Chapter 2
Classifying Costs

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Suppose for a moment that you work for a large clothing store chain that sells online. Your boss has asked you to organize the company website of all the clothes the company sells. You need to categorize the products so users of your website will be able to find information easily. After thinking about your task for a while, you make a list of product classifications – design, price, gender of user and age of user. It looks like this:

Classification	Type of Clothes
Age of User	Clothes for babies Clothes young children Clothes for teenagers Clothes for adults
Gender of User	Clothes for females Clothes for males Clothes for both males and females
Price	Clothes that cost less than $10 Clothes that cost $10 to $50 Clothes that cost $51 to $99 Clothes that cost more than $100
Design	Casual clothing Sportswear Formalwear

Your boss wants you to pick only one or two categories by which to organize the catalog. You scan your list to see which classifications will be most useful, but you realize that the catalog must include all of them to be as useful as possible, because purchasers may need different information for different decisions. For instance, let's say someone is choosing clothes to donate to the annual clothing drive for needy children. They may want to focus on price so they can donate several articles of clothing, and may want to use the gender classification to find clothes for all children because they would not know in advance whether the child receiving the clothes is a girl or a boy.

Another shopper may be looking for a birthday present intended for a two-year-old relative, so he would need to use the age classification to find the appropriate clothing. And because he has a budget, this shopper will also want to use the price category to help decide on the gift. As these examples show, even in making just one decision, more than one classification may provide useful information.

Like our hypothetical clothing buyers, managers must have information to make effective planning and controlling decisions. Cost information is one of the key components of financial decision making, but what exactly is a cost? In accounting, a cost is how much we have to give up to get something. Put more formally, a **cost** is the dollar amount of resources forfeited to

receive some goods or services. Note that cost is different from price. Price is what we charge; cost is what we pay.

Business managers classify costs in many different ways because, just like the vast array of clothes, there are many types of costs. Each classification can provide managers with useful information. In this chapter, we explore several different cost classifications that managers use to make decisions.

LEARNING OBJECTIVES

After completing your work on this chapter, you should be able to do the following:

1. Classify costs by cost objects, and distinguish between direct and indirect costs.
2. Distinguish between product costs and period costs, and contrast their accounting treatment.
3. Explain the differences between product cost for a merchandiser and for a manufacturer.
4. Describe the components of the costs included in each of the three types of inventory in a manufacturing operation.
5. Calculate cost of goods manufactured and cost of goods sold.
6. Describe the components of the cost of services provided by a service firm.
7. Prepare basic journal entries for a manufacturer.

MAJOR COST CLASSIFICATIONS

Businesses incur many different costs as they operate and there are many useful ways to classify these costs. As managers make each internal business decision, they must determine what cost classifications will help them most. We will first identify important cost terms and investigate several cost classifications.

Assigning Costs to Cost Objects

One of the most useful classifications of cost is by cost object. A **cost object** is any activity or item for which we desire a separate cost measurement. Think of any noun associated with business and you have a potential cost object.

We identify a cost object to determine the cost of that particular object. Such classification can provide useful information. For example, **Harley-Davidson** may need information about the cost to manufacture one of its motorcycles. In this case, the individual products are the cost objects. All costs associated with a particular product are grouped to determine the full cost of that product. Managers may also want to determine the cost associated with a group of products, such as a fleet of delivery trucks. Exhibit 2-1 lists some cost objects commonly used by companies.

Exhibit 2-1. Common Cost Object Designations

Cost Object	Examples
• Activity	• Repairing equipment, testing manufactured products for quality
• Product	• Paper towels, personal computers, automobiles (These can be either purchased or manufactured products.)
• Service	• Performing surgery, accounting work, legal work
• Project	• Constructing a bridge, designing a house
• Geographic region	• A state, a city, a county
• Department	• Marketing department, accounting department

When we assign costs to cost objects, we classify costs as direct or indirect. A cost that is easily traced to individual cost objects is a **direct cost**. Many times, however, a cost may benefit more than one cost object, so tracing that cost to individual cost objects becomes difficult or even impossible. A cost that supports more than one cost object is an **indirect cost**. An indirect cost may also be called a **common cost**, because it is common to more than one cost object.

To illustrate the difference between direct and indirect costs, consider 12 **Wal-Mart** stores in New York. Each store has a manager who is responsible for the day-to-day operation of that store. **Wal-Mart** also has a general manager who is responsible for the operation of all the stores in the state. If we define each of the 12 stores as cost objects, the salary of each store manager is a direct cost to his or her store. The salary of the *general manager,* however, is not incurred to support any one of the 12 stores – rather, it supports all 12 stores. Therefore, the general manager's salary is an indirect cost to each cost object (the individual stores).

Discussion Questions

Assume that instead of defining each individual Wal-Mart store as a cost object, we define the entire Wal-Mart operation in New York as a cost object.

2-1. In this case, would the salaries of the 12 store managers be considered direct or indirect costs? Explain your reasoning.

2-2. Would the salary of the general manager be considered a direct or an indirect cost? Explain your reasoning.

2-3. Why do you think managers at various levels in a company would find it useful to classify costs as direct or indirect?

Product Cost

When you see inventory on store shelves, you know the store did not get the inventory for free. Rather, each unit of product had some cost. The cost of the various products a company sells is called **product cost**. More specifically, product costs are the costs associated with making the products available and ready to sell. For a bookstore, such as **Barnes & Noble**, product cost is

the cost of the books it purchases for resale, the freight to get the books to the store (also known as freight-in), and other costs involved in getting the books ready to sell.

Product costs are also known as **inventoriable costs** because they become part of a company's inventory until the goods associated with those costs are sold. Because a product held for sale is considered an asset, its cost is shown on the balance sheet (inventory) until the product is actually sold. When the goods are sold, the product cost is converted from an asset on the balance sheet to an expense (cost of goods sold) on the income statement.

For example, when **DICK'S Sporting Goods** buys shoes to sell, the cost of the shoes is a product cost and is added to inventory on the balance sheet. The cost remains in inventory on the balance sheet until the shoes are sold. When the shoes are sold, the reality of the reduced inventory caused by the sale is reflected in the company's accounting records by reducing inventory on the balance sheet and increasing cost of goods sold on the income statement.

Period Cost

Period costs are all the costs a company incurs that are not considered product costs. They include selling and administrative expenses, but not any costs associated with acquiring product or getting it ready to sell. For **DICK'S Sporting Goods** this would include costs of employees in accounting, finance, marketing, advertising, and certain executives such as the company president.

Selling Cost

Selling cost includes the cost of locating customers, attracting them, convincing them to buy, and the cost of necessary paperwork to document and record sales. Examples of selling cost include salaries paid to members of the sales force, sales commissions, and advertising.

Two selling costs are less obvious: the cost of delivering product to customers (also known as freight-out) and the cost of storing merchandise inventory. The reason delivery cost is considered a selling cost is that companies probably would not provide delivery unless it helped sell more product. If customers would buy with or without free delivery, the seller would likely not offer it.

Do not confuse freight-out (period cost) with freight-in (product cost). The key to keeping the two straight is to think about when they are incurred. Freight-in is a cost incurred before the product is ready to sell and is therefore a product cost. Freight-out is incurred after the product is ready for sale and is therefore classified as a period cost. For companies like **Dell Computers**, freight-in is part of the cost to get the raw material to assemble its computers and freight-out is the cost to ship the finished computers to its customers.

The cost of storing merchandise inventory is also classified as a selling cost, because merchandise in stock enhances its sales potential. Businesses cannot easily sell what they do not have. For example, if you go to your local shoe store to buy a pair of formal shoes and the

salesperson tells you, "We don't keep that size in stock, but we'll be glad to order it for you," you may decide to go to another store that carries a better-stocked inventory of shoes rather than wait. Because both delivery and merchandise inventory enhance sales, these items are considered selling costs.

Administrative Cost

Administrative cost includes all costs that are not product or selling costs. These costs are typically associated with support functions – areas that offer support to the product and selling areas, such as accounting, finance, human resources, and executive functions.

Generally, period costs are shown as operating expenses (selling and administrative expenses) on the income statement. Most period costs – administrators' salaries, for example – are presented as expenses when the expenditure is made. When long-lived assets that will be used for selling or administrative functions are purchased, a slightly different treatment is necessary. At the time they are purchased, the cost of long-lived assets is shown on the balance sheet. As time passes, the depreciation expense associated with these assets becomes part of selling and administrative expense.

Discussion Questions

Assume that you are using a felt-tip highlighter to mark important information in your notes. Assume further that you purchased the marker at the college bookstore.

2-4. What costs associated with the marker do you think the bookstore would consider to be product costs? Explain your reasoning for each cost you included.
2-5. What costs associated with operating the bookstore do you think would be considered period costs (selling and administrative)? Explain your reasoning for each cost you included.

Comparing Product and Period Costs

The distinction between product cost and period cost is based on whether the cost in question benefits the process of getting products ready for sale (product cost), or the selling and administrative functions (period cost). Let’s look at some examples to make sure you understand the distinction. The cost of a factory security guard is a product cost because it benefits the plant. Conversely, the cost of a security guard in the sales office is a selling expense, which is a period cost. The classification depends on the company function that benefits from the cost.

What about the salary of the vice president of manufacturing? Even though vice president of manufacturing may sound like an administrative position, the cost benefits the manufacturing function, so it is a product cost. Further, all costs associated with that position, including, for example, the depreciation on the vice president's desk, the cost of his or her support personnel, and travel costs, are classified as product costs. Likewise, the salary of the vice president of

marketing and the costs of that position are period costs, as they benefit the sales area of the company.

Next, we examine how manufacturing, merchandising, and service firms identify their product costs.

PRODUCT COST IDENTIFICATION FOR MERCHANDISING FIRMS

Merchandising firms such as **Macy's** and **Nordstrom** purchase products ready to sell, add a markup, and resell the goods. Regardless of whether they are wholesale or retail merchandising firms they generate profits by selling merchandise for a price that is higher than its cost. Wholesalers generally buy products from manufacturers (or other wholesalers) and then sell them to retailers. Retailers buy from manufacturers or wholesalers and sell their products to the final consumers. In this section we explore how a merchandising company identifies product costs and how those product costs flow through the balance sheet and income statement.

For a merchandising firm, product cost includes the cost of the merchandise itself, freight costs to obtain the merchandise, and any other costs incurred to get the product ready to sell. Because merchandisers buy goods for resale, often the cost of getting products ready to sell is minor or nonexistent. Product cost does not include any cost incurred after the product is in place and ready to sell.

Product cost is often the most significant of all costs for a merchandiser. It is not uncommon for merchandising companies to have cost of goods sold as high as 80 percent of the selling price of the product sold, meaning that they have a gross profit as low as 20 percent. Besides increasing sales, managers are always interested in reducing expenses, which is impossible without an understanding of what items are included in product cost. Efforts to reduce total cost of goods sold may focus on any component of that expense, that is, any component of product cost.

The Flow of Product Cost – Merchandising Company

If you were responsible for the profitability of a product or group of products, not only would you want to know total product cost, but you would also want to know and understand the various components of each product's cost. With this understanding, you could analyze reports detailing these products' cost components and work to isolate costs that could be reduced or eliminated. The diagram in Exhibit 2-2 illustrates the flow of costs in a merchandising operation.

Exhibit 2-2. Flow of Product Costs – Merchandising Company

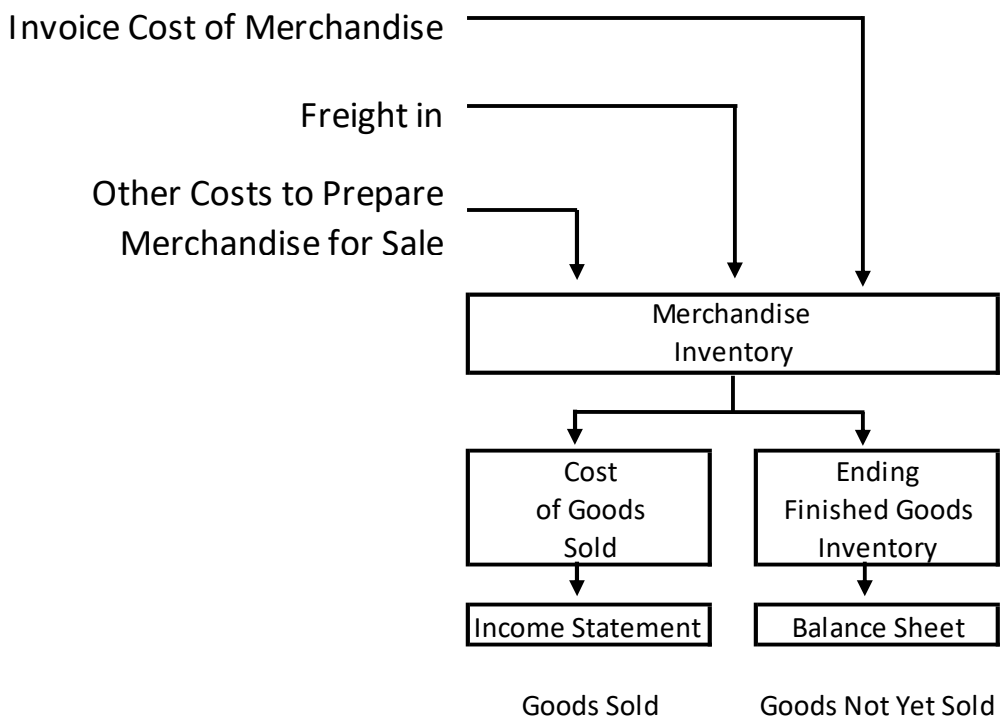


Exhibit 2-2 indicates that as goods are purchased, their cost is classified as merchandise inventory. In fact, all product costs are originally shown like those in Exhibit 2-2, as an asset on the balance sheet. Typically, a merchandising firm has only one inventory classification, which is usually referred to as *merchandise inventory* or, simply, *inventory*. As the units of product are sold, their cost is converted to an expense and shown on the income statement as the cost of goods sold.

Cost of Goods Sold

Exhibit 2-3 is a cost of goods sold schedule for Jason's Supply Company. As the exhibit shows, at the beginning of the period, Jason adds purchases to the inventory on hand to arrive at the goods available for sale. One of two things can happen to the goods available for sale: they remain on hand at the end of the period (ending inventory) or they are not on hand at the end of the period (cost of goods sold). The cost of goods sold includes the cost of the inventory sold, as well as the cost of inventory shrinkage and the cost of inventory unfit for sale. Thus, when ending inventory is subtracted from the goods available for sale, Jason can determine the cost associated with the products that have been sold – that is, the company can determine the cost of goods sold.

Exhibit 2-3. Cost of Goods Sold Schedule

JASON'S SUPPLY COMPANY
Cost of Goods Sold Schedule
For the Year Ending December 31, 20X6

	Beginning Inventory (1/1/20X6)	$ 23,000
+	Purchases during 20X6	300,000
=	Goods Available for Sale in 20X6	$323,000
–	Ending Inventory (12/31/20X6)	30,000
=	Cost of Goods Sold for 20X6	$293,000

The beginning inventory amount shown in Exhibit 2-3 is actually the ending inventory from Jason's balance sheet on December 31, 20X5 and the ending inventory amount shown is from Jason's balance sheet at December 31, 20X6. The cost of goods sold amount is included as an expense item on the company's income statement for the year ending December 31, 20X6.

Discussion Question

2-6. Accounting for the flow of product cost for a merchandiser seems to be a lot of bother. If all merchandise inventory will eventually be sold anyway, why not just record it as an expense (cost of goods sold) on the income statement when it is purchased?

Any company that sells a tangible physical product, must sell its product for more than the product cost or it will eventually go bankrupt. This may seem very obvious and, in fact, good business managers are well aware of this necessity. Understanding the need is one thing; making sure it happens is another. Competitive pressures in most industries cause companies to sell their products for less than they would like. Managers of these businesses must have a solid understanding of the relationship between the selling price of their products and the cost of those products, or they may actually sell a product for less than it costs.

It's like the two guys – Harry and George -- who bought watermelons for $1 each and were selling them for $0.90 each. Business was certainly brisk because they were underselling all their competition. Still, they were not making a profit. Finally, George turned to his friend and said, "Harry, we need to get a bigger truck." What George and Harry didn't understand is that they could never sell enough watermelons at $.90 each to be profitable because they were selling each melon for less than it cost. Without a thorough understanding of the relationship between the cost of a product and the selling price of that product, managers cannot hope to make prudent business decisions.

PRODUCT COST IDENTIFICATION FOR MANUFACTURING FIRMS

Virtually all the products that consumers purchase have undergone some manufacturing process. In this section we explore how a manufacturing company identifies product costs and how those product costs flow through the balance sheet and income statement. As in merchandising firms, product cost for a manufacturer includes all costs associated with acquiring the product and getting it ready to sell. For manufacturers, however, getting the product ready to sell is usually an extensive process requiring the use of factory facilities such as production machinery and factory workers.

For a manufacturer, units of product are normally considered cost objects and their cost encompasses three distinct elements. We will introduce them here and then discuss each of them in more detail a bit later. As we present each of the elements, think back to our discussion earlier in the chapter about cost objects and direct versus indirect costs.

Direct materials cost. Direct materials cost is the cost of all raw materials that can be traced directly to a unit of manufactured product. For **Ford Motor Company**'s Mustang this would include the cost of metal, tires, engines, belts, seats, etc. Direct materials cost is not the cost of all materials used in the manufacture of the product. In most manufacturing operations, some materials costs are incurred for multiple cost objects. These costs are indirect materials cost and accountants generally consider them a part of manufacturing overhead.

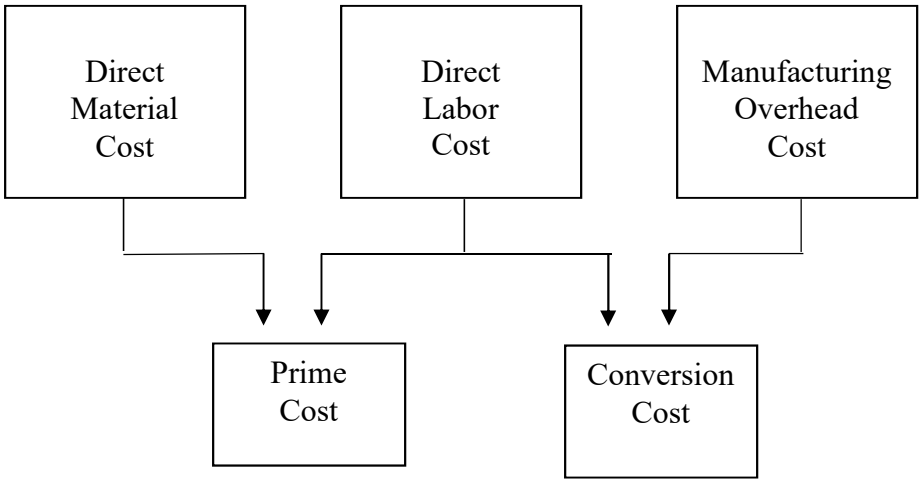
Direct labor cost. Direct labor cost is the cost of all production labor that can be traced directly to a unit of manufactured product. Direct labor is also sometimes called **touch labor** because it is the cost of the workers who actually touch the product being manufactured. For **Ford**'s Mustang, this would include the cost of assembly line workers. Direct labor cost is not the cost of all labor incurred in the manufacture of product. In most manufacturing operations some labor costs benefit multiple cost objects. Accountants generally consider that indirect labor cost a part of manufacturing overhead, discussed next.

Manufacturing overhead cost. Manufacturing overhead is all the costs associated with the operation of the manufacturing facility other than direct materials cost and direct labor cost. It is composed entirely of indirect manufacturing cost – that is, manufacturing cost incurred to support multiple cost objects. Among others, manufacturing overhead includes indirect materials and indirect labor as discussed previously. For **Ford**'s Mustang, manufacturing overhead cost would include a portion of costs for the factory's security, telephone, electricity, insurance, property taxes, and factory depreciation.

Prime Cost and Conversion Cost

Sometimes managers use the terms *prime cost* and *conversion cost* to describe the cost of manufacturing their products. The combined total of direct material cost and direct labor cost is called **prime cost**. The cost of manufacturing overhead is not considered a part of prime cost. **Conversion cost** is the combined total of direct labor cost and manufacturing overhead cost. Conversion cost does not include the cost of the direct material itself, rather it is the cost of the

direct labor and manufacturing overhead the company uses to convert the direct material into a finished product.



Inventory Classifications

As with merchandising firms, product costs for a manufacturer are inventoriable costs. However, manufacturing companies have not just one, but three types of inventory: raw materials, work in process, and finished goods. Note that these three types of inventory are not the same as the three elements of manufactured product we just introduced. Rather, these inventory classifications specify where a manufactured product is at any given time in the production process.

As we discuss the three inventory classifications used by manufacturers, consider the following thoughts. First, our discussion in this chapter is intended to serve only as a broad introduction to the flow of product cost through a manufacturing company. The next two chapters deal with specific methods used to accumulate product cost for a manufacturer. Second, there is a difference between reality and the measurement of reality. Reality is the physical units of product moving through the production process, separate from our attempt to measure that reality.

Raw Materials Inventory

Raw materials inventory, sometimes called **material stores**, consists of materials that have been purchased but have not yet entered the production process. Raw materials inventory includes all the materials that will eventually be accounted for as either direct or indirect materials. For example, **Steelcase, Inc.,** manufactures metal desks, filing cabinets, and other metal office furniture. Raw materials inventory consists of the sheet metal, screws, paint, and glue **Steelcase** has on hand with which to make metal office furniture. It would not include any of the material in the office furniture the company has begun to manufacture but has not yet finished, nor would it include the material in the office furniture that has been completed and ready for sale. Until raw materials actually enter the production process, the cost associated with those materials is classified as raw materials inventory on the balance sheet.

Work-in-process Inventory

Work-in-process inventory consists of products that have entered the production process but have not yet been completed – those units currently on the production line or in the production process. In our **Steelcase** example, work-in-process inventory consists of the desks, filing cabinets, and other metal office furniture that have been started but are not yet finished. The reality is partially completed desks, filing cabinets, and other metal office furniture. The measurement of reality counts the costs associated with these partially completed units of product and classifies them as work-in-process inventory on the balance sheet. These costs include the cost of the materials associated with these units, the labor cost incurred so far in the production process, and some amount of manufacturing overhead applied to each of the partially completed units of product.

Work-in-process inventory does not include the cost of raw materials that have not yet entered the production process, nor does it include the cost associated with products that have been completed and ready for sale.

Finished Goods Inventory

Finished goods inventory , as you might imagine, consists of products that have been completed and are ready to sell. With respect to **Steelcase**, finished goods inventory consists of the pieces of metal office furniture completed but not yet sold. Remember, these are real units of finished product: They are reality. They have completed the production process and are sitting in a warehouse somewhere waiting to be sold. The measurement of that reality is a classification of inventory on the balance sheet called finished goods inventory. Included in that amount are all the materials, labor, and manufacturing overhead costs accumulated for those units completed, but not yet sold.

Discussion Question

2-7. Why do you think managers of a manufacturing firm would find it beneficial to separate the amount and cost of inventory items into raw materials, work in process, and finished goods?

If managers in manufacturing businesses are to make prudent production decisions, they must have relevant information. The decisions they must make include how much and what type of materials they need to purchase, how many production workers are needed, what skill level these workers must possess, and whether production capacity is sufficient to produce the product required. The information managers need to help them make these and many other production decisions including the amount and cost of raw materials on hand, the composition of the labor force, the capacity and cost of production facilities, and the amount and cost of both work-in-process and finished goods inventory.

Although much of the relevant information managers need in order to make these decisions is provided by non-accountants such as marketing and sales personnel, accountants

provide vital information concerning the cost of raw materials, work in process, and finished goods. All three classifications of inventory have one or more of the product cost elements introduced earlier: direct material, direct labor, and manufacturing overhead. We will now discuss each of those elements in more detail.

Direct Material

Direct material is the raw material that becomes part of the final product and can be easily traced to the individual units produced. Obviously, direct materials cost is the cost of these raw materials. Examples of direct materials used in the manufacture of automobiles are sheet metal, plastic, and window glass. In the manufacture of computers, direct materials include circuit boards, memory chips, and other items. At **Steelcase,** direct materials include the sheet metal used to manufacture the desks, filing cabinets, and other metal office furniture.

Often, the final product of one company is purchased by another to be used as part of its raw material in the manufacturing process. For example, direct materials used in the manufacture of **Cessna** aircraft include aluminum, wheels, tires, cables, and engines. The tires that **Cessna** uses as raw materials in the manufacture of its aircraft are the finished product of one of the company's suppliers, **Goodyear Tire and Rubber Company**.

Discussion Questions

2-8. In addition to the tires supplied by **Goodyear**, what other finished products do you think **Cessna** uses in its production of small aircraft? What companies might produce these products?

2-9. Name three additional pairs of manufacturing companies that have a supplier-buyer relationship – that is, the finished product of one company becomes the raw material of another company.

When materials are purchased for use in the manufacture of products, their cost at first is added to raw materials inventory. Once the material has entered the production process (reality), its cost is removed from raw materials inventory and added to work-in-process inventory (measurement of reality). Thus, in our **Steelcase** example, as sheet metal is purchased, its cost is added to raw materials. Once the metal has been used to make a desk or other piece of office furniture, its cost is removed from raw materials inventory and becomes part of work-in-process inventory.

Direct Labor

Direct labor hours are defined as the time spent by production workers as they transform raw materials into units of finished products. Direct labor costs are the salaries and wages paid to these workers, which can be easily traced to the products they produce.

Think about some article of clothing, say a pair of pants, you are wearing right now. Certainly there is material in the pants. But how did the pants become pants? Well, you may not

know all the steps, but you do know that somewhere, someone sat at a sewing machine and stitched the cut material into a pair of pants. The money paid to that person, whether in China, Korea, or the United States, is considered direct labor, because her or his efforts (and therefore cost) can easily be traced to that single cost object (the pair of pants).

The accounting treatment of direct labor cost may surprise you. Direct labor needed to get products ready to sell is a product cost that enhances the value of direct material. Because product costs are inventoriable costs, direct labor cost is added to the value of work-in-process inventory, along with the cost of direct material. Why? Because the work of production-line personnel increases the value of material as it is fabricated, assembled, painted, or processed. As a result, the cost of production-line labor should increase the value of inventory, shown as an asset on the balance sheet and ultimately as cost of goods sold on the income statement. In our **Steelcase** example, then, wages paid to workers who actually make the desks, filing cabinets, and other metal office furniture is considered direct labor and added to work-in-process inventory.

Thus far we have explored two elements of product costs for a manufacturing firm: direct material and direct labor. Next, we consider the third and last element of manufacturers' product costs – manufacturing overhead.

Manufacturing Overhead

Manufacturing overhead is defined as all activities involved in the manufacture of products besides direct materials or direct labor. Manufacturing overhead cost, then, is the cost of these indirect manufacturing activities. It is also referred to as **factory overhead**, **factory burden**, or simply **overhead**. In recent years, manufacturing companies have begun to call the cost of manufacturing overhead **indirect manufacturing cost**, which is certainly more descriptive than any of its other names. Old habits die hard, however, so we will call it manufacturing overhead because this term has been and remains universally understood in business.

To be considered part of manufacturing overhead, a cost must be associated with the manufacturing facility, not some other aspect of the company such as selling or administrative functions. Manufacturing overhead includes three groups of costs – indirect materials, indirect labor, and other indirect manufacturing costs.

Indirect Material

Indirect materials are those consumed in a manufacturing facility in support of multiple cost objects. There are two types of indirect material costs in manufacturing. The first is the cost of raw materials so insignificant that the added benefit of physically tracing these materials to individual products is not worth the effort. Examples include glue, rivets, solder, small nails, and caulking. In fact, businesses could physically trace all material cost to their products. In the case of indirect materials, however, the effort required to trace the cost outweighs the benefit of the additional information. The second type of indirect material is factory supplies. These are materials used in the manufacturing facility but not incorporated into the product. Examples

include paper towels, janitorial supplies, and lubricants for production machinery. The cost of all indirect materials, whether the materials actually become part of manufactured product, is added to the cost of the product as part of manufacturing overhead.

Indirect Labor

Indirect labor is labor incurred in a manufacturing facility in support of multiple cost objects. As was the case with indirect material costs, there are two types of indirect labor in manufacturing. The first is the cost associated with factory workers who are neither on the production line nor directly involved in the manufacturing process. Examples include the cost of direct materials handlers, production supervisors, plant security personnel, plant janitorial personnel, factory secretarial and clerical personnel, and the vice president of manufacturing. Although the effort of these workers is important to the production process, their labor costs are not easily traceable to products. They are therefore classified as indirect labor.

The second type of indirect labor is the cost of wages paid to direct labor employees when they are doing something other than working on the product they produce. These activities might include setting up equipment for production runs or sweeping up at the end of a shift. The idea is that direct labor should include only the cost of direct labor personnel when they are actually working on the product. The cost of all indirect labor is added to the cost of the product as part of manufacturing overhead.

Some manufacturers in the United States now consider *all* labor as indirect labor. In some types of operations, the direct labor element of a manufactured product is as low as four percent of the total manufacturing cost. If managers believe labor cost is insignificant, they may choose not to separate it into direct and indirect labor cost and may instead classify all labor costs as indirect.

Other Manufacturing Overhead Costs

In addition to indirect material and indirect labor, manufacturing overhead includes other costs associated with the production facility. Examples include depreciation on the factory building, rent paid for production equipment, factory insurance, property taxes for the factory, and telephone service for the factory. All the costs in this category are associated with the operation of the production facility.

We have seen that manufacturing overhead is the sum of all indirect material, indirect labor, and other manufacturing overhead costs. Manufacturing overhead costs are necessary costs to produce products and enhance the value of the goods being manufactured. Accordingly, as products are being manufactured, manufacturing overhead costs are added to work-in-process inventory.

Discussion Question

2-10. The printed book newspaper that you read was manufactured. What costs of manufacturing do you think the publisher would include as
   a. Direct materials?
   b. Direct labor?
   c. Manufacturing overhead?

The Flow of Product Cost – Manufacturing Company

In a manufacturing environment, just as in merchandising operations, managers must understand the flow of product costs to successfully control and plan for them. Product cost information is also an essential element of the information needed when making pricing and sales decisions. How could a business price a product if none of its managers knew how much the product cost to produce? Having the information is not enough, though. Managers must also understand the components of product cost and the way these costs will affect the company's assets as reported on the balance sheet and the profits as reported on the income statement. Exhibit 2-4 shows the flow of product costs through a manufacturing operation.

Exhibit 2-4. The Flow of Product Costs – Manufacturing Company

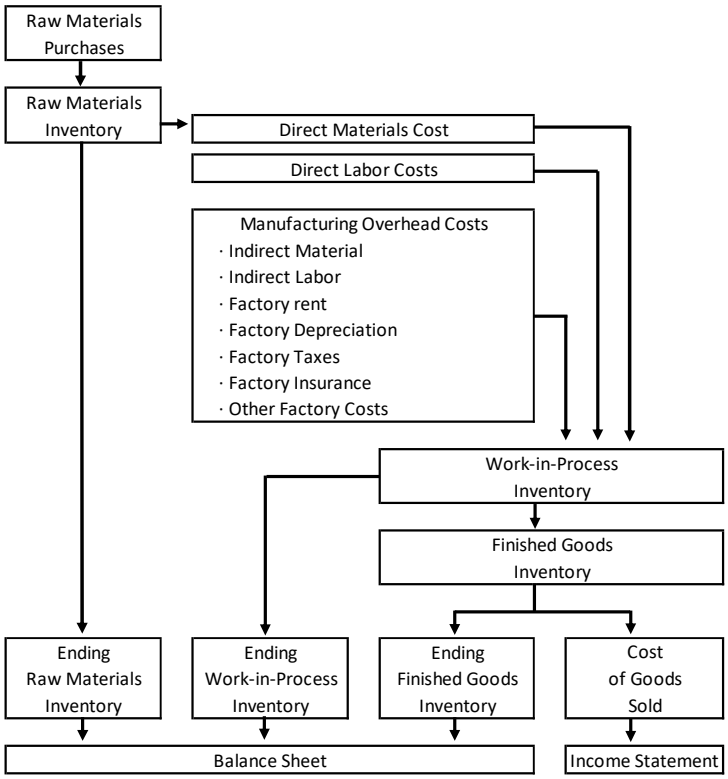
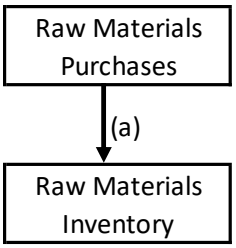
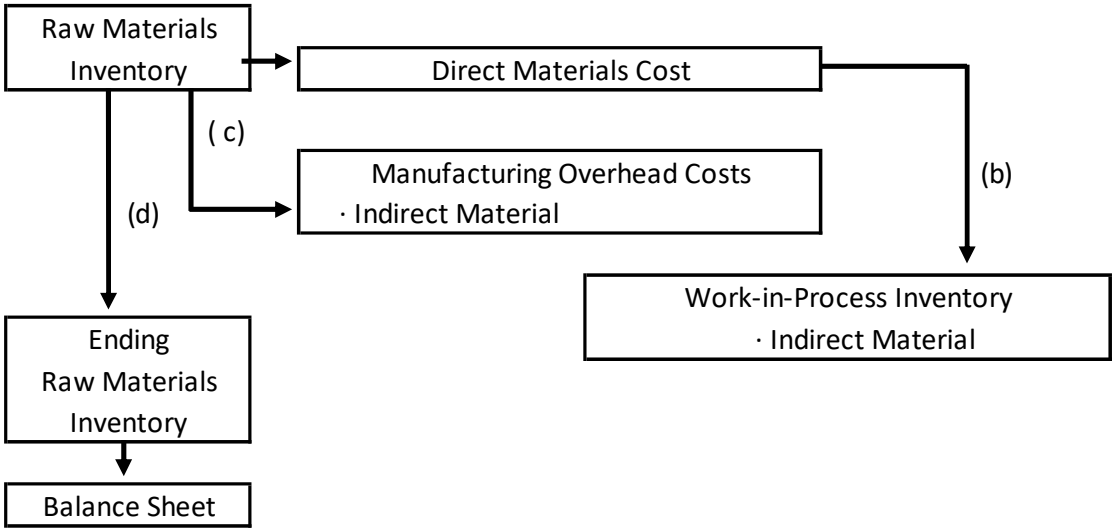


Exhibit 2-4 looks more complicated than it really is. In fact, this exhibit summarizes our entire discussion of product cost identification for a manufacturer. Let's take some time to walk through the diagram.

As raw materials are purchased, they become part of raw materials inventory (a).

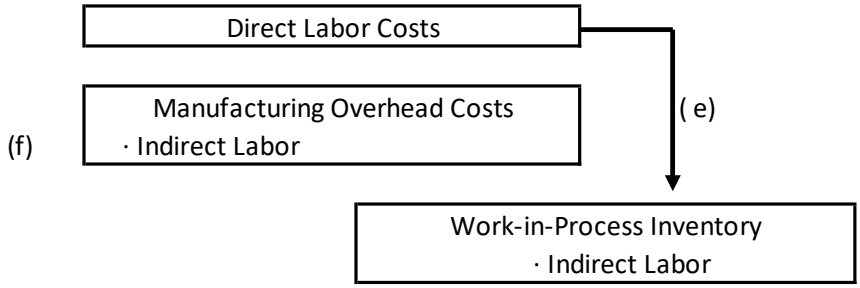


When materials actually enter the production process, we classify their cost as either direct materials (b) or indirect materials (c) depending on the type of material. We classify the cost of any raw materials still on hand at the end of the production period as ending raw materials inventory on the balance sheet at the end of the period (d).



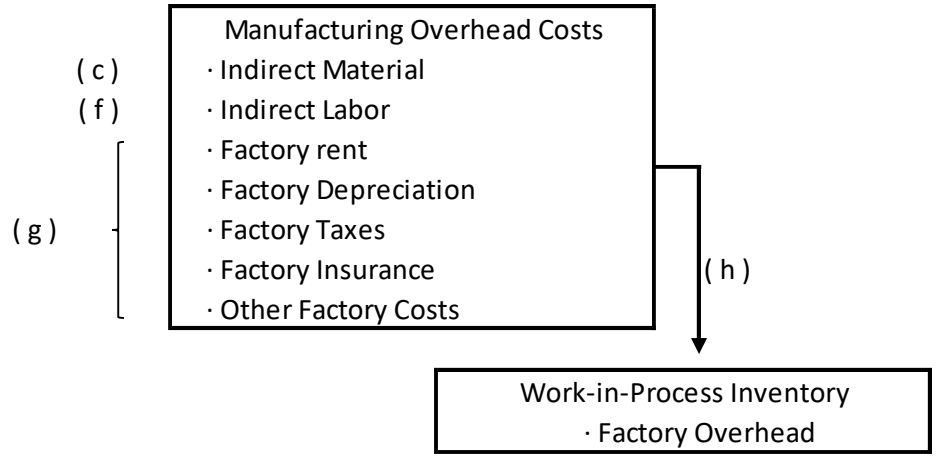
Note that we add the cost of direct materials to work-in-process inventory at this point, whereas the cost of indirect materials is classified as manufacturing overhead. We will return to manufacturing overhead in a moment.

We now have one of the three elements of product cost in work-in-process inventory (direct materials). The next element added is labor. Note that we add direct labor (e) to work-in-process inventory, whereas indirect labor (f) is classified as manufacturing overhead.

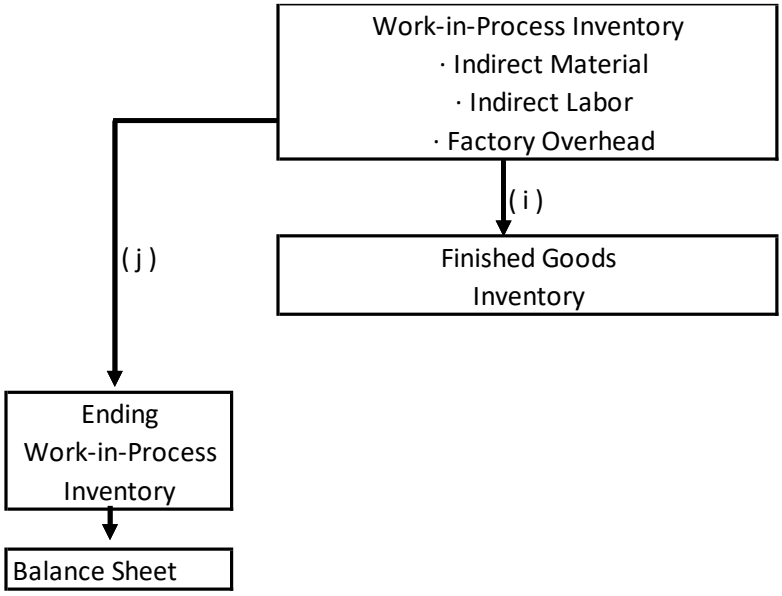


We now have two of the three elements of product cost in work-in-process inventory (direct materials and direct labor). The last element added is manufacturing overhead. In addition to indirect materials and indirect labor (which we classified as manufacturing overhead earlier), all other indirect manufacturing costs are classified as manufacturing overhead (g). The ones we have provided in Exhibit 2-4 are representative only. In reality, the list is almost endless.

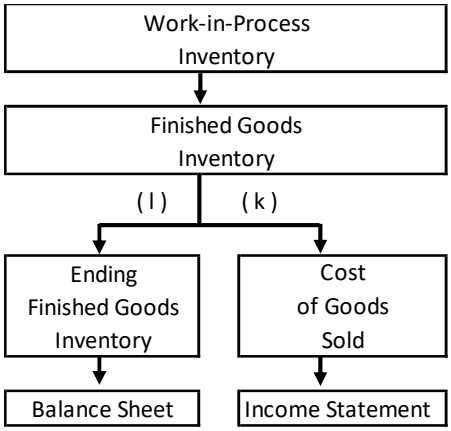
Once we accumulate the manufacturing overhead items and amounts, we add the cost of manufacturing overhead to work in process (h).



Work-in-process inventory, then, consists of the direct material, direct labor, and manufacturing overhead cost associated with goods that are currently in production. As units are completed, we transfer the cost associated with these units from work-in-process inventory to finished goods inventory (i). We classify the cost of product still in production at the end of the production period as ending work-in-process inventory on the balance sheet at the end of the period (j).



Once finished units of product (and their cost) have been transferred to finished goods inventory, usually only one of two things will happen to the actual units – either they will be sold by the end of the accounting period or they will not be sold. If they are sold, we transfer the cost associated with them to cost of goods sold (k). We classify the cost of the finished product still on hand at the end of the accounting period as ending finished goods inventory on the balance sheet at the end of the period (1).



For most manufacturers, inventory is a sizeable asset requiring considerable financial resources. A walk through a manufacturing facility would make you aware of the significance of inventory, because you would see stacks of it sitting there. Raw materials, work in process, and finished goods are all important assets of a manufacturer. Proper measurement of these assets is crucial if managers are to make good decisions about inventory management. For this reason, business people should understand the component costs of each type of inventory.

Cost of Goods Manufactured

We have seen that a manufacturer's product cost consists of direct material, direct labor, and manufacturing overhead. These three product classifications are summarized on the cost of goods manufactured schedule. You will find a typical presentation of this schedule for Zhang Manufacturing, Inc. in Exhibit 2-5.

Exhibit 2-5. Cost of Goods Manufactured Schedule

ZHANG MANUFACTURING, INC.
Cost of Goods Manufactured Schedule
For the Year Ending December 31, 20X6

Direct Materials:		
Beginning Direct Material Inventory (1/1/20X6)	$ 13,000	
+ Purchases during 20X6	400,000	
= Materials Available during 20X6	$413,000	
- Ending Direct Material Inventory (12/31/20X6)	20,000	
= Direct Materials Used during 20X6		$ 393,000
Direct Labor during 20X6		220,000
Manufacturing Overhead Cost:		
Indirect Materials	$ 5,000	
Indirect Labor	20,000	
Factory Rent	144,000	
Depreciation of Equipment	250,000	
Repairs and Maintenance on Equipment	40,000	
Utilities	39,000	
Property Taxes	15,000	
Total Manufacturing Overhead Cost during 20X6		513,000
Manufacturing Cost for Current Period		$1,126,000
+ Beginning Work-in-Process Inventory (1/1/20X6)		41,000
= Cost of Goods Available to be Finished in 20X6		$1,167,000
- Ending Work-in-Process Inventory (12/31/20X6)		65,000
= Cost of Goods Manufactured during 20X6		$1,102,000

Although this schedule looks quite involved, it consists of four relatively simple parts.

1. Direct Materials Section. This section is similar in format to the cost of goods sold section of the income statement. In both cases, we deal with costs stored in inventory to determine the cost of the inventory that has been used.

ZHANG MANUFACTURING, INC.
Cost of Goods Manufactured Schedule
Direct Materials Section
For the Year Ending December 31, 20X6

Direct Materials:			
	Beginning Direct Material Inventory (1/1/20X6)	$ 13,000	
+	Purchases during 20X6	400,000	
=	Materials Available during 20X6	$413,000	
-	Ending Direct Material Inventory (12/31/20X6)	20,000	
=	Direct Materials Used during 20X6		$ 393,000

2. Direct Labor Section. We see that the direct labor section of Zhang Manufacturing's cost of goods manufactured schedule consists of only one line, which is a common way to present this information. Remember, direct labor represents the cost of employees directly involved in the production process.

ZHANG MANUFACTURING, INC.
Cost of Goods Manufactured Schedule
Direct Labor Section
For the Year Ending December 31, 20X6

Direct Labor during 20X6	220,000

3. The Manufacturing Overhead Section. This section lists manufacturing overhead costs by functional description. Depending on the level of detail desired, this section can be as short as one line, which depicts total manufacturing overhead. Zhang's cost of goods manufactured schedule provides several lines detailing the various components of manufacturing overhead.

ZHANG MANUFACTURING, INC.
Cost of Goods Manufactured Schedule
Manufacturing Overhead Section
For the Year Ending December 31, 20X6

Manufacturing Overhead Cost:		
Indirect Materials	$ 5,000	
Indirect Labor	20,000	
Factory Rent	144,000	
Depreciation of Equipment	250,000	
Repairs and Maintenance on Equipment	40,000	
Utilities	39,000	
Property Taxes	15,000	
Total Manufacturing Overhead Cost during 20X6		513,000

4. Cost Summary and Work-in-Process Section. The last section of the cost of goods manufactured schedule summarizes the current period's product cost and incorporates the beginning and ending work-in-process inventory balances. Note that as in a cost of goods sold schedule, beginning inventory is added and ending inventory is subtracted to arrive at inventory completed.

ZHANG MANUFACTURING, INC.
Cost of Goods Manufactured Schedule
Cost Summary and Work-in-Process Section
For the Year Ending December 31, 20X6

Manufacturing Cost for Current Period	$1,126,000
+ Beginning Work-in-Process Inventory (1/1/20X6)	41,000
= Cost of Goods Available to be Finished in 20X6	$1,167,000
- Ending Work-in-Process Inventory (12/31/20X6)	65,000
= Cost of Goods Manufactured during 20X6	$1,102,000

Using the information from the cost of goods manufactured schedule, we can prepare a cost of goods sold schedule, such as the one for Zhang Manufacturing, Inc. shown in Exhibit 2-6.

Exhibit 2-6. Cost of Goods Sold Schedule

ZHANG MANUFACTURING, INC.
Cost of Goods Sold Schedule
For the Year Ending December 31, 20X6

	Beginning Finished Goods Inventory (1/1/20X6)	$ 70,000
+	Cost of Goods Manufactured during 20X6	1,102,000
=	Goods Available for Sale in 20X6	$1,172,000
-	Finished Goods Inventory (1/1/20X6)	28,000
=	Cost of Goods Sold for 20X6	$1,144,000

PRODUCT COST IDENTIFICATION FOR SERVICE FIRMS

In contrast to both merchandisers and manufacturers, service type businesses such as law firms, health care providers, airlines, and accounting firms do not sell tangible, physical products. Many service firms are huge. For example, **Hilton Hotels Corporation** is a diversified service company in the hospitality industry.

Service companies offer their customers a product just as real as those sold by merchandisers and manufacturers, but service products lack physical substance. Determining the cost of its product is just as important for a service company as it is for merchandisers and manufacturers, but the procedures differ because service type businesses have no inventory.

Costs can be accumulated for almost any facet of a service company's operation. To illustrate, let us consider the Marston Medical Clinic. The three doctors at the clinic (Dr. Helen Marston and two of her medical school classmates) perform routine physical exams, examinations in response to specific patient symptoms, immunizations, and minor surgery (they perform major surgery at a local hospital). Any of these services can be designated as a cost object, and cost can be accumulated for a particular service provided to an individual patient. Likewise, costs can be accumulated for a particular category of procedure, for a department or a particular area of the medical practice, or for each of the three doctors or the five nurses.

The three broad cost classifications included in the cost of services provided are materials, labor, and indirect service cost (sometimes called overhead). The cost classifications for a service firm are very similar to the classifications used in costing manufactured products, but there are some important differences.

Materials

The materials used in performing services are normally incidental supplies, and the cost of these materials is relatively insignificant compared to the direct materials used in the production of manufactured products. In the case of Marston Medical Clinic, materials include items such as tongue depressors, the needles and serum used for immunizations, and bandages.

Some service companies separate material that is significant enough to trace to individual cost objects from insignificant material that they simply treat as indirect overhead cost. In many cases, however, the materials used in performing a service are actually more like the indirect materials used by a manufacturer. Whereas a manufacturer such as **Steelcase** might consider glue and screws to be indirect materials, a legal firm would probably consider legal pads and pens as indirect materials, and all costs of materials are treated as indirect (overhead) cost.

Labor

Generally, service businesses are labor intensive, meaning that the largest component of product cost for service organizations is often labor cost. It includes costs of those people who perform part or all of the service. In the case of Marston Medical Clinic, labor cost certainly includes the salaries of the three doctors and the five nurses. It does not, however, include the amount paid to the receptionist or bookkeeper. Even though their work is important, these employees do not perform the health care services provided by the clinic. The labor cost of the receptionist and bookkeeper, then, is a period cost.

Overhead or Indirect Service Costs

The overhead costs in a service business are similar to those for a manufacturer. They are costs that are associated specifically with performing the services provided but that cannot easily be traced to one specific cost object. In the case of the Marston Clinic, rent on the clinic building is an indirect cost of providing health care – the building is necessary to provide patient services. However, its cost is difficult to trace to one cost object, so it is considered an overhead cost.

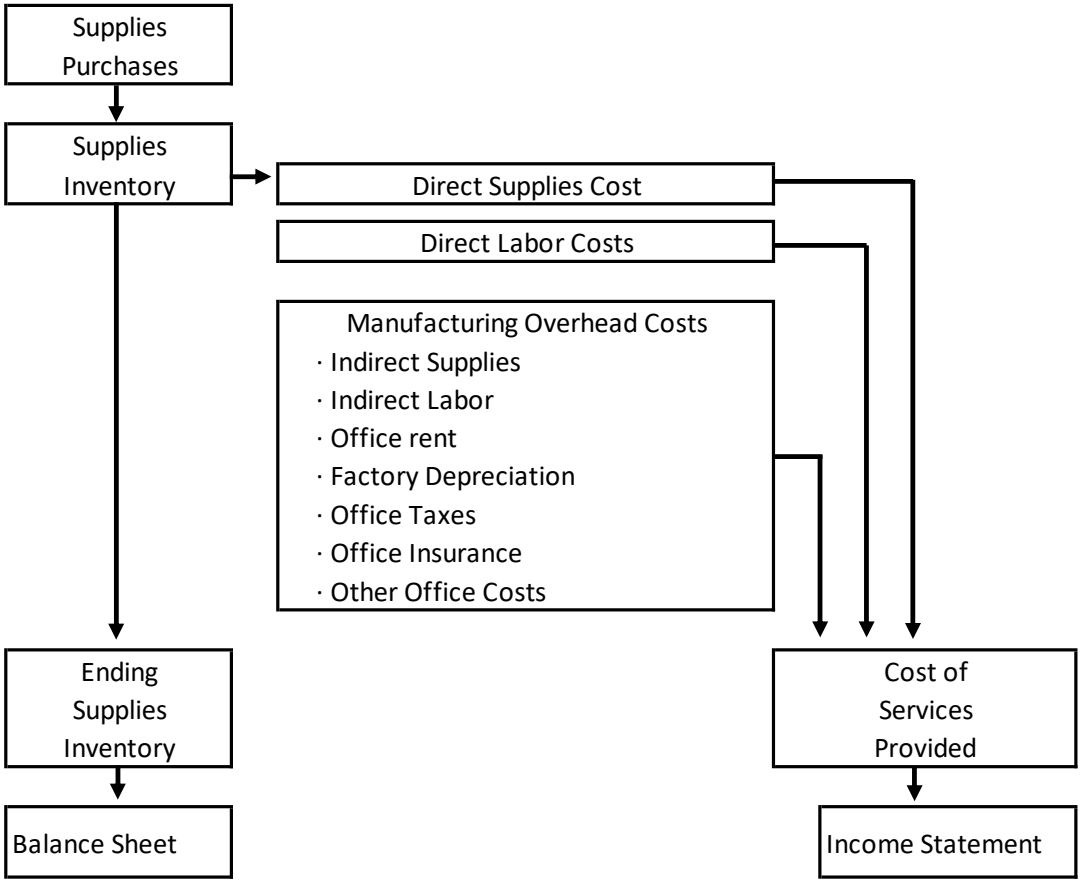
Discussion Question

2-11. Airline companies such as **Delta Airlines**, often define the routes they fly as cost objects. Given that definition, consider a specific route from New York to Los Angeles and describe the costs you believe **Delta** would include as
   a. materials
   b. labor
   c. overhead

The Flow of Service Cost – Service Company

Just as managers in manufacturing and merchandising operations must understand the flow of costs associated with products they sell, managers of service type businesses must understand the flow of service costs if they are to control and plan for them. Also, service cost information is an essential element of the information needed when making pricing and sales decisions. Simply having the information, however, is not enough. Managers must also understand how these costs will affect the company's assets as reported on the balance sheet and profits as reported on the income statement. The flow of costs through a typical service firm is shown in Exhibit 2-7.

Exhibit 2-7. The Flow of Service Costs – Service Company



Cost of Services

As Exhibit 2-7 indicates, cost of services has three parts: direct labor, direct supplies, and overhead. With this in mind, we can easily create a schedule computing the cost of service products. As an example, the schedule in Exhibit 2-8 computes the cost of medical services for Marston Medical Clinic.

Exhibit 2-8. Cost of Services Schedule

MARSTON MEDICAL CLINIC
Cost of Services Schedule
For the Year Ending December 31, 20X6

Direct Labor Cost		$ 940,000
Direct Supplies Cost		20,000
Overhead Cost:		
Indirect Supplies	$12,000	
Office Rent	24,000	
Depreciation	18,000	
Office Taxes	2,000	
Office Insurance	8,000	
Other Indirect Costs	6,000	
Total Overhead Cost		70,000
Cost of Services Provided		$1,030,000

Exhibit 2-8 shows that the cost of services for Marston Medical Clinic was $1,030,000 for the year ended December 31, 20X6. The total cost included the three components of service product cost: direct labor, direct supplies, and overhead.

We have examined how service firms identify product costs and how those costs flow through the firm. We now turn briefly to hybrid firms, which produce both goods and services.

HYBRID FIRMS

Some companies, called **hybrid firms**, generate revenue from both providing services and selling products. For example, although the majority of **FedEx'**s revenue comes from its courier delivery services, the company also generates significant revenue from copying and printing services. In accounting for an operation that combines service and products, companies such as **FedEx** must incorporate techniques used by both service and merchandising firms. A single company, such as **General Motors**, might actually be a manufacturer (making cars and trucks), a merchandiser (selling floor mats and other accessories to **GM** dealers), and a service type business (offering **GMAC Financing**).

MERCHANDISING, MANUFACTURING, AND SERVICE – A COMPARISON

Now that we have explored how merchandising, manufacturing, and service businesses identify their product costs and how those costs flow through each type of operation, we can see how these businesses present product costs and period costs on their income statements. We begin with a merchandising operation, and then we look at a manufacturer and a service business.

Exhibit 2-9 illustrates how a merchandiser reports its product costs and period costs on an income statement. This exhibit shows the 20X6 income statement for Jason's Supply Company and includes the cost of goods sold schedule we developed for Jason earlier in the chapter (presented as Exhibit 2-3).

Exhibit 2-9. Product Costs and Period Costs on the Income Statement – Merchandiser

JASON'S SUPPLY COMPANY
Cost of Goods Sold Schedule
For the Year Ending December 31, 20X6

	Beginning Inventory (1/1/20X6)	$ 23,000
+	Purchases during 20X6	300,000
=	Goods Available for Sale in 20X6	$323,000
–	Ending Inventory at (12/31/20X6)	30,000
=	Cost of Goods Sold for 20X6	$293,000

JASON'S SUPPLY COMPANY
Income Statement
For the Year Ending December 31, 20X6

Sales		$673,000
Cost of Goods Sold		293,000
Gross Profit		$380,000
Operating Expenses:		
Selling Expense	$120,000	
Administrative Expense	80,000	
Total Operating Expenses		200,000
Operating Income		$180,000

As Exhibit 2-9 indicates, the amount of product cost Jason recognized as expense (cost of goods sold) on its 20X6 income statement ($293,000) is calculated in the cost of goods sold schedule. The period cost recognized is the total of the operating expenses ($200,000).

Exhibit 2-10 illustrates how a manufacturer reports its product costs and period costs on an income statement. This exhibit shows the 20X6 income statement for Zhang Manufacturing, Inc. and includes the cost of goods manufactured schedule and cost of goods sold schedule we developed for Zhang and presented as Exhibit 2-5 and Exhibit 2-6 earlier in the chapter.

Exhibit 2-10. Product Cost and Period Cost on the Income Statement – Manufacturer

ZHANG MANUFACTURING, INC.
Cost of Goods Manufactured Schedule
For the Year Ending December 31, 20X6

Direct Materials:		
Beginning Direct Material Inventory (1/1/20X6)	$ 13,000	
+ Purchases during 20X6	400,000	
= Materials Available during 20X6	$413,000	
– Ending Direct Material Inventory (12/31/20X6)	20,000	
= Direct Materials Used during 20X6		$ 393,000
Direct Labor during 20X6		220,000
Manufacturing Overhead Cost:		
Indirect Materials	$ 5,000	
Indirect Labor	20,000	
Factory Rent	144,000	
Depreciation of Equipment	250,000	
Repairs and Maintenance on Equipment	40,000	
Utilities	39,000	
Property Taxes	15,000	
Total Manufacturing Overhead Cost during 20X6		513,000
Manufacturing Cost for Current Period		$1,126,000
+ Beginning Work-in-Process Inventory (1/1/20X6)		41,000
= Cost of Goods Available to be Finished in 20X6		$1,167,000
– Ending Work-in-Process Inventory (12/31/20X6)		65,000
= Cost of Goods Manufactured during 20X6		$1,102,000

Cost of Goods Sold Schedule
For the Year Ending December 31, 20X6

Beginning Finished Goods Inventory (1/1/20X6)	$ 70,000
+ Cost of Goods Manufactured during 20X6	1,102,000
= Goods Available for Sale in 20X6	$1,172,000
– Finished Goods Inventory (12/31/20X6)	28,000
= Cost of Goods Sold for 20X6	$1,144,000

Income Statement
For the Year Ending December 31, 20X6

Sales		$1,884,000
Cost of Goods Sold		1,144,000
Gross Profit		$ 740,000
Operating Expenses:		
Selling Expense	$250,000	
Administrative Expense	180,000	
Total Operating Expenses		430,000
Operating Income		$ 310,000

As Exhibit 2-10 indicates, the amount of product cost Zhang recognized as expense (cost of goods sold) on its 20X6 income statement ($1,144,000) is calculated in the cost of goods manufactured schedule and the cost of goods sold schedule. The period cost recognized is the total of the operating expenses ($430,000).

Exhibit 2-11 illustrates how a service type company reports its cost of services and period costs on an income statement. This exhibit shows the 20X6 income statement for Marston Medical Clinic and includes the cost of services schedule we developed for Marston earlier in the chapter (presented as Exhibit 2-8).

Exhibit 2-11. Cost of Services and Period Costs on the Income Statement – Service Type Company

MARSTON MEDICAL CLINIC
Cost of Services Schedule
For the Year Ending December 31, 20X6

Direct Labor Cost		$ 940,000
Direct Supplies Cost		20,000
Overhead Cost:		
Indirect Supplies	$12,000	
Office Rent	24,000	
Depreciation	18,000	
Office Taxes	2,000	
Office Insurance	8,000	
Other Indirect Costs	6,000	
Total Overhead Cost		70,000
Cost of Services Provided		$1,030,000

Income Statement
For the Year Ending December 31, 20X6

Service Revenue		$1,260,000
Cost of Services		1,030,000
Gross Margin on Services		$ 230,000
Operating Expenses:		
Selling Expense	$ 45,000	
Administrative Expense	130,000	
Total Operating Expenses		175,000
Operating Income		$ 55,000

As Exhibit 2-11 indicates, the amount of services cost Marston recognized as expense (cost of services) on its 20X6 income statement ($1,030,000) is calculated in the cost of services schedule. The period cost recognized is the total of the operating expenses ($175,000).

Whether the costs are related to products purchased for sale, products manufactured for sale, or services provided, cost information is an important input in the decision making process. Remember that management accounting information helps internal decision makers plan and control the firm's future. In the chapters that follow, you will see how the cost classifications and cost flows you learned about in this chapter will help you understand and apply management accounting decision making techniques.

RECORDING MANUFACTURING COSTS

To fully understand the material in this section, it is best if you have a basic understanding of debit and credit accounting procedures including general journal entries and the use of t-accounts. If this is not the case, we suggest that you review the accounting procedures section of any introductory financial accounting text. After completing your work on this section of the chapter, you should be able to prepare basic manufacturing journal entries.

The recording process for manufacturing involves six basic types of transactions:

Transaction 1 – Purchasing raw material
Transaction 2 – Using direct material in the manufacturing process
Transaction 3 – Using direct labor in the manufacturing process
Transaction 4 – Using manufacturing overhead in the manufacturing process
Transaction 5 – Transferring the cost of completed units from work in process to finished goods
Transaction 6 – Selling finished goods

To record these transactions accountants generally use the following general ledger accounts:

1. *Cash*
2. *Accounts receivable*
3. *Raw materials inventory*
4. *Work-in-process inventory*
5. *Finished goods inventory*
6. *Accounts payable*
7. *Sales*
8. *Cost of goods sold*

Remember that debits increase and credits decrease assets, expenses, and losses. Further recall that credits increase and debits decrease liabilities, equity, revenues, and gains. Lastly, recall that debits and credits must be equal in every journal entry.

We will now examine a series of journal entries that a manufacturer would make. When it is appropriate and non-repetitive, we will analyze each transaction using the following four steps.

1. Determine if and when a transaction occurred, what accounts were affected, which account balances should increase, which should decrease, and by how much.
2. Determine which accounts we should debit and which we should credit.
3. Make the journal entry.
4. Review the entry to ensure it is in proper form and that the debits equal the credits.

Transaction 1: Purchased $95,000 of raw material on account on January 2, 20X6.

1. This transaction took place on January 2, 20X6. The transaction affects the raw materials inventory account and the accounts payable account. We should increase the balances of both accounts by $95,000.
2. Because raw materials inventory is an asset account we increase it with a debit. Accounts payable is a liability account so we increase it with a credit.
3. The general journal entry:

20X6			
Jan 2	*Raw Materials Inventory*	*95,000*	
	Accounts Payable		*95,000*
	To record the purchase of raw material.		

4. A final check of the entry reveals that we dated it correctly, made the debit part of the entry first, indented the credit account title, and the dollar amount of the debits equals that of the credits. The entry is fine.

Transaction 2: Transferred $70,000 of direct material to production on January 3, 20X6.

1. This transaction took place on January 3, 20X6. The transaction affects the work-in-process inventory and raw materials inventory accounts. We should increase the balance of the work-in-process inventory account by $70,000 and decrease the balance of the raw materials inventory account by the same amount.
2. Because work-in-process materials inventory is an asset account we increase it with a debit. Raw materials inventory is also an asset account so we decrease it with a credit.
3. The general journal entry:

20X6			
Jan. 3	*Work-In-Process Inventory*	*70,000*	
	Raw Material Inventory		*70,000*
	To record the transfer of direct material to production.		

4. A final check of the entry reveals the entry is fine.

Transaction 3: On January 31, paid $80,000 for direct labor cost incurred during January 20X6.

1. For this entry, we will use January 31, the date we paid the wages as the transaction date. Recall that direct labor cost becomes part of work-in-process inventory so the transaction affects the work-in-process inventory account and the cash account. We should increase the work-in-process inventory account by $80,000 and decrease the cash account by the same amount.
2. Because work-in-process materials inventory is an asset account we increase it with a debit. Cash is also an asset account so we decrease it with a credit.
3. The general journal entry:

20X6			
Jan. 31	*Work-In-Process Inventory*	*80,000*	
	Cash		*80,000*
	To record wages paid for direct labor in January.		

4. A final check of the entry reveals the entry is fine.

Transaction 4: Incurred various factory overhead costs totaling $110,000 during January 20X6. Assume that $10,000 of the overhead costs was paid in cash and the balance of $100,000 was on account.

To keep the example simple, we will record the manufacturing overhead directly in work-in-process inventory. As you will see in the next chapter, manufacturing overhead is generally allocated to production which necessitates using more complicated accounting procedures.

1. So that our example remains straightforward, we will make a single journal entry on January 31 for all of the manufacturing overhead costs incurred during the period. In practice, a manufacturing company would make an entry each time an overhead cost is incurred. Recall that manufacturing overhead costs become part of work-in-process inventory so the transaction affects the work-in-process inventory account. The transaction also affects the cash and accounts payable accounts. We should increase the balance in the work-in-process inventory account by $110,000, we should decrease the balance in the cash account for the $10,000 of manufacturing overhead costs paid for, and we should increase the balance of the accounts payable account by $100,000 for the manufacturing overhead purchased on account.
2. Because work-in-process materials inventory is an asset account we increase it with a debit. Cash is also an asset account so we decrease it with a credit. Accounts payable is a liability so we increase it with a credit.

3. The general journal entry:

20X6			
Jan. 31	*Work-In-Process Inventory*	*110,000*	
	Cash		*10,000*
	Accounts Payable		*100,000*
	To record manufacturing overhead for January.		

4. A final check of the entry reveals the entry is fine.

Transaction 5: On January 31, transferred goods costing $230,000 from work in process to finished goods

1. On January 31, goods costing $230,000 to manufacture were completed and transferred to finished goods inventory so the transaction took place on January 31, 20X6. The transaction affects the finished goods inventory and work-in-process inventory accounts. We should increase the balance of the finished goods inventory account by $230,000 and decrease the balance of the work-in-process inventory account by the same amount.
2. Because finished goods inventory is an asset account we increase it with a debit. Work-in-process inventory is also an asset account so we decrease it with a credit.
3. The general journal entry:

20X6			
Jan. 31	*Finished Goods Inventory*	*230,000*	
	Work-In-Process Inventory		*230,000*
	To transfer completed goods from production to finished goods.		

4. A final check of the entry reveals the entry is fine.

Transaction 6: On January 31, the company sold finished goods costing $210,000 to manufacture for a selling price of $300,000. The goods were sold on account.

1. This transaction took place on January 31. Generally, transactions for the sale of goods have two distinct parts. First, the transaction affects the accounts receivable and sales accounts, and we should increase the balances of both these accounts by $300,000. Second, the transaction also affects the cost of goods sold and finished goods inventory accounts because the company has delivered merchandise to the customer from its inventory. We should increase the balance of the cost of goods sold account by $210,000 and decrease the balance of the finished goods inventory account by the same amount.

2. Accounts receivable is an asset account so we increase it with a debit. Sales is a revenue account so we increase it with a credit. Cost of goods sold is an expense account so we increase it with a debit. Finished goods inventory is an asset account so we decrease it with a credit.
3. This transaction can be recorded either by making two separate entries or one compound entry. The two separate entries are:

20X6			
Jan. 31	*Accounts Receivable*	*300,000*	
	Sales		*300,000*
	To record sales on account.		

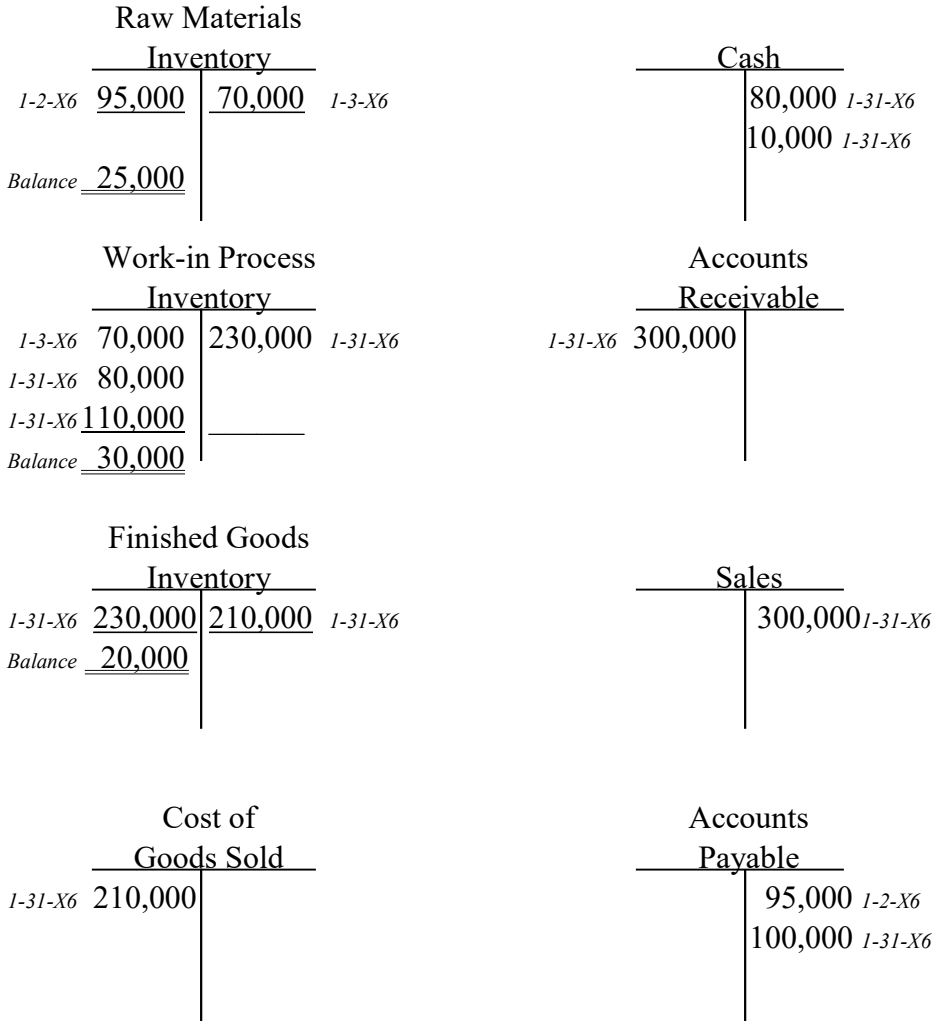
20X6			
Jan. 31	*Cost of Goods Sold*	*210,000*	
	Finished Goods		*210,000*
	To record the cost of goods sold		

Or, to accomplish the same changes to the account balances, we can make the following compound entry:

20X6			
Jan. 31	*Accounts Receivable*	*300,000*	
	Cost of Goods Sold	*210,000*	
	Sales		*300,000*
	Finished Goods Inventory		*210,000*
	To record sales on account and cost of goods sold.		

4. A final check of both sets of entries (two separate or one compound) reveals that the dollar amount of the debits equals that of the credits.

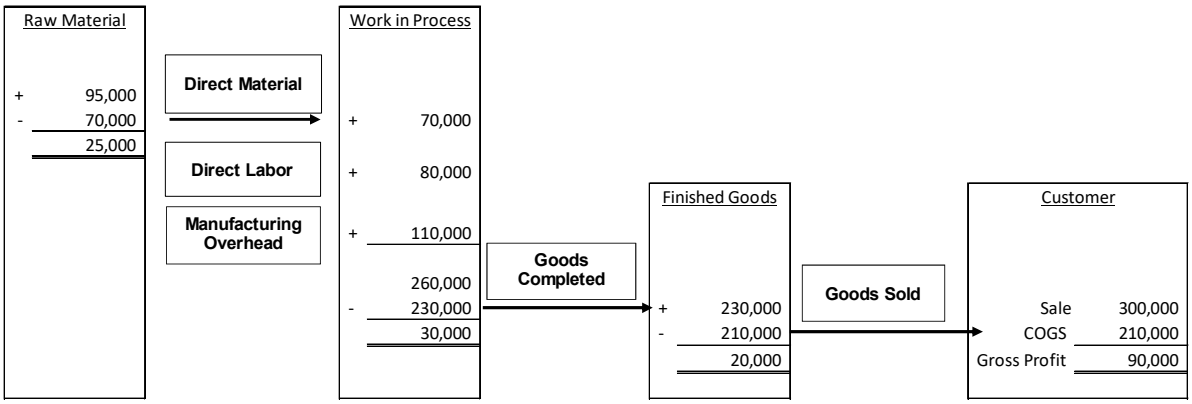
The following t-accounts depict balances after recording all of the entries including the $300,000 sale and the $210,000 cost of goods sold. We will assume no beginning balances in raw materials inventory, work-in-process inventory and finished goods inventory.



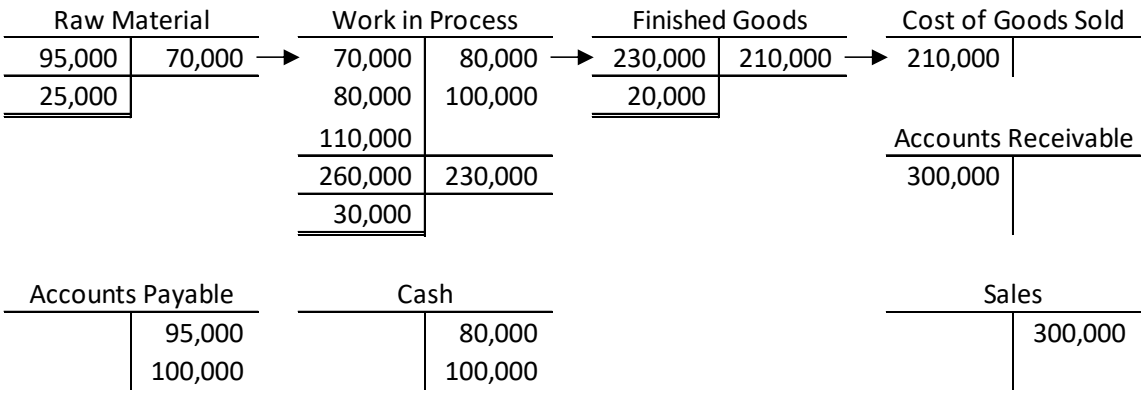
Recording basic manufacturing entries involves eight accounts: cash, accounts receivable, accounts payable, raw material inventory, work-in-process inventory, finished goods inventory, cost of goods sold, and sales. The basic flow through the accounts is depicted in Exhibit 2-12.

Exhibit 2-12. Basic Flow of Costs through Manufacturing Accounts

FLOW OF AMOUNTS THROUGH THE FACTORY



FLOW OF AMOUNTS THROUGH ACCOUNTING RECORDS



SUMMARY

Businesses incur many different costs as they operate in the modern business world. These costs can be classified in a variety of ways and managers must determine what cost classifications will be most helpful if they are to make effective planning and control decisions.

Costs can be accumulated by cost object, which is any activity or item for which we desire a separate cost measurement. Some of the costs associated with a cost object can be traced directly to that cost object. These are called direct costs. Other costs incurred to support multiple cost objects are known as indirect costs.

The classification of costs as either product cost or period cost is very important because it determines how costs are reported on a company's financial statements. Product cost is the sum of all costs required to make the products available and ready to sell. Product cost is reported as an asset (Inventory) on the balance sheet until the product is sold. When the product is sold, product cost is reported as an expense (cost of goods sold) on the income statement. Period costs are all costs a company incurs that are not classified as product cost. Period costs are divided into selling and administrative costs and are reported on the income statement as expenses.

There are significant differences in the way product cost is determined for merchandising companies and for manufacturing companies. For a merchandiser, product cost includes the cost of the merchandise itself and freight costs to obtain the merchandise. For a manufacturer, product cost includes the direct materials, direct labor, and manufacturing overhead required to produce finished units of product. Two other important cost classifications for manufacturing companies are prime cost, which is the combination of direct material cost and direct labor cost, and conversion cost, which is the combination of direct labor cost and manufacturing overhead cost.

Manufacturing companies have additional cost classification challenges because they have three distinct types of inventory: raw materials that have been purchased but have not yet entered the production process, work-in-process units that have begun the production process but are not yet complete, and units that have been completed and are ready for sale.

Cost of services performed for a service type business is similar in many ways to product cost for a manufacturer. It includes the cost of materials, labor, and overhead required to perform services.

We record the purchase of raw material with a debit to raw material inventory. We debit work-in-process inventory to record the transfer of direct material to production and the incurrence of direct labor and manufacturing overhead costs. When goods are completed, we credit work-in-process inventory and debit finished goods inventory for the amount of the cost of the goods manufactured. When the finished goods are sold, we make separate entries to reflect the sale and to reflect the decrease in finished goods inventory and the increase in cost of goods sold.

COMPANY INDEX AND KEY TERMS

COMPANY INDEX

KEY TERMS

REVIEW THE FACTS

A. What is a cost object?

B. What is the difference between a direct cost and an indirect cost?

C. What is product cost?

D. What is period cost?

E. Why is the cost of delivering merchandise to customers included in selling expense?

F. Why is the cost of storing inventory that is ready to sell included in selling expense?

G. What classification includes costs that are neither product costs nor costs directly associated with selling activities?

H. Why are product costs called inventoriable costs?

I. Describe the difference between the accounting treatment for product costs and period costs.

J. Describe the flow of inventory costs for a merchandising operation as goods are bought and then sold.

K. What are the inventory classifications for a manufacturing type firm?

L. What are the three main cost components included in product cost for a manufacturing type firm?

M. What is the difference between direct material and indirect material?

N. What is the difference between direct labor and indirect labor?

O. In which product cost classification would you most likely find indirect material and indirect labor?

P. What is included in prime cost?

Q. What is included in conversion cost?

R. With respect to the cost of goods sold section of an income statement, what is the similarity between purchases for a merchandising type company and cost of goods manufactured for a manufacturing type company?

S. What is included in the cost of services provided for a service type firm?

APPLY WHAT YOU HAVE LEARNED

LO 1: Distinguish between Direct and Indirect Costs

2-12. Brittany operates a small chain of five children's shoe stores called Baby Feet. She employs a store manager and two sales clerks for each store. In addition, she rents office space which houses her office, the personnel department, and the bookkeeping department for the chain.

Brittany has collected the following information regarding the stores and has asked you to determine which costs are direct and which are indirect costs.

REQUIRED:

For each of the following items, indicate which would describe a direct cost (D) for the store at the corner of Elm Street and Main and which would describe an indirect cost (I) for an individual store.

1 _____ Rent for the office space
2 _____ Rent for the store
3 _____ Brittany's salary
4 _____ The store manager's salary
5 _____ The company’s personnel manager's salary
6 _____ Bookkeeper's salary
7 _____ Maintenance cost for the store
8 _____ Depreciation on sales equipment
9 _____ Depreciation on bookkeeping computer
10 _____ Sales clerks' salaries
11 _____ Cost of shoes
12 _____ Advertising cost for the chain

LO 1: Distinguish between Direct and Indirect Costs

2-13. Sue Lee is the president of Baby Care. The company operates a chain of four child care centers in southern Florida. In addition to the four Baby Care locations, the company rents office space which is used by the company's bookkeeper and Sue Lee.

REQUIRED:

a. List four costs that would be considered direct costs for one of the four child care centers.
b. List four costs that would be considered indirect costs for one of the four child care centers.

LO 1: Distinguish between Direct and Indirect Costs

2-14. Blue Water Travel operates a chain of travel agent offices in the eastern United States. Blue Water Travel's home office is in New York. There are six sales offices and a district office located in Florida.

REQUIRED:

If the cost object is one of the sales offices in Florida, indicate which of the following would describe a direct cost (D) and which would describe an indirect cost (I).

1. _____ Rent for the Florida district office building

2. _____ Rent for the home office building in New York
3. _____ Rent for the sales office
4. _____ The company president's salary
5. _____ The salary of the vice president in charge of the Florida division
6. _____ The salary of a sales office manager
7. _____ The salary of a sales associate

LO 2: Types of Cost for a Manufacturer

2-15. Following are several representative costs incurred in a typical manufacturing company. For each of the costs, indicate in the space provided whether the cost is a direct material (DM), direct labor (DL), manufacturing overhead (MO), selling (S), or administrative (A) cost.

1. _____ Material incorporated into products
2. _____ Sales supplies
3. _____ Supplies used in the factory
4. _____ Wages of plant security guard
5. _____ Wages of security guard for the sales office
6. _____ Depreciation on a file cabinet used in the factory
7. _____ Depreciation on a file cabinet used in the general accounting office
8. _____ President's salary
9. _____ President's secretary's salary
10. _____ Manufacturing vice president's salary
11. _____ Salary of the manufacturing vice president's secretary
12. _____ Wages paid to production-line workers
13. _____ Factory rent
14. _____ Accounting office rent
15. _____ Depreciation on a copy machine used in the sales department
16. _____ Depreciation on a copy machine used to copy work orders in the factory
17. _____ Salary of plant supervisor

LO 2: Types of Cost for a Manufacturer

2-16. Following are several representative costs incurred in a typical manufacturing company. For each of the costs, indicate in the space provided whether the cost is a product cost (PR) or a period cost (PE).

1. _____ Material incorporated into products
2. _____ Sales supplies
3. _____ Supplies used in the factory
4. _____ Wages of plant security guard
5. _____ Wages of security guard for the sales office
6. _____ Depreciation on a file cabinet used in the factory
7. _____ Depreciation on a file cabinet used in the general accounting office
8. _____ President's salary
9. _____ President's secretary's salary
10. _____ Manufacturing vice president's salary

11. _____ Salary of the manufacturing vice president's secretary
12. _____ Wages paid to production-line workers
13. _____ Factory rent
14. _____ Accounting office rent
15. _____ Depreciation on a copy machine used in the sales department
16. _____ Depreciation on a copy machine used to copy work orders in the factory
17. _____ Salary of plant supervisor

LO 5: Calculate Costs for a Manufacturer, No Inventories

2-17. The following data pertain to the Anderson Table Manufacturing Company for January. The company made 1,000 tables during January, and there are no beginning or ending inventories.

Wood used in production	$25,000
Cleaning supplies used in the factory	300
Machine lubricants used in the factory	100
Factory rent	2,000
Rent on the sales office	3,000
Sales salaries	20,000
Production-line labor cost	50,000
Plant security guard cost	1,200
Plant supervision	2,500
Sales office supervision	3,000
Depreciation on production equipment	4,000
Depreciation on sales office equipment	1,000

REQUIRED:

a. What is the cost of direct material used in production during January?
b. What is the cost of direct labor for January?
c. What is the cost of manufacturing overhead for January?
d. What is the total cost of tables manufactured in January?
e. What is the cost of each table manufactured in January
f. Do you think the cost per table is valuable information for Carole Anderson, the company's owner? How might she use this information?

LO 5: Calculate Ending Inventory

2-18. Steinmann Window Company makes aluminum window units. At the beginning of November, the company's direct material inventory included 900 square feet of window glass. During November Steinmann purchased another 12,000 square feet of glass. Each completed window unit requires 9 square feet of glass. During November, 9,900 square feet of glass was transferred to the production line.

REQUIRED:

How many square feet of glass remain in the ending direct material inventory?

LO 4: Analyzing Inventory

2-19. Van Kirk Manufacturing Company has been in business for many years. Dottie Van Kirk, the company president, is concerned that the cost of raw material is skyrocketing. The production foreman assured Van Kirk that the use of direct material actually dropped in 20X6.

Van Kirk has engaged your services to provide insight into what she thinks may be a sizable problem. Not only does it seem that the cost of direct material is increasing, but it also seems that her production foreman is being less than honest with her.

The following information is available:

VAN KIRK MANUFACTURING COMPANY
Direct Materials Schedule
For the Year Ending December 31, 20X5

Beginning Direct Material Inventory	$ 25,000
Purchases during 20X5	435,000
Materials Available during 20X5	$460,000
Ending Direct Material Inventory	30,000
Direct Materials Used during 20X5	$430,000

VAN KIRK MANUFACTURING COMPANY
Direct Materials Schedule
For the Year Ending December 31, 20X6

Beginning Direct Material Inventory	$ 30,000
Purchases during 20X6	501,000
Materials Available during 20X6	$531,000
Ending Direct Material Inventory	103,000
Direct Materials Used during 20X6	$428,000

REQUIRED:
Examine the information presented and write a brief report to Dottie Van Kirk detailing your findings relative to her concerns.

LO 3: Analyze Costs of a Merchandiser

2-20. Ralph Brito opened Brito Auto Sales several years ago. Since then, the company has grown and sales have steadily increased. In the last year, however, income has declined despite successful efforts to increase sales. In addition, the company is forced to borrow more and more money from the bank to finance the operation.

The following information is available:

BRITO AUTO SALES
Income Statement
For the Year Ending December 31, 20X5

Sales		$758,000
Cost of Goods Sold		
Beginning Inventory	$ 66,000	

+ Cost of Goods Purchased	639,000	
= Goods Available for Sale	$705,000	
- Ending Inventory	85,000	
= Cost of Goods Sold	-	620,000
Gross Profit		$138,000
Operating Expense:		
Selling Expense	$ 55,000	
Administrative Expense	60,000	115,000
Operating Income		$ 23,000

BRITO AUTO SALES
Income Statement
For the Year Ending December 31, 20X6

Sales		$890,000
Cost of Goods Sold		
Beginning Inventory	$ 85,000	
+ Cost of Goods Purchased	799,000	
= Goods Available for Sale	$884,000	
- Ending Inventory	123,000	
= Cost of Goods Sold		761,000
Gross Profit		$129,000
Operating Expense:		
Selling Expense	$ 66,000	
Administrative Expense	60,000	126,000
Operating Income		$ 3,000

REQUIRED:
Assume that you are hired by Mr. Brito as a consultant. Review the Brito income statement and write a report to Mr. Brito that addresses his concerns.

LO 4: Calculate Ending Direct Material Inventory for a Manufacturer

2-21. Matheis Designs, Inc. manufactures swimming suits. At the beginning of October, the company had $1,450 worth of cloth on hand which was included in its direct material inventory. During October, Matheis purchased cloth costing $12,360 and used material costing $12,750 in production.

REQUIRED:
What is the cost of the ending direct material inventory of cloth for Matheis Designs, Inc.?

LO 4 & 7: Calculate Direct Material Used and Prepare Basic Journal Entries for a Manufacturer

2-22. The following information relates to the Penny Manufacturing Company.

Beginning direct material inventory	$ 540,000
Ending direct material inventory	$ 480,000
Direct material purchased	$4,680,000

REQUIRED:

a. Compute the cost of direct material used in production.
b. Prepare the journal entry to record the purchase of the direct material.
c. Prepare a journal entry dated January 31, to record the use of direct material in production.

LO 4 & 7: Calculate Direct Material Used and Prepare Basic Journal Entries for a Manufacturer

2-23. The following information relates to the Montoya Manufacturing Company.

Beginning direct material inventory	$ 40,000
Ending direct material inventory	$ 48,000
Direct material purchased	$437,000

REQUIRED:

a. Compute the cost of direct material used in production.
b. Prepare the journal entry to record the purchase of the direct material
c. Prepare a journal entry dated June 30, 20X6 to record the use of direct material used in production.

LO 4: Calculate the Cost of Supplies Used

2-24. The following information relates to Pons Maintenance Service.

Maintenance supplies at January 1, 20X6	$ 4,210
Maintenance supplies at December 31, 20X6	$ 3,840
Maintenance supplies purchased during 20X6	$27,530

REQUIRED:

What was the cost of maintenance supplies consumed by Pons Maintenance Service during 20X6?

LO 6: Calculate Cost of Materials Used by a Service Company

2-25. On January 1, 20X6, Bowden Auto Repair had $3,560 worth of auto parts on hand. During the year, Bowden purchased auto parts costing $286,000. At the end of 20X6, the company had parts on hand amounting to $4,260.

REQUIRED:

What was the cost of the auto parts used by Bowden Auto Repair during 20X6?

LO 3: Calculate the Cost of Goods Sold for a Merchandiser

2-26. On January 1, 20X6, the cost of merchandise on hand at Margaret's Fashions was $56,530. Purchases during the month amounted to $488,668 and the cost of merchandise on hand at the end of January was $52,849.

REQUIRED:

Determine January's cost of goods sold for Margaret's Fashions.

LO 5: Inventory and Production Costs for a Manufacturer

2-27. The following data pertain to the Hudik Manufacturing Company for the year ended December 31, 20X6. The company made 115,000 light fixtures during 20X6. There are no beginning or ending inventories.

Metal used in production	$750,000
Wire used in production	40,000
Factory supplies	5,200
Depreciation on the factory	48,000
Depreciation on the sales office	3,000
Sales salaries	90,000
Assembly-line labor cost	960,000
Factory security guard cost	8,200
Factory supervision	62,500
General accounting cost	43,000
Depreciation on production equipment	454,850
Depreciation on sales office equipment	9,200

REQUIRED:

a. What is the cost of direct material used during 20X6?
b. What is the cost of direct labor during 20X6?
c. What is the cost of manufacturing overhead during 20X6?
d. What is the total product cost for 20X6 production?
e. What is the cost per light fixture for 20X6?

LO 5: Inventory and Production Costs Including Cost of Goods Manufactured and Cost of Goods Sold, No Inventories

2-28. The following data pertain to the Elsea Manufacturing Company for the year ended December 31, 20X6. The company made 60,000 SW20 switching units during 20X6.

Beginning direct material inventory	$ 42,000
Ending direct material inventory	48,000
Beginning work-in-process inventory	84,000
Ending work-in-process inventory	93,000
Beginning finished goods inventory	124,000
Ending finished goods inventory	133,000
Direct material purchased	850,000
Indirect material used in production	4,000
Factory supplies	6,200
Depreciation on the factory	60,000
Depreciation on the sales office	4,000
Depreciation on the administrative office	3,000
Sales salaries	120,000
Assembly-line labor cost	820,000
Factory security guard cost	12,000

Factory supervision	82,600
Depreciation on production equipment	560,000
Depreciation on sales office equipment	22,200

REQUIRED:

a. What is the cost of direct material used during 20X6?
b. What is the cost of direct labor during 20X6?
c. What is the cost of manufacturing overhead for 20X6?
d. What is total manufacturing cost incurred during 20X6?
e. What is the cost of goods manufactured for 20X6?
f. What is the cost of goods sold for 20X6?

LO 5: Inventory and Production Costs Including Cost of Goods Manufactured and Cost of Goods Sold

2-29. The following data pertain to the Miami Manufacturing Company for the year ended December 31, 20X6.

Beginning finished goods inventory	$255,000
Ending finished goods inventory	270,000
Beginning direct material inventory	82,000
Ending direct material inventory	98,000
Beginning work-in-process inventory	164,000
Ending work-in-process inventory	184,000
Direct material purchased	1,740,000
Indirect material used in production	3,000
Factory supplies	12,500
Depreciation on the factory	134,000
Depreciation on the sales office	14,000
Depreciation on the administrative office	9,000
Sales salaries	350,000
Assembly-line labor cost	2,120,000
Factory security guard cost	22,000
Factory supervision	183,500
Depreciation on production equipment	1,340,000
Depreciation on administrative office equipment	52,200

REQUIRED:

a. What is the cost of direct material used during 20X6?
b. What is the cost of direct labor during 20X6?
c. What is the cost of manufacturing overhead for 20X6?
d. What is total manufacturing cost incurred during 20X6?
e. What is the cost of goods manufactured for 20X6?
f. What is the cost of goods sold for 20X6?

LO 5: Inventory and Production Costs Including Cost of Goods Manufactured and Cost of Goods Sold

2-30. The following data pertain to the Seth Levine Manufacturing Company for the year ended December 31, 20X6.

Beginning direct material inventory	$ 2,000
Ending direct material inventory	3,000
Beginning work-in-process inventory	4,000
Ending work-in-process inventory	5,000
Beginning finished goods inventory	9,500
Ending finished goods inventory	8,000
Direct material purchased	22,000
Factory supplies	12,500
Depreciation on the factory	34,000
Assembly-line labor cost	120,000
Depreciation on production equipment	42,000
Other indirect factory costs	12,000

REQUIRED:

a. What is the cost of direct material used during 20X6?
b. What is the cost of direct labor during 20X6?
c. What is the cost of manufacturing overhead for 20X6?
d. What is total manufacturing cost incurred during 20X6?
e. What is the cost of goods manufactured for 20X6?
f. What is the cost of goods sold for 20X6?

LO 5: Inventory and Production Costs Including Cost of Goods Manufactured and Cost of Goods Sold

2-31. The following data pertain to the Sexton Manufacturing Company for the year ended December 31, 20X6.

Beginning direct material inventory	$22,000
Ending direct material inventory	28,000
Beginning finished goods inventory	30,000
Ending finished goods inventory	28,000
Beginning work-in-process inventory	16,000
Ending work-in-process inventory	15,000
Direct material purchased	280,000
Production worker labor cost	290,000
Depreciation on production equipment	80,000
Factory rent	24,000
Other indirect factory costs	36,000

REQUIRED:

a. What is the cost of direct material used during 20X6?
b. What is the cost of direct labor during 20X6?
c. What is the cost of manufacturing overhead for 20X6?
d. What is total manufacturing cost incurred during 20X6?

e. What is the cost of goods manufactured for 20X6?
f. What is the cost of goods sold for 20X6?

LO 5: Preparation of Cost of Goods Manufactured and Cost of Goods Sold Schedules

2-32. The following data pertain to the Adler Manufacturing Company for the year ended December 31, 20X6.

Beginning direct material inventory	$ 12,000
Ending direct material inventory	13,000
Beginning work-in-process inventory	24,000
Ending work-in-process inventory	25,000
Beginning finished goods inventory	29,500
Ending finished goods inventory	28,000
Direct material purchased	122,000
Factory utilities	2,500
Rent on the factory	64,000
Assembly worker labor cost	86,000
Depreciation on production equipment	92,000
Other indirect factory costs	22,000

REQUIRED:
a. Prepare a cost of goods manufactured schedule for 20X6.
b. Prepare a cost of goods sold schedule for 20X6.

LO 5: Preparation of Cost of Goods Manufactured and Cost of Goods Sold Schedules

2-33. The following data pertain to the Clifford Manufacturing Company for the year ended December 31, 20X6.

Beginning direct material inventory	$2,300
Ending direct material inventory	3,400
Beginning work-in-process inventory	5,500
Ending work-in-process inventory	4,100
Beginning finished goods inventory	6,500
Ending finished goods inventory	5,100
Direct material purchased	12,300
Factory supplies used	500
Depreciation on the factory	22,000
Assembly-line labor cost	48,600
Depreciation on production equipment	12,000
Other indirect factory costs	4,700

REQUIRED:
a. Prepare a cost of goods manufactured schedule for 20X6.
b. Prepare a cost of goods sold schedule for 20X6.

LO 5: Preparation of Cost of Goods Manufactured Schedule, Cost of Goods Sold Schedule, and Multiple-step Income Statement

2-34. The following data pertain to the Zhang Manufacturing Company for the year ended December 31, 20X6.

Sales	$1,267,000
Beginning direct material inventory	40,000
Ending direct material inventory	50,000
Beginning work-in-process inventory	70,000
Ending work-in-process inventory	60,000
Beginning finished goods inventory	90,000
Ending finished goods inventory	80,000
Direct material purchased	350,000
Indirect material used in production	24,000
Factory supplies used	6,000
Depreciation on the factory	90,000
Depreciation on the sales office	24,000
Depreciation on the administrative office	36,000
Sales salaries	110,000
Assembly-line labor cost	220,000
Factory security guard cost	22,000
Factory supervision	42,000
Depreciation on production equipment	160,000
Depreciation on general accounting office equipment	16,000

REQUIRED:

a. Prepare a cost of goods manufactured schedule for 20X6.
b. Prepare a cost of goods sold schedule for 20X6.
c. Prepare a multiple-step income statement for 20X6.

LO 5: Preparation of Cost of Goods Manufactured Schedule, Cost of Goods Sold Schedule, and Multiple-step Income Statement

2-35. The following data pertain to the Quintana Manufacturing Company for the year ended December 31, 20X6.

Sales	$1,302,000
Beginning finished goods inventory	93,000
Ending finished goods inventory	86,000
Beginning direct material inventory	45,000
Ending direct material inventory	56,000
Beginning work-in-process inventory	72,000
Ending work-in-process inventory	77,000
Direct material purchased	370,000
Indirect material used in production	34,000
Depreciation on production equipment	145,000
Depreciation on sales office equipment	19,000

Factory supplies used	8,000
Depreciation on the factory	96,000
Depreciation on the sales office	34,000
Depreciation on the administrative office	30,000
Sales salaries	122,000
Assembly-line labor cost	240,000
Factory security guard cost	32,000
Factory supervision	48,000

REQUIRED:

a. Prepare a cost of goods manufactured schedule for 20X6.
b. Prepare a cost of goods sold schedule for 20X6.
c. Prepare a multiple-step income statement for 20X6.

LO 5: Preparation of Cost of Goods Manufactured Schedule, Cost of Goods Sold Schedule, and Multiple-step Income Statement

2-36. The following data pertain to the Rodriguez Manufacturing Company for the year ended December 31, 20X6.

Sales	$1,124,000
Beginning direct material inventory	55,000
Ending direct material inventory	56,000
Beginning finished goods inventory	83,000
Ending finished goods inventory	96,000
Beginning work-in-process inventory	62,000
Ending work-in-process inventory	67,000
Direct material purchased	290,000
Direct labor cost	220,000
Manufacturing overhead	286,000
Selling expense	122,000
Administrative expense	140,000

REQUIRED:

a. Prepare a cost of goods manufactured schedule for 20X6.
b. Prepare a cost of goods sold schedule for 20X6.
c. Prepare a multiple-step income statement for 20X6.

LO 5: Preparation of Cost of Goods Manufactured Schedule, Cost of Goods Sold Schedule, and Multiple-step Income Statement

2-37. The following data pertain to the Avener Manufacturing Company for the year ended December 31, 20X6.

Sales	$333,000
Beginning direct material inventory	5,000
Ending direct material inventory	4,000
Beginning work-in-process inventory	6,000

Ending work-in-process inventory	7,000
Beginning finished goods inventory	8,000
Ending finished goods inventory	10,000
Direct material purchased	56,000
Direct labor cost	96,000
Manufacturing overhead	86,000
Selling expense	46,000
Administrative expense	34,000

REQUIRED:

a. Prepare a cost of goods manufactured schedule for 20X6.
b. Prepare a cost of goods sold schedule for 20X6.
c. Prepare a multiple-step income statement for 20X6.

LO 5 & 7: Prepare the Cost of Goods Manufactured Schedule and Prepare Basic Journal Entries for a Manufacturer

2-38. The following information is for Megan Hat Manufacturing Company.

Inventory information:

	January 1, 20X6	December 31, 20X6
Raw materials inventory	$ 9,000	$11,000
Work-in-process inventory	22,000	18,000
Finished goods inventory	42,000	38,000

Other information:

Direct materials purchases	$120,000
Direct labor cost	250,000
Manufacturing overhead	140,000

REQUIRED:

a. What is the cost of direct material used in production?
b. Prepare a cost of goods manufactured schedule in good form.
c. Prepare a cost of goods sold schedule.
d. Prepare journal entries to record the following:
    1. The purchase of direct material assuming it was purchased on account
    2. The use of direct material in production
    3. Direct labor cost
    4. Manufacturing overhead cost (Use "various accounts" for the credit side of the entry.)
    5. The cost of goods manufactured
    6. The sale of finished goods assuming the sale price was $600,000 and the sale was on account.

LO 5 & 7: Prepare the Cost of Goods Manufactured Schedule and Prepare Basic Journal Entries for a Manufacturer

2-39. The following information is for Friedman Shelving Manufacturing Company.

Inventory information:

	January 1, 20X6	December 31, 20X6
Raw materials inventory	$22,000	$24,000
Work-in-process inventory	42,000	43,000
Finished goods inventory	82,000	78,000

Other information:

Direct materials purchases	$280,000
Direct labor cost	540,000
Manufacturing overhead	240,000

REQUIRED:

a. What is the cost of direct material used in production?
b. Prepare a cost of goods manufactured schedule in good form.
c. Prepare a cost of goods sold schedule.
d. Prepare journal entries to record the following:
    1. The purchase of direct material assuming it was purchased on account
    2. The use of direct material in production
    3. Direct labor cost
    4. Manufacturing overhead cost (Use "various accounts" for the credit side of the entry.)
    5. The cost of goods manufactured
    6. The sale of finished goods assuming the sale price was $1,400,000 on account

LO 5 & 7: Preparation of Cost of Goods Manufactured Schedule and Prepare Basic Journal Entries for a Manufacturer

2-40. The following information is for Tatum Manufacturing Company.

Inventory information:

	January 1, 20X6	December 31, 20X6
Raw materials inventory	$2,000	$4,000
Work-in-process inventory	4,000	3,000
Finished goods inventory	8,000	6,000

Other information:

Direct materials purchases	$8,000
Direct labor cost	12,000
Manufacturing overhead	9,000

REQUIRED:

a. Prepare a cost of goods manufactured schedule in good form.
b. Prepare journal entries to record the following:
    1. The purchase of direct material on account
    2. The use of direct material in production
    3. Direct labor cost
    4. Manufacturing overhead cost (Use "various accounts" for the credit side of the entry.)
    5. The cost of goods manufactured
    6. The sale of finished goods assuming the sale price was $40,000 and it was a cash sale

LO 5 & 7: Preparation of Cost of Goods Manufactured Schedule and Prepare Basic Journal Entries for a Manufacturer

2-41. The following information is for Munter Manufacturing Company.

Inventory information:

	January 1, 20X6	December 31, 20X6
Raw materials inventory	$6,000	$5,000
Work-in-process inventory	3,000	4,000
Finished goods inventory	7,000	9,000

Other information:

Direct materials purchases	$9,000
Direct labor cost	10,000
Manufacturing overhead	11,000

REQUIRED:

a. Prepare a cost of goods manufactured schedule in good form.
b. Prepare journal entries to record the following:
   1. The purchase of direct material on account
   2. The use of direct material in production
   3. Direct labor cost
   4. Manufacturing overhead cost (Use "various accounts" for the credit side of the entry.)
   5. The cost of goods manufactured
   6. The sale of finished goods assuming the sale price was $39,000 on account

LO 5: Preparation of Cost of Goods Manufactured Schedule and Multiple-step Income Statement

2-42. The following information is for Collins Manufacturing Company.

Inventory information:

	January 1, 20X6	December 31, 20X6
Raw materials inventory	$16,000	$14,000
Work-in-process inventory	23,000	25,000
Finished goods inventory	33,000	36,000

Other information:

Sales	$760,000
Direct materials purchases	159,000
Direct labor cost	110,000
Manufacturing overhead	221,000
Selling expense	62,000
Administrative expense	47,000

REQUIRED:

a. Prepare a cost of goods manufactured schedule in good form.
b. Prepare a multiple-step income statement in good form.

LO 5: Preparation of Cost of Goods Manufactured Schedule and Multiple-step Income Statement
2-43. The following information is for Richard Manufacturing Company.

Inventory information:

	January 1, 20X6	December 31, 20X6
Raw materials inventory	$14,000	$16,000
Work-in-process inventory	25,000	28,000
Finished goods inventory	32,000	36,000

Other information:

Sales	$790,000
Direct materials purchases	162,000
Direct labor cost	140,000
Manufacturing overhead	234,000
Selling expense	72,000
Administrative expense	57,000

REQUIRED:
a. Prepare a cost of goods manufactured schedule in good form.
b. Prepare a multiple-step income statement in good form.

LO 3: Preparation of a Multiple-step Income Statement for a Merchandiser
2-44. Bonnie's Pet Cage Company has the following information for 20X6:

Sales	$300,000
Cost of goods manufactured	200,000
Selling expense	30,000
Administrative expense	25,000
Beginning finished goods inventory	21,000
Ending finished goods inventory	28,000

REQUIRED:
Prepare a multiple-step income statement for Bonnie's Pet Cage Company for 20X6.

LO 3: Preparation of a Multiple-step Income Statement for a Manufacturer
2-45. Albert's Manufacturing Company has the following information for 20X6:

Beginning finished goods inventory	$ 41,000
Ending finished goods inventory	58,000
Sales	600,000
Cost of goods manufactured	400,000
Selling expense	90,000
Administrative expense	60,000

REQUIRED:

Prepare a multiple-step income statement for Albert's Manufacturing Company for 20X6.

LO 5: Preparation of cost of a Multiple-step Income Statement for a Merchandiser

2-46. Phillips Merchandising Company has the following information for 20X6:

Sales	$400,000
Cost of merchandise purchased	300,000
Selling expense	30,000
Administrative expense	20,000
Beginning merchandise inventory	40,000
Ending merchandise inventory	50,000

REQUIRED:
Prepare a multiple-step income statement for Phillips Merchandising Company for 20X6.

LO 5: Preparation of Cost of a Multiple-step Income Statement for a Merchandiser

2-47. Robinson Merchandising Company has the following information for 20X6:

Beginning merchandise inventory	$ 60,000
Ending merchandise inventory	50,000
Sales	840,000
Cost of merchandise purchased	630,000
Selling expense	90,000
Administrative expense	40,000

REQUIRED:
Prepare a multiple-step income statement for Robinson Merchandising Company for 20X6.

LO 6: Determine the Cost of Services Provided and Preparation of a Single-Step Income Statement for a Service Company

2-48. Butterfield's Bookkeeping Service began operations on January 1, 20X6. The following information is taken from its accounting records as of December 31, 20X6.

Bookkeeping service revenue	$80,000
Bookkeeping salaries	42,000
Bookkeeping office rent	12,000
Depreciation on bookkeeping equipment	2,000
Bookkeeping supplies used	700
Advertising	800

REQUIRED:

a. What is the cost of services provided?
b. Prepare a single-step income statement for Butterfield's Bookkeeping Service for 20X6.

LO 6: Determine the Cost of Services Provided and Preparation of a Single-Step Income Statement for a Service Company

2-49. Tony's Film Delivery Service began operations on January 1, 20X6. The following information is taken from its accounting records as of December 31, 20X6.

Delivery revenue	$40,000
Driver wages	22,000
Depreciation on truck	4,000
Fuel cost	2,700
Advertising	800
Bookkeeping cost	240

REQUIRED:
a. What is the cost of services provided?
b. Prepare a single-step income statement for Tony's Film Delivery Service.

LO 3: Preparation of a Multiple-step Income Statement for a Merchandiser
2-50. Cam's Swimsuit Shop provided the following information for 20X6.

Merchandise inventory, January 1. 20X6	$16,000
Merchandise inventory, December 31, 20X6	19,000
Sales 190,000 Advertising	1,200
Store rent	2,400
Purchases of merchandise	82,000
Sales salaries	22,000
Store utilities	3,600
Sales supplies used during 20X6	1,000
Sales supplies on hand, December 31, 20X6	500
Administrative office rent	800
Administrative salaries	18,000

REQUIRED:
Prepare a multiple-step income statement for Cam's Swimsuit Shop for 20X6.

LO 3: Preparation of a Multiple-step Income Statement for a Merchandiser
2-51. Leroy's Auto Parts provided the following information for 20X6.

Merchandise inventory, January 1, 20X6	$19,000
Merchandise inventory, December 31, 20X6	21,000
Sales 280,000 Advertising	2,200
Depreciation on the store	18,000
Purchases of merchandise	182,000
Sales salaries	21,000
Store utilities	1,200
Depreciation on administrative office building	4,000
Administrative salaries	15,000
Administrative office utilities	600

REQUIRED:
Prepare a multiple-step income statement for Leroy's Auto Parts for 20X6.

LO 6: Preparation of a Single-Step Income Statement for a Service Company
2-52. Dan's Security Service provided the following information for 20X6.

Security revenue	$480,000
Advertising	12,000
Depreciation on the home office building	12,000
Security guard wages	362,000
Administrative salaries	21,000
Sales salaries	24,000
Utilities	1,200

REQUIRED:
Prepare a single-step income statement for Dan's Security Service for 20X6.

LO 3: Preparation of a Multiple-step Income Statement for a Merchandiser
2-53. Margaret's Flower Shop provided the following information for 20X6.

Merchandise inventory, January 1, 20X6	$1,000
Merchandise inventory, December 31, 20X6	1,200
Sales 42,400 Advertising	3,200
Store rent	1,200
Purchases of merchandise	18,000
Sales salaries	21,000
Utilities	1,300
Sales supplies used during 20X6	9,000
Sales supplies on hand, December 31, 20X6	300

REQUIRED:
Prepare a multiple-step income statement for Margaret's Flower Shop for 20X6.

LO 2, 3, & 4: Understanding Cost of Goods Sold
2-54. The management of Diversified Incorporated is concerned that few of its employees understand cost of goods sold. The company president has decided that a series of presentations will be made focusing on cost of goods sold.

Assume that the company has formed two teams, Team A and Team B. You and several of your classmates have been assigned to Team B.

Team A is given the responsibility of preparing a presentation detailing the cost of goods sold pertaining to a subsidiary that operates a chain of hardware stores. Team B, your team, has been given the responsibility of preparing a presentation detailing the cost of goods sold of a subsidiary that manufactures electronic calculators.

In short order, Team A has completed its assignment and is ready to make its presentation. Your team, however, is still working. Company executives question why Team A is so far ahead of your team's progress.

REQUIRED:
Working as a group, develop a response to the concerns relating to your teams slow progress. Explain why Team A could complete their assignment so quickly and why your team will have to work longer.

LO 6: Understanding Service Company Costs

2-55. Assume that you are the manager of an accounting practice. You are concerned about billing your clients so that the company covers all costs and makes a reasonable profit.

REQUIRED:
a. What information might you desire to help develop a method of billing clients?
b. How would you use the information to ensure that costs are covered and profits result?

LO 1, 2, & 4: Understanding Inventory Cost Classifications

2-56. The inventory of a manufacturer is typically grouped into one of three classifications-raw material inventory, work-in-process inventory, and finished goods inventory.

REQUIRED:
Discuss why it provides more useful information to use three classifications of inventory rather than one for a manufacturer.

LO 1, 2, & 4: Understanding Inventory Costs

2-57. Assume that you work for the Acme Wire Manufacturing Company. Some employees in the company are unsure of which costs should be included in inventories and which costs should not. There is also some confusion regarding the logic of including some items while excluding others.

You have been assigned to a group that is responsible for making a presentation on which of Acme's costs would properly be classified as inventory costs and which would not.

REQUIRED:
Prepare a presentation describing the type of items that would be included in inventories and those that would not. Comment on the logic of including some cost items in inventory while excluding others.

LO 1, 2, & 3: General Inventory and Cost Analysis

2-58. One year ago, Herb Smith quit his job at Adcox Medical where he earned $28,000 a year as a health care technician to start the Super CD Store. He invested almost his entire life's savings in the venture and is now concerned. He notes that, when his money was in the bank, he earned about 4% interest. Now, when he compares his company profits to the amount invested in the store, the profits seem lower than what he could have earned if he had simply left the money in the bank. The following information is available for the company's first year of business:

Annual sales	$600,000

Cost of goods sold	450,000
Selling expense	90,000
Administrative expense	50,000
Inventory	300,000
Other assets	30,000
Total liabilities	50,000

The administrative expense includes $30,000 received by Herb in the form of salary. Herb's friend Bill has suggested that a simple $5,000 computer might help with company record keeping and ordering inventory.

Herb has indicated that he does not mind the added work or ordering the merchandise without a computer. In fact, when it comes to ordering product, he seems quite proud of the job he is doing as he almost always has the CDs his customers want. Herb has engaged your services as a consultant to determine whether his feelings are correct about the low earnings of the company and to suggest some possibilities to improve the situation. Also, Herb would like some input regarding the computer.

REQUIRED:
Prepare a report for Herb addressing each of his concerns.

LO 1, 2, & 3: General Inventory and Cost Analysis

2-59. Alberto Manufacturing Company has been in business for many years. Toward the end of 20X6, management began to notice that the company had to rely more and more on borrowing to support the cash flow needs of the operation. Although sales increased in 20X6, profits declined and the cash flow problem worsened. The company president is very concerned that the cash shortfall is caused by mismanagement of the daily operation of the factory. Managers argue that the company's operations are quite satisfactory. They cite that expenses have increased only slightly as sales have risen, and that production levels have been dictated by customer demand.

The president has hired your team of consultants to review the situation and comment on the possible problems that exist. The following information is available for last year 20X6 and the year before 20X5.

ALBERTO MANUFACTURING COMPANY
Schedule of Cost of Goods Manufactured
For the Year Ending December 31, 20X5

Direct Materials:		
Beginning Direct Material Inventory	$ 15,000	
Purchases	420,000	
Materials Available	$435,000	
Ending Direct Material Inventory	45,000	
Direct Materials Used		$ 390,000
Direct Labor		225,000
Total Manufacturing Overhead Cost		415,000
Manufacturing Cost for Current Period		$1,030,000

Beginning Work-in-Process Inventory	40,000
Cost of Goods Available to be Finished	$1,070,000
Ending Work-in-Process Inventory	82,000
Cost of Goods Manufactured	$ 988,000

ALBERTO MANUFACTURING COMPANY
Income Statement
For the Year Ending December 31, 20X6

Sales		$1,758,000
Cost of Goods Sold		
Beginning Finished Goods Inventory	$ 65,000	
Cost of Goods Manufactured	988,000	
Goods Available for Sale	$1,053,000	
Ending Finished Goods Inventory	75,000	
Cost of Goods Sold		978,000
Gross Profit		$ 780,000
Operating Expense:		
Selling Expense	$ 355,000	
Administrative Expense	190,000	545,000
Operating Income		$ 235,000

ALBERTO MANUFACTURING COMPANY
Schedule of Cost of Goods Manufactured
For the Year Ending December 31, 20X6

Direct Materials:		
Beginning Direct Material Inventory	$ 45,000	
Purchases	457,000	
Materials Available	$502,000	
Ending Direct Material Inventory	73,000	
Direct Materials Used		$ 429,000
Direct Labor		263,000
Total Manufacturing Overhead Cost		450,000
Manufacturing Cost for Current Period		$1,142,000
Beginning Work-in-Process Inventory		82,000
Cost of Goods Available to be Finished		$1,224,000
Ending Work-in-Process Inventory		154,000
Cost of Goods Manufactured		$1,070,000

ALBERTO MANUFACTURING COMPANY
Income Statement
For the Year Ending December 31, 20X6

Sales	$1,772,000
Cost of Goods Sold	

Beginning Finished Goods Inventory	$ 75,000	
Cost of Goods Manufactured	1,070,000	
Goods Available for Sale	$1,143,000	
Ending Finished Goods Inventory	93,000	
Cost of Goods Sold		$1,052,000
Gross Profit		720,000
Operating Expense:		
Selling Expense	$ 365,000	
Administrative Expense	228,000	593,000
Operating Income		$ 127,000

REQUIRED:
Your team should review the provided information and comment on problems that exist. It may help to segment the statements into sections and assign group members to a particular area. For example, a group member might be assigned to review the purchase and use of direct material, another member might be assigned the direct labor and manufacturing overhead areas, and so forth. Each group member should comment on his or her assigned area as it pertains to cash flow and income.

Glossary (in order of appearance in text):

cost The resources forfeited to receive some goods or services.

cost object Any activity or item for which a separate cost measurement is desired.

direct cost A cost that can be easily traced to an individual cost object.

indirect cost A cost that supports more than one cost object.

common cost Another name for indirect cost.

product cost The cost of the various products a company sells.

inventoriable cost Another name for product cost.

prime cost The combined total of direct material cost and direct labor cost.

conversion cost The combined total of direct labor cost and manufacturing overhead cost.

period cost All costs incurred by a company that are not considered product cost. Includes selling and administrative cost.

selling cost The cost of locating customers, attracting customers, convincing customers to buy, and the cost of necessary paperwork to document and record sales.

administrative cost All costs incurred by a company that are not product costs or selling costs. Includes the cost of accounting, finance, employee relations, and executive functions.

direct materials cost The cost of all raw materials that can be traced directly to a unit of manufactured product.

direct labor cost The cost of all production labor that can be traced directly to a unit of manufactured product.

manufacturing overhead cost All costs associated with the operation of the manufacturing facility besides direct materials cost and direct labor cost. It is composed entirely of indirect manufacturing cost incurred to support multiple cost objects.

raw materials inventory Materials that have been purchased but have not yet entered the production process.

material stores Another name for raw materials inventory

work-in-process inventory Products that have entered the production process but have not yet been completed.

finished goods inventory Products that have been completed and are ready to sell.

direct material The raw material that becomes a part of the final product and can be easily traced to the units produced.

direct labor hours The time spent by production workers as they transform raw materials into units of finished products.

manufacturing overhead All activities involved in the manufacture of products besides direct materials or direct labor.

factory overhead Another name for manufacturing overhead cost.

factory burden Another name for manufacturing overhead cost.

overhead In a manufacturing company, another name for manufacturing overhead cost; in a service type business, the indirect service cost.

indirect materials Materials consumed in support of multiple cost objects.

indirect labor The labor incurred in support of multiple cost objects

hybrid firms Companies that generate revenue from both providing services and selling products.

Glossary (in alphabetical order):

administrative cost All costs incurred by a company that are not product costs or selling costs. Includes the cost of accounting, finance, employee relations, and executive functions.

common cost Another name for indirect cost.

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work-in-process inventory Products that have entered the production process but have not yet been completed.