transferred</b>	<b>5,400</b>	<b>5,400</b>	
<b>Cost per equivalent unit</b>	<b>\$ 21.00</b>	<b>\$ 15.00</b>	
<b>Cost of units transferred out</b>	<b>\$ 113,400</b>	<b>\$ 81,000</b>	<b>\$ 194,400</b>

# Learning Objective

**Prepare a cost  
reconciliation report.**

# Reconciling Costs

## Assembly Department Cost Reconciliation

### Costs to be accounted for:

Cost of beginning Work in Process Inventory	\$	10,039
Costs added to production during the period		199,751
Total cost to be accounted for	\$	209,790

# Reconciling Costs

## Assembly Department Cost Reconciliation

### Costs to be accounted for:

Cost of beginning Work in Process Inventory	\$	10,039
Costs added to production during the period		199,751
Total cost to be accounted for	\$	209,790

### Cost accounted for as follows:

Cost of ending Work in Process Inventory	\$	15,390
Cost of units transferred out		194,400
Total cost accounted for	\$	209,790