Chapter 6

Inventories

STUDY OBJECTIVES

After studying this chapter, you should be able to:

1. Describe the steps in determining inventory quantities.
2. Explain the accounting for inventories and apply the inventory cost flow methods.
3. Explain the financial effects of the inventory cost flow assumptions.
4. Explain the lower-of-cost-or-market basis of accounting for inventories.
5. Indicate the effects of inventory errors on the financial statements.
6. Compute and interpret the inventory turnover ratio.

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- Scan **Study Objectives**
- Read **Feature Story**
- Read **Preview**
- Read text and answer DO IT! p. 253 p. 259 p. 265 p. 267
- Work **Comprehensive** DO IT! p. 269
- Review **Summary of Study Objectives**
- Answer **Self-Study Questions**
- Complete **Assignments**

Feature Story

"WHERE IS THAT SPARE BULLDOZER BLADE?"

Let's talk inventory—big, bulldozer-size inventory. Caterpillar Inc. (*www.cat.com*) is the world's largest manufacturer of construction and mining equipment, diesel and natural gas engines, and industrial gas turbines. It sells its products in over 200 countries, making it one of the most successful U.S. exporters. More than 70% of its productive assets are located domestically, and nearly 50% of its sales are foreign.

During the 1980s Caterpillar's profitability suffered, but today it is very successful. A big part of this turnaround can be attributed to effective management of its inventory. In 2007 one of Caterpillar's biggest trucks was selling for $2.5 million. Now imagine what it costs Caterpillar to have too many bulldozers sitting around in inventory—a situation the company definitely wants to avoid. Conversely, Caterpillar must make sure it has enough inventory to meet demand.

During a recent 7-year period, Caterpillar's sales increased by 100%, while its inventory increased by only 50%. To achieve this dramatic reduction in the amount of resources tied up in inventory, while continuing to meet customers' needs, Caterpillar used a two-pronged approach. First, it completed a factory modernization program, which dramatically increased its production efficiency. The program reduced by 60% the amount of inventory the company processed at any one time. It also reduced by an incredible 75% the time it takes to manufacture a part.

Second, Caterpillar dramatically improved its parts distribution system. It ships more than 100,000 items daily from its 23 distribution centers strategically located around the world (10 *million* square feet of warehouse space—remember, we're talking bulldozers). The company can virtually guarantee that it can get any part to anywhere in the world within 24 hours.

In 2006 Caterpillar had record exports, profits, and revenues. It would seem that things couldn't be better. But industry analysts, as well as the company's managers, thought otherwise. In order to maintain Caterpillar's position as the industry leader, management began another major overhaul of inventory production and inventory management processes. The goal: Within four years the company wants to have cut the number of repairs in half, increased productivity by 20%, and increased inventory turnover by 40%.

In short, Caterpillar's ability to manage its inventory has been a key reason for its past success, and inventory management will very likely play a huge part in its ability to succeed in the future.

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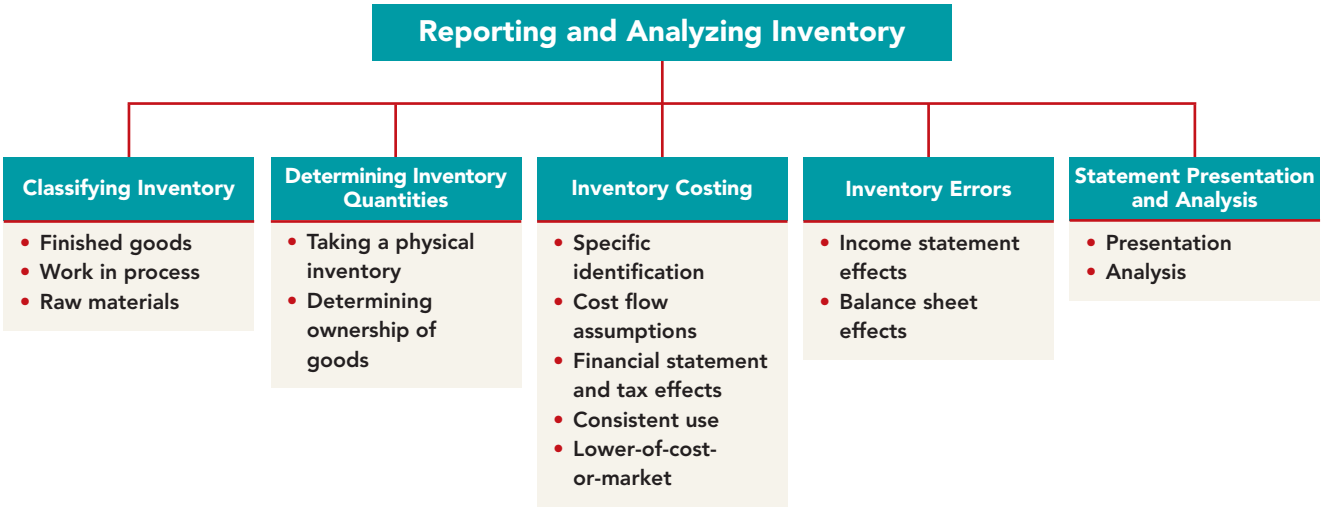
Inside Chapter 6...

Preview of Chapter 6

In the previous chapter, we discussed the accounting for merchandise inventory using a perpetual inventory system. In this chapter, we explain the methods used to calculate the cost of inventory on hand at the balance sheet date and the cost of goods sold.

The content and organization of this chapter are as follows.



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CLASSIFYING INVENTORY

How a company classifies its inventory depends on whether the firm is a merchandiser or a manufacturer. In a *merchandising* company, such as those described in Chapter 5, inventory consists of many different items. For example, in a grocery store, canned goods, dairy products, meats, and produce are just a few of the inventory items on hand. These items have two common characteristics: (1) They are owned by the company, and (2) they are in a form ready for sale to customers in the ordinary course of business. Thus, merchandisers need only one inventory classification, **merchandise inventory**, to describe the many different items that make up the total inventory.

In a *manufacturing* company, some inventory may not yet be ready for sale. As a result, manufacturers usually classify inventory into three categories: finished goods, work in process, and raw materials. **Finished goods inventory** is manufactured items that are completed and ready for sale. **Work in process** is that portion of manufactured inventory that has been placed into the production process but is not yet complete. **Raw materials** are the basic goods that will be used in production but have not yet been placed into production.

HELPFUL HINT

Regardless of the classification, companies report all inventories under Current Assets on the balance sheet.

For example, Caterpillar classifies earth-moving tractors completed and ready for sale as **finished goods**. It classifies the tractors on the assembly line in various stages of production as **work in process**. The steel, glass, tires, and other components that are on hand waiting to be used in the production of tractors are identified as **raw materials**.

By observing the levels and changes in the levels of these three inventory types, financial statement users can gain insight into management's production plans. For example, low levels of raw materials and high levels of finished goods suggest that management believes it has enough inventory on hand, and production will be slowing down—perhaps in anticipation of a recession. On the other hand, high levels of raw materials and low levels of finished goods probably indicate that management is planning to step up production.

Many companies have significantly lowered inventory levels and costs using **just-in-time (JIT) inventory** methods. Under a just-in-time method, companies manufacture or purchase goods just in time for use. Dell is famous for having developed a system for making computers in response to individual customer requests. Even though it makes each computer to meet each customer's particular specifications, Dell is able to assemble the computer and put it on a truck in less than 48 hours. By integrating its information systems with those of its suppliers, Dell reduced its inventories to nearly zero. This is a huge advantage in an industry where products become obsolete nearly overnight.

The accounting concepts discussed in this chapter apply to the inventory classifications of both merchandising and manufacturing companies. Our focus here is on merchandise inventory.

ACCOUNTING ACROSS THE ORGANIZATION

How Wal-Mart Tracks Inventory

Wal-Mart improved its inventory control with the introduction of electronic product codes using radio frequency identification (RFID) technology. Much like bar codes, which tell a retailer the number of boxes of a specific product it has, RFID goes a step farther, helping to distinguish one box of a specific product from another.

Companies currently use RFID to track shipments from supplier to distribution center to store. Other potential uses include help with monitoring product expiration dates and acting quickly on product recalls. Wal-Mart also anticipates faster returns and warranty processing using RFID. This technology will further assist Wal-Mart managers in their efforts to ensure that their stores have just the right type of inventory, in just the right amount, in just the right place. RFID is expensive: Best Buy, for example, has spent millions researching how to integrate RFID.

? Why is inventory control important to managers such as those at Wal-Mart and Best Buy?

DETERMINING INVENTORY QUANTITIES

STUDY OBJECTIVE 1
Describe the steps in determining inventory quantities.

No matter whether they are using a periodic or perpetual inventory system, all companies need to determine inventory quantities at the end of the accounting period. When using a perpetual system, companies take a physical inventory for two purposes: The first purpose is to check the accuracy of their perpetual inventory records. The second is to determine the amount of inventory lost due to wasted raw materials, shoplifting, or employee theft.

Companies using a periodic inventory system must take a physical inventory for two *different* purposes: to determine the inventory on hand at the balance sheet date, and to determine the cost of goods sold for the period.

Determining inventory quantities involves two steps: (1) taking a physical inventory of goods on hand and (2) determining the ownership of goods.

Taking a Physical Inventory

Taking a physical inventory involves actually counting, weighing, or measuring each kind of inventory on hand. In many companies, taking an inventory is a formidable task. Retailers such as Target, True Value Hardware, or Home Depot have thousands of different inventory items. An inventory count is generally more accurate when

ETHICS NOTE

In a famous fraud, a salad oil company filled its storage tanks mostly with water. The oil rose to the top, so auditors thought the tanks were full of oil. The company also said it had more tanks than it really did: It repainted numbers on the tanks to confuse auditors.

goods are not being sold or received during the counting. Consequently, companies often "take inventory" when the business is closed or when business is slow. Many retailers close early on a chosen day in January—after the holiday sales and returns, when inventories are at their lowest level—to count inventory. Recall from Chapter 5 that Wal-Mart had a year-end of January 31. Companies take the physical inventory at the end of the accounting period.[1]

Determining Ownership of Goods

One challenge in computing inventory quantities is determining what inventory a company owns. To determine ownership of goods, two questions must be answered: Do all of the goods included in the count belong to the company? Does the company own any goods that were not included in the count?

GOODS IN TRANSIT

A complication in determining ownership is **goods in transit** (on board a truck, train, ship, or plane) at the end of the period. The company may have purchased goods that have not yet been received, or it may have sold goods that have not yet been delivered. To arrive at an accurate count, the company must determine ownership of these goods.

Goods in transit should be included in the inventory of the company that has legal title to the goods. Legal title is determined by the terms of the sale, as shown in Illustration 6-1 and described below.

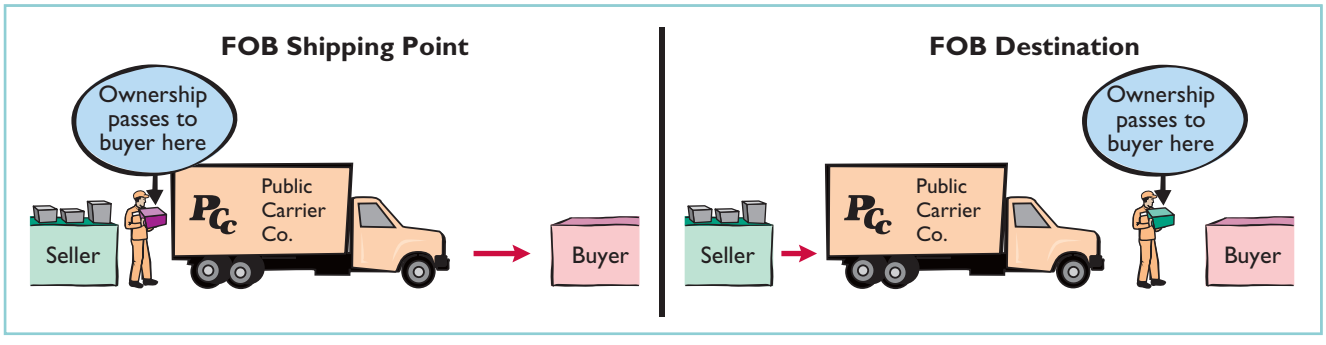

Illustration 6-1
Terms of sale

1. When the terms are **FOB (free on board) shipping point**, ownership of the goods passes to the buyer when the public carrier accepts the goods from the seller.
2. When the terms are **FOB destination**, ownership of the goods remains with the seller until the goods reach the buyer.

If goods in transit at the statement date are ignored, inventory quantities may be seriously miscounted. Assume, for example, that Hargrove Company

[1]To estimate the cost of inventory when a physical inventory cannot be taken (e.g., the inventory is destroyed) or when it is inconvenient (e.g., during interim periods), companies can use estimation methods. We discuss these methods—gross profit method and retail inventory method—in Appendix 6B.

has 20,000 units of inventory on hand on December 31. It also has the following goods in transit: (1) sales of 1,500 units shipped December 31 FOB destination, and (2) purchases of 2,500 units shipped FOB shipping point by the seller on December 31. Hargrove has legal title to both the 1,500 units sold and the 2,500 units purchased. If the company ignores the units in transit, it would understate inventory quantities by 4,000 units (1,500 + 2,500).

As we will see later in the chapter, inaccurate inventory counts affect not only the inventory amount shown on the balance sheet but also the cost of goods sold calculation on the income statement.

ETHICS NOTE

Employees of Craig Consumer Electronics allegedly overstated the company's inventory figures by improperly classifying defective goods as either new or refurbished. They also were accused of stating that the company owned goods from suppliers when in fact the company did not own the shipments, or the shipments did not even exist.

CONSIGNED GOODS

In some lines of business, it is common to hold the goods of other parties and try to sell the goods for them for a fee, but without taking ownership of the goods. These are called **consigned goods**.

For example, you might have a used car that you would like to sell. If you take the item to a dealer, the dealer might be willing to put the car on its lot and charge you a commission if it is sold. Under this agreement the dealer **would not take ownership** of the car, which would still belong to you. Therefore, if an inventory count were taken, the car would not be included in the dealer's inventory.

Many car, boat, and antique dealers sell goods on consignment to keep their inventory costs down and to avoid the risk of purchasing an item that they won't be able to sell. Today even some manufacturers are making consignment agreements with their suppliers in order to keep their inventory levels low.

DO IT!

RULES OF OWNERSHIP

Hasbeen Company completed its inventory count. It arrived at a total inventory value of $200,000. As a new member of Hasbeen's accounting department, you have been given the information listed below. Discuss how this information affects the reported cost of inventory.

1. Hasbeen included in the inventory goods held on consignment for Falls Co., costing $15,000.
2. The company did not include in the count purchased goods of $10,000 which were in transit (terms: FOB shipping point).
3. The company did not include in the count sold inventory with a cost of $12,000 which was in transit (terms: FOB shipping point).

action plan

- ✔ Apply the rules of ownership to goods held on consignment.
- ✔ Apply the rules of ownership to goods in transit FOB shipping point.

Solution

The goods of $15,000 held on consignment should be deducted from the inventory count. The goods of $10,000 purchased FOB shipping point should be added to the inventory count. Sold goods of $12,000 which were in transit FOB shipping point should not be included in the ending inventory. Thus, inventory should be carried at $195,000 ($200,000 − $15,000 + $10,000).

Related exercise material: **BE6-1, E6-1, E6-2,** and **DO IT! 6-1.**

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INVENTORY COSTING

STUDY OBJECTIVE 2

Explain the accounting for inventories and apply the inventory cost flow methods.

After a company has determined the quantity of units of inventory, it applies unit costs to the quantities to compute the total cost of the inventory and the cost of goods sold. This process can be complicated if a company has purchased inventory items at different times and at different prices.

For example, assume that Crivitz TV Company purchases three identical 46-inch TVs on different dates at costs of $700, $750, and $800. During the year Crivitz sold two sets at $1,200 each. These facts are summarized in Illustration 6-2.

Illustration 6-2
Data for inventory costing example

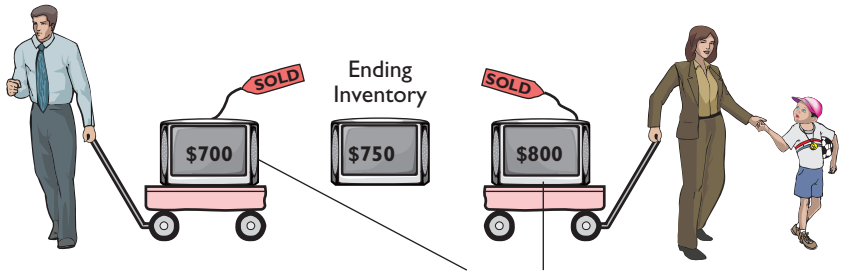
Purchases			
February 3	1 TV	at	$700
March 5	1 TV	at	$750
May 22	1 TV	at	$800
Sales			
June 1	2 TVs	for	$2,400 ($1,200 × 2)

Cost of goods sold will differ depending on which two TVs the company sold. For example, it might be $1,450 ($700 + $750), or $1,500 ($700 + $800), or $1,550 ($750 + $800). In this section we discuss alternative costing methods available to Crivitz.

Specific Identification

If Crivitz sold the TVs it purchased on February 3 and May 22, then its cost of goods sold is $1,500 ($700 + $800), and its ending inventory is $750. If Crivitz can positively identify which particular units it sold and which are still in ending inventory, it can use the **specific identification method** of inventory costing (see Illustration 6-3). Using this method, companies can accurately determine ending inventory and cost of goods sold.

Illustration 6-3
Specific identification method



Specific identification requires that companies keep records of the original cost of each individual inventory item. Historically, specific identification was possible only when a company sold a limited variety of high-unit-cost items that could be identified clearly from the time of purchase through the time of sale. Examples of such products are cars, pianos, or expensive antiques.

Today, bar coding, electronic product codes, and radio frequency identification make it theoretically possible to do specific identification with nearly any type of product. The reality is, however, that this practice is still relatively rare. Instead, rather than

keep track of the cost of each particular item sold, most companies make assumptions, called **cost flow assumptions**, about which units were sold.

ETHICS NOTE

A major disadvantage of the specific identification method is that management may be able to manipulate net income. For example, it can boost net income by selling units purchased at a low cost, or reduce net income by selling units purchased at a high cost.

Cost Flow Assumptions

Because specific identification is often impractical, other cost flow methods are permitted. These differ from specific identification in that they **assume** flows of costs that may be unrelated to the physical flow of goods. There are three assumed cost flow methods:

1. First-in, first-out (FIFO)
2. Last-in, first-out (LIFO)
3. Average-cost

There is no accounting requirement that the cost flow assumption be consistent with the physical movement of the goods. Company management selects the appropriate cost flow method.

To illustrate these three inventory cost flow methods, we will assume that Houston Electronics uses a periodic inventory system. The information for its Astro condensors is shown in Illustration 6-4.[2] (An appendix to this chapter presents the use of these methods under a perpetual system.)

HOUSTON ELECTRONICS
Astro Condensers

Date	Explanation	Units	Unit Cost	Total Cost
Jan. 1	Beginning inventory	100	$10	$ 1,000
Apr. 15	Purchase	200	11	2,200
Aug. 24	Purchase	300	12	3,600
Nov. 27	Purchase	400	13	5,200
	Total	1,000		$12,000

Illustration 6-4
Cost of goods available for sale

The company had a total of 1,000 units available that it could have sold during the period. The total cost of these units was $12,000. A physical inventory at the end of the year determined that during the year Houston sold 550 units and had 450 units in inventory at December 31. The question then is how to determine what prices to use to value the goods sold and the ending inventory. The sum of the cost allocated to the units sold plus the cost of the units in inventory must be $12,000, the total cost of all goods available for sale.

FIRST-IN, FIRST-OUT (FIFO)

The **FIFO (first-in, first-out) method** assumes that the **earliest goods** purchased are the first to be sold. FIFO often parallels the actual physical flow of merchandise; it generally is good business practice to sell the oldest units first. Under the FIFO method, therefore, the **costs** of the earliest goods purchased are the first to be recognized

[2] **We have chosen to use the periodic approach for a number of reasons:** First, many companies that use a perpetual inventory system use it to keep track of units on hand, but then determine cost of goods sold at the end of the period using one of the three cost flow approaches applied under essentially a periodic approach. In addition, because of the complexity, few companies use average cost on a perpetual basis. Also, most companies that use perpetual LIFO employ dollar-value LIFO, which is presented in more advanced texts. Furthermore, FIFO gives the same results under either perpetual or periodic. And finally, it is easier to demonstrate the cost flow assumptions under the periodic system, which makes it more pedagogically appropriate.

in determining cost of goods sold. (This does not necessarily mean that the oldest units *are* sold first, but that the costs of the oldest units are *recognized* first. In a bin of picture hangers at the hardware store, for example, no one really knows, nor would it matter, which hangers are sold first.) Illustration 6-5 shows the allocation of the cost of goods available for sale at Houston Electronics under FIFO.

Illustration 6-5
Allocation of costs—FIFO method

HELPFUL HINT
Note the sequencing of the allocation: (1) Compute ending inventory, and (2) determine cost of goods sold.

HELPFUL HINT
Another way of thinking about the calculation of FIFO ending inventory is the *LISH assumption*—last in still here.

COST OF GOODS AVAILABLE FOR SALE

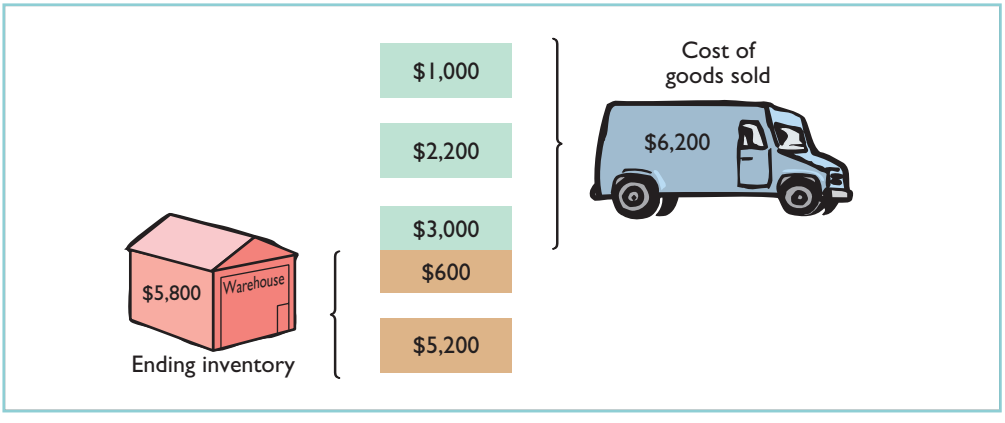
Date	Explanation	Units	Unit Cost	Total Cost
Jan. 1	Beginning inventory	100	$10	$ 1,000
Apr. 15	Purchase	200	11	2,200
Aug. 24	Purchase	300	12	3,600
Nov. 27	Purchase	400	13	5,200
	Total	1,000		$12,000

STEP 1: ENDING INVENTORY

Date	Units	Unit Cost	Total Cost
Nov. 27	400	$13	$5,200
Aug. 24	50	12	600
Total	450		$5,800

STEP 2: COST OF GOODS SOLD

Cost of goods available for sale	$12,000
Less: Ending inventory	5,800
Cost of goods sold	$ 6,200



Under FIFO, since it is assumed that the first goods purchased were the first goods sold, ending inventory is based on the prices of the most recent units purchased. That is, **under FIFO, companies obtain the cost of the ending inventory by taking the unit cost of the most recent purchase and working backward until all units of inventory have been costed**. In this example, Houston Electronics prices the 450 units of ending inventory using the *most recent* prices. The last purchase was 400 units at $13 on November 27. The remaining 50 units are priced using the unit cost of the second most recent purchase, $12, on August 24. Next, Houston Electronics calculates cost of goods sold by subtracting the cost of the units **not sold** (ending inventory) from the cost of all goods available for sale.

Illustration 6-6 demonstrates that companies also can calculate cost of goods sold by pricing the 550 units sold using the prices of the first 550 units acquired. Note that of the 300 units purchased on August 24, only 250 units are assumed sold. This agrees with our calculation of the cost of ending inventory, where 50 of these units were assumed unsold and thus included in ending inventory.

Date	Units	Unit Cost	Total Cost
Jan. 1	100	$10	$1,000
Apr. 15	200	11	2,200
Aug. 24	250	12	3,000
Total	550		$6,200

Illustration 6-6
Proof of cost of goods sold

LAST-IN, FIRST-OUT (LIFO)

The **LIFO (last-in, first-out) method** assumes that the **latest goods** purchased are the first to be sold. LIFO seldom coincides with the actual physical flow of inventory. (Exceptions include goods stored in piles, such as coal or hay, where goods are removed from the top of the pile as they are sold.) Under the LIFO method, the **costs** of the latest goods purchased are the first to be recognized in determining cost of goods sold. Illustration 6-7 shows the allocation of the cost of goods available for sale at Houston Electronics under LIFO.

COST OF GOODS AVAILABLE FOR SALE

Date	Explanation	Units	Unit Cost	Total Cost
Jan. 1	Beginning inventory	100	$10	$ 1,000
Apr. 15	Purchase	200	11	2,200
Aug. 24	Purchase	300	12	3,600
Nov. 27	Purchase	400	13	5,200
	Total	1,000		$12,000

STEP 1: ENDING INVENTORY

Date	Units	Unit Cost	Total Cost
Jan. 1	100	$10	$1,000
Apr. 15	200	11	2,200
Aug. 24	150	12	1,800
Total	450		$5,000

STEP 2: COST OF GOODS SOLD

Cost of goods available for sale	$12,000
Less: Ending inventory	5,000
Cost of goods sold	$ 7,000

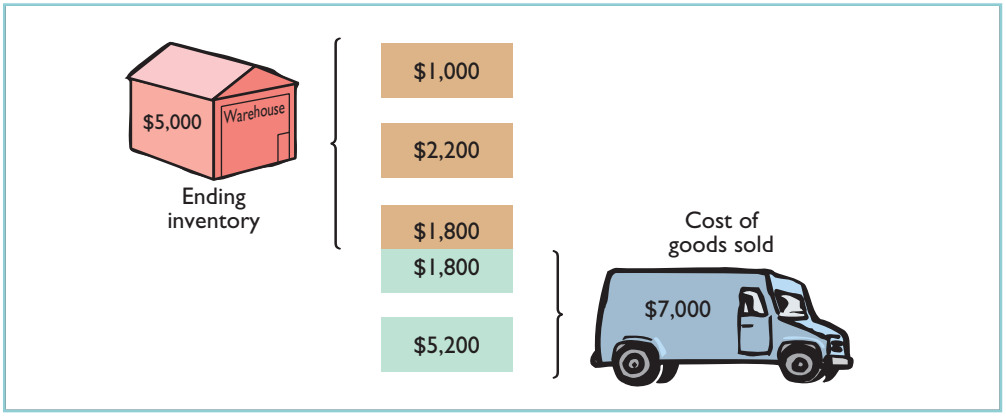


Illustration 6-7
Allocation of costs—LIFO method

HELPFUL HINT
Another way of thinking about the calculation of LIFO ending inventory is the *FISH assumption*—first in still here.

Under LIFO, since it is assumed that the first goods sold were those that were most recently purchased, ending inventory is based on the prices of the oldest units purchased. That is, **under LIFO, companies obtain the cost of the ending inventory**

by taking the unit cost of the earliest goods available for sale and working forward until all units of inventory have been costed. In this example, Houston Electronics prices the 450 units of ending inventory using the *earliest* prices. The first purchase was 100 units at $10 in the January 1 beginning inventory. Then 200 units were purchased at $11. The remaining 150 units needed are priced at $12 per unit (August 24 purchase). Next, Houston Electronics calculates cost of goods sold by subtracting the cost of the units **not sold** (ending inventory) from the cost of all goods available for sale.

Illustration 6-8 demonstrates that companies also can calculate cost of goods sold by pricing the 550 units sold using the prices of the last 550 units acquired. Note that of the 300 units purchased on August 24, only 150 units are assumed sold. This agrees with our calculation of the cost of ending inventory, where 150 of these units were assumed unsold and thus included in ending inventory.

Illustration 6-8
Proof of cost of goods sold

Date	Units	Unit Cost	Total Cost
Nov. 27	400	$13	$5,200
Aug. 24	150	12	1,800
Total	550		**$7,000**

Under a periodic inventory system, which we are using here, **all goods purchased during the period are assumed to be available for the first sale, regardless of the date of purchase**.

AVERAGE-COST

The **average-cost method** allocates the cost of goods available for sale on the basis of the **weighted average unit cost** incurred. The average-cost method assumes that goods are similar in nature. Illustration 6-9 presents the formula and a sample computation of the weighted-average unit cost.

Illustration 6-9
Formula for weighted average unit cost

Cost of Goods Available for Sale	÷	Total Units Available for Sale	=	Weighted Average Unit Cost
$12,000	÷	1,000	=	**$12.00**

The company then applies the weighted average unit cost to the units on hand to determine the cost of the ending inventory. Illustration 6-10 shows the allocation of the cost of goods available for sale at Houston Electronics using average cost.

We can verify the cost of goods sold under this method by multiplying the units sold times the weighted average unit cost ($550 \times \$12 = \$6{,}600$). Note that this method does not use the average of the unit costs. That average is $11.50 ($10 + $11 + $12 + $13 = $46; $46 ÷ 4). The average cost method instead uses the average **weighted by** the quantities purchased at each unit cost.

Illustration 6-10
Allocation of costs—average-cost method

COST OF GOODS AVAILABLE FOR SALE

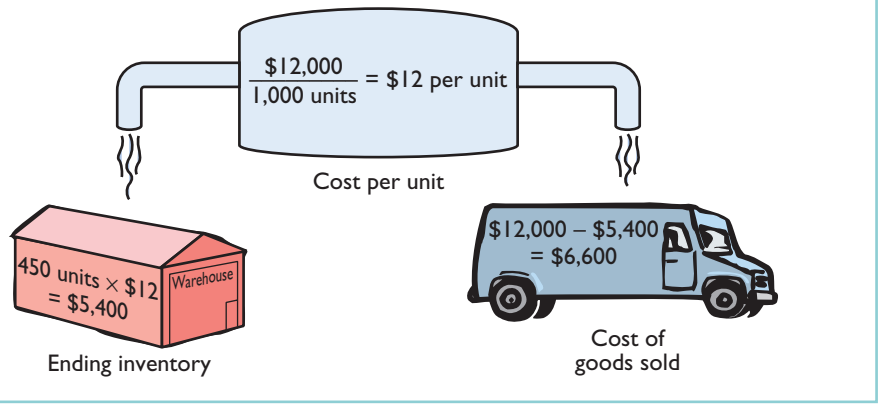
Date	Explanation	Units	Unit Cost	Total Cost
Jan. 1	Beginning inventory	100	$10	$ 1,000
Apr. 15	Purchase	200	11	2,200
Aug. 24	Purchase	300	12	3,600
Nov. 27	Purchase	400	13	5,200
	Total	1,000		$12,000

STEP 1: ENDING INVENTORY

Units		Unit Cost		Total Cost
$12,000	÷ 1,000	=	$12.00	
450			$12.00	$5,400

STEP 2: COST OF GOODS SOLD

Cost of goods available for sale	$12,000
Less: Ending inventory	5,400
Cost of goods sold	$ 6,600



DO IT!

COST FLOW METHODS

The accounting records of Shumway Ag Implement show the following data.

Beginning inventory	4,000 units at $ 3
Purchases	6,000 units at $ 4
Sales	7,000 units at $12

Determine the cost of goods sold during the period under a periodic inventory system using (a) the FIFO method, (b) the LIFO method, and (c) the average-cost method.

action plan

- ✔ Understand the periodic inventory system.
- ✔ Compute cost of goods available for sale.
- ✔ Compute ending inventory.
- ✔ Determine cost of goods sold.

Solution

Cost of goods available for sale = (4,000 × $3) + (6,000 × $4) = $36,000

Ending inventory = 10,000 − 7,000 = 3,000 units

(a) FIFO: $36,000 − (3,000 × $4) = $24,000

(b) LIFO: $36,000 − (3,000 × $3) = 27,000

(c) Average cost per unit: [(4,000 @ $3) + (6,000 @ $4)] ÷ 10,000 = $3.60
Average-cost: $36,000 − (3,000 × $3.60) = $25,200

Related exercise material: **BE6-3, BE6-4, BE6-5, E6-3, E6-4, E6-5, E6-6, E6-7, E6-8,** and **DO IT! 6-2.**

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Financial Statement and Tax Effects of Cost Flow Methods

STUDY OBJECTIVE 3

Explain the financial effects of the inventory cost flow assumptions.

Each of the three assumed cost flow methods is acceptable for use. For example, Reebok International Ltd. and Wendy's International currently use the FIFO method of inventory costing. Campbell Soup Company, Krogers, and Walgreen Drugs use LIFO for part or all of their inventory. Bristol-Myers Squibb, Starbucks, and Motorola use the average-cost method. In fact, a company may also use more than one cost flow method at the same time. Black & Decker Manufacturing Company, for example, uses LIFO for domestic inventories and FIFO for foreign inventories. Illustration 6-11 (in the margin) shows the use of the three cost flow methods in the 600 largest U.S. companies.

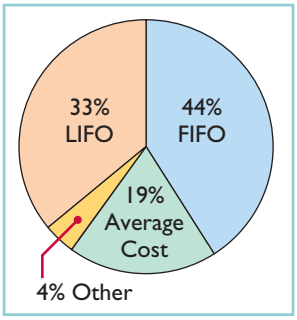

Illustration 6-11
Use of cost flow methods in major U.S. companies

The reasons companies adopt different inventory cost flow methods are varied, but they usually involve one of three factors: (1) income statement effects, (2) balance sheet effects, or (3) tax effects.

INCOME STATEMENT EFFECTS

To understand why companies might choose a particular cost flow method, let's examine the effects of the different cost flow assumptions on the financial statements of Houston Electronics. The condensed income statements in Illustration 6-12 assume that Houston sold its 550 units for $11,500, had operating expenses of $2,000, and is subject to an income tax rate of 30%.

Illustration 6-12
Comparative effects of cost flow methods

HOUSTON ELECTRONICS
Condensed Income Statements

	FIFO	LIFO	Average Cost
Sales	$11,500	$11,500	$11,500
Beginning inventory	1,000	1,000	1,000
Purchases	11,000	11,000	11,000
Cost of goods available for sale	12,000	12,000	12,000
Ending inventory	**5,800**	**5,000**	**5,400**
Cost of goods sold	6,200	7,000	6,600
Gross profit	5,300	4,500	4,900
Operating expenses	2,000	2,000	2,000
Income before income taxes[3]	3,300	2,500	2,900
Income tax expense (30%)	990	750	870
Net income	**$ 2,310**	**$ 1,750**	**$ 2,030**

Note the cost of goods available for sale ($12,000) is the same under each of the three inventory cost flow methods. However, the ending inventories and the costs of goods sold are different. This difference is due to the unit costs that the company allocated to cost of goods sold and to ending inventory. Each dollar of difference in ending inventory results in a corresponding dollar difference in income before income taxes. For Houston, an $800 difference exists between FIFO and LIFO cost of goods sold.

[3]We are assuming that Houston Electronics is a corporation, and corporations are required to pay income taxes.

In periods of changing prices, the cost flow assumption can have a significant impact on income and on evaluations based on income. In most instances, prices are rising (inflation). In a period of inflation, FIFO produces a higher net income because the lower unit costs of the first units purchased are matched against revenues. In a period of rising prices (as is the case in the Houston example), FIFO reports the highest net income ($2,310) and LIFO the lowest ($1,750); average cost falls in the middle ($2,030). If prices are falling, the results from the use of FIFO and LIFO are reversed: FIFO will report the lowest net income and LIFO the highest.

To management, higher net income is an advantage: It causes external users to view the company more favorably. In addition, management bonuses, if based on net income, will be higher. Therefore, when prices are rising (which is usually the case), companies tend to prefer FIFO because it results in higher net income.

Some argue that the use of LIFO in a period of inflation enables the company to avoid reporting **paper** (or **phantom**) **profit** as economic gain. To illustrate, assume that Kralik Company buys 200 units of a product at $20 per unit on January 10 and 200 more on December 31 at $24 each. During the year, Kralik sells 200 units at $30 each. Illustration 6-13 shows the results under FIFO and LIFO.

	FIFO	LIFO
Sales (200 × $30)	$6,000	$6,000
Cost of goods sold	**4,000 (200 × $20)**	**4,800 (200 × $24)**
Gross profit	$2,000	$1,200

Illustration 6-13
Income statement effects compared

Under LIFO, Kralik Company has recovered the current replacement cost ($4,800) of the units sold. Thus, the gross profit in economic terms is real. However, under FIFO, the company has recovered only the January 10 cost ($4,000). To replace the units sold, it must reinvest $800 (200 × $4) of the gross profit. Thus, $800 of the gross profit is said to be phantom or illusory. As a result, reported net income is also overstated in real terms.

BALANCE SHEET EFFECTS

A major advantage of the FIFO method is that in a period of inflation, the costs allocated to ending inventory will approximate their current cost. For example, for Houston Electronics, 400 of the 450 units in the ending inventory are costed under FIFO at the higher November 27 unit cost of $13.

Conversely, a major shortcoming of the LIFO method is that in a period of inflation, the costs allocated to ending inventory may be significantly understated in terms of current cost. The understatement becomes greater over prolonged periods of inflation if the inventory includes goods purchased in one or more prior accounting periods. For example, Caterpillar has used LIFO for 50 years. Its balance sheet shows ending inventory of $4,675 million. But the inventory's actual current cost if FIFO had been used is $6,799 million.

HELPFUL HINT

A tax rule, often referred to as the *LIFO conformity rule*, requires that if companies use LIFO for tax purposes they must also use it for financial reporting purposes. This means that if a company chooses the LIFO method to reduce its tax bills, it will also have to report lower net income in its financial statements.

TAX EFFECTS

We have seen that both inventory on the balance sheet and net income on the income statement are higher when companies use FIFO in a period of inflation. Yet, many companies have selected LIFO. Why? The reason is that LIFO results in the lowest income taxes (because of lower net income) during times of rising prices. For example, at Houston Electronics, income taxes are $750 under LIFO, compared to $990 under FIFO. The tax savings of $240 makes more cash available for use in the business.

Using Inventory Cost Flow Methods Consistently

Whatever cost flow method a company chooses, it should use that method consistently from one accounting period to another. This approach is often referred to as the **consistency principle**, which means that a company uses the same accounting principles and methods from year to year. Consistent application enhances the comparability of financial statements over successive time periods. In contrast, using the FIFO method one year and the LIFO method the next year would make it difficult to compare the net incomes of the two years.

Although consistent application is preferred, it does not mean that a company may *never* change its inventory costing method. When a company adopts a different method, it should disclose in the financial statements the change and its effects on net income. Illustration 6-14 shows a typical disclosure, using information from financial statements of Quaker Oats (now a unit of PepsiCo).

Illustration 6-14
Disclosure of change in cost flow method

QUAKER OATS
Notes to the Financial Statements

Note 1: Effective July 1, the Company adopted the LIFO cost flow assumption for valuing the majority of U.S. Grocery Products inventories. The Company believes that the use of the LIFO method better matches current costs with current revenues. The effect of this change on the current year was to decrease net income by $16.0 million.

INTERNATIONAL INSIGHT

Is LIFO Fair?

Exxon Mobil Corporation, like many U.S. companies, uses LIFO to value its inventory for financial reporting and tax purposes. In one recent year, this resulted in a cost of goods sold figure that was $5.6 billion higher than under FIFO. By increasing cost of goods sold, Exxon Mobil reduces net income, which reduces taxes. Critics say that LIFO provides an unfair "tax dodge." As Congress looks for more sources of tax revenue, some lawmakers favor the elimination of LIFO. Supporters of LIFO argue that the method is conceptually sound because it matches current costs with current revenues. In addition, they point out that this matching provides protection against inflation.

International accounting standards do not allow the use of LIFO. Because of this, the net income of foreign oil companies such as BP and Royal Dutch Shell are not directly comparable to U.S. companies, which makes analysis difficult.

Source: David Reilly, "Big Oil's Accounting Methods Fuel Criticism," *Wall Street Journal,* August 8, 2006, p. C1.

? What are the arguments for and against the use of LIFO?

Lower-of-Cost-or-Market

STUDY OBJECTIVE 4
Explain the lower-of-cost-or-market basis of accounting for inventories.

The value of inventory for companies selling high-technology or fashion goods can drop very quickly due to changes in technology or fashions. These circumstances sometimes call for inventory valuation methods other than those presented so far. For example, purchasing managers at Ford decided to make a large purchase of palladium, a precious metal used in

vehicle emission devices. They made this purchase because they feared a future shortage. The shortage did not materialize, and by the end of the year the price of palladium had plummeted. Ford's inventory was then worth $1 billion less than its original cost. Do you think Ford's inventory should have been stated at cost, in accordance with the cost principle, or at its lower replacement cost?

As you probably reasoned, this situation requires a departure from the cost basis of accounting. When the value of inventory is lower than its cost, companies can "write down" the inventory to its market value. This is done by valuing the inventory at the **lower-of-cost-or-market (LCM)** in the period in which the price decline occurs. LCM is an example of the accounting concept of **conservatism**, which means that the best choice among accounting alternatives is the method that is least likely to overstate assets and net income.

INTERNATIONAL NOTE

Under U.S. GAAP, companies cannot reverse inventory write-downs if inventory increases in value in subsequent periods. International accounting standards permit companies to reverse write-downs in some circumstances.

Companies apply LCM to the items in inventory after they have used one of the cost flow methods (specific identification, FIFO, LIFO, or average cost) to determine cost. Under the LCM basis, market is defined as **current replacement cost**, not selling price. For a merchandising company, market is the cost of purchasing the same goods at the present time from the usual suppliers in the usual quantities. Current replacement cost is used because a decline in the replacement cost of an item usually leads to a decline in the selling price of the item.

To illustrate the application of LCM, assume that Ken Tuckie TV has the following lines of merchandise with costs and market values as indicated. LCM produces the results shown in Illustration 6-15. Note that the amounts shown in the final column are the lower-of-cost-or-market amounts for each item.

	Cost	Market	Lower-of-Cost-or-Market
Flatscreen TVs	$ 60,000	$ 55,000	$ 55,000
Satellite radios	45,000	52,000	45,000
DVD recorders	48,000	45,000	45,000
DVDs	15,000	14,000	14,000
Total inventory			$159,000

Illustration 6-15 Computation of lower-of-cost-or-market

INVENTORY ERRORS

STUDY OBJECTIVE 5

Indicate the effects of inventory errors on the financial statements.

Unfortunately, errors occasionally occur in accounting for inventory. In some cases, errors are caused by failure to count or price the inventory correctly. In other cases, errors occur because companies do not properly recognize the transfer of legal title to goods that are in transit. When errors occur, they affect both the income statement and the balance sheet.

Income Statement Effects

Under a periodic inventory system, both the beginning and ending inventories appear in the income statement. The ending inventory of one period automatically becomes the beginning inventory of the next period. Thus, inventory errors affect the computation of cost of goods sold and net income in two periods.

The effects on cost of goods sold can be computed by entering incorrect data in the formula in Illustration 6-16 and then substituting the correct data.

Beginning Inventory	+	Cost of Goods Purchased	−	Ending Inventory	=	Cost of Goods Sold

Illustration 6-16 Formula for cost of goods sold

If the error understates *beginning* inventory, cost of goods sold will be understated. If the error understates *ending* inventory, cost of goods sold will be overstated. Illustration 6-17 shows the effects of inventory errors on the current year's income statement.

Illustration 6-17
Effects of inventory errors on current year's income statement

When Inventory Error:	Cost of Goods Sold Is:	Net Income Is:
Understates beginning inventory	Understated	Overstated
Overstates beginning inventory	Overstated	Understated
Understates ending inventory	Overstated	Understated
Overstates ending inventory	Understated	Overstated

ETHICS NOTE

Inventory fraud increases during recessions. Such fraud includes pricing inventory at amounts in excess of its actual value, or claiming to have inventory when no inventory exists. Inventory fraud usually overstates ending inventory, thereby understating cost of goods sold and creating higher income.

So far, the effects of inventory errors are fairly straightforward. Now, though, comes the (at first) surprising part: An error in the ending inventory of the current period will have a **reverse effect on net income of the next accounting period**. Illustration 6-18 shows this effect. As you study the illustration, you will see that the reverse effect comes from the fact that understating ending inventory in 2010 results in understating beginning inventory in 2011 and overstating net income in 2011.

Over the two years, though, total net income is correct because the errors **offset each other**. Notice that total income using incorrect data is $35,000 ($22,000 + $13,000), which is the same as the total income of $35,000 ($25,000 + $10,000) using correct data. Also note in this example that an error in the beginning inventory does not result in a corresponding error in the ending inventory for that period. The correctness of the ending inventory depends entirely on the accuracy of taking and costing the inventory at the balance sheet date under the periodic inventory system.

Illustration 6-18
Effects of inventory errors on two years' income statements

SAMPLE COMPANY
Condensed Income Statements

	2010		2011	
	Incorrect	Correct	Incorrect	Correct
Sales	$80,000	$80,000	$90,000	$90,000
Beginning inventory	$20,000	$20,000	**$12,000**	**$15,000**
Cost of goods purchased	40,000	40,000	68,000	68,000
Cost of goods available for sale	60,000	60,000	80,000	83,000
Ending inventory	**12,000**	**15,000**	23,000	23,000
Cost of goods sold	48,000	45,000	57,000	60,000
Gross profit	32,000	35,000	33,000	30,000
Operating expenses	10,000	10,000	20,000	20,000
Net income	$22,000	$25,000	$13,000	$10,000

$(3,000) Net income understated

$3,000 Net income overstated

The errors cancel. Thus the combined total income for the 2-year period is correct.

Balance Sheet Effects

Companies can determine the effect of ending inventory errors on the balance sheet by using the basic accounting equation: Assets = Liabilities + Owner's Equity. Errors in the ending inventory have the effects shown in Illustration 6-19.

Ending Inventory Error	Assets	Liabilities	Owner's Equity
Overstated	Overstated	No effect	Overstated
Understated	Understated	No effect	Understated

Illustration 6-19
Effects of ending inventory errors on balance sheet

DO IT!

LCM BASIS; INVENTORY ERRORS

(a) Tracy Company sells three different types of home heating stoves (wood, gas, and pellet). The cost and market value of its inventory of stoves are as follows.

	Cost	Market
Gas	$ 84,000	$ 79,000
Wood	250,000	280,000
Pellet	112,000	101,000

Determine the value of the company's inventory under the lower-of-cost-or-market approach.

action plan

- ✔ Determine whether cost or market value is lower for each inventory type.
- ✔ Sum the lowest value of each inventory type to determine the total value of inventory.

Solution

The lowest value for each inventory type is: gas $79,000, wood $250,000, and pellet $101,000. The total inventory value is the sum of these amounts, $430,000.

(b) Visual Company overstated its 2010 ending inventory by $22,000. Determine the impact this error has on ending inventory, cost of goods sold, and owner's equity in 2010 and 2011.

action plan

- ✔ An ending inventory error in one period will have an equal and opposite effect on cost of goods sold and net income in the next period.
- ✔ After two years, the errors have offset each other.

Solution

	2010	2011
Ending inventory	$22,000 overstated	No effect
Cost of goods sold	$22,000 understated	$22,000 overstated
Owner's equity	$22,000 overstated	No effect

Related exercise material: **BE6-7, BE6-8, E6-9, E6-10, E6-11, E6-12,** and **DO IT! 6-3.**

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STATEMENT PRESENTATION AND ANALYSIS

Presentation

As indicated in Chapter 5, inventory is classified in the balance sheet as a current asset immediately below receivables. In a multiple-step income statement, cost of goods sold is subtracted from sales. There also should be disclosure of (1) the

major inventory classifications, (2) the basis of accounting (cost, or lower-of-cost-or-market), and (3) the cost method (FIFO, LIFO, or average).

Wal-Mart, for example, in its January 31, 2008, balance sheet reported inventories of $35,180 million under current assets. The accompanying notes to the financial statements, as shown in Illustration 6-20, disclosed the following information.

Illustration 6-20
Inventory disclosures by Wal-Mart

WAL-MART STORES, INC.
Notes to the Financial Statements

Note 1. Summary of Significant Accounting Policies

Inventories

The Company values inventories at the lower of cost or market as determined primarily by the retail method of accounting, using the last-in, first-out ("LIFO") method for substantially all of the Wal-Mart Stores segments' merchandise inventories. SAM'S CLUB merchandise and merchandise in our distribution warehouses are valued based on the weighted average cost using the LIFO method. Inventories of foreign operations are primarily valued by the retail method of accounting, using the first-in, first-out ("FIFO") method. At January 31, 2008 and 2007, our inventories valued at LIFO approximate those inventories as if they were valued at FIFO.

As indicated in this note, Wal-Mart values its inventories at the lower-of-cost-or-market using LIFO and FIFO.

Analysis

The amount of inventory carried by a company has significant economic consequences. And inventory management is a double-edged sword that requires constant attention. On the one hand, management wants to have a great variety and quantity on hand so that customers have a wide selection and items are always in stock. But such a policy may incur high carrying costs (e.g., investment, storage, insurance, obsolescence, and damage). On the other hand, low inventory levels lead to stockouts and lost sales. Common ratios used to manage and evaluate inventory levels are inventory turnover and a related measure, days in inventory.

STUDY OBJECTIVE 6
Compute and interpret the inventory turnover ratio.

Inventory turnover measures the number of times on average the inventory is sold during the period. Its purpose is to measure the liquidity of the inventory. The inventory turnover is computed by dividing cost of goods sold by the average inventory during the period. Unless seasonal factors are significant, average inventory can be computed from the beginning and ending inventory balances. For example, Wal-Mart reported in its 2008 annual report a beginning inventory of $33,685 million, an ending inventory of $35,180 million, and cost of goods sold for the year ended January 31, 2008, of $286,515 million. The inventory turnover formula and computation for Wal-Mart are shown below.

Illustration 6-21
Inventory turnover formula and computation for Wal-Mart

Cost of Goods Sold	÷	Average Inventory	=	Inventory Turnover
$286,515	÷	$\frac{\$33,685 + \$35,180}{2}$	=	8.3 times

A variant of the inventory turnover ratio is **days in inventory**. This measures the average number of days inventory is held. It is calculated as 365 divided by the inventory turnover ratio. For example, Wal-Mart's inventory turnover of 8.3 times divided into 365 is approximately 44 days. This is the approximate time that it takes a company to sell the inventory once it arrives at the store.

There are typical levels of inventory in every industry. Companies that are able to keep their inventory at lower levels and higher turnovers and still satisfy customer needs are the most successful.

DO IT!

INVENTORY TURNOVER

Early in 2010 Westmoreland Company switched to a just-in-time inventory system. Its sales, cost of goods sold, and inventory amounts for 2009 and 2010 are shown below.

	2009	2010
Sales	$2,000,000	$1,800,000
Cost of goods sold	1,000,000	910,000
Beginning inventory	290,000	210,000
Ending inventory	210,000	50,000

Determine the inventory turnover and days in inventory for 2009 and 2010. Discuss the changes in the amount of inventory, the inventory turnover and days in inventory, and the amount of sales across the two years.

action plan

- ✔ To find the inventory turnover ratio, divide cost of goods sold by average inventory.
- ✔ To determine days in inventory, divide 365 days by the inventory turnover ratio.
- ✔ Just-in-time inventory reduces the amount of inventory on hand, which reduces carrying costs. Reducing inventory levels by too much has potential negative implications for sales.

Solution

	2009		2010	
Inventory turnover ratio	$1,000,000 / ($290,000 + $210,000)/2	= 4	$ 910,000 / ($210,000 + $50,000)/2	= 7
Days in inventory	365 ÷ 4 = 91.3 days		365 ÷ 7 = 52.1 days	

The company experienced a very significant decline in its ending inventory as a result of the just-in-time inventory. This decline improved its inventory turnover ratio and its days in inventory. However, its sales declined by 10%. It is possible that this decline was caused by the dramatic reduction in the amount of inventory that was on hand, which increased the likelihood of "stock-outs." To determine the optimal inventory level, management must weigh the benefits of reduced inventory against the potential lost sales caused by stock-outs.

Related exercise material: **BE6-9, E6-13, E6-14,** and **DO IT! 6-4.**

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Be sure to read **ALL ABOUT YOU: *Employee Theft—An Inside Job*** on page 268 for information on how topics in this chapter apply to your personal life.

Employee Theft—An Inside Job

Inventory theft is a huge problem for many businesses. Few employees would be as bold as the character in a Johnny Cash song, who while working on an assembly line in Detroit, steals an entire car, one piece at a time, over the course of many years *(www.lyricsdomain.com/10/johnny_cash/one_piece_at_a_time.html)*. Nonetheless, at most companies, employees are the primary culprits. While you might think that a free pizza or steak at the end of your shift isn't hurting anybody, the statistics below show that such pilferage really adds up.

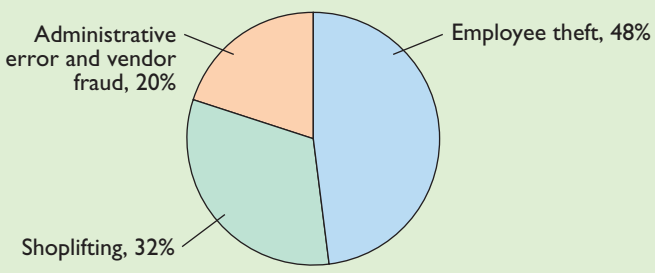
Many companies use sophisticated technologies to monitor their customers and employees in order to keep their inventory from walking off. Examples include closed-circuit video cameras and radio frequency identification (RFID). Other companies use techniques that don't rely on technology, such as taking frequent (in some cases, daily) inventory counts, having employees keep all personal belongings and bags in a separate changing room, and making surprise checks of employees' bags as they leave. An increasing number of companies are setting up toll-free phone numbers that employees or customers can call to report suspicious behavior, sometimes for a reward.

Some Facts

* The National Food Service Security Council estimates that employee theft costs U.S. restaurants $15 billion to $25 billion annually.
* The average supermarket has inventory shrinkage losses of 2.28% of sales, or $224,808 per year. Average net profit is only 1.1% of sales, so inventory shrinkage is twice the level of profits.
* Fear of getting caught and being fired ranks among one of the top reasons employees give, in surveys of reasons why they do not steal from their employer.
* Tips from customers are the No. 1 way that many stores catch thieving employees.
* The average employee caught stealing costs his or her company $1,341, while the average loss from a shoplifting incident is only $207.

About the Numbers

Where Did the Inventory Go?



Source: Data from 2003 National Retail Security Survey, University of Florida.

What Do You Think?

Suppose you own a number of wine shops selling mid-level as well as expensive bottled wine. You have been experiencing significant losses from theft at your stores. You suspect that it is a combination of both employee and customer theft. Assuming that it would be cost-effective, would you install video cameras to reduce both employee theft and customer theft?

YES: Most employees and customers are honest. However, some will steal if given the opportunity. Management has a responsibility to employ reasonable, cost-effective approaches to safeguard company assets.

NO: The use of video technology to monitor employees and customers sends a message of distrust. You run the risk of alienating your employees (who may well figure out a way around the cameras anyway). Cameras might also reduce the welcoming atmosphere for your customers, who might find the cameras offensive.

Sources: Bob Ingram, "Shrink Has Shrunk," *Supermarket Business*, September 15, 2000, p. 65; Lisa Bertagnoli, "Wrapping up Shrink," *Restaurants & Institutions*, May 1, 2005, pp. 89–90; Naomi R. Kooker, "Taking Aim at Crime," *Nation's Restaurant News*, May 22, 2000, pp. 114–118.

The authors' comments on this situation appear on page 298.

Comprehensive DO IT! 1

Gerald D. Englehart Company has the following inventory, purchases, and sales data for the month of March.

Inventory:	March 1	200 units @ $4.00	$ 800
Purchases:			
	March 10	500 units @ $4.50	2,250
	March 20	400 units @ $4.75	1,900
	March 30	300 units @ $5.00	1,500
Sales:			
	March 15	500 units	
	March 25	400 units	

The physical inventory count on March 31 shows 500 units on hand.

Instructions

Under a **periodic inventory system**, determine the cost of inventory on hand at March 31 and the cost of goods sold for March under (a) (FIFO), (b) (LIFO), and (c) average-cost.

action plan

- ✔ Compute the total goods available for sale, in both units and dollars.
- ✔ Compute the cost of ending inventory under the periodic FIFO method by allocating to the units on hand the **latest costs**.
- ✔ Compute the cost of ending inventory under the periodic LIFO method by allocating to the units on hand the **earliest costs**.
- ✔ Compute the cost of ending inventory under the periodic average-cost method by allocating to the units on hand a **weighted-average cost**.

Solution to Comprehensive DO IT! 1

The cost of goods available for sale is $6,450, as follows.

Inventory:		200 units @ $4.00	$ 800
Purchases:			
	March 10	500 units @ $4.50	2,250
	March 20	400 units @ $4.75	1,900
	March 30	300 units @ $5.00	1,500
Total:		1,400	$6,450

Under a **periodic inventory system**, the cost of goods sold under each cost flow method is as follows.

FIFO Method

Ending inventory:

Date	Units	Unit Cost	Total Cost	
March 30	300	$5.00	$1,500	
March 20	200	4.75	950	$2,450

Cost of goods sold: $6,450 − $2,450 = $4,000

LIFO Method

Ending inventory:

Date	Units	Unit Cost	Total Cost	
March 1	200	$4.00	$ 800	
March 10	300	4.50	1,350	$2,150

Cost of goods sold: $6,450 − $2,150 = $4,300

Average-Cost Method

Average unit cost: $6,450 ÷ 1,400 = $4.61
Ending inventory: 500 × $4.61 = $2,305

Cost of goods sold: $6,450 − $2,305 = $4,145

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SUMMARY OF STUDY OBJECTIVES

1 **Describe the steps in determining inventory quantities.** The steps are (1) take a physical inventory of goods on hand and (2) determine the ownership of goods in transit or on consignment.

2 **Explain the accounting for inventories and apply the inventory cost flow methods.** The primary basis of accounting for inventories is cost. Cost of goods available for sale includes (a) cost of beginning inventory and (b) cost of goods purchased. The inventory cost flow methods are: specific identification and three assumed cost flow methods—FIFO, LIFO, and average-cost.

3 **Explain the financial effects of the inventory cost flow assumptions.** Companies may allocate the cost of goods available for sale to cost of goods sold and ending inventory by specific identification or by a method based on an assumed cost flow. When prices are rising, the first-in, first-out (FIFO) method results in lower cost of goods sold and higher net income than the other methods. The reverse is true when prices are falling. In the balance sheet, FIFO results in an ending inventory that is closest to current value; inventory under LIFO is the farthest from current value. LIFO results in the lowest income taxes.

4 **Explain the lower-of-cost-or-market basis of accounting for inventories.** Companies may use the lower-of-cost-or-market (LCM) basis when the current replacement cost (market) is less than cost. Under LCM, companies recognize the loss in the period in which the price decline occurs.

5 **Indicate the effects of inventory errors on the financial statements.** *In the income statement of the current year:* (a) An error in beginning inventory will have a reverse effect on net income. (b) An error in ending inventory will have a similar effect on net income. In the following period, its effect on net income for that period is reversed, and total net income for the two years will be correct.

In the balance sheet: Ending inventory errors will have the same effect on total assets and total stockholders' equity and no effect on liabilities.

6 **Compute and interpret the inventory turnover ratio.** The inventory turnover ratio is cost of goods sold divided by average inventory. To convert it to average days in inventory, divide 365 days by the inventory turnover ratio.

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GLOSSARY

Average-cost method Inventory costing method that uses the weighted average unit cost to allocate to ending inventory and cost of goods sold the cost of goods available for sale. (p. 258).

Conservatism Concept that dictates that when in doubt, choose the method that will be least likely to overstate assets and net income. (p. 263).

Consigned goods Goods held for sale by one party although ownership of the goods is retained by another party. (p. 253).

Consistency principle Dictates that a company use the same accounting principles and methods from year to year. (p. 262).

Current replacement cost The current cost to replace an inventory item. (p. 263).

Days in inventory Measure of the average number of days inventory is held; calculated as 365 divided by inventory turnover ratio. (p. 267).

Finished goods inventory Manufactured items that are completed and ready for sale. (p. 250).

First-in, first-out (FIFO) method Inventory costing method that assumes that the costs of the earliest goods purchased are the first to be recognized as cost of goods sold. (p. 255).

FOB (free on board) destination Freight terms indicating that ownership of the goods remains with the seller until the goods reach the buyer. (p. 252).

FOB (free on board) shipping point Freight terms indicating that ownership of the goods passes to the buyer when the public carrier accepts the goods from the seller. (p. 252).

Inventory turnover A ratio that measures the number of times on average the inventory sold during the period; computed by dividing cost of goods sold by the average inventory during the period. (p. 266).

Just-in-time (JIT) inventory method Inventory system in which companies manufacture or purchase goods just in time for use. (p. 251).

Last-in, first-out (LIFO) method Inventory costing method that assumes the costs of the latest units purchased are the first to be allocated to cost of goods sold. (p. 257).

Lower-of-cost-or-market (LCM) basis A basis whereby inventory is stated at the lower of either its cost or its market value as determined by current replacement cost. (p. 263).

Raw materials Basic goods that will be used in production but have not yet been placed into production. (p. 250).

Specific identification method An actual physical flow costing method in which items still in inventory are specifically costed to arrive at the total cost of the ending inventory. (p. 254).

Weighted average unit cost Average cost that is weighted by the number of units purchased at each unit cost. (p. 258).

Work in process That portion of manufactured inventory that has been placed into the production process but is not yet complete. (p. 250).

APPENDIX 6A Inventory Cost Flow Methods in Perpetual Inventory Systems

What inventory cost flow methods do companies employ if they use a perpetual inventory system? Simple—they can use any of the inventory cost flow methods described in the chapter. To illustrate the application of the three assumed cost flow methods (FIFO, LIFO, and average-cost), we will use the data shown in Illustration 6A-1 and in this chapter for Houston Electronic's Astro Condenser.

STUDY OBJECTIVE 7

Apply the inventory cost flow methods to perpetual inventory records.

HOUSTON ELECTRONICS
Astro Condensers

Date	Explanation	Units	Unit Cost	Total Cost	Balance in Units
1/1	Beginning inventory	100	$10	$ 1,000	100
4/15	Purchases	200	11	2,200	300
8/24	Purchases	300	12	3,600	600
9/10	Sale	550			50
11/27	Purchases	400	13	5,200	450
				$12,000	

Illustration 6A-1
Inventoriable units and costs

First-In, First-Out (FIFO)

Under FIFO, the company charges to cost of goods sold the cost of the earliest goods on hand **prior to each sale**. Therefore, the cost of goods sold on September 10 consists of the units on hand January 1 and the units purchased April 15 and August 24. Illustration 6A-2 shows the inventory under a FIFO method perpetual system.

Date	Purchases		Cost of Goods Sold	Balance (in units and cost)	
January 1				(100 @ $10)	$ 1,000
April 15	(200 @ $11)	$2,200		(100 @ $10) (200 @ $11)	$ 3,200
August 24	(300 @ $12)	$3,600		(100 @ $10) (200 @ $11) (300 @ $12)	$ 6,800
September 10			(100 @ $10) (200 @ $11) (250 @ $12)	(50 @ $12)	$ 600
			$6,200		Cost of goods sold
November 27	(400 @ $13)	$5,200		(50 @ $12) (400 @ $13)	$5,800
					Ending inventory

Illustration 6A-2
Perpetual system—FIFO

The ending inventory in this situation is $5,800, and the cost of goods sold is $6,200 [(100 @ $10) + (200 @ $11) + (250 @ $12)].

Compare Illustrations 6-5 (page 256) and 6A-2. You can see that the results under FIFO in a perpetual system are the **same as in a periodic system**. In both cases, the ending inventory is $5,800 and cost of goods sold is $6,200. Regardless of the system, the first costs in are the costs assigned to cost of goods sold.

Last-In, First-Out (LIFO)

Under the LIFO method using a perpetual system, the company charges to cost of goods sold the cost of the most recent purchase prior to sale. Therefore, the cost of the goods sold on September 10 consists of all the units from the August 24 and April 15 purchases plus 50 of the units in beginning inventory. Illustration 6A-3 shows the computation of the ending inventory under the LIFO method.

Illustration 6A-3
Perpetual system—LIFO

Date	Purchases		Cost of Goods Sold	Balance (in units and cost)	
January 1				(100 @ $10)	$1,000
April 15	(200 @ $11)	$2,200		(100 @ $10) (200 @ $11)	$3,200
August 24	(300 @ $12)	$3,600		(100 @ $10) (200 @ $11) (300 @ $12)	$6,800
September 10			(300 @ $12) (200 @ $11) (50 @ $10)	(50 @ $10)	$ 500
			$6,300		
November 27	(400 @ $13)	$5,200		(50 @ $10) (400 @ $13)	$5,700

Cost of goods sold — $6,300

Ending inventory — $5,700

The use of LIFO in a perpetual system will usually produce cost allocations that differ from those using LIFO in a periodic system. In a perpetual system, the company allocates the latest units purchased *prior to each sale* to cost of goods sold. In contrast, in a periodic system, the latest units purchased *during the period* are allocated to cost of goods sold. Thus, when a purchase is made after the last sale, the LIFO periodic system will apply this purchase to the previous sale. Compare Illustrations 6-7 (page 257) and 6A-3. Illustration 6-7 shows that the 400 units at $13 purchased on November 27 applied to the sale of 550 units on September 10. Under the LIFO perpetual system in Illustration 6A-3, the 400 units at $13 purchased on November 27 are all applied to the ending inventory.

The ending inventory in this LIFO perpetual illustration is $5,700, and cost of goods sold is $6,300, as compared to the LIFO periodic illustration (on page 257) where the ending inventory is $5,000 and cost of goods sold is $7,000.

Average-Cost

The average-cost method in a perpetual inventory system is called the **moving-average method**. Under this method the company computes a new average **after each purchase**, by dividing the cost of goods available for sale by the units on hand. They then apply the average cost to: (1) the units sold, to determine the cost of goods sold, and (2) the remaining units on hand, to determine the ending inventory amount. Illustration 6A-4 shows the application of the moving-average cost method by Houston Electronics.

Illustration 6A-4
Perpetual system—average-cost method

Date	Purchases		Cost of Goods Sold	Balance (in units and cost)	
January 1				(100 @ $10)	$1,000
April 15	(200 @ $11)	$2,200		(300 @ $10.667)	$3,200
August 24	(300 @ $12)	$3,600		(600 @ $11.333)	$6,800
September 10			(550 @ $11.333)	(50 @ $11.333)	$ 567
			$6,233		
November 27	(400 @ $13)	$5,200		(450 @ $12.816)	$5,767

Cost of goods sold — $6,233

Ending inventory — $5,767

As indicated above, Houston Electronics computes **a new average each time it makes a purchase**. On April 15, after it buys 200 units for $2,200, a total of 300 units costing $3,200 ($1,000 + $2,200) are on hand. The average unit cost is $10.667 ($3,200 ÷ 300). On August 24, after Houston Electronics buys 300 units for $3,600, a total of 600 units costing $6,800 ($1,000 + $2,200 + $3,600) are on hand, at an average cost per unit of $11.333 ($6,800 ÷ 600). Houston Electronics uses this unit cost of $11.333 in costing sales until it makes another purchase, when the company computes a new unit cost. Accordingly, the unit cost of the 550 units sold on September 10 is $11.333, and the total cost of goods sold is $6,233. On November 27, following the purchase of 400 units for $5,200, there are 450 units on hand costing $5,767 ($567 + $5,200) with a new average cost of $12.816 ($5,767 ÷ 450).

Compare this moving-average cost under the perpetual inventory system to Illustration 6-10 (on page 259) showing the average-cost method under a periodic inventory system.

Comprehensive DO IT! 2

Comprehensive Do It! 1 on page 269 showed cost of goods sold computations under a periodic inventory system. Now let's assume that Gerald D. Englehart Company uses a perpetual inventory system. The company has the same inventory, purchases, and sales data for the month of March as shown earlier:

Inventory:	March 1	200 units @ $4.00	$ 800
Purchases:	March 10	500 units @ $4.50	2,250
	March 20	400 units @ $4.75	1,900
	March 30	300 units @ $5.00	1,500
Sales:	March 15	500 units	
	March 25	400 units	

The physical inventory count on March 31 shows 500 units on hand.

Instructions

Under a **perpetual inventory system**, determine the cost of inventory on hand at March 31 and the cost of goods sold for March under (a) FIFO, (b) LIFO, and (c) average-cost.

action plan

- ✔ Compute the cost of goods sold under the perpetual FIFO method by allocating to the goods sold the **earliest** cost of goods purchased.
- ✔ Compute the cost of goods sold under the perpetual LIFO method by allocating to the goods sold the **latest** cost of goods purchased.
- ✔ Compute the cost of goods sold under the perpetual average-cost method by allocating to the goods sold a **moving-average** cost.

Solution to Comprehensive DO IT! 2

The cost of goods available for sale is $6,450, as follows.

Inventory:		200 units @ $4.00	$ 800
Purchases:	March 10	500 units @ $4.50	2,250
	March 20	400 units @ $4.75	1,900
	March 30	300 units @ $5.00	1,500
Total:		1,400	$6,450

Under a **perpetual inventory system**, the cost of goods sold under each cost flow method is as follows.

FIFO Method

Date	Purchases	Cost of Goods Sold	Balance
March 1			(200 @ $4.00) $ 800
March 10	(500 @ $4.50) $2,250		(200 @ $4.00) } $3,050 (500 @ $4.50) }
March 15		(200 @ $4.00) (300 @ $4.50)	(200 @ $4.50) $ 900
		$2,150	

Date	Purchases	Cost of Goods Sold	Balance
March 20	(400 @ $4.75) $1,900		(200 @ $4.50) (400 @ $4.75) $2,800
March 25		(200 @ $4.50) (200 @ $4.75) $1,850	(200 @ $4.75) $ 950
March 30	(300 @ $5.00) $1,500		(200 @ $4.75) (300 @ $5.00) $2,450

Ending inventory, $2,450 Cost of goods sold: $2,150 + $1,850 = $4,000

LIFO Method

Date	Purchases	Cost of Goods Sold	Balance
March 1			(200 @ $4.00) $ 800
March 10	(500 @ $4.50) $2,250		(200 @ $4.00) (500 @ $4.50) $3,050
March 15		(500 @ $4.50) $2,250	(200 @ $4.00) $ 800
March 20	(400 @ $4.75) $1,900		(200 @ $4.00) (400 @ $4.75) $2,700
March 25		(400 @ $4.75) $1,900	(200 @ $4.00) $ 800
March 30	(300 @ $5.00) $1,500		(200 @ $4.00) (300 @ $5.00) $2,300

Ending inventory, $2,300 Cost of goods sold: $2,250 + $1,900 = $4,150

Moving-Average Cost Method

Date	Purchases	Cost of Goods Sold	Balance
March 1			(200 @ $ 4.00) $ 800
March 10	(500 @ $4.50) $2,250		(700 @ $4.357) $3,050
March 15		(500 @ $4.357) $2,179	(200 @ $4.357) $ 871
March 20	(400 @ $4.75) $1,900		(600 @ $4.618) $2,771
March 25		(400 @ $4.618) $1,847	(200 @ $4.618) $ 924
March 30	(300 @ $5.00) $1,500		(500 @ $4.848) $2,424

Ending inventory, $2,424 Cost of goods sold: $2,179 + $1,847 = $4,026

The Navigator

SUMMARY OF STUDY OBJECTIVE FOR APPENDIX 6A

7 Apply the inventory cost flow methods to perpetual inventory records. Under FIFO and a perpetual inventory system, companies charge to cost of goods sold the cost of the earliest goods on hand prior to each sale. Under LIFO and a perpetual system, companies charge to cost of goods sold the cost of the most recent purchase prior to sale. Under the moving-average (average cost) method and a perpetual system, companies compute a new average cost after each purchase.

APPENDIX 6B Estimating Inventories

STUDY OBJECTIVE 8
Describe the two methods of estimating inventories.

In the chapter we assumed that a company would be able to physically count its inventory. What if it cannot? What if the inventory were destroyed by fire or flood, for example? In that case, the company would use an estimate.

Two circumstances explain why companies sometimes estimate inventories. First, a casualty such as fire, flood, or earthquake may make it impossible to take a physical inventory. Second, managers may want monthly or quarterly financial statements, but a physical inventory is taken only annually. The need for estimating inventories occurs primarily with a periodic inventory system because of the absence of perpetual inventory records.

There are two widely used methods of estimating inventories: (1) the gross profit method, and (2) the retail inventory method.

Gross Profit Method

The **gross profit method** estimates the cost of ending inventory by applying a gross profit rate to net sales. This method is relatively simple, but effective. Accountants, auditors, and managers frequently use the gross profit method to test the reasonableness of the ending inventory amount. It will detect large errors.

To use this method, a company needs to know its net sales, cost of goods available for sale, and gross profit rate. The company then can estimate its gross profit for the period. Illustration 6B-1 shows the formulas for using the gross profit method.

Step 1:	Net Sales	–	Estimated Gross Profit	=	Estimated Cost of Goods Sold	
Step 2:	Cost of Goods Available for Sale	–	Estimated Cost of Goods Sold	=	Estimated Cost of Ending Inventory	

Illustration 6B-1
Gross profit method formulas

To illustrate, assume that Kishwaukee Company wishes to prepare an income statement for the month of January. Its records show net sales of $200,000, beginning inventory $40,000, and cost of goods purchased $120,000. In the preceding year, the company realized a 30% gross profit rate. It expects to earn the same rate this year. Given these facts and assumptions, Kishwaukee can compute the estimated cost of the ending inventory at January 31 under the gross profit method as follows.

Step 1:	
Net sales	$200,000
Less: Estimated gross profit (30% × $200,000)	60,000
Estimated cost of goods sold	**$140,000**
Step 2:	
Beginning inventory	$ 40,000
Cost of goods purchased	120,000
Cost of goods available for sale	160,000
Less: Estimated cost of goods sold	140,000
Estimated cost of ending inventory	**$ 20,000**

Illustration 6B-2
Example of gross profit method

The gross profit method is based on the assumption that the gross profit rate will remain constant. But it may not remain constant, due to a change in merchandising

policies or in market conditions. In such cases, the company should adjust the rate to reflect current operating conditions. In some cases, companies can obtain a more accurate estimate by applying this method on a department or product-line basis.

Note that companies should not use the gross profit method to prepare financial statements at the end of the year. These statements should be based on a physical inventory count.

Retail Inventory Method

A retail store such as Home Depot, Ace Hardware, or Wal-Mart has thousands of different types of merchandise at low unit costs. In such cases it is difficult and time-consuming to apply unit costs to inventory quantities. An alternative is to use the **retail inventory method** to estimate the cost of inventory. Most retail companies can establish a relationship between cost and sales price. The company then applies the cost-to-retail percentage to the ending inventory at retail prices to determine inventory at cost.

Under the retail inventory method, a company's records must show both the cost and retail value of the goods available for sale. Illustration 6B-3 presents the formulas for using the retail inventory method.

Illustration 6B-3
Retail inventory method formulas

Step 1:	Goods Available for Sale at Retail	−	Net Sales	=	Ending Inventory at Retail
Step 2:	Goods Available for Sale at Cost	÷	Goods Available for Sale at Retail	=	Cost-to-Retail Ratio
Step 3:	Ending Inventory at Retail	×	Cost-to-Retail Ratio	=	Estimated Cost of Ending Inventory

We can demonstrate the logic of the retail method by using unit-cost data. Assume that Ortiz Inc. has marked 10 units purchased at $7 to sell for $10 per unit. Thus, the cost-to-retail ratio is 70% ($70 ÷ $100). If four units remain unsold, their retail value is $40 (4 × $10), and their cost is $28 ($40 × 70%). This amount agrees with the total cost of goods on hand on a per unit basis (4 × $7).

Illustration 6B-4 shows application of the retail method for Valley West Co. Note that it is not necessary to take a physical inventory to determine the estimated cost of goods on hand at any given time.

Illustration 6B-4
Application of retail inventory method

	At Cost	At Retail
Beginning inventory	$14,000	$ 21,500
Goods purchased	61,000	78,500
Goods available for sale	$75,000	100,000
Net sales		70,000
Step (1) Ending inventory at retail =		**$ 30,000**
Step (2) Cost-to-retail ratio $75,000 ÷ $100,000 = 75%		
Step (3) Estimated cost of ending inventory = $30,000 × 75% =	**$22,500**	

The retail inventory method also facilitates taking a physical inventory at the end of the year. Valley West can value the goods on hand at the prices marked on the merchandise, and then apply the cost-to-retail ratio to the goods on hand at retail to determine the ending inventory at cost.

The major disadvantage of the retail method is that it is an averaging technique. Thus, it may produce an incorrect inventory valuation if the mix of the ending inventory is not representative of the mix in the goods available for sale. Assume, for example, that the cost-to-retail ratio of 75% for Valley West Co. consists of equal proportions of inventory items that have cost-to-retail ratios of 70%, 75%, and 80%. If the ending inventory contains only items with a 70% ratio, an incorrect inventory cost will result. Companies can minimize this problem by applying the retail method on a department or product-line basis.

HELPFUL HINT
In determining inventory at retail, companies use selling prices of the units.

SUMMARY OF STUDY OBJECTIVE FOR APPENDIX 6B

8 Describe the two methods of estimating inventories. The two methods of estimating inventories are the gross profit method and the retail inventory method. Under the gross profit method, companies apply a gross profit rate to net sales to determine estimated cost of goods sold. They then subtract estimated cost of goods sold from cost of goods available for sale to determine the estimated cost of the ending inventory. Under the retail inventory method, companies compute a cost-to-retail ratio by dividing the cost of goods available for sale by the retail value of the goods available for sale. They then apply this ratio to the ending inventory at retail to determine the estimated cost of the ending inventory.

GLOSSARY FOR APPENDIX 6B

Gross profit method A method for estimating the cost of the ending inventory by applying a gross profit rate to net sales and subtracting estimated cost of goods sold from cost of goods available for sale. (p. 275).

Retail inventory method A method for estimating the cost of the ending inventory by applying a cost-to-retail ratio to the ending inventory at retail. (p. 276).

*__Note:__ All **asterisked** Questions, Exercises, and Problems relate to material in the appendices to the chapter.

SELF-STUDY QUESTIONS

Answers are at the end of the chapter.

(SO 1) **1.** Which of the following should *not* be included in the physical inventory of a company?
a. Goods held on consignment from another company.
b. Goods shipped on consignment to another company.
c. Goods in transit from another company shipped FOB shipping point.
d. None of the above.

(SO 1) **2.** As a result of a thorough physical inventory, Railway Company determined that it had inventory worth $180,000 at December 31, 2010. This count did not take into consideration the following facts: Rogers Consignment store currently has goods worth $35,000 on its sales floor that belong to Railway but are being sold on consignment by Rogers. The selling price of these goods is $50,000. Railway purchased $13,000 of goods that were shipped on December 27, FOB destination, that will be received by Railway on January 3. Determine the correct amount of inventory that Railway should report.
a. $230,000.
b. $215,000.
c. $228,000.
d. $193,000.

(SO 2) **3.** Cost of goods available for sale consist of two elements: beginning inventory and
a. ending inventory.
b. cost of goods purchased.
c. cost of goods sold.
d. all of the above.

(SO 2) **4.** Tinker Bell Company has the following:

	Units	Unit Cost
Inventory, Jan. 1	8,000	$11
Purchase, June 19	13,000	12
Purchase, Nov. 8	5,000	13

If Tinker Bell has 9,000 units on hand at December 31, the cost of the ending inventory under FIFO is:
a. $99,000. **c.** $113,000.
b. $108,000. **d.** $117,000.

(SO 2) **5.** Using the data in Question 4 above, the cost of the ending inventory under LIFO is:
a. $113,000. **c.** $99,000.
b. $108,000. **d.** $100,000.

(SO 2) **6.** Davidson Electronics has the following:

	Units	Unit Cost
Inventory, Jan. 1	5,000	$ 8
Purchase, April 2	15,000	$10
Purchase, Aug. 28	20,000	$12

If Davidson has 7,000 units on hand at December 31, the cost of ending inventory under the average-cost method is:
a. $84,000. **c.** $56,000.
b. $70,000. **d.** $75,250.

(SO 3) **7.** In periods of rising prices, LIFO will produce:
a. higher net income than FIFO.
b. the same net income as FIFO.
c. lower net income than FIFO.
d. higher net income than average costing.

(SO 3) **8.** Factors that affect the selection of an inventory costing method do *not* include:
a. tax effects.
b. balance sheet effects.
c. income statement effects.
d. perpetual vs. periodic inventory system.

(SO 4) **9.** Rickety Company purchased 1,000 widgets and has 200 widgets in its ending inventory at a cost of $91 each and a current replacement cost of $80 each. The ending inventory under lower of cost or market is:
a. $91,000. **c.** $18,200.
b. $80,000. **d.** $16,000.

(SO 5) **10.** Atlantis Company's ending inventory is understated $4,000. The effects of this error on the current year's cost of goods sold and net income, respectively, are:
a. understated, overstated.
b. overstated, understated.
c. overstated, overstated.
d. understated, understated.

(SO 4) **11.** Harold Company overstated its inventory by $15,000 at December 31, 2010. It did not correct the error in 2010 or 2011. As a result, Harold's owner's equity was:
a. overstated at December 31, 2010, and understated at December 31, 2011.
b. overstated at December 31, 2010, and properly stated at December 31, 2011.
c. understated at December 31, 2010, and understated at December 31, 2011.
d. overstated at December 31, 2010, and overstated at December 31, 2011.

(SO 6) **12.** Which of these would cause the inventory turnover ratio to increase the most?
a. Increasing the amount of inventory on hand.
b. Keeping the amount of inventory on hand constant but increasing sales.
c. Keeping the amount of inventory on hand constant but decreasing sales.
d. Decreasing the amount of inventory on hand and increasing sales.

(SO 5) **13.** Carlos Company had beginning inventory of $80,000, ending inventory of $110,000, cost of goods sold of $285,000, and sales of $475,000. Carlos's days in inventory is:
a. 73 days.
b. 121.7 days.
c. 102.5 days.
d. 84.5 days.

(SO 8) ***14.** Songbird Company has sales of $150,000 and cost of goods available for sale of $135,000. If the gross profit rate is 30%, the estimated cost of the ending inventory under the gross profit method is:
a. $15,000.
b. $30,000.
c. $45,000.
d. $75,000.

(SO 7) ***15.** In a perpetual inventory system,
a. LIFO cost of goods sold will be the same as in a periodic inventory system.
b. average costs are based entirely on unit cost averages.
c. a new average is computed under the average-cost method after each sale.
d. FIFO cost of goods sold will be the same as in a periodic inventory system.

Go to the book's companion website, **www.wiley.com/college/weygandt**, for Additional Self-Study questions.

The Navigator

QUESTIONS

1. "The key to successful business operations is effective inventory management." Do you agree? Explain.

2. An item must possess two characteristics to be classified as inventory by a merchandiser. What are these two characteristics?

3. Your friend Tom Witt has been hired to help take the physical inventory in Hawkeye Hardware Store. Explain to Tom Witt what this job will entail.

4. (a) Reeves Company ships merchandise to Cox Company on December 30. The merchandise reaches the buyer on January 6. Indicate the terms of sale that will result in the goods being included in (1) Reeves's December 31 inventory, and (2) Cox's December 31 inventory.
(b) Under what circumstances should Reeves Company include consigned goods in its inventory?

5. Jim's Hat Shop received a shipment of hats for which it paid the wholesaler $2,970. The price of the hats was $3,000 but Jim's was given a $30 cash discount and required to pay freight charges of $50. In addition, Jim's paid $130 to cover the travel expenses of an employee who negotiated the purchase of the hats. What amount will Jim's record for inventory? Why?

6. Explain the difference between the terms FOB shipping point and FOB destination.

7. David Shannon believes that the allocation of inventoriable costs should be based on the actual physical flow of the goods. Explain to David why this may be both impractical and inappropriate.

8. What is a major advantage and a major disadvantage of the specific identification method of inventory costing?

9. "The selection of an inventory cost flow method is a decision made by accountants." Do you agree? Explain. Once a method has been selected, what accounting requirement applies?

10. Which assumed inventory cost flow method:
(a) usually parallels the actual physical flow of merchandise?
(b) assumes that goods available for sale during an accounting period are identical?
(c) assumes that the latest units purchased are the first to be sold?

11. In a period of rising prices, the inventory reported in Plato Company's balance sheet is close to the current cost of the inventory. Cecil Company's inventory is considerably below its current cost. Identify the inventory cost flow method being used by each company. Which company has probably been reporting the higher gross profit?

12. Casey Company has been using the FIFO cost flow method during a prolonged period of rising prices. During the same time period, Casey has been paying out all of its net income as dividends. What adverse effects may result from this policy?

13. Peter Lunde is studying for the next accounting mid-term examination. What should Peter know about (a) departing from the cost basis of accounting for inventories and (b) the meaning of "market" in the lower-of-cost-or-market method?

14. Garitson Music Center has 5 CD players on hand at the balance sheet date. Each cost $400. The current replacement cost is $380 per unit. Under the lower-of-cost-or-market basis of accounting for inventories, what value should be reported for the CD players on the balance sheet? Why?

15. Ruthie Stores has 20 toasters on hand at the balance sheet data. Each cost $27. The current replacement cost is $30 per unit. Under the lower-of-cost-or-market basis of accounting for inventories, what value should Ruthie report for the toasters on the balance sheet? Why?

16. Mintz Company discovers in 2010 that its ending inventory at December 31, 2009, was $7,000 understated. What effect will this error have on (a) 2009 net income, (b) 2010 net income, and (c) the combined net income for the 2 years?

17. Willingham Company's balance sheet shows Inventories $162,800. What additional disclosures should be made?

18. Under what circumstances might inventory turnover be too high? That is, what possible negative consequences might occur?

19. PEPSICO What inventory cost flow does PepsiCo use for its inventories? (*Hint:* you will need to examine the notes for PepsiCo's financial statements.)

***20.** "When perpetual inventory records are kept, the results under the FIFO and LIFO methods are the same as they would be in a periodic inventory system." Do you agree? Explain.

***21.** How does the average-cost method of inventory costing differ between a perpetual inventory system and a periodic inventory system?

***22.** When is it necessary to estimate inventories?

***23.** Both the gross profit method and the retail inventory method are based on averages. For each method, indicate the average used, how it is determined, and how it is applied.

***24.** Maureen Company has net sales of $400,000 and cost of goods available for sale of $300,000. If the gross profit rate is 35%, what is the estimated cost of the ending inventory? Show computations.

***25.** Milo Shoe Shop had goods available for sale in 2008 with a retail price of $120,000. The cost of these goods was $84,000. If sales during the period were $80,000, what is the ending inventory at cost using the retail inventory method?

BRIEF EXERCISES

BE6-1 Smart Company identifies the following items for possible inclusion in the taking of a physical inventory. Indicate whether each item should be included or excluded from the inventory taking.

Identify items to be included in taking a physical inventory. (SO 1)

(a) Goods shipped on consignment by Smart to another company.
(b) Goods in transit from a supplier shipped FOB destination.
(c) Goods sold but being held for customer pickup.
(d) Goods held on consignment from another company.

Identify the components of goods available for sale. (SO 2)

BE6-2 The ledger of Gomez Company includes the following items: **(a)** Freight-in, **(b)** Purchase Returns and Allowances, **(c)** Purchases, **(d)** Sales Discounts, **(e)** Purchase Discounts. Identify which items are included in goods available for sale.

Compute ending inventory using FIFO and LIFO. (SO 2)

BE6-3 In its first month of operations, Quirk Company made three purchases of merchandise in the following sequence: (1) 300 units at $6, (2) 400 units at $7, and (3) 200 units at $8. Assuming there are 360 units on hand, compute the cost of the ending inventory under the **(a)** FIFO method and **(b)** LIFO method. Quirk uses a periodic inventory system.

Compute the ending inventory using average-cost. (SO 2)

BE6-4 Data for Quirk Company are presented in BE6-3. Compute the cost of the ending inventory under the average-cost method, assuming there are 360 units on hand.

Explain the financial statement effect of inventory cost flow assumptions. (SO 3)

BE6-5 The management of Hoyt Corp. is considering the effects of various inventory-costing methods on its financial statements and its income tax expense. Assuming that the price the company pays for inventory is increasing, which method will:

(a) provide the highest net income?
(b) provide the highest ending inventory?
(c) result in the lowest income tax expense?
(d) result in the most stable earnings over a number of years?

Explain the financial statement effect of inventory cost flow assumptions. (SO 3)

BE6-6 In its first month of operation, Gulletson Company purchased 100 units of inventory for $6, then 200 units for $7, and finally 150 units for $8. At the end of the month, 180 units remained. Compute the amount of phantom profit that would result if the company used FIFO rather than LIFO. Explain why this amount is referred to as phantom profit. The company uses the periodic method.

Determine the LCM valuation using inventory categories. (SO 4)

BE6-7 Alou Appliance Center accumulates the following cost and market data at December 31.

Inventory Categories	Cost Data	Market Data
Cameras	$12,000	$12,100
Camcorders	9,500	9,700
DVD players	14,000	12,800

Compute the lower-of-cost-or-market valuation for the company's total inventory.

Determine correct income statement amounts. (SO 5)

BE6-8 Cody Company reports net income of $90,000 in 2010. However, ending inventory was understated $10,000. What is the correct net income for 2010? What effect, if any, will this error have on total assets as reported in the balance sheet at December 31, 2010?

Compute inventory turnover and days in inventory. (SO 6)

BE6-9 At December 31, 2010, the following information was available for J. Graff Company: ending inventory $40,000, beginning inventory $60,000, cost of goods sold $270,000, and sales revenue $380,000. Calculate inventory turnover and days in inventory for J. Graff Company.

Apply cost flow methods to perpetual inventory records. (SO 7)

***BE6-10** Jensen's Department Store uses a perpetual inventory system. Data for product E2-D2 include the following purchases.

Date	Number of Units	Unit Price
May 7	50	$10
July 28	30	13

On June 1 Jensen's sold 30 units, and on August 27, 40 more units. Prepare the perpetual inventory schedule for the above transactions using (1) FIFO, (2) LIFO, and (3) moving-average cost.

Apply the gross profit method. (SO 8)

***BE6-11** At May 31, Creole Company has net sales of $330,000 and cost of goods available for sale of $230,000. Compute the estimated cost of the ending inventory, assuming the gross profit rate is 35%.

Apply the retail inventory method. (SO 8)

***BE6-12** On June 30, Fabre Fabrics has the following data pertaining to the retail inventory method: Goods available for sale: at cost $35,000, at retail $50,000; net sales $40,000, and ending inventory at retail $8,000. Compute the estimated cost of the ending inventory using the retail inventory method.

DO IT! REVIEW

DO IT! 6-1 Neverwas Company just took its physical inventory. The count of inventory items on hand at the company's business locations resulted in a total inventory cost of $300,000. In reviewing the details of the count and related inventory transactions, you have discovered the following.

Apply rules of ownership to determine inventory cost. (SO 1)

1. Neverwas has sent inventory costing $26,000 on consignment to Niagara Company. All of this inventory was at Niagara's showrooms on December 31.
2. The company did not include in the count inventory (cost, $20,000) that was sold on December 28, terms FOB shipping point. The goods were in transit on December 31.
3. The company did not include in the count inventory (cost, $17,000) that was purchased with terms of FOB shipping point. The goods were in transit on December 31.

Compute the correct December 31 inventory.

DO IT! 6-2 The accounting records of Oots Electronics show the following data.

Compute cost of goods sold under different cost flow methods. (SO 2)

Beginning inventory	3,000 units at $5
Purchases	8,000 units at $7
Sales	9,200 units at $10

Determine cost of goods sold during the period under a periodic inventory system using (a) the FIFO method, (b) the LIFO method, and (c) the average-cost method. (Round unit cost to nearest tenth of a cent.)

DO IT! 6-3 (a) Blank Company sells three different categories of tools (small, medium and large). The cost and market value of its inventory of tools are as follows.

Compute inventory value under LCM. (SO 5)

	Cost	Market
Small	$ 64,000	$ 73,000
Medium	290,000	260,000
Large	152,000	171,000

Determine the value of the company's inventory under the lower-of-cost-or-market approach.

(b) Audio Company understated its 2010 ending inventory by $31,000. Determine the impact this error has on ending inventory, cost of goods sold, and owner's equity in 2010 and 2011.

DO IT! 6-4 Early in 2010 Aragon Company switched to a just-in-time inventory system. Its sales, cost of goods sold, and inventory amounts for 2009 and 2010 are shown below.

Compute inventory turnover ratio and assess inventory level. (SO 6)

	2009	2010
Sales	$3,120,000	$3,713,000
Cost of goods sold	1,200,000	1,425,000
Beginning inventory	180,000	220,000
Ending inventory	220,000	80,000

Determine the inventory turnover and days in inventory for 2009 and 2010. Discuss the changes in the amount of inventory, the inventory turnover and days in inventory, and the amount of sales across the two years.

EXERCISES

E6-1 Premier Bank and Trust is considering giving Lima Company a loan. Before doing so, they decide that further discussions with Lima's accountant may be desirable. One area of particular concern is the inventory account, which has a year-end balance of $297,000. Discussions with the accountant reveal the following.

Determine the correct inventory amount. (SO 1)

1. Lima sold goods costing $38,000 to Comerica Company, FOB shipping point, on December 28. The goods are not expected to arrive at Comerica until January 12. The goods were not included in the physical inventory because they were not in the warehouse.
2. The physical count of the inventory did not include goods costing $95,000 that were shipped to Lima FOB destination on December 27 and were still in transit at year-end.
3. Lima received goods costing $22,000 on January 2. The goods were shipped FOB shipping point on December 26 by Galant Co. The goods were not included in the physical count.

4. Lima sold goods costing $35,000 to Emerick Co., FOB destination, on December 30. The goods were received at Emerick on January 8. They were not included in Lima's physical inventory.
5. Lima received goods costing $44,000 on January 2 that were shipped FOB destination on December 29. The shipment was a rush order that was supposed to arrive December 31. This purchase was included in the ending inventory of $297,000.

Instructions
Determine the correct inventory amount on December 31.

Determine the correct inventory amount.
(SO 1)

E6-2 Kale Thompson, an auditor with Sneed CPAs, is performing a review of Strawser Company's inventory account. Strawser did not have a good year and top management is under pressure to boost reported income. According to its records, the inventory balance at year-end was $740,000. However, the following information was not considered when determining that amount.

1. Included in the company's count were goods with a cost of $250,000 that the company is holding on consignment. The goods belong to Superior Corporation.
2. The physical count did not include goods purchased by Strawser with a cost of $40,000 that were shipped FOB destination on December 28 and did not arrive at Strawser's warehouse until January 3.
3. Included in the inventory account was $17,000 of office supplies that were stored in the warehouse and were to be used by the company's supervisors and managers during the coming year.
4. The company received an order on December 29 that was boxed and was sitting on the loading dock awaiting pick-up on December 31. The shipper picked up the goods on January 1 and delivered them on January 6. The shipping terms were FOB shipping point. The goods had a selling price of $40,000 and a cost of $30,000. The goods were not included in the count because they were sitting on the dock.
5. On December 29 Strawser shipped goods with a selling price of $80,000 and a cost of $60,000 to District Sales Corporation FOB shipping point. The goods arrived on January 3. District Sales had only ordered goods with a selling price of $10,000 and a cost of $8,000. However, a sales manager at Strawser had authorized the shipment and said that if District wanted to ship the goods back next week, it could.
6. Included in the count was $40,000 of goods that were parts for a machine that the company no longer made. Given the high-tech nature of Strawser's products, it was unlikely that these obsolete parts had any other use. However, management would prefer to keep them on the books at cost, "since that is what we paid for them, after all."

Instructions
Prepare a schedule to determine the correct inventory amount. Provide explanations for each item above, saying why you did or did not make an adjustment for each item.

Calculate cost of goods sold using specific identification and FIFO.
(SO 2, 3)

E6-3 On December 1, Bargain Electronics Ltd. has three DVD players left in stock. All are identical, all are priced to sell at $150. One of the three DVD players left in stock, with serial #1012, was purchased on June 1 at a cost of $100. Another, with serial #1045, was purchased on November 1 for $90. The last player, serial #1056, was purchased on November 30 for $80.

Instructions
(a) Calculate the cost of goods sold using the FIFO periodic inventory method assuming that two of the three players were sold by the end of December, Bargain Electronic's year-end.
(b) If Bargain Electronics used the specific identification method instead of the FIFO method, how might it alter its earnings by "selectively choosing" which particular players to sell to the two customers? What would Bargain's cost of goods sold be if the company wished to minimize earnings? Maximize earnings?
(c) Which of the two inventory methods do you recommend that Bargain use? Explain why.

Compute inventory and cost of goods sold using FIFO and LIFO.
(SO 2)

E6-4 Boarders sells a snowboard, Xpert, that is popular with snowboard enthusiasts. Below is information relating to Boarders's purchases of Xpert snowboards during September. During the same month, 121 Xpert snowboards were sold. Boarders uses a periodic inventory system.

Date	Explanation	Units	Unit Cost	Total Cost
Sept. 1	Inventory	26	$ 97	$ 2,522
Sept. 12	Purchases	45	102	4,590
Sept. 19	Purchases	20	104	2,080
Sept. 26	Purchases	50	105	5,250
	Totals	141		$14,442

Instructions

(a) Compute the ending inventory at September 30 and cost of goods sold using the FIFO and LIFO methods. Prove the amount allocated to cost of goods sold under each method.

(b) For both FIFO and LIFO, calculate the sum of ending inventory and cost of goods sold. What do you notice about the answers you found for each method?

E6-5 Catlet Co. uses a periodic inventory system. Its records show the following for the month of May, in which 65 units were sold.

Compute inventory and cost of goods sold using FIFO and LIFO.

(SO 2)

		Units	Unit Cost	Total Cost
May 1	Inventory	30	$ 8	$240
15	Purchases	25	11	275
24	Purchases	35	12	420
	Totals	90		$935

Instructions

Compute the ending inventory at May 31 and cost of goods sold using the FIFO and LIFO methods. Prove the amount allocated to cost of goods sold under each method.

E6-6 Yount Company reports the following for the month of June.

Compute inventory and cost of goods sold using FIFO and LIFO.

(SO 2, 3)

		Units	Unit Cost	Total Cost
June 1	Inventory	200	$5	$1,000
12	Purchase	300	6	1,800
23	Purchase	500	7	3,500
30	Inventory	120		

Instructions

(a) Compute the cost of the ending inventory and the cost of goods sold under (1) FIFO and (2) LIFO.

(b) Which costing method gives the higher ending inventory? Why?

(c) Which method results in the higher cost of goods sold? Why?

E6-7 Jones Company had 100 units in beginning inventory at a total cost of $10,000. The company purchased 200 units at a total cost of $26,000. At the end of the year, Jones had 80 units in ending inventory.

Compute inventory under FIFO, LIFO, and average-cost.

(SO 2, 3)

Instructions

(a) Compute the cost of the ending inventory and the cost of goods sold under (1) FIFO, (2) LIFO, and (3) average-cost.

(b) Which cost flow method would result in the highest net income?

(c) Which cost flow method would result in inventories approximating current cost in the balance sheet?

(d) Which cost flow method would result in Jones paying the least taxes in the first year?

E6-8 Inventory data for Yount Company are presented in E6-6.

Compute inventory and cost of goods sold using average-cost.

(SO 2, 3)

Instructions

(a) Compute the cost of the ending inventory and the cost of goods sold using the average-cost method.

(b) Will the results in (a) be higher or lower than the results under (1) FIFO and (2) LIFO?
(c) Why is the average unit cost not $6?

Determine ending inventory under LCM. (SO 4)

E6-9 Americus Camera Shop uses the lower-of-cost-or-market basis for its inventory. The following data are available at December 31.

Item	Units	Unit Cost	Market
Cameras:			
Minolta	5	$170	$156
Canon	6	150	152
Light meters:			
Vivitar	12	125	115
Kodak	14	120	135

Instructions
Determine the amount of the ending inventory by applying the lower-of-cost-or-market basis.

Compute lower-of-cost-or-market. (SO 4)

E6-10 Conan Company applied FIFO to its inventory and got the following results for its ending inventory.

Cameras	100 units at a cost per unit of $65
DVD players	150 units at a cost per unit of $75
iPods	125 units at a cost per unit of $80

The cost of purchasing units at year-end was VCRs $71, DVD players $69, and iPods $78.

Instructions
Determine the amount of ending inventory at lower-of-cost-or-market.

Determine effects of inventory errors. (SO 5)

E6-11 Lebo Hardware reported cost of goods sold as follows.

	2010	2011
Beginning inventory	$ 20,000	$ 30,000
Cost of goods purchased	150,000	175,000
Cost of goods available for sale	170,000	205,000
Ending inventory	30,000	35,000
Cost of goods sold	$140,000	$170,000

Lebo made two errors: (1) 2010 ending inventory was overstated $3,000, and (2) 2011 ending inventory was understated $6,000.

Instructions
Compute the correct cost of goods sold for each year.

Prepare correct income statements. (SO 5)

E6-12 Staley Watch Company reported the following income statement data for a 2-year period.

	2010	2011
Sales	$210,000	$250,000
Cost of goods sold		
Beginning inventory	32,000	44,000
Cost of goods purchased	173,000	202,000
Cost of goods available for sale	205,000	246,000
Ending inventory	44,000	52,000
Cost of goods sold	161,000	194,000
Gross profit	$ 49,000	$ 56,000

Staley uses a periodic inventory system. The inventories at January 1, 2010, and December 31, 2011, are correct. However, the ending inventory at December 31, 2010, was overstated $5,000.

Instructions
(a) Prepare correct income statement data for the 2 years.
(b) What is the cumulative effect of the inventory error on total gross profit for the 2 years?
(c) Explain in a letter to the president of Staley Company what has happened—i.e., the nature of the error and its effect on the financial statements.

E6-13 This information is available for Santo's Photo Corporation for 2009, 2010, and 2011.

Compute inventory turnover, days in inventory, and gross profit rate.
(SO 6)

	2009	2010	2011
Beginning inventory	$ 100,000	$ 300,000	$ 400,000
Ending inventory	300,000	400,000	480,000
Cost of goods sold	900,000	1,120,000	1,300,000
Sales	1,200,000	1,600,000	1,900,000

Instructions
Calculate inventory turnover, days in inventory, and gross profit rate (from Chapter 5) for Santo's Photo Corporation for 2009, 2010, 2011. Comment on any trends.

E6-14 The cost of goods sold computations for O'Brien Company and Weinberg Company are shown below.

Compute inventory turnover and days in inventory.
(SO 6)

	O'Brien Company	Weinberg Company
Beginning inventory	$ 45,000	$ 71,000
Cost of goods purchased	200,000	290,000
Cost of goods available for sale	245,000	361,000
Ending inventory	55,000	69,000
Cost of goods sold	$190,000	$292,000

Instructions
(a) Compute inventory turnover and days in inventory for each company.
(b) Which company moves its inventory more quickly?

***E6-15** Klugman Appliance uses a perpetual inventory system. For its flat-screen television sets, the January 1 inventory was 3 sets at $600 each. On January 10, Klugman purchased 6 units at $660 each. The company sold 2 units on January 8 and 4 units on January 15.

Apply cost flow methods to perpetual records.
(SO 7)

Instructions
Compute the ending inventory under (1) FIFO, (2) LIFO, and (3) moving-average cost.

***E6-16** Yount Company reports the following for the month of June.

Calculate inventory and cost of goods sold using three cost flow methods in a perpetual inventory system.
(SO 7)

Date	Explanation	Units	Unit Cost	Total Cost
June 1	Inventory	200	$5	$1,000
12	Purchase	300	6	1,800
23	Purchase	500	7	3,500
30	Inventory	120		

Instructions
(a) Calculate the cost of the ending inventory and the cost of goods sold for each cost flow assumption, using a perpetual inventory system. Assume a sale of 400 units occurred on June 15 for a selling price of $8 and a sale of 480 units on June 27 for $9.
(b) How do the results differ from E6-6 and E6-8?
(c) Why is the average unit cost not $6 [($5 + $6 + $7) ÷ 3 = $6]?

***E6-17** Information about Boarders is presented in E6-4. Additional data regarding Boarders' sales of Xpert snowboards are provided below. Assume that Boarders uses a perpetual inventory system.

Apply cost flow methods to perpetual records.
(SO 7)

Date		Units	Unit Price	Total Cost
Sept. 5	Sale	12	$199	$ 2,388
Sept. 16	Sale	50	199	9,950
Sept. 29	Sale	59	209	12,331
	Totals	121		$24,669

Instructions

(a) Compute ending inventory at September 30 using FIFO, LIFO, and moving-average cost.
(b) Compare ending inventory using a perpetual inventory system to ending inventory using a periodic inventory system (from E6-4).
(c) Which inventory cost flow method (FIFO, LIFO) gives the same ending inventory value under both periodic and perpetual? Which method gives different ending inventory values?

Use the gross profit method to estimate inventory.
(SO 8)

***E6-18** Doc Gibbs Company reported the following information for November and December 2010.

	November	December
Cost of goods purchased	$500,000	$ 610,000
Inventory, beginning-of-month	100,000	120,000
Inventory, end-of-month	120,000	????
Sales	800,000	1,000,000

Doc Gibbs's ending inventory at December 31 was destroyed in a fire.

Instructions

(a) Compute the gross profit rate for November.
(b) Using the gross profit rate for November, determine the estimated cost of inventory lost in the fire.

Determine merchandise lost using the gross profit method of estimating inventory.
(SO 8)

***E6-19** The inventory of Faber Company was destroyed by fire on March 1. From an examination of the accounting records, the following data for the first 2 months of the year are obtained: Sales $51,000, Sales Returns and Allowances $1,000, Purchases $31,200, Freight-in $1,200, and Purchase Returns and Allowances $1,400.

Instructions

Determine the merchandise lost by fire, assuming:
(a) A beginning inventory of $20,000 and a gross profit rate of 40% on net sales.
(b) A beginning inventory of $30,000 and a gross profit rate of 30% on net sales.

Determine ending inventory at cost using retail method.
(SO 8)

***E6-20** Quayle Shoe Store uses the retail inventory method for its two departments, Women's Shoes and Men's Shoes. The following information for each department is obtained.

Item	Women's Department	Men's Department
Beginning inventory at cost	$ 32,000	$ 45,000
Cost of goods purchased at cost	148,000	136,300
Net sales	178,000	185,000
Beginning inventory at retail	46,000	60,000
Cost of goods purchased at retail	179,000	185,000

Instructions

Compute the estimated cost of the ending inventory for each department under the retail inventory method.

EXERCISES: SET B

Visit the book's companion website at **www.wiley.com/college/weygandt**, and choose the Student Companion site, to access Exercise Set B.

PROBLEMS: SET A

P6-1A Heath Limited is trying to determine the value of its ending inventory at February 28, 2008, the company's year end. The accountant counted everything that was in the warehouse as of February 28, which resulted in an ending inventory valuation of $48,000. However, she didn't know how to treat the following transactions so she didn't record them.

Determine items and amounts to be recorded in inventory. (SO 1)

(a) On February 26, Heath shipped to a customer goods costing $800. The goods were shipped FOB shipping point, and the receiving report indicates that the customer received the goods on March 2.
(b) On February 26, Seller Inc. shipped goods to Heath FOB destination. The invoice price was $350. The receiving report indicates that the goods were received by Heath on March 2.
(c) Heath had $500 of inventory at a customer's warehouse "on approval." The customer was going to let Heath know whether it wanted the merchandise by the end of the week, March 4.
(d) Heath also had $400 of inventory on consignment at a Jasper craft shop.
(e) On February 26, Heath ordered goods costing $750. The goods were shipped FOB shipping point on February 27. Heath received the goods on March 1.
(f) On February 28, Heath packaged goods and had them ready for shipping to a customer FOB destination. The invoice price was $350; the cost of the items was $250. The receiving report indicates that the goods were received by the customer on March 2.
(g) Heath had damaged goods set aside in the warehouse because they are no longer saleable. These goods originally cost $400 and, originally, Heath expected to sell these items for $600.

Instructions

For each of the above transactions, specify whether the item in question should be included in ending inventory, and if so, at what amount. For each item that is not included in ending inventory, indicate who owns it and what account, if any, it should have been recorded in.

P6-2A Glanville Distribution markets CDs of the performing artist Harrilyn Clooney. At the beginning of March, Glanville had in beginning inventory 1,500 Clooney CDs with a unit cost of $7. During March Glanville made the following purchases of Clooney CDs.

Determine cost of goods sold and ending inventory using FIFO, LIFO, and average-cost with analysis. (SO 2, 3)

March 5	3,000 @ $8	March 21	4,000 @ $10
March 13	5,500 @ $9	March 26	2,000 @ $11

During March 12,500 units were sold. Glanville uses a periodic inventory system.

Instructions

(a) Determine the cost of goods available for sale.
(b) Determine (1) the ending inventory and (2) the cost of goods sold under each of the assumed cost flow methods (FIFO, LIFO, and average-cost). Prove the accuracy of the cost of goods sold under the FIFO and LIFO methods.
(c) Which cost flow method results in (1) the highest inventory amount for the balance sheet and (2) the highest cost of goods sold for the income statement?

(b)(2) Cost of goods sold:
FIFO $109,000
LIFO $119,500
Average $114,062

P6-3A Eddings Company had a beginning inventory of 400 units of Product XNA at a cost of $8.00 per unit. During the year, purchases were:

Determine cost of goods sold and ending inventory using FIFO, LIFO, and average-cost with analysis. (SO 2, 3)

Feb. 20	600 units at $9	Aug. 12	300 units at $11
May 5	500 units at $10	Dec. 8	200 units at $12

Eddings Company uses a periodic inventory system. Sales totaled 1,500 units.

Instructions

(a) Determine the cost of goods available for sale.
(b) Determine (1) the ending inventory, and (2) the cost of goods sold under each of the assumed cost flow methods (FIFO, LIFO, and average). Prove the accuracy of the cost of goods sold under the FIFO and LIFO methods.

(b) Cost of goods sold:
FIFO $13,600
LIFO $15,200
Average $14,475

(c) Which cost flow method results in (1) the lowest inventory amount for the balance sheet, and (2) the lowest cost of goods sold for the income statement?

Compute ending inventory, prepare income statements, and answer questions using FIFO and LIFO.
(SO 2, 3)

P6-4A The management of Morales Co. is reevaluating the appropriateness of using its present inventory cost flow method, which is average-cost. They request your help in determining the results of operations for 2010 if either the FIFO method or the LIFO method had been used. For 2010, the accounting records show the following data.

Inventories		Purchases and Sales	
Beginning (15,000 units)	$32,000	Total net sales (215,000 units)	$865,000
Ending (30,000 units)		Total cost of goods purchased (230,000 units)	595,000

Purchases were made quarterly as follows.

Quarter	Units	Unit Cost	Total Cost
1	60,000	$2.40	$144,000
2	50,000	2.50	125,000
3	50,000	2.60	130,000
4	70,000	2.80	196,000
	230,000		$595,000

Operating expenses were $147,000, and the company's income tax rate is 34%.

Instructions

(a) Net income
FIFO $115,500
LIFO $104,940
(b)(4) $5,440

(a) Prepare comparative condensed income statements for 2010 under FIFO and LIFO. (Show computations of ending inventory.)

(b) Answer the following questions for management.

(1) Which cost flow method (FIFO or LIFO) produces the more meaningful inventory amount for the balance sheet? Why?

(2) Which cost flow method (FIFO or LIFO) produces the more meaningful net income? Why?

(3) Which cost flow method (FIFO or LIFO) is more likely to approximate actual physical flow of the goods? Why?

(4) How much additional cash will be available for management under LIFO than under FIFO? Why?

(5) Will gross profit under the average-cost method be higher or lower than (a) FIFO and (b) LIFO? (*Note*: It is not necessary to quantify your answer.)

Calculate ending inventory, cost of goods sold, gross profit, and gross profit rate under periodic method; compare results.
(SO 2, 3)

P6-5A You are provided with the following information for Pavey Inc. for the month ended October 31, 2010. Pavey uses a periodic method for inventory.

Date	Description	Units	Unit Cost or Selling Price
October 1	Beginning inventory	60	$25
October 9	Purchase	120	26
October 11	Sale	100	35
October 17	Purchase	70	27
October 22	Sale	60	40
October 25	Purchase	80	28
October 29	Sale	110	40

Instructions

(a)(iii) Gross profit:
LIFO $3,050
FIFO $3,230
Average $3,141

(a) Calculate (i) ending inventory, (ii) cost of goods sold, (iii) gross profit, and (iv) gross profit rate under each of the following methods.

(1) LIFO.

(2) FIFO.

(3) Average-cost.

(b) Compare results for the three cost flow assumptions.

P6-6A You have the following information for Bernelli Diamonds. Bernelli Diamonds uses the periodic method of accounting for its inventory transactions. Bernelli only carries one brand and size of diamonds—all are identical. Each batch of diamonds purchased is carefully coded and marked with its purchase cost.

Compare specific identification, FIFO and LIFO under periodic method; use cost flow assumption to influence earnings.

(SO 2, 3)

March 1 Beginning inventory 150 diamonds at a cost of $300 per diamond.
March 3 Purchased 200 diamonds at a cost of $350 each.
March 5 Sold 180 diamonds for $600 each.
March 10 Purchased 350 diamonds at a cost of $375 each.
March 25 Sold 400 diamonds for $650 each.

Instructions

(a) Assume that Bernelli Diamonds uses the specific identification cost flow method.
- **(1)** Demonstrate how Bernelli Diamonds could maximize its gross profit for the month by specifically selecting which diamonds to sell on March 5 and March 25.
- **(2)** Demonstrate how Bernelli Diamonds could minimize its gross profit for the month by selecting which diamonds to sell on March 5 and March 25.

(b) Assume that Bernelli Diamonds uses the FIFO cost flow assumption. Calculate cost of goods sold. How much gross profit would Bernelli Diamonds report under this cost flow assumption?

(c) Assume that Bernelli Diamonds uses the LIFO cost flow assumption. Calculate cost of goods sold. How much gross profit would the company report under this cost flow assumption?

(d) Which cost flow method should Bernelli Diamonds select? Explain.

(a) Gross profit:
(1) Maximum $166,750
(2) Minimum $157,750

P6-7A The management of Utley Inc. asks your help in determining the comparative effects of the FIFO and LIFO inventory cost flow methods. For 2010 the accounting records show these data.

Compute ending inventory, prepare income statements, and answer questions using FIFO and LIFO.

(SO 2, 3)

Inventory, January 1 (10,000 units)	$ 35,000
Cost of 120,000 units purchased	504,500
Selling price of 100,000 units sold	665,000
Operating expenses	130,000

Units purchased consisted of 35,000 units at $4.00 on May 10; 60,000 units at $4.20 on August 15; and 25,000 units at $4.50 on November 20. Income taxes are 28%.

Instructions

(a) Prepare comparative condensed income statements for 2010 under FIFO and LIFO. (Show computations of ending inventory.)

(b) Answer the following questions for management in the form of a business letter.
- **(1)** Which inventory cost flow method produces the most meaningful inventory amount for the balance sheet? Why?
- **(2)** Which inventory cost flow method produces the most meaningful net income? Why?
- **(3)** Which inventory cost flow method is most likely to approximate the actual physical flow of the goods? Why?
- **(4)** How much more cash will be available for management under LIFO than under FIFO? Why?
- **(5)** How much of the gross profit under FIFO is illusionary in comparison with the gross profit under LIFO?

Gross profit:
FIFO $259,000
LIFO $240,500

***P6-8A** Vasquez Ltd. is a retailer operating in Edmonton, Alberta. Vasquez uses the perpetual inventory method. All sales returns from customers result in the goods being returned to inventory; the inventory is not damaged. Assume that there are no credit transactions; all amounts are settled in cash. You are provided with the following information for Vasquez Ltd. for the month of January 2010.

Calculate cost of goods sold and ending inventory for FIFO, average-cost, and LIFO under the perpetual system; compare gross profit under each assumption.

(SO 7)

Date	Description	Quantity	Unit Cost or Selling Price
December 31	Ending inventory	150	$17
January 2	Purchase	100	21
January 6	Sale	150	40
January 9	Sale return	10	40
January 9	Purchase	75	24
January 10	Purchase return	15	24
January 10	Sale	50	45
January 23	Purchase	100	28
January 30	Sale	110	50

Gross profit:
LIFO $6,330
FIFO $7,500
Average $7,090

Instructions

(a) For each of the following cost flow assumptions, calculate (i) cost of goods sold, (ii) ending inventory, and (iii) gross profit.
(1) LIFO. **(2)** FIFO. **(3)** Moving-average-cost.
(b) Compare results for the three cost flow assumptions.

Determine ending inventory under a perpetual inventory system.

(SO 7)

***P6-9A** Sandoval Appliance Mart began operations on May 1. It uses a perpetual inventory system. During May the company had the following purchases and sales for its Model 25 Sureshot camera.

	Purchases		
Date	Units	Unit Cost	Sales Units
May 1	7	$150	
4			4
8	8	$170	
12			5
15	6	$185	
20			3
25			4

Instructions

(a) FIFO $925
Average $874
LIFO $790

(a) Determine the ending inventory under a perpetual inventory system using (1) FIFO, (2) moving-average cost, and (3) LIFO.
(b) Which costing method produces (1) the highest ending inventory valuation and (2) the lowest ending inventory valuation?

Estimate inventory loss using gross profit method.

(SO 8)

***P6-10A** Saffordville Company lost 70% of its inventory in a fire on March 25, 2010. The accounting records showed the following gross profit data for February and March.

	February	March (to 3/25)
Net sales	$300,000	$250,000
Net purchases	197,800	191,000
Freight-in	2,900	4,000
Beginning inventory	4,500	13,200
Ending inventory	13,200	?

Saffordville Company is fully insured for fire losses but must prepare a report for the insurance company.

Instructions

(a) Compute the gross profit rate for the month of February.
(b) Using the gross profit rate for February, determine both the estimated total inventory and inventory lost in the fire in March.

Compute ending inventory using retail method.

(SO 8)

***P6-11A** Neer Department Store uses the retail inventory method to estimate its monthly ending inventories. The following information is available for two of its departments at August 31, 2010.

	Sporting Goods		Jewelry and Cosmetics	
	Cost	Retail	Cost	Retail
Net sales		$1,000,000		$1,160,000
Purchases	$675,000	1,066,000	$741,000	1,158,000
Purchase returns	(26,000)	(40,000)	(12,000)	(20,000)
Purchase discounts	(12,360)	—	(2,440)	—
Freight-in	9,000	—	14,000	—
Beginning inventory	47,360	74,000	39,440	62,000

At December 31, Neer Department Store takes a physical inventory at retail. The actual retail values of the inventories in each department are Sporting Goods $95,000, and Jewelry and Cosmetics $44,000.

Instructions

(a) Determine the estimated cost of the ending inventory for each department on **August 31**, 2010, using the retail inventory method.

(b) Compute the ending inventory at cost for each department at **December 31**, assuming the cost-to-retail ratios are 60% for Sporting Goods and 64% for Jewelry and Cosmetics.

PROBLEMS: SET B

P6-1B Elms Country Limited is trying to determine the value of its ending inventory as of February 28, 2010, the company's year-end. The following transactions occurred, and the accountant asked your help in determining whether they should be recorded or not.

Determine items and amounts to be recorded in inventory.

(SO 1)

(a) On February 26, Elms shipped goods costing $800 to a customer and charged the customer $1,000. The goods were shipped with terms FOB shipping point and the receiving report indicates that the customer received the goods on March 2.

(b) On February 26, Brad Inc. shipped goods to Elms under terms FOB shipping point. The invoice price was $450 plus $30 for freight. The receiving report indicates that the goods were received by Elms on March 2.

(c) Elms had $650 of inventory isolated in the warehouse. The inventory is designated for a customer who has requested that the goods be shipped on March 10.

(d) Also included in Elms's warehouse is $700 of inventory that Art Producers shipped to Elms on consignment.

(e) On February 26, Elms issued a purchase order to acquire goods costing $900. The goods were shipped with terms FOB destination on February 27. Elms received the goods on March 2.

(f) On February 26, Elms shipped goods to a customer under terms FOB destination. The invoice price was $350; the cost of the items was $200. The receiving report indicates that the goods were received by the customer on March 2.

Instructions

For each of the above transactions, specify whether the item in question should be included in ending inventory, and if so, at what amount.

P6-2B Soul Patrol Distribution markets CDs of the performing artist Taylor Hicks. At the beginning of October, Soul Patrol had in beginning inventory 2,000 of Hicks's CDs with a unit cost of $7. During October Soul Patrol made the following purchases of Hicks's CDs.

Determine cost of goods sold and ending inventory using FIFO, LIFO, and average-cost with analysis.

(SO 2, 3)

Oct. 3	3,000 @ $8	Oct. 19	3,000 @ $10
Oct. 9	3,500 @ $9	Oct. 25	3,500 @ $11

During October, 11,400 units were sold. Soul Patrol uses a periodic inventory system.

Instructions

(a) Determine the cost of goods available for sale.

(b) Determine (1) the ending inventory and (2) the cost of goods sold under each of the assumed cost flow methods (FIFO, LIFO, and average-cost). Prove the accuracy of the cost of goods sold under the FIFO and LIFO methods.

(b)(2) Cost of goods sold:
FIFO $98,500
LIFO $111,200
Average $104,880

(c) Which cost flow method results in (1) the highest inventory amount for the balance sheet and (2) the highest cost of goods sold for the income statement?

P6-3B Lobster Company had a beginning inventory on January 1 of 150 units of Product BU-54 at a cost of $20 per unit. During the year, the following purchases were made.

Determine cost of goods sold and ending inventory, using FIFO, LIFO, and average-cost with analysis.

(SO 2, 3)

Mar. 15	400 units at $23	Sept. 4	350 units at $26
July 20	250 units at $24	Dec. 2	100 units at $29

1,000 units were sold. Lobster Company uses a periodic inventory system.

Instructions

(b)(2) Cost of goods sold:
FIFO $23,400
LIFO $24,900
Average $24,160

(a) Determine the cost of goods available for sale.
(b) Determine (1) the ending inventory, and (2) the cost of goods sold under each of the assumed cost flow methods (FIFO, LIFO, and average-cost). Prove the accuracy of the cost of goods sold under the FIFO and LIFO methods.
(c) Which cost flow method results in (1) the highest inventory amount for the balance sheet, and (2) the highest cost of goods sold for the income statement?

Compute ending inventory, prepare income statements, and answer questions using FIFO and LIFO.

(SO 2, 3)

P6-4B The management of Moner Inc. is reevaluating the appropriateness of using its present inventory cost flow method, which is average-cost. The company requests your help in determining the results of operations for 2010 if either the FIFO or the LIFO method had been used. For 2010 the accounting records show these data:

Inventories		Purchases and Sales	
Beginning (8,000 units)	$16,000	Total net sales (180,000 units)	$747,000
Ending (18,000 units)		Total cost of goods purchased (190,000 units)	468,000

Purchases were made quarterly as follows.

Quarter	Units	Unit Cost	Total Cost
1	50,000	$2.20	$110,000
2	40,000	2.40	96,000
3	40,000	2.50	100,000
4	60,000	2.70	162,000
	190,000		$468,000

Operating expenses were $130,000, and the company's income tax rate is 40%.

Instructions

(a) Gross profit:
FIFO $311,600
LIFO $301,000

(a) Prepare comparative condensed income statements for 2010 under FIFO and LIFO. (Show computations of ending inventory.)
(b) Answer the following questions for management.
(1) Which cost flow method (FIFO or LIFO) produces the more meaningful inventory amount for the balance sheet? Why?
(2) Which cost flow method (FIFO or LIFO) produces the more meaningful net income? Why?
(3) Which cost flow method (FIFO or LIFO) is more likely to approximate the actual physical flow of goods? Why?
(4) How much more cash will be available for management under LIFO than under FIFO? Why?
(5) Will gross profit under the average-cost method be higher or lower than FIFO? Than LIFO? (*Note*: It is not necessary to quantify your answer.)

Calculate ending inventory, cost of goods sold, gross profit, and gross profit rate under periodic method; compare results.

(SO 2, 3)

P6-5B You are provided with the following information for Web Inc. for the month ended June 30, 2010. Web uses the periodic method for inventory.

Date	Description	Quantity	Unit Cost or Selling Price
June 1	Beginning inventory	40	$40
June 4	Purchase	135	44
June 10	Sale	110	70
June 11	Sale return	15	70
June 18	Purchase	55	46
June 18	Purchase return	10	46
June 25	Sale	65	75
June 28	Purchase	30	50

Instructions

(a) Calculate (i) ending inventory, (ii) cost of goods sold, (iii) gross profit, and (iv) gross profit rate under each of the following methods.
(1) LIFO. **(2)** FIFO. **(3)** Average-cost.
(b) Compare results for the three cost flow assumptions.

(a)(iii) Gross profit:
LIFO $4,215
FIFO $4,645
Average $4,414.60

P6-6B You are provided with the following information for Mondello Inc. Mondello Inc. uses the periodic method of accounting for its inventory transactions.

Compare specific identification, FIFO, and LIFO under periodic method; use cost flow assumption to justify price increase.

(SO 2, 3)

March 1	Beginning inventory 2,000 liters at a cost of 60¢ per liter.
March 3	Purchased 2,500 liters at a cost of 65¢ per liter.
March 5	Sold 2,200 liters for $1.05 per liter.
March 10	Purchased 4,000 liters at a cost of 72¢ per liter.
March 20	Purchased 2,500 liters at a cost of 80¢ per liter.
March 30	Sold 5,000 liters for $1.25 per liter.

Instructions

(a) Prepare partial income statements through gross profit, and calculate the value of ending inventory that would be reported on the balance sheet, under each of the following cost flow assumptions. Round ending Inventory and cost of goods sold to the nearest dollar.
(1) Specific identification method assuming:
(i) the March 5 sale consisted of 1,100 liters from the March 1 beginning inventory and 1,100 liters from the March 3 purchase; and
(ii) the March 30 sale consisted of the following number of units sold from beginning inventory and each purchase: 450 liters from March 1; 550 liters from March 3; 2,900 liters from March 10; 1,100 liters from March 20.
(2) FIFO.
(3) LIFO.
(b) How can companies use a cost flow method to justify price increases? Which cost flow method would best support an argument to increase prices?

(a)(1) Gross profit:
Specific identification $3,590

(2) FIFO $3,791
(3) LIFO $3,225

P6-7B The management of Clare Co. asks your help in determining the comparative effects of the FIFO and LIFO inventory cost flow methods. For 2010, the accounting records show the following data.

Compute ending inventory, prepare income statements, and answer questions using FIFO and LIFO.

(SO 2, 3)

Inventory, January 1 (10,000 units)	$ 45,000
Cost of 100,000 units purchased	532,000
Selling price of 80,000 units sold	700,000
Operating expenses	140,000

Units purchased consisted of 35,000 units at $5.10 on May 10; 35,000 units at $5.30 on August 15; and 30,000 units at $5.60 on November 20. Income taxes are 30%.

Instructions

(a) Prepare comparative condensed income statements for 2010 under FIFO and LIFO. (Show computations of ending inventory.)
(b) Answer the following questions for management.
(1) Which inventory cost flow method produces the most meaningful inventory amount for the balance sheet? Why?
(2) Which inventory cost flow method produces the most meaningful net income? Why?
(3) Which inventory cost flow method is most likely to approximate actual physical flow of the goods? Why?
(4) How much additional cash will be available for management under LIFO than under FIFO? Why?
(5) How much of the gross profit under FIFO is illusory in comparison with the gross profit under LIFO?

(a) Net income
FIFO $105,700
LIFO $91,000

***P6-8B** Hector Inc. is a retailer operating in British Columbia. Hector uses the perpetual inventory method. All sales returns from customers result in the goods being returned to inventory; the inventory is not damaged. Assume that there are no credit transactions; all amounts are settled in cash. You are provided with the following information for Hector Inc. for the month of January 2010.

Calculate cost of goods sold and ending inventory under LIFO, FIFO, and average-cost under the perpetual system; compare gross profit under each assumption.

(SO 7)

Date	Description	Quantity	Unit Cost or Selling Price
January 1	Beginning inventory	100	$15
January 5	Purchase	150	18
January 8	Sale	110	28
January 10	Sale return	10	28
January 15	Purchase	55	20
January 16	Purchase return	5	20
January 20	Sale	80	32
January 25	Purchase	30	22

Instructions

Gross profit:
LIFO $2,020
FIFO $2,420
Average $2,272

(a) For each of the following cost flow assumptions, calculate (i) cost of goods sold, (ii) ending inventory, and (iii) gross profit.
(1) LIFO. **(2)** FIFO. **(3)** Moving-average-cost.
(b) Compare results for the three cost flow assumptions.

Determine ending inventory under a perpetual inventory system.
(SO 7)

***P6-9B** Fontana Co. began operations on July 1. It uses a perpetual inventory system. During July the company had the following purchases and sales.

	Purchases		
Date	Units	Unit Cost	Sales Units
July 1	5	$120	
July 6			4
July 11	7	$136	
July 14			3
July 21	8	$147	
July 27			6

Instructions

(a) Ending inventory
FIFO $1,029
Avg. $994
LIFO $958

(a) Determine the ending inventory under a perpetual inventory system using (1) FIFO, (2) moving-average cost, and (3) LIFO.
(b) Which costing method produces the highest ending inventory valuation?

Compute gross profit rate and inventory loss using gross profit method.
(SO 8)

***P6-10B** O'Reilly Company lost all of its inventory in a fire on December 26, 2010. The accounting records showed the following gross profit data for November and December.

	November	December (to 12/26)
Net sales	$600,000	$700,000
Beginning inventory	32,000	36,000
Purchases	377,000	424,000
Purchase returns and allowances	13,300	14,900
Purchase discounts	8,500	9,500
Freight-in	8,800	9,900
Ending inventory	36,000	?

O'Reilly is fully insured for fire losses but must prepare a report for the insurance company.

Instructions

(a) Compute the gross profit rate for November.
(b) Using the gross profit rate for November, determine the estimated cost of the inventory lost in the fire.

Compute ending inventory using retail method.
(SO 8)

***P6-11B** Fond du Lac Books uses the retail inventory method to estimate its monthly ending inventories. The following information is available for two of its departments at October 31, 2010.

	Hardcovers		Paperbacks	
	Cost	Retail	Cost	Retail
Beginning inventory	$ 420,000	$ 700,000	$ 280,000	$ 360,000
Purchases	2,135,000	3,200,000	1,155,000	1,540,000
Freight-in	24,000		12,000	
Purchase discounts	44,000		22,000	
Net sales		3,100,000		1,570,000

At December 31, Fond du Lac Books takes a physical inventory at retail. The actual retail values of the inventories in each department are Hardcovers $790,000 and Paperbacks $335,000.

Instructions

(a) Determine the estimated cost of the ending inventory for each department at **October 31**, 2010, using the retail inventory method.

(b) Compute the ending inventory at cost for each department at **December 31**, assuming the cost-to-retail ratios for the year are 65% for hardcovers and 75% for paperbacks.

PROBLEMS: SET C

Visit the book's companion website at **www.wiley.com/college/weygandt**, and choose the Student Companion site, to access Problem Set C.

CONTINUING COOKIE CHRONICLE

(*Note:* This is a continuation of the Cookie Chronicle from Chapters 1 through 5.)

CCC6 Natalie is busy establishing both divisions of her business (cookie classes and mixer sales) and completing her business degree. Her goals for the next 11 months are to sell one mixer per month and to give two to three classes per week.

The cost of the fine European mixers is expected to increase. Natalie has just negotiated new terms with Kzinski that include shipping costs in the negotiated purchase price (mixers will be shipped FOB destination). Natalie must choose a cost flow assumption for her mixer inventory.

Go to the book's companion website, **www.wiley.com/college/weygandt**, *to see the completion of this problem.*

BROADENING YOUR PERSPECTIVE

FINANCIAL REPORTING AND ANALYSIS

Financial Reporting Problem: PepsiCo, Inc.

BYP6-1 The notes that accompany a company's financial statements provide informative details that would clutter the amounts and descriptions presented in the statements. Refer to the financial statements of PepsiCo, Inc. and the Notes to Consolidated Financial Statements in Appendix A.

Instructions

Answer the following questions. Complete the requirements in millions of dollars, as shown in PepsiCo's annual report.

(a) What did PepsiCo report for the amount of inventories in its consolidated balance sheet at December 29, 2007? At December 30, 2006?
(b) Compute the dollar amount of change and the percentage change in inventories between 2006 and 2007. Compute inventory as a percentage of current assets at December 29, 2007.
(c) How does PepsiCo value its inventories? Which inventory cost flow method does PepsiCo use? (See Notes to the Financial Statements.)
(d) What is the cost of sales (cost of goods sold) reported by PepsiCo for 2007, 2006, and 2005? Compute the percentage of cost of sales to net sales in 2007.

Comparative Analysis Problem: PepsiCo, Inc. vs. The Coca-Cola Company

BYP6-2 PepsiCo's financial statements are presented in Appendix A. Financial statements of The Coca-Cola Company are presented in Appendix B.

Instructions

(a) Based on the information contained in these financial statements, compute the following 2007 ratios for each company.
  (1) Inventory turnover ratio
  (2) Days in inventory
(b) What conclusions concerning the management of the inventory can you draw from these data?

Exploring the Web

BYP6-3 A company's annual report usually will identify the inventory method used. Knowing that, you can analyze the effects of the inventory method on the income statement and balance sheet.

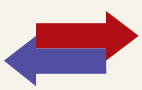
Address: www.cisco.com, or go to **www.wiley.com/college/weygandt**

Instructions

Answer the following questions based on the current year's Annual Report on Cisco's Web site.

(a) At Cisco's fiscal year-end, what was the inventory on the balance sheet?
(b) How has this changed from the previous fiscal year-end?
(c) How much of the inventory was finished goods?
(d) What inventory method does Cisco use?

CRITICAL THINKING



Decision Making Across the Organization

BYP6-4 On April 10, 2010, fire damaged the office and warehouse of Inwood Company. Most of the accounting records were destroyed, but the following account balances were determined as of March 31, 2010: Merchandise Inventory, January 1, 2010, $80,000; Sales (January 1–March 31, 2010), $180,000; Purchases (January 1–March 31, 2010) $94,000.

The company's fiscal year ends on December 31. It uses a periodic inventory system.

From an analysis of the April bank statement, you discover cancelled checks of $4,200 for cash purchases during the period April 1–10. Deposits during the same period totaled $18,500. Of that amount, 60% were collections on accounts receivable, and the balance was cash sales.

Correspondence with the company's principal suppliers revealed $12,400 of purchases on account from April 1 to April 10. Of that amount, $1,600 was for merchandise in transit on April 10 that was shipped FOB destination.

Correspondence with the company's principal customers produced acknowledgments of credit sales totaling $37,000 from April 1 to April 10. It was estimated that $5,600 of credit sales will never be acknowledged or recovered from customers.

Inwood Company reached an agreement with the insurance company that its fire-loss claim should be based on the average of the gross profit rates for the preceding 2 years. The financial statements for 2008 and 2009 showed the following data.

	2009	2008
Net sales	$600,000	$480,000
Cost of goods purchased	404,000	356,000
Beginning inventory	60,000	40,000
Ending inventory	80,000	60,000

Inventory with a cost of $17,000 was salvaged from the fire.

Instructions

With the class divided into groups, answer the following.

(a) Determine the balances in (1) Sales and (2) Purchases at April 10.

*__(b)__ Determine the average profit rate for the years 2008 and 2009. (*Hint*: Find the gross profit rate for each year and divide the sum by 2.)

*__(c)__ Determine the inventory loss as a result of the fire, using the gross profit method.

Communication Activity

BYP6-5 You are the controller of Small Toys Inc. Janice LeMay, the president, recently mentioned to you that she found an error in the 2009 financial statements which she believes has corrected itself. She determined, in discussions with the Purchasing Department, that 2009 ending inventory was overstated by $1 million. Janice says that the 2010 ending inventory is correct. Thus she assumes that 2010 income is correct. Janice says to you, "What happened has happened—there's no point in worrying about it anymore."

Instructions

You conclude that Janice is incorrect. Write a brief, tactful memo to Janice, clarifying the situation.

Ethics Case

BYP6-6 B. J. Ortiz Wholesale Corp. uses the LIFO method of inventory costing. In the current year, profit at B. J. Ortiz is running unusually high. The corporate tax rate is also high this year, but it is scheduled to decline significantly next year. In an effort to lower the current year's net income and to take advantage of the changing income tax rate, the president of B. J. Ortiz Wholesale instructs the plant accountant to recommend to the purchasing department a large purchase of inventory for delivery 3 days before the end of the year. The price of the inventory to be purchased has doubled during the year, and the purchase will represent a major portion of the ending inventory value.

Instructions

(a) What is the effect of this transaction on this year's and next year's income statement and income tax expense? Why?

(b) If B. J. Ortiz Wholesale had been using the FIFO method of inventory costing, would the president give the same directive?

(c) Should the plant accountant order the inventory purchase to lower income? What are the ethical implications of this order?

"All About You" Activity

BYP6-7 Some of the largest business frauds ever perpetrated have involved the misstatement of inventory. Two classics were at Leslie Fay Cos, and McKesson Corporation.

Instructions

There is considerable information regarding inventory frauds available on the Internet. Search for information about one of the two cases mentioned above, or inventory fraud at any other company, and prepare a short explanation of the nature of the inventory fraud.

Answers to Insight and Accounting Across the Organization Questions

p. 251 How Wal-Mart Tracks Inventory

Q: Why is inventory control important to managers such as those at Wal-Mart and Best Buy?

A: *In the very competitive environment of discount retailing, where Wal-Mart is the major player, small differences in price matter to the customer. Wal-Mart sells a high volume of inventory at a low gross profit rate. When operating in a high-volume, low-margin environment, small cost savings can mean the difference between being profitable or going out of business. The same holds true for Best Buy.*

p. 262 Is LIFO Fair?

Q: What are the arguments for and against the use of LIFO?

A: *Proponents of LIFO argue that it is conceptually superior because it matches the most recent cost with the most recent selling price. Critics contend that it artificially understates the company's net income and consequently reduces tax payments. Also, because most foreign companies are not allowed to use LIFO, its use by U.S. companies reduces the ability of investors to compare results across companies.*

Authors' Comments on *All About You*: Employee Theft—An Inside Job (p. 268)

Opinions regarding video technology differ greatly. One chief operating officer of a pub and restaurant chain says his company considers them "Big Brother-ish and demeaning." However, others feel that they are sometimes the only effective option. When properly implemented, theft-reduction procedures don't need to offend employees or customers. Wal-Mart has long employed senior citizens as greeters at its stores. Many people don't realize that these "greeters" are actually part of Wal-Mart's anti-shoplifting efforts.

Also, the need for video cameras depends, in part, on the nature of the product. In business environments where the inventory is of lower value, and/or not easily stolen, other techniques can be effective. However, in the case of expensive inventory items that can be easily concealed (such as expensive bottles of wine), reliance on video surveillance may be necessary.

Answers to Self-Study Questions

1. a **2.** b **3.** b **4.** c **5.** d **6.** d **7.** c **8.** d **9.** d **10.** b **11.** b **12.** d **13.** b ***14.** b ***15.** d