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Chapter 8

How Does a Company Gather Information about Its Inventory?

Video Clip

[\(click to see video\)](#)

In this video, Professor Joe Hoyle introduces the essential points covered in [Chapter 8 "How Does a Company Gather Information about Its Inventory?"](#).

8.1 Determining and Reporting the Cost of Inventory

LEARNING OBJECTIVES

At the end of this section, students should be able to meet the following objectives:

1. Understand that inventory is recorded initially at historical cost.
2. Provide the guiding rule for identifying expenditures that are capitalized in the acquisition of inventory.
3. Explain the rationale for offering a discount for quick payments of cash as well as the accounting used to report such reductions.

The Reported Inventory Balance

Question: The asset section of the February 26, 2011, balance sheet produced by Best Buy Co. Inc. reports net accounts receivable of \$2.348 billion. Based on coverage provided in the previous chapter, savvy decision makers should know that this figure reflects net realizable value—the estimation by officials of the cash amount that will be collected from the receivables owed to the company by its customers. Knowledge of financial accounting allows any individual to understand the information conveyed in a set of financial statements.

As is common, the next account that appears on Best Buy's balance sheet is "merchandise inventories." This asset includes all items held as of that date that were acquired for sales purposes—televisions, cameras, computers, and the like. The monetary figure disclosed by the company for this asset is \$5.897 billion. Does this balance also indicate net realizable value—the cash expected to be generated from the company's merchandise—or is different information reflected? On a balance sheet, what does the amount reported for inventory represent?

Answer: The challenge of analyzing the various assets reported by an organization would be reduced substantially if all account balances disclosed the same basic information, such as net realizable value. However, over the decades, virtually every asset has come to have its own individualized method of reporting, one created to address the special peculiarities of that account. Thus, the term "presented fairly" is often reflected in a totally different way for each asset.

Reporting accounts receivables, for example, at net realizable value has no impact on the approach that is generally accepted for **inventory**¹.

Accounting for inventory is more complicated because reporting is not as standardized as with accounts receivable. For example, under certain circumstances, the balance sheet amount shown for inventory actually does reflect net realizable value. However, several other meanings for that balance are more likely. The range of accounting alternatives emphasizes the need for a careful reading of financial statement notes rather than fixating on a few reported numbers alone. Without study of the available disclosures, a decision maker simply cannot know what **Best Buy** means by the \$5.897 billion figure reported for its inventory.

For all cases, though, the reporting of inventory begins with its cost. In contrast, cost is never an issue even considered in the reporting of accounts receivable.

Determining the Cost of Inventory

Question: Every item bought for sales purposes has a definite cost. The accounting process for inventory begins with a calculation of that cost. How does an accountant determine the cost of acquired inventory?

Answer: The financial reporting for inventory starts by identifying the cost paid to obtain the item. In acquiring inventory, officials make the considered decision to allocate a certain amount of their scarce resources. The amount of that sacrifice is interesting information. What did the company expend to obtain this merchandise? That is a reasonable question to ask since this information can be valuable to decision makers.

To illustrate, assume that a sporting goods company (Rider Inc.) acquires a new bicycle (Model XY-7) to sell. Rider's accounting system should be designed to determine the cost of this piece of inventory, the price that the company willingly paid to obtain the asset. Assume that \$250 was charged by the manufacturer (Builder Company) for the bicycle, and the purchase was made by Rider on credit. Rider spends \$9 in cash to transport the item from the factory to one of its retail stores and another \$6 to have the pieces assembled so that the bicycle can be displayed in the salesroom for customers to examine.

1. A current asset bought or manufactured for the purpose of selling in order to generate revenue.

In accounting for the acquisition of inventory, cost is said to include all normal and necessary amounts incurred to get the item into condition and position to be sold. All such expenditures provide future value. Hence, as shown in [Figure 8.1 "Monitoring the Cost of an Inventory Item—Subsidiary Ledger"](#), by the time this bicycle has reached Rider’s retail location and been readied for sale, the cost to the sporting goods company is \$265.

Figure 8.1 *Monitoring the Cost of an Inventory Item—Subsidiary Ledger*

Rider, Inc. Subsidiary Ledger Bicycle—Model XY-7	
Invoice Price—Charged by Manufacturer	\$250
Transportation-in—Delivery to Company’s Store	9
Assembly	6
Cost of Inventory (Bicycle)	<div style="border-top: 1px solid black; border-bottom: 3px double black;">\$265</div>
	Quantity—1

Charges for delivering this merchandise and assembling the parts were included in the asset account (the traditional term for adding a cost to an asset account, **capitalization**², was introduced previously). Both of these expenditures were properly viewed as normal and necessary to get the bicycle into condition and position to be sold. Interestingly, any amount later expended by the company to transport inventory from the store to a buying customer is recorded as an expense because that cost is incurred after the sale takes place. At that point, no further future value exists since the merchandise has already been sold.

Occasionally, costs arise where the “normal and necessary” standard may be difficult to apply. To illustrate, assume that the president of a store that sells antiques buys a 120-year-old table for resell purposes. When the table arrives at the store, another \$300 must be spent to fix a scratch cut across its surface. Should this added cost be capitalized (added to the reported balance for inventory) or expensed? The answer to this question is not readily apparent and depends on ascertaining the relevant facts. Here are two possibilities.

2. The process of recording a cost as an asset rather than an expense; for inventory, it includes all normal and necessary costs associated with getting the asset into position and condition to be sold.

Scenario one: The table was acquired by the president with the knowledge that the scratch already existed and needed to be fixed prior to offering the merchandise for sale. In that case, repair is a normal and necessary activity to bring the table into

the condition necessary to be sold. The \$300 is capitalized, recorded as an addition to the reported cost of the inventory.

Scenario two: The table was bought without the scratch but was damaged when first moved into the store through an act of employee carelessness. The table must be repaired, but the scratch was neither normal nor necessary. The cost could have been avoided. This \$300 is not capitalized but rather reported as a repair expense by the store.

As discussed in an earlier chapter, if the accountant cannot make a reasonable determination as to whether a particular cost qualifies as normal and necessary, the practice of conservatism requires the \$300 to be reported as an expense. When in doubt, the alternative that makes reported figures look best is avoided so that decision makers are not encouraged to be overly optimistic about the company's financial health and future prospects.

TEST YOURSELF

Question:

Near the end of Year One, the Morganton Hardware Company buys five lawn mowers for sale by paying \$300 each. The delivery cost to transport these items to the store was another \$40 in total. In January of the following year, \$60 more was spent to assemble all the parts and then clean the finished products so they could be placed in the company's showroom. On February 3, Year Two, one of these lawn mowers was sold for \$500 cash. The company paid a final \$25 to have this item delivered to the buyer. If no other transactions take place, what net income does the company recognize for Year Two?

- a. \$150
- b. \$155
- c. \$160
- d. \$175

Answer:

The correct answer is choice b: \$155.

Explanation:

The cost of the mowers (\$1,500 or $\$300 \times 5$) along with transportation cost (\$40) and assembling and cleaning costs (\$60) are normal and necessary to get the items into position and condition to be sold. Total capitalized cost is \$1,600 or \$320 per unit. Gross profit on the first sale is \$180 (\$500 less \$320). The \$25 delivery charge is expensed; it is not capitalized because it occurred after the sale and had no future value. Net income is \$155 (\$180 gross profit minus \$25 delivery expense).

Offering Discounts for Quick Payment

Question: When inventory is sold, some sellers are willing to accept a reduced amount to encourage fast payment—an offer that is called a cash discount (or sales discount or purchases discount depending on whether the seller or the buyer is making the entry). Cash becomes available sooner so that the seller can quickly put it back into circulation to make more profits. In addition, the possibility that a receivable will become uncollectible is

reduced if the balance due is not allowed to get too old. Tempting buyers to make quick payments to reduce their cost is viewed as a smart business practice by many sellers.

To illustrate, assume the invoice received by the sporting goods company (Rider) for the above bicycle indicates the proper \$250 balance but also includes the notation: 2/10, n/45. What message is being conveyed by the seller? How do cash discounts impact the reporting of inventory?

Answer: Sellers—such as Builder Company in this example—can offer a wide variety of discount terms to encourage speedy payment. One such as 2/10, n/45 is generally read “two ten, net 45.” It informs the buyer that a 2 percent discount is available if the invoice is paid by the tenth day. The net amount that remains unpaid (after any merchandise returns or partial cash payments) is due on the forty-fifth day. Rider has the option to pay \$245 for the bicycle within ten days of receiving the invoice by taking advantage of the \$5 discount ($\250×0.02). Or the sporting goods company can wait until the forty-fifth day but then is responsible for the entire \$250. In practice, a variety of other discount terms are frequently encountered such as 1/10, n/30 or 2/10, n/30.

Many companies automatically take all cash discounts as a matter of policy because of the high rate of interest earned. If Rider does not submit the money after ten days, it must pay an extra \$5 in order to hold onto \$245 for an additional thirty-five days. This delay equates to a 2.04 percent interest rate over just that short period of time ($\$5/\$245 = 2.04$ percent [rounded]). There are over ten thirty-five-day periods in a year. Paying the extra \$5 is the equivalent of an annual interest rate in excess of 21 percent.

$365 \text{ days per year} / 35 \text{ days holding the money} = 10.43 \text{ time periods per year}$

$2.04\% \text{ (for 35 days)} \times 10.43 \text{ time periods} = 21.28\% \text{ interest rate for a year}$

That substantial rate of interest expense is avoided by making early payment, a decision chosen by most companies unless they are experiencing serious cash flow difficulties.

Assuming that Rider avails itself of the discount offer, the capitalized cost of the inventory is reduced to \$260.

Figure 8.2 Cost of Inventory Reduced by Cash Discount—Subsidiary Ledger

Rider, Inc. Subsidiary Ledger Bicycle—Model XY-7	
Invoice Price—Charged by Manufacturer	\$250
Discount Taken—2/10, n/45	(5)
Transportation-in from Seller to Store	9
Assembly	6
Cost of Inventory (Bicycle)	<u>\$260</u>
	Quantity—1

TEST YOURSELF

Question:

On March 1, a hardware store buys inventory for resale purposes at a cost of \$300. The invoice is mailed on March 2, and the manufacturer offers cash terms of 3/10, n/30. Store officials choose to settle 60 percent of the invoice on March 10 and the remainder on March 30. What was the total amount paid for the inventory?

- a. \$291.00
- b. \$294.60
- c. \$296.40
- d. \$300.00

Answer:

The correct answer is choice b: \$294.60.

Explanation:

Of the total amount charged, \$180.00 (60 percent of \$300.00) is settled in a timely fashion which allows the company to take a 3 percent discount or \$5.40 ($\180.00×3 percent). The company's first payment was \$174.60 ($\180.00 minus \$5.40). The remaining \$120.00 is paid at the end of thirty days, after the discount period has passed. No additional discount is available. The cost of the inventory to the company is \$294.60 (\$174.60 plus \$120.00).

KEY TAKEAWAY

Any discussion of the reporting of inventory begins with the calculation of cost, the amount spent to obtain the merchandise. For inventory, cost encompasses all payments that are considered normal and necessary to get the items into condition and possession to be sold. All other expenditures are expensed as incurred. Cash discounts (such as 2/10, n/30) are often offered to buyers to encourage quick payment. The seller wants to get its money as quickly as possible to plow back into operations. For the buyer, taking advantage of such discounts is usually a wise business decision because they effectively provide interest at a relatively high rate.

8.2 Perpetual and Periodic Inventory Systems

LEARNING OBJECTIVES

At the end of this section, students should be able to meet the following objectives:

1. Identify the attributes as well as the advantages and disadvantages of a perpetual inventory system.
2. Identify the attributes as well as the advantages and disadvantages of a periodic inventory system.
3. Provide journal entries for a variety of transactions involved in the purchase of inventory using both a perpetual and a periodic inventory system.

Maintaining Inventory Costs in a Perpetual System

Question: In an earlier chapter, differences between a perpetual inventory system and a periodic inventory system were discussed briefly. Because of the availability of modern technology, most companies—but not all—maintain some type of perpetual inventory records. A perpetual system—which frequently relies on bar coding and computer scanning—provides an ongoing record of all items present, both in total and individually. How is the recording of an inventory purchase carried out in a perpetual system?

*Answer: When a **perpetual inventory system**³ is in use, all additions and reductions are monitored in the inventory T-account. Thus, theoretically, the balance found in that general ledger account at any point in time is identical to the merchandise physically on hand. In actual practice, recording mistakes as well as losses such as theft and breakage create some (hopefully small) discrepancies. Consequently, even with a perpetual system, inventory records must be reconciled occasionally with the items actually present to reestablish accuracy.*

3. Accounting system that maintains an ongoing record of all inventory items both in total and individually; records increases and decreases in inventory accounts as they occur as well as the cost of goods sold to date.

In a perpetual inventory system, the maintenance of a separate subsidiary ledger showing data about the individual items on hand is essential. On February 26, 2011, **Best Buy** reported inventory totaling \$5.897 billion. However, internally the company also needs specific information as to the quantity, type, and location of all televisions, cameras, computers, and the like that make up this sum. That is the

significance of a perpetual system; it provides the ability to keep track of the various types of merchandise. The total cost is available in the inventory T-account but detailed data about the composition (the quantity and frequently the cost) of merchandise physically on hand is found in a subsidiary ledger where an individual file can be available for each item as is shown in Figure 8.2 "Cost of Inventory Reduced by Cash Discount—Subsidiary Ledger".

Assume that Rider Inc. (the sporting goods company) uses a perpetual inventory system. In Figure 8.3 "Rider Inc.—Journal Entries—Perpetual Inventory System", journal entries are shown for the purchase of a bicycle to sell (Model XY-7). The bicycle is recorded at the \$250 invoice amount and then reduced by \$5 at the time the discount is taken. This approach is known as the “gross method of reporting discounts.” As an alternative, companies can choose to anticipate taking the discount and simply make the initial entry for the \$245 expected payment. This option is referred to as the “net method of reporting discounts.” Under that approach, if the discount is not actually taken, the additional \$5 cost is recorded as a loss or an expense rather than as a capitalized cost of the inventory because it is not normal or necessary to pay the extra amount.

Figure 8.3 *Rider Inc.—Journal Entries—Perpetual Inventory System*

<u>Purchased Bicycle (Model XY-7)—Recorded Using Gross Method</u>			
Inventory	250		(increase an asset—debit)
Accounts Payable		250	(increase a liability—credit)
<u>Paid for Bicycle after Taking 2 Percent Discount</u>			
Accounts Payable	250		(decrease a liability—debit)
Cash		245	(decrease an asset—credit)
Inventory		5	(decrease an asset—credit)
<u>Payment Made to Transport Bicycle to Retail Store</u>			
Inventory	9		(increase an asset—debit)
Cash		9	(decrease an asset—credit)
<u>Payment Made to Assemble Bicycle for Display Purposes</u>			
Inventory	6		(increase an asset—debit)
Cash		6	(decrease an asset—credit)

After posting these entries, the inventory T-account in the general ledger reports a net cost of \$260 ($\$250 - \$5 + \$9 + \6) and the separate subsidiary ledger shown previously indicates that one Model XY-7 bicycle is on hand with a cost of \$260.

TEST YOURSELF

Question:

A grocery store carries cans of tuna fish, salmon, and sardines. The company uses a perpetual inventory system with the general ledger inventory account backed up by a subsidiary ledger. Which of the following statements is most likely to not be true?

- a. The number of cans of salmon on hand can be found in the subsidiary ledger.
- b. The cost of all cans of fish can be found in the general ledger.
- c. The number of cans of tuna fish on hand can be found in the general ledger.
- d. The cost of the cans of sardines on hand can be found in the subsidiary ledger.

Answer:

The correct answer is choice c: The number of cans of tuna fish on hand can be found in the general ledger.

Explanation:

In a perpetual system, the total cost of all inventory on hand is recorded in the general ledger inventory T-account. The quantity (and frequently the cost) of the individual items is monitored in a subsidiary ledger. Here, the subsidiary ledger maintains the quantity and likely the cost for each type of fish: tuna fish, salmon, and sardines. No information is gained by recording the number of cans of fish in the general ledger since that figure will be available in the subsidiary ledger.

Recording Inventory Purchases in a Periodic System

Question: In a periodic system, no attempt is made to keep an ongoing record of a company's inventory. Instead, the quantity and cost of merchandise is only determined periodically as a

preliminary step in preparing financial statements. How is the actual recording of an inventory purchase carried out in a periodic system?

Answer: If a company uses a **periodic inventory system**⁴, neither the cost nor the quantity of the items on hand is monitored. Inventory amounts are unknown both in total and individually. These figures are not viewed by company officials as worth the cost and effort necessary to gather them. However, purchases are still made, and a record must be maintained of the costs incurred. This information is eventually used for financial reporting but also—more immediately—for control purposes. Regardless of the recording system, companies want to avoid spending unnecessary amounts on inventory as well as tangential expenditures such as transportation and assembly. If the accounting system indicates that a particular cost is growing too rapidly, alternatives can be investigated and implemented before the problem becomes serious. Periodic systems are designed to provide such information through the use of separate general ledger T-accounts for each cost incurred.

Assume that Rider uses a periodic inventory system. Its journal entries for the acquisition of the Model XY-7 bicycle are as shown in [Figure 8.4 "Rider Inc.—Journal Entries—Periodic Inventory System"](#). No separate subsidiary ledger is maintained. The overall cost of this inventory item is not readily available in the accounting records and the quantity (except by visual inspection) is unknown. At any point in time, company officials do have access to the amounts spent for each of the individual costs (such as transportation and assembly) for monitoring purposes.

Because these costs result from the acquisition of an asset that eventually becomes an expense when sold, they follow the same debit and credit rules as those accounts.

4. Accounting system that does not maintain an ongoing record of all inventory items; instead, ending inventory is determined by a physical count so that a formula (beginning inventory plus purchases less ending inventory) can be used to calculate cost of goods sold.

Figure 8.4 *Rider Inc.—Journal Entries—Periodic Inventory System*

Purchased Bicycle (Model XY-7)—Recorded Using Gross Method			
Purchases of Inventory	250		(increase an asset—debit)
Accounts Payable		250	(increase a liability—credit)
Paid for Bicycle after Taking 2 Percent Discount			
Accounts Payable	250		(decrease a liability—debit)
Cash		245	(decrease an asset—credit)
Purchases Discount		5	(decrease an asset—credit)
Payment Made to Transport Bicycle to Retail Store			
Transportation-in	9		(increase an asset—debit)
Cash		9	(decrease an asset—credit)
Payment Made to Assemble Bicycle for Display Purposes			
Assembly of Inventory	6		(increase an asset—debit)
Cash		6	(decrease an asset—credit)

In a periodic system, when a sale occurs, the revenue entry is made as always. However, no journal entry is made for cost of goods sold. Because of the lack of information, the dollar amount of the cost is not known at this time so inventory is not reduced and cost of goods sold is not recognized. Instead, when a periodic system is in use, cost of goods sold is only determined and recorded when financial statements are prepared through the use of the following formula:

$$\text{Cost of goods sold} = \text{Beginning inventory} + \text{Purchase costs for period} - \text{Ending inventory}$$

Note that the choice between using a perpetual and periodic system impacts the following:

- Information available to company officials on a daily basis
- Journal entries to be made
- Cost necessary to operate the accounting system (the technology required by a perpetual system is more expensive)

Regardless of the system in use, Rider holds one piece of inventory with a cost of \$260. The decision as to whether to utilize a perpetual or periodic system is based on the added cost of the perpetual system and the difference in the available information generated for use by company officials. The company's inventory is not physically affected by the method selected.

TEST YOURSELF

Question:

A company starts operations in Year One and buys ten units of inventory for \$70 each. The transportation cost for the entire group of items was \$110. A few days later, the president of the company checks out the balances in the general ledger. Which of the following is true?

- a. If a periodic inventory system is in use, no balances will be available in connection with this inventory.
- b. If a periodic inventory system is in use, an inventory account will be found with a balance of \$810.
- c. If a perpetual inventory system is in use, a transportation-in account will be found with a balance of \$110.
- d. If a perpetual inventory system is in use, an inventory account will be found with a balance of \$810.

Answer:

The correct answer is choice d: If a perpetual inventory system is in use, an inventory account will be found with a balance of \$810.

Explanation:

If a periodic system is used, a purchases account will report \$700 (ten units at \$70 each). Transportation-in will be \$110. Until the end of the year, these balances are not adjusted to correspond with the inventory on hand or sold. In a perpetual system, the initial journal entries record \$810 in the inventory account (invoice price of \$700 plus transportation of \$110) or \$81 for each of the ten units. All costs are recorded within that one T-account and are not divided up by type.

TEST YOURSELF

Question:

A company is started in Year One, and the president and the accountant confer and opt to install a perpetual system to record and monitor inventory. Which of the following is not likely to have been a reason for this decision?

- a. The president knows that the perpetual system will cost more than the periodic system but did not consider it to be prohibitively expensive.
- b. The president fears that transportation charges may escalate quickly and wants to monitor that cost.
- c. The president wants to be aware when any inventory item is reduced to only five units so that the quantity can be replenished.
- d. The president wants to know the total cost of inventory because she plans to set sales price based on that figure.

Answer:

The correct answer is choice b: The president fears that transportation charges may escalate quickly and wants to monitor that cost.

Explanation:

Perpetual systems maintain updated records as to the cost and quantity of the inventory on hand so that decisions such as pricing and purchasing can be made. However, this benefit can be outweighed if the perpetual system is viewed as too costly. Although the information available in a periodic system is more limited, the various costs (such as transportation) are tracked so that company officials can take action if problems arise.

Actual Use of Periodic Inventory Systems

Question: Given the availability of sophisticated computers at moderate prices, do any companies still use periodic inventory systems? With bar coding and the advanced state of technology, are periodic inventory procedures so antiquated that they are no longer found in actual practice?

Answer: Obviously, in this computer age, perpetual inventory systems have come to dominate because they provide valuable and immediate information to company officials. However, some businesses are unlikely to ever change from the simplicity of a periodic system.

A beauty salon or barber shop, for example, where services are rendered but a small amount of inventory is kept on hand for occasional sales, would certainly not need to absorb the cost of a perpetual system. Visual inspection can alert employees as to the quantity of inventory on hand.

Restaurants, sandwich shops, ice cream stores, and the like might well choose to use a periodic system because customer purchases take place at a small establishment where quantities are easy to observe and manage. In such operations, the information provided by a perpetual system does not necessarily provide additional benefit.

“Dollar stores,” which have become particularly prevalent in recent years, sell huge quantities of low-priced merchandise. Goods tend to be added to a store’s inventory as they become available rather than based on a formal managed inventory strategy. Again, officials must decide whether keeping up with the amount of inventory on hand will improve their decision making. If not, the cost of a perpetual system is unnecessary.

Perhaps, most importantly, some companies use a hybrid system where the units on hand and sold are monitored carefully with a perpetual system. However, to reduce accounting costs, the dollar amounts for inventory and cost of goods sold are determined using a periodic system when financial statements are to be prepared. In that way, the company gains valuable information (the number of units on hand) but still utilizes a cheaper system.

KEY TAKEAWAY

Perpetual inventory systems are designed to maintain updated figures (quantity and cost) for inventory as a whole as well as for individual items. The general ledger account reports the total cost of all inventory. At the same time, separate subsidiary ledger accounts provide the balance for each type of inventory so that company officials can know the size, cost, and composition of the merchandise on hand. A periodic system is cheaper to operate because no attempt is made to monitor inventory balances (in total or individually) until financial statements are to be prepared. A periodic system does allow a company to control its costs by keeping track of the individual inventory expenditures as they occur. Small organizations often use a periodic inventory system because the added cost of a perpetual system cannot be justified.

8.3 The Calculation of Cost of Goods Sold

LEARNING OBJECTIVES

At the end of this section, students should be able to meet the following objectives:

1. Explain the meaning of the FOB point in connection with an inventory purchase and its impact on the recording of this transaction.
2. Identify the time at which cost of goods sold is computed in a perpetual inventory system as well as the recording made at the time of sale.
3. Identify the time at which cost of goods sold is computed in a periodic inventory system as well as the recording made at the time of sale.
4. Compute cost of goods sold in a periodic inventory system and prepare the adjustment to enter the appropriate balances into the accounting system.
5. Understand the necessity of taking a physical inventory count.

Recording Purchases Based on the FOB Point

Question: Rider Inc. (the sporting goods company) buys a bicycle for sales purposes. The company can record the transaction using either a perpetual system (debit Inventory) or periodic system (debit Purchases of Inventory). When should an inventory purchase be recorded? Assume, for example, that Builder Company (the manufacturer of this bicycle) is located in Wisconsin, whereas the retail store operated by Rider is in Kentucky. Delivery takes several days at a minimum. The precise moment for recording the transaction is probably not critical except near the end of the year when the timing of journal entries will impact balances that are included on the financial statements.

To illustrate, assume this bicycle is ordered by Rider Inc. on December 27 of Year One. It is shipped by Builder Company from Wisconsin on December 29 of Year One and arrives at the retail store on January 4 of Year Two. When Rider produces financial statements for Year One, should the inventory cost and related payable be included even though the bicycle was not physically received until Year Two?

Answer: Documents prepared in connection with inventory shipments are normally marked with an “FOB” point. FOB stands for “Free On Board” (a traditional

maritime term that has gained a wider use over the years) and indicates when legal title to property is transferred from seller to buyer. At that moment, ownership of the bicycle is conveyed. The FOB point signifies the appropriate date for recording.

If Builder Company specifies that the sale of this bicycle is made **FOB shipping point**⁵ and Rider Inc. agrees to this condition, conveyance occurs on December 29, Year One, when the bicycle leaves the seller. Consequently, both the asset and the liability appear on the December 31, Year One, balance sheet prepared by the buyer. For the same reason, Builder records sales revenue in Year One.

However, if the contract states that the transaction is made **FOB destination**⁶, the seller maintains ownership until the bicycle arrives at Rider's store on January 4, Year Two. Neither party records the transaction until that date. The date of recognition is based on the FOB point.

The FOB point can be important for two additional reasons.

- The party that holds legal title to merchandise during its delivery from seller to buyer normally incurs all transportation costs. If no other arrangements are negotiated, "FOB shipping point" means that Rider Inc. as the buyer is responsible for the delivery. "FOB destination" assigns this cost to Builder, as the seller.
- Any losses or damages that occur in route affect the party holding legal title (again, unless other arrangements are agreed upon by the parties). If shipment from Wisconsin to Kentucky was noted as FOB shipping point and the bicycle breaks as the result of an accident in Illinois, it is the buyer's inventory that was harmed. However, it is the seller's problem if the shipment is marked as FOB destination. The legal owner bears the cost of any damages that occur during the physical conveyance of property.

5. Terms of sale stipulating that legal title to shipped goods passes to the buyer at the time of shipment so that the buyer is responsible for transportation costs and any damages or losses in transit.

6. Terms of sale stipulating that legal title to shipped goods passes to the buyer when they arrive at the final destination so that the seller is responsible for transportation costs and any damages or losses in transit.

TEST YOURSELF

Question:

A company buys 144 inventory items at a total cost of \$4,000. The shipment was made in Year One but did not arrive at the buyer's location until early in Year Two. Both the buyer and the seller believed the goods had been sold FOB destination so they each recorded the sale in that manner. However, a review of the documents indicates that the sale was actually made FOB shipping point. Which of the following is correct about the Year One financial statements?

- a. The seller's sales account for Year One is overstated.
- b. The seller's cost of goods sold account for Year One is overstated.
- c. The buyer's inventory account at the end of Year One is overstated.
- d. The buyer's accounts payable account at the end of Year One is understated.

Answer:

The correct answer is choice d: The buyer's accounts payable account at the end of Year One is understated.

Explanation:

Both companies believe the sale was FOB destination. The goods arrived at the buyer's business in Year Two. Thus, nothing was reported in Year One for accounts receivable, sales, and cost of goods sold (by the seller) or for inventory and accounts payable (by the buyer). It was actually FOB selling point. All five accounts are understated. Use of a periodic or perpetual system is not important because the question only asks about financial statements and not the method of recording.

Recording Cost Of Goods Sold: Perpetual and Periodic

Question: When a sale of inventory is made, the seller recognizes an expense that has previously been identified as "cost of goods sold" or "cost of sales." For example, Best Buy reported "cost of goods sold," for the year ended February 26, 2011, as \$37.611 billion. When should cost of goods sold be determined?

To illustrate, assume that Rider Inc. begins the current year holding three Model XY-7 bicycles costing \$260 each—\$780 in total. During the period, another five units of this same model are acquired, again for \$260 apiece or \$1,300 in total. At this introductory stage, utilizing a single cost of \$260 for all items eliminates a significant theoretical problem, one that will be discussed in detail in the following chapter.

Eventually, a customer buys seven of these bicycles for her family and friends paying cash of \$440 each or \$3,080 in total. No further sales are made of this model during the current period so that only a single bicycle remains (3 + 5 - 7). One is still in stock while seven have been sold. What is the proper method of recording the company's cost of goods sold?

Answer: The answer here depends on whether a perpetual or a periodic system is used by the company.

Perpetual inventory system. The acquisition and subsequent sale of inventory when a perpetual system is in use was demonstrated briefly in an earlier chapter. The accounting records maintain current balances so that officials are cognizant of (a) the amount of merchandise on hand and (b) the cost of goods sold for the year to date. These figures are readily available in general ledger T-accounts. In addition, separate subsidiary ledger balances are usually established for the individual items in stock, showing the quantity on hand and the cost. When each sale is made, the applicable cost is reclassified from the inventory account on the balance sheet to cost of goods sold on the income statement. Simultaneously, the corresponding balance in the subsidiary ledger is lowered.

In this example, bicycles were acquired by Rider Inc. Seven of them, costing \$260 each (a total of \$1,820), are then sold to a customer for \$440 apiece or \$3,080. When a perpetual system is in use, two journal entries are prepared at the time of each sale: one for the sale and a second to shift the cost of the inventory from asset to expense.

Figure 8.5 Journal Entries for Sale of Seven Model XY-7 Bicycles—Perpetual Inventory System

Cash	3,080		(increase an asset—debit)
Sales Revenue—Merchandise		3,080	(increase a revenue—credit)
Cost of Goods Sold	1,820		(increase an expense—debit)
Inventory		1,820	(decrease an asset—credit)

Removing \$1,820 from inventory leaves a balance of \$260 ($\$780 + \$1,300 - \$1,820$) representing the cost of the one remaining unit. The \$1,260 difference between revenue and cost of goods sold ($\$3,080$ minus $\$1,820$) is the markup (also known as **gross profit**⁷ or “gross margin”) earned on the sale.

Periodic inventory system. In contrast, a periodic system monitors the various inventory expenditures but makes no attempt to maintain a record of the merchandise on hand or the cost of goods sold during the year. Although cheap to create and operate, the information available to company officials is extremely limited.

At the time the sale of these seven bicycles takes place, the first journal entry shown in [Figure 8.5 "Journal Entries for Sale of Seven Model XY-7 Bicycles—Perpetual Inventory System"](#) is still made to recognize the revenue. Cash is debited for \$3,080 and Sales Revenue-Merchandise is credited for \$3,080. However, if a periodic system is in use, the second entry is omitted. Cost of goods sold is neither calculated nor recorded when a sale occurs. The available information is not sufficient to determine the amount. The inventory balance remains unadjusted throughout the year. Eventually, whenever financial statements are prepared, the figure to be reported for the asset (inventory) on that date must be determined along with the expense (cost of goods sold) for the entire period.

Because totals are not updated, the only accounts found in the general ledger relating to inventory show balances of \$780 (beginning balance) and \$1,300 (purchases of inventory).

General Ledger Balances—Periodic Inventory System	
Inventory (beginning balance remains unadjusted during the period):	3 units at \$260 each or \$780
Purchases of Inventory (total inventory costs incurred during the period; for this example, the balance includes the invoice price, sales discount, transportation-in, and assembly, although they would have been kept separate in the actual recording):	5 units at \$260 each or \$1,300

7. Difference between sales and cost of goods sold; also called gross margin or markup.

Based on this information, total inventory available to be sold by Rider Inc. during this period is eight units costing \$2,080 (\$780 plus \$1,300).

When using a periodic system, cost of goods sold is computed as a prerequisite step in preparing financial statements. Inventory on hand is counted (a process known as a **physical inventory**⁸), and all units that are no longer present are assumed to have been sold. The resulting figure is then reported as the company’s cost of goods sold for the period. Because complete inventory records are not available, any units that are lost, stolen, or broken cannot be separately derived. All missing inventory is grouped into one expense—cost of goods sold.

In this example, a physical inventory count will be taken by the employees of Rider Inc. on or near the last day of the year so that financial statements can be produced. Because eight bicycles (Model XY-7) were available during the year but seven have now been sold, one unit—costing \$260—remains (if no accident or theft has occurred). This amount is the inventory figure that appears in the asset section of the balance sheet.

Cost of goods sold is then computed by the following formula.

Figure 8.6 Computation of Cost of Goods Sold in a Periodic System The Purchases figure here could have also been shown by displaying the various cost components such as the invoice price, purchases discount, transportation-in, and assembly. That breakdown is important for internal decision making and control but probably of less interest to external parties.

Beginning Inventory	\$780
Purchases for the Period	1,300
Goods Available for Sale	<u>2,080</u>
Ending Inventory (one unit at a cost of \$260)	(260)
Cost of Goods Sold	<u>\$1,820</u>

In a periodic system, three costs are used to arrive at the amount reported as cost of goods sold. It is important to understand how each of these figures is derived.

8. A count of inventory on hand; necessary for reporting purposes when using a periodic system but also required for a perpetual system to ensure the accuracy of recorded information.

- *Beginning inventory* was derived by a count taken at the end of the previous year. After determining the number of units on hand (three bicycles), the accountant inserts the cost of these items based on the amount paid during the period (\$260 each). The resulting monetary balance was recorded in the inventory T-account at the end of that year and has remained unchanged until the end of the current year. A

periodic system only updates general ledger accounts when financial statements are prepared.

- The *purchases* figure has been maintained throughout the year in the general ledger to provide a record of the amounts expended (\$1,300) for all normal and necessary costs (invoice price, discounts, transportation-in, assembly costs, and the like) needed to get the inventory into position and condition to be sold.
- *Ending inventory* is found by making a new physical count at the end of the current period. The number of units that are still held (one, in this case) is multiplied by the unit cost (\$260) to arrive at the proper inventory total reported on the balance sheet.

TEST YOURSELF

Question:

Lincoln Corporation buys and sells widgets and uses a periodic system for accounting purposes. According to counts that were taken, the company started the year with 4,000 units and ended the year with 5,000. However, during the period, an additional 17,000 widgets were acquired. All inventory items are bought by the company for \$7 each, a figure that includes all normal and necessary costs. What was cost of goods sold for this period?

- a. \$112,000
- b. \$118,000
- c. \$119,000
- d. \$125,000

Answer:

The correct answer is choice a: \$112,000.

Explanation:

Beginning inventory cost \$28,000 (4,000 units at \$7 each) while purchases for the period totaled \$119,000 (17,000 × \$7). Thus, the total cost of the goods available for sale during the year was \$147,000 (\$28,000 plus \$119,000). Ending inventory is \$35,000 (5,000 units at \$7 each). Thus, inventory with a cost of \$112,000 is missing at year's end (\$28,000 plus \$119,000 less \$35,000). In a periodic system, all missing inventory is assumed to make up the cost of the goods sold.

Periodic Inventory—Year-End Recording Process

Question: In a perpetual inventory system, cost of goods sold is determined at the time of each sale. Figures retained in a subsidiary ledger provide the cost of the specific item being surrendered so that an immediate reclassification from asset to expense is made.

With a periodic system, cost of goods sold is not calculated until financial statements are prepared. The beginning inventory balance (the ending amount from the previous year) is combined with the total acquisition costs for the current period. Merchandise still on hand is counted, and its cost is determined. All missing inventory is assumed to reflect the cost of goods sold. When a periodic inventory system is used, how are ending inventory and cost of goods sold for the year physically entered into the accounting records? These figures have not been recorded on an ongoing basis; the general ledger must now be updated to agree with the reported balances.

Answer: In the bicycle example, opening inventory for the period was three items costing \$780. Another five were bought during the year for \$1,300. The total cost of these eight units is \$2,080. Because the financial impact of lost or broken units cannot be ascertained in a periodic system, the entire \$2,080 is assigned to either ending inventory (one unit at a cost of \$260) or cost of goods sold (\$780 + \$1,300 - \$260 or \$1,820). No other account exists in which to record inventory costs in a periodic system. The goods are assumed to be on hand or to have been sold.

For a periodic inventory system, a year-end adjusting entry is prepared so that these newly computed amounts are reflected as the final account balances. Transportation and assembly costs are included within the purchases figure in this entry for convenience.

Figure 8.7 Adjusting Entry—Recording Inventory and Cost of Goods Sold as Determined in Periodic Inventory System As mentioned previously, if separate T-account balances are established for cost components such as transportation-in, assembly costs, and the like, they must be included in this entry rather than just a single Purchases figure.

Inventory (ending—one unit at \$260)	260	(increase an asset—debit)
Cost of Goods Sold (seven units missing at \$260 each)	1,820	(increase an expense—debit)
Purchases of Inventory (five units at \$260 each)	1,300	(decrease an asset—credit)
Inventory (beginning—three units at \$260 each)	780	(decrease an asset—credit)

In this entry, the cost of the beginning inventory and the purchases for the period are basically switched to cost of goods sold and ending inventory.

Note that the reported costs on the financial statements (\$260 for ending inventory and \$1,820 for cost of goods sold) are identical under both perpetual and periodic systems. As will be demonstrated in another chapter, this agreement does not always exist when inventory items are acquired during the year at differing costs.

KEY TAKEAWAY

The legal conveyance of inventory from seller to buyer establishes the timing for recording the transaction and is based on the FOB point specified. This designation also identifies the party responsible for transportation costs and any items damaged while in transit. In contrast, the method of recording cost of goods sold depends on the inventory system in use. For a perpetual system, the reclassification of an item from inventory to expense occurs at the time of each sale. A periodic system makes no attempt to monitor inventory totals. Thus, cost of goods sold is unknown until the preparation of financial statements. The expense is calculated by adding beginning inventory to the purchase costs for the period and then subtracting ending inventory. The ending inventory figure comes from a year-end count of the merchandise on hand. A year-end adjusting entry updates the various general ledger accounts.

8.4 Reporting Inventory at Lower of Cost or Market

LEARNING OBJECTIVES

At the end of this section, students should be able to meet the following objectives:

1. Explain the need for reporting inventory at lower of cost or market.
2. Differentiate between a reporting problem caused by a drop in the purchase value of inventory and one resulting from the sales value of the merchandise.
3. Understand the difference in applying the lower-of-cost-or-market rule under U.S. GAAP and IFRS.

Inventory—The Reporting of Cost or Market Value

Question: In the example of Rider Inc., Model XY-7 bicycles have been bought and sold, and one unit remains in stock at year's end. The cost of this model has held steady at \$260. However, its market value is likely to differ from that figure.

Assume that, because of the sales made during the period, company officials believe that a buyer will soon be found to pay \$440 for this last bicycle. Is inventory always reported on a balance sheet at historical cost or is market (or fair) value ever taken into consideration? Should this bicycle be shown as an asset at \$260, \$440, or some other pertinent figure?

Answer: Under normal conditions, market value is rarely relevant in the reporting of inventory. For Rider Inc. this bicycle will likely appear as an asset at its cost of \$260 until sold. Value is such a subjective figure that it is usually ignored in reporting inventory. The company has no reliable proof that the bicycle will bring in \$440 until a sale actually occurs. The conservative nature of accounting resists the temptation to inflate reported inventory figures based purely on the anticipation of a profitable transaction at some future point in time.

An exception to this rule becomes relevant if the value of inventory falls below cost. Once again, the conservatism inherent in financial accounting is easily seen. If market value remains greater than cost, no change is made in the reported balance

until a sale occurs. In contrast, if the value drops so that inventory is worth less than cost, a loss is recognized immediately. Accountants often say that losses are anticipated but gains are not.

As a note to the May 31, 2011, financial statements for **Nike Inc.** states, “inventories are stated at lower of cost or market.” Whenever inventory appears to have lost value for any reason, the accountant compares the cost of the item to its market value and the lower figure then appears on the balance sheet.

Arriving at a Figure for Market Value

Question: As mentioned, market value is a subjective figure. When applying the lower-of-cost-or-market approach to inventory, how does the owner of the merchandise ascertain market value?

Answer: The practical problem in applying the lower-of-cost-or-market approach arises from the difficulty in ascertaining an appropriate market value. There are several plausible ways to view the worth of any asset. For inventory, there is both a “purchase value” (replacement cost—the amount needed to acquire the same item again at the present time) and a “sales value” (net realizable value—the amount of cash expected from an eventual sale). When preparing financial statements, if either of these amounts is impaired, recognition of a loss is likely. Thus, the accountant must watch both values and be alert for potential problems.

Purchase Value. In some cases, often because of bad timing, a company finds that it has paid an excessive amount for inventory. Usually as the result of an increase in supply or a decrease in demand, replacement cost might drop after an item is acquired.

To illustrate, assume that Builder Company—the manufacturer of bicycle Model XY-7—has trouble selling the expected quantity of this particular style to retail stores because the design is not viewed as attractive. Near the end of the current year, Builder reduces the wholesale price offered for this model by \$50 in hopes of stimulating sales. Rider Inc. bought a number of these bicycles earlier at a total cost of \$260 each but now, before the last unit is sold, could obtain the same model for only \$210. The bicycle held in Rider’s inventory is literally worth less than what the company paid for it. The purchase value, as demonstrated by replacement cost, has fallen to a figure lower than its historical cost.

When replacement cost for inventory drops below the amount paid, the lower (more conservative) figure is reported on the balance sheet, and the related loss is recognized on the income statement. In applying **lower of cost or market**⁹, the remaining bicycle is now reported by Rider Inc. at its purchase value. A loss of \$50 is created by the reduction in the inventory account from \$260 to \$210.

Sales value. Inventory also has a sales value that is, frequently, independent of replacement cost. The sales value of an item can fall for any number of reasons. For example, technological innovation will almost automatically reduce the amount that can be charged for earlier models. This phenomenon is typically seen whenever a new computer, camera, or phone is introduced to the market. Older items still in stock must be discounted significantly to attract buyers.

Similarly, changes in fashions and fads will hurt the sales value of certain types of inventory. Swim suits usually are offered at reduced prices in August and September as the summer season draws to a close. Damage can also impact an owner's ability to recoup the cost of inventory. Advertised sales tempt buyers by offering scratched and dented products, such as microwaves and refrigerators, at especially low prices.

For accounting purposes, the sales value of inventory is normally defined as estimated net realizable value. As discussed in the previous chapter, this figure is the amount of cash expected to be derived from an asset. For inventory, net realizable value is the anticipated sales price less any cost required to generate the sale. For example, the net realizable value of an older model digital camera might be the expected amount a customer will pay after money is spent to advertise the product. The net realizable value for a scratched refrigerator is likely to be the anticipated price of the item less the cost of any repairs that must be made prior to sale.

As with purchase value, if the sales value of an inventory item falls below its historical cost, the lower figure is reported along with a loss to mirror the impact of the asset reduction.

9. Conservative approach to the reporting of inventory used when either the purchase value or the sales value has decreased; a reduction in the asset is recorded along with a loss to reflect the decline in market value if it falls below cost.

Applying Lower of Cost or Market

Question: Inventory records are maintained at the historical cost of each item. For reporting purposes, this figure is utilized unless market value is lower. A reduction in value can result because of a drop in replacement cost (a purchase value) or in net realizable value (a sales value). How is the comparison of cost and market value actually made when inventory is reported?

Assume that Rider Inc. is currently preparing financial statements and holds two bicycles in ending inventory. Model XY-7 cost the company \$260 while Model AB-9 cost \$380. As mentioned, Model XY-7 now has a replacement cost of only \$210. Because of market conditions, the exact sales value is uncertain. The other unit, Model AB-9, has been damaged and can only be sold for \$400 after \$50 is spent for necessary repairs. This inventory has a cost of \$640 (\$260 + \$380). What should Rider report for its asset inventory?

Answer: As a preliminary step in preparing financial statements, a comparison of the cost and market value of the inventory is made. Although other alternatives exist, assume that Rider compares the cost to the market value for each separate item. In applying the lower-of-cost-or-market approach to inventory, the comparison can be made on an item-by-item basis. For example, XY-7 can be valued based on the lower of cost and market for that one item and then, separately, a similar determination can be made for AB-9. A company can also group its inventory (all bicycles, for example, might comprise a group that is separate from all motorcycles) and report the lower amount determined for each group. A third possibility is to sum the cost of all inventory items and make a single comparison of that figure to the total of all market values. U.S. GAAP does not specify a mechanical approach to use in applying lower of cost or market. Market value used for the first item (XY-7) is its purchase value (replacement cost of \$210) whereas the market value for the second item (AB-9) is the sales value of \$350 (net realizable value of \$400 minus \$50). A problem with either value can lead to a reduction in the reported asset balance, which causes the recognition of a loss.

Figure 8.8 Recognition of a Loss on Impaired Inventory Value

Model	Cost	Impaired Market Value	Lower of Cost or Market Value
XY-7	\$260	\$210 (replacement cost)	\$210
AB-9	<u>380</u>	350 (net realizable value)	<u>350</u>
Totals	<u>\$640</u>		<u>\$560</u>

Rider Inc. reports its inventory at the conservative \$560 amount on its balance sheet with an \$80 loss (\$640 – \$560) appearing in the income statement for this period. Such losses can be quite significant. **Mitsui & Co. (U.S.A.)** recognized a \$25.3 million loss for the year ending March 31, 2011, that was attributed to applying the lower-of-cost-or-market approach to its inventory.

TEST YOURSELF

Question:

A company has three items of inventory: one is red, one is green, and one is blue. They cost \$300 each and are usually sold for a profit of \$50. The red and green units have a replacement cost of \$310 each. The blue item has a replacement cost of \$280. The red item can be sold for \$340, the green item can be sold for \$330, and the blue item can be sold for \$320. It will cost \$30 to sell the red one, \$40 to sell the green one, and \$10 to sell the blue one. If lower of cost or market value is applied on an item-by-item basis, what balance should be company report for its inventory?

- a. \$850
- b. \$860
- c. \$870
- d. \$880

Answer:

The correct answer is choice c: \$870.

Explanation:

The red item has a replacement cost (\$310) and a net realizable value (NRV) (\$340 less \$30 or \$310) that are both above cost so the \$300 figure continues to be reported. The green item has a replacement cost (\$310) above cost (\$300) but a NRV of only \$290 (\$330 less \$40). That item is reported at this lower value. The blue item has a replacement cost (\$280) that is below cost (\$300) as well as NRV (\$320 less \$10 or \$310) so the \$280 is reported. The total is \$870 (\$300 + \$290 + \$280).

Talking with an Independent Auditor about International Financial Reporting Standards (Continued)

Following is a continuation of our interview with Robert A. Vallejo, partner with the accounting firm **PricewaterhouseCoopers**.

Question: When applying lower of cost or market to inventory, the determination of market value according to U.S. GAAP can be either net realizable value or replacement cost depending on whether a sales value or a purchase value is impaired. This process has been used in the United States for decades. How does International Financial Reporting Standards (IFRS) handle this issue? If a company begins to report its financial statements based on IFRS, how will the comparison of cost to market be made for inventory balances?

Rob Vallejo: International Accounting Standards 2, Inventories (IAS 2) states that inventories should be measured at the lower of cost and net realizable value. Net realizable value is defined as the anticipated sales price of the item (in the ordinary course of business) reduced by the estimated costs to complete the item and any estimated costs needed to make the sale. Replacement cost is not taken into consideration. In practice, because most U.S. companies determine net realizable value when considering whether or not to decrease the cost of their inventory, I do not expect any significant differences in this area of financial reporting (with the exception of some very industry specific circumstances) when a switch to IFRS is made. However, IFRS does allow reversals of previous write-downs if appropriate, whereas this is not allowed under U.S. GAAP.

KEY TAKEAWAY

Inventory is traditionally reported on a company's balance sheet at historical cost. However, reductions can be made based on applying the conservative lower-of-cost-or-market approach. In some cases, purchase value is in question if an item's replacement cost has dropped since the date of acquisition. For other inventory items, the problem is with the sales value if the net realizable value (expected sales price less any costs necessary to sale) falls below cost. Drops in sales value can occur because of changes in fads or technology or possibly as a result of damage. If either of these market values is below cost, the reported inventory figure should be reduced and a loss recognized.

8.5 Determining Inventory on Hand

LEARNING OBJECTIVES

At the end of this section, students should be able to meet the following objectives:

1. Understand the necessity of taking a physical inventory count even in a perpetual inventory system.
2. Estimate the amount of inventory on hand using historic gross profit percentages and identify situations when this computation might be necessary.

Counting Inventory in a Perpetual System

Question: In a periodic inventory system, a physical count is always taken at or near the end of the fiscal year. This procedure is essential in determining the final inventory figure and, hence, cost of goods sold for the period. When a company uses a perpetual system, is a count of the goods on hand still needed since both the inventory balance and cost of goods sold are maintained and available in the accounting records?

Answer: A physical inventory is necessary even if a company has invested the effort and cost to install a perpetual system. Merchandise can be lost, broken, or stolen. Errors can occur in the record keeping. Thus, a count is taken on a regular basis simply to ensure that subsidiary and general ledger balances are kept in alignment with the actual items held. Unless differences become material, this physical inventory can take place at a convenient time rather than at the end of the year. For example, assume that a company sells snow ski apparel. If an efficient perpetual system is in use, the merchandise could be inspected and counted by employees in May when quantities are low and damaged goods easier to spot.

An adjustment is necessary when the count does not agree with perpetual inventory figures. To illustrate, assume that company records indicate that 65 ski jackets are currently in stock costing \$70 apiece. The physical inventory finds that only 63 items are actually on hand. The inventory account is reduced (credited) by \$140 to mirror the shortfall (two missing units at \$70 each).

The other half of the adjusting entry depends on the perceived cause of the shortage. For example, officials might have reason to believe that errors took place in the accounting process during the period. When merchandise is bought and sold, recording miscues do occur. Possibly two ski jackets were sold on a busy afternoon. The clerk got distracted and the cost of this merchandise was never reclassified to expense. This type of mistake means that the cost of goods sold figure is too low. The balance reported for these two jackets is moved to the expense account to rectify the mistake.

Figure 8.9 Adjusting Entry—To Bring Perpetual Inventory Records in Line with Physical Count, a Recording Error Is Assumed

Cost of Goods Sold	140		(increase an expense—debit)
Inventory (to reduce inventory for two jackets costing \$70 each)		140	(decrease an asset—credit)

Conversely, if differences between actual and recorded inventory amounts occur because of damage, loss, or theft, the reported balance for cost of goods sold should not bear the cost of these items. The two jackets were not sold. Instead, a loss occurred.

If the assumption is made that the missing jackets were lost or stolen, rather than sold, the following alternative adjustment is appropriate.

Figure 8.10 Adjusting Entry—To Bring Perpetual Inventory Records in Line with Physical Count, Theft or Loss Is Assumed

Loss on Inventory Shortage	140		(increase an expense—debit)
Inventory (to reduce inventory for two jackets costing \$70 each)		140	(decrease an asset—credit)

In practice, when an inventory count is made and the results differ from the amount of recorded merchandise, the exact cause is often impossible to identify. Whether a loss is reported or a change is made in reporting cost of goods sold, the impact on net income is the same. In such cases, construction of the adjustment is at the discretion of company officials. Normally, consistent application from year to year is the major objective.

Estimating the Amount of Inventory on Hand

Question: A periodic system is cheap and easy to operate. However, the lack of available information does present some practical problems. Assume that a company experiences a fire, flood, or other disaster and is attempting to gather evidence—for insurance or tax purposes—as to the amount of merchandise that was destroyed. If a periodic system has been used, how can the company support its claim? Or assume a company wants to produce interim financial statements for a single month or quarter (rather than a full year) without going to the cost and trouble of taking a complete physical inventory count. If the information is needed, how can a reasonable approximation of inventory on hand be derived when a periodic system is in use?

Answer: One entire branch of accounting—known as **forensic accounting**¹⁰—specializes in investigations where information is limited or not available (or has even been purposely altered to be misleading). For example, assume that a hurricane floods a retail clothing store in Charleston, South Carolina. Only a portion of the merchandise costing \$80,000 is salvaged. For a full description of forensic accounting, see Frank J. Grippo and J. W. (Ted) Ibex, “Introduction to Forensic Accounting,” *The National Public Accountant*, June 2003. In trying to determine the resulting loss, the amount of inventory in the building prior to the storm needs to be calculated. A forensic accountant might be hired, by either the owner of the store or the insurance company, to produce a reasonable estimate of the merchandise on hand at the time of the flood. Obviously, if the company had used a perpetual rather than a periodic system, the need to hire the services of an accounting expert would be less likely unless fraud was suspected.

In some cases, arriving at a probable inventory balance is not extremely complicated even if periodic inventory procedures are utilized. When historical trends can be determined with assurance, a valid estimation of the goods on hand is possible at any point in time without the benefit of perpetual records. To illustrate, assume that the general ledger for the Charleston store is located after the disaster. A periodic system was in use and the T-account balances provide the following information.

10. A branch of accounting specializing in investigating and reporting on situations where important information is limited or unavailable.

Figure 8.11 Estimating Inventory—General Ledger Balances

<u>Inventory available for sale:</u>	
Inventory, beginning of year	\$ 165,000
Purchases of inventory for current period	378,000
Cash discounts on purchases	(6,000)
Transportation-in	<u>34,000</u>
Cost to date	<u>\$571,000</u>
Sales	<u>\$480,000</u>

If no sales had taken place prior to the flood, the inventory on hand would have cost \$571,000 as shown by these ledger accounts. However, sales had occurred, and a significant amount of merchandise was removed by customers as a result of those transactions. The \$480,000 balance shown in the sales T-account does not reflect the cost of inventory items that were surrendered. It is a retail amount, the summation of the price charged for all sales during the year to date.

To determine the cost of inventory held at the time of the catastrophe, cost of goods sold for the current year has to be approximated and then removed from the \$571,000 total. Many companies use a fairly standard markup percentage to set retail prices. By looking at previously reported balances, the forensic accountant is often able to make a reasonable determination of that markup. For example, assume that in the preceding year, this company reported sales revenue of \$500,000 along with cost of goods sold of \$300,000 and, hence, gross profit of \$200,000. In this earlier period, cost of goods sold was 60 percent of sales revenue ($\$300,000/\$500,000$) while gross profit was 40 percent ($\$200,000/\$500,000$).

If available evidence does not indicate any significant changes this year in the method used to set retail prices, the accountant can assume that cost of goods sold during the period prior to the storm was about \$288,000 ($\$480,000$ sales revenue \times 60 percent). Because the cost of all inventory was \$571,000, approximately \$283,000 of those goods were still in stock at the store when the hurricane hit Charleston ($\$571,000$ total cost less \$288,000 estimated cost of goods sold). This residual figure then serves as the basis for the insurance or tax claim. Only goods costing \$80,000 were saved. Thus, the estimated loss was \$203,000 ($\$283,000$ inventory in stock less \$80,000 inventory saved).

An identical set of procedures could also be used if the company was preparing financial statements for a period of time of less than a year (for example, a month or a quarter). For such interim reporting, companies often determine inventory and

cost of goods sold based on estimations to avoid the cost of frequent physical counts.

The biggest obstacle in this type calculation is the validity of the cost and markup percentages. Many companies offer an eclectic variety of products, each with its own typical gross margin. Other companies change their markups frequently based on market conditions. In these cases, determining a reliable percentage can be difficult and the accuracy of the resulting estimation is much more questionable.

TEST YOURSELF

Question:

On January 1, Year One, the Wysocki Company holds inventory costing \$230,000. During the first three months of the year, the company buys additional inventory for \$290,000 and makes sales totaling \$270,000. The company relies on a periodic inventory system for its record keeping. Typically, if the company buys a unit of inventory for \$9, it will sell it for \$15 although costs tend to vary a bit from product to product. The president of Wysocki wants to produce a balance sheet for the three months ending March 31, Year One, but prefers not to expend the time and money to take a physical inventory. What balance should be estimated and reported for the company's inventory on this balance sheet?

- a. \$250,000
- b. \$298,000
- c. \$340,000
- d. \$358,000

Answer:

The correct answer is choice d: \$358,000.

Explanation:

If no goods are sold, the company holds inventory costing \$520,000 (\$230,000 plus \$290,000). However, sales of \$270,000 were made during these three months. Cost of goods sold has typically been 60 percent of the sales price (\$9/\$15). Therefore, the cost of the goods that were sold so far in this period can be estimated as \$162,000 (60 percent \times \$270,000). After removing that amount, the inventory that remains has an estimated cost of \$358,000 (\$520,000 less \$162,000).

KEY TAKEAWAY

Although perpetual inventory systems are designed to maintain current account balances, a physical count is still required periodically to update the records for errors, theft, and the like. In addition, knowledge of the amount of inventory on hand is sometimes needed in a periodic system even if complete records are not available. If a loss has occurred due to some type of disaster or if interim financial statements are to be prepared, the inventory balance can be estimated. This computation is based on determining the company's gross profit percentage using historical data. That allows cost of goods sold for the period to be estimated and then removed from the total inventory available for sale.

Talking with a Real Investing Pro (Continued)

Following is a continuation of our interview with Kevin G. Burns.

Question: Gross profit is the sales revenue generated by a company less cost of goods sold. In other words, it is the markup that a company is able to earn from the sale of its inventory. Goods are bought for a price and then sold at a higher value. In analyzing companies, gross profit is often stated as a percentage. A company's gross profit, for example, might be 37 percent of its sales. When you study a company, how much attention do you pay to changes in gross profit from year to year or differences that exist between one company and another?

Kevin Burns: Actually year to year differences only interest me if there is a significant change. If a company's gross profit margin increases significantly from one year to the next, my radar is activated. I want to know exactly why that happened. Is it temporary or something significant? If gross profit is especially volatile, it could easily go the other direction in the future. I prefer steady as she goes. Predictability and transparency are very important to me. As for gross profit margins between one company and another, the only way that is significant to me is if they are in the same industry and then only if there are big differences. Most companies in mature industries have similar margins, and large differences, again, tend to make me very suspicious.

Video Clip

[\(click to see video\)](#)

Professor Joe Hoyle talks about the five most important points in [Chapter 8 "How Does a Company Gather Information about Its Inventory?"](#).

8.6 End-of-Chapter Exercises

QUESTIONS

1. A company reports that it holds inventory with a cost of \$397,000. What is meant here by the term “cost?”
2. At the end of the current year, the Waxhall Corporation paid \$12,400 in connection with the acquisition of several pieces of inventory. This cost was capitalized when it should have been expensed. What is the impact of this misstatement on the company’s financial statement totals?
3. What is a cash discount? Why does a company offer a cash discount?
4. What is meant by the term “3/10, n/30?”
5. When offered a cash discount, why is a buyer likely to take advantage of this opportunity?
6. How do cash discounts impact the reported value of inventory?
7. What is a perpetual inventory system? What is an advantage of using a perpetual system?
8. What is a periodic inventory system? What is an advantage of using a periodic system?
9. What is meant by the term “FOB point?”
10. The Allen Company sold \$4,000 in inventory to the Gracie Company. Unfortunately, the goods were destroyed in a wreck while being delivered. Which company suffered this loss?
11. When does ownership transfer if transfer documents specify “FOB shipping point?”
12. When does ownership transfer if transfer documents specify “FOB destination?”
13. One company records its inventory using a perpetual system. Another company records its inventory using a periodic system. Other than the journal entries that are made, what differences are found between the two systems?
14. The Birgini Company buys one unit of inventory for \$77 in cash. This item is later sold for \$109 on credit. What journal entry or entries are made at the time of sale if a perpetual inventory system is used? What journal entry or entries are made at the time of sale if a periodic inventory system is used?
15. The Westmoreland Corporation uses a periodic system for its inventory. The company starts the current year with inventory costing \$177,000. During the year, an additional \$387,000 is paid for inventory purchases and \$17,000 for transportation costs to get those items. A physical count at the end of the year finds \$145,000 of ending inventory. How was each of these numbers derived? What is the company’s cost of goods sold?
16. In question 15, what year-end adjusting entry is needed?
17. The Alberta Corporation maintains a perpetual inventory system but only keeps track of the number of units of inventory. The company

actually makes its journal entries as is done in a periodic system. What is the reason for adopting this approach?

18. In accounting for inventory, what is meant by purchase value? How can a drop in the purchase value of inventory force the company to change the reported figure?
19. In accounting for inventory, what is meant by sales value? How can a drop in the sales value of inventory force the company to change the reported figure?
20. What types of companies would be most likely to have reductions to report in connection with the application of lower of cost or market?
21. Why would a company that uses a perpetual inventory system still perform a physical inventory count?
22. The Sharon Company recently estimated its inventory holdings. What are possible reasons for making this type of estimation?

TRUE OR FALSE

1. ____ A company should include the amount spent to transport an inventory item to its store when determining the reported cost of that item.
2. ____ In a periodic inventory system, an increase is made in the Inventory T-account if money is paid for the transportation to receive the items.
3. ____ In a perpetual inventory system, transportation costs to receive inventory is handled in the same manner by a company as delivery costs paid to get the item to a customer.
4. ____ Inventory is bought for \$600 on terms of 2/10, n/60. Thus, if payment is made in 10 days, the buyer only has to pay \$540.
5. ____ Buyers frequently choose not to take advantage of purchase (cash) discounts because the amount that is saved is so small.
6. ____ In a perpetual system, cost of goods sold is determined and recorded at the time of sale.
7. ____ Periodic inventory systems are, in general, less expensive to operate than perpetual systems.
8. ____ Periodic inventory systems are more common today because of the prevalence of computer systems.
9. ____ The Purchases of Inventory account is not used in a perpetual inventory system.
10. ____ If inventory is shipped FOB shipping point, the buyer takes title as soon as the inventory leaves the seller's warehouse.
11. ____ In a periodic system, cost of goods sold is the difference between what a company has available for sale (beginning inventory and purchases) and what they did not sell (ending inventory).
12. ____ In a periodic system, the Inventory T-account retains the beginning balance throughout the year.
13. ____ Ace Company reports Year One cost of goods sold as \$324,000 using a periodic system. One inventory item was not recorded or counted. Ace had bought the item from Zebra for \$6,000. Zebra shipped it on December 28, Year One, and Ace received it on January 5, Year Two. It was shipped FOB shipping point. Ace should have reported cost of goods sold as \$330,000.
14. ____ Lower of cost or market is only used by companies that maintain a periodic inventory system.
15. ____ Lower of cost or market is only used by companies that maintain a perpetual inventory system.
16. ____ If the market value of a company's inventory increases after its acquisition, the company should record a gain.

17. ____ A company that uses a perpetual inventory system should still perform a physical inventory count.
18. ____ An estimation of inventory is most common in connection with companies that have a periodic inventory system.
19. ____ The Waynesboro Company always has gross profit equal to 30 percent of sales. This year, the company started with inventory costing \$50,000 and made purchases of \$100,000 and sales of \$120,000. A fire destroyed all of the inventory on hand except for merchandise costing \$6,000. The loss is estimated as \$60,000.
20. ____ A forensic accountant attempts to generate financial information in situations where insufficient physical data might be available.

MULTIPLE CHOICE

1. Arne Company buys inventory for \$400. The seller sends this merchandise to the company FOB destination. The transportation charge was \$13. Arne received a discount of \$9 for paying quickly. The inventory is sold to a customer for \$670. Arne paid another \$17 to have the item delivered to the customer's home. What did Arne report as cost of goods sold?
 - a. \$391
 - b. \$395
 - c. \$400
 - d. \$408

2. On February 13, NC Sofa Company purchases three sofas from a manufacturer for \$300 each. The terms of the sale are 2/10, n/45. NC Sofa pays the invoice on February 21. How much did the company pay?
 - a. \$855
 - b. \$882
 - c. \$890
 - d. \$900

3. Crayson Inc. started the year with \$490,000 in inventory. During the year, Crayson purchased an additional \$1,060,000 in inventory and paid transportation costs of \$30,000 to get this merchandise. At the end of the year, Crayson employees performed a physical count and determined that ending inventory amounted to \$450,000. What was Crayson's cost of goods sold for the year?
 - a. \$1,050,000
 - b. \$1,060,000
 - c. \$1,100,000
 - d. \$1,130,000

4. The following account balances were found in the general ledger of the Applewhite Corporation: Purchases = \$232,000, Sales = \$458,000, Transportation-in = \$15,000, Cash Discounts on Purchases = \$23,000, Advertising Expense = \$30,000. On January 1,

a count of inventory showed \$90,000, whereas on December 31, a count of inventory showed \$123,000. What was cost of goods sold for the period?

- a. \$176,000
 - b. \$191,000
 - c. \$214,000
 - d. \$221,000
5. Raceway Corporation manufactures miniature cars and racetracks for collectors and enthusiasts. Raceway placed an order for new auto supplies and other parts from Delta Inc. on December 1. The sales staff at Delta informed Raceway that the supplies would not be available to ship out until December 22. Raceway accepted this arrangement. The supplies actually shipped, FOB shipping point, on December 26 and arrived at Raceway's receiving dock on January 2. On which date should Raceway include the supplies in its inventory?
- a. December 1
 - b. December 22
 - c. December 26
 - d. January 2
6. The Morning Company buys inventory and pays an additional \$700 to have those goods shipped to its warehouse. How is the journal entry for this \$700 cost recorded?
- a. In both a perpetual and a periodic system, inventory is debited for \$700.
 - b. In both a perpetual and a periodic system, purchases of inventory is debited for \$700.
 - c. In a perpetual system, inventory is debited for \$700; in a periodic system, purchases of inventory is debited for \$700.
 - d. In a perpetual system, purchases of inventory is debited for \$700; in a periodic system, inventory is debited for \$700.
7. A company makes all of its purchases and sales using FOB shipping point. At the end of the year, the company had the following two transactions that were correctly recorded:

- **Purchases.** Inventory costing \$40,000 is shipped by the seller on December 28 and received by the company on January 4.
- **Sales.** Inventory costing \$30,000 is sold to a customer for \$48,000. It is shipped on December 28 to the customer and arrives on January 4.

If this company had chosen to make these transactions FOB destination rather than FOB shipping point, how would that decision have impacted the reported amount of inventory on the year-end balance sheet?

- a. Reported inventory would have been \$10,000 higher.
 - b. Reported inventory would have been \$10,000 lower.
 - c. Reported inventory would have been \$40,000 higher.
 - d. Reported inventory would have been \$40,000 lower.
8. The Charlotte Company made a \$9,000 purchase near the end of the current year. The company also made a sale for \$11,000 of inventory costing \$6,000. Charlotte did not include either the inventory purchased or the inventory sold in its year-end inventory. Ending inventory was reported as \$100,000. The purchase was FOB destination and shipped on December 29, Year One, and received by Charlotte on January 3, Year Two. The sale was FOB destination. It was shipped on December 30, Year One, and received by the customer on January 4, Year Two. What was the correct amount of inventory that Charlotte should have reported at the end of Year One?
- a. \$94,000
 - b. \$97,000
 - c. \$106,000
 - d. \$109,000
9. At year-end, the Commonwealth Corporation holds 500 pieces of XY inventory costing \$9 each and 700 pieces of AB inventory costing \$11 each. XY inventory has flooded the market, and Commonwealth can now buy these same units for \$6 each. AB inventory has not proven to be as popular as anticipated, and a unit can only be sold for \$12 even after spending \$2 extra on painting it a different color. In applying lower of cost or market, what should be reported for inventory by Commonwealth?

- a. \$10,000
 - b. \$10,700
 - c. \$11,400
 - d. \$12,100
10. Which of the following concerning the “lower of cost or market” rule is **not** true?
- a. If the replacement cost of an inventory item falls below its historical cost, the value of the item should be written down.
 - b. If the market value of an item exceeds its historical cost, it should be written up and a gain recorded.
 - c. It is possible for an item’s net realizable value to fall below its historical cost.
 - d. Application of lower of cost or market is an example of the practice of conservatism in accounting.
11. Romulus Company sells maps. At the end of the current year, Romulus’s inventory records indicated that it had 2,900 maps of Italy on hand that had originally cost \$30 each but were being sold for \$52 each. An inventory count showed that only 2,875 were actually present in ending inventory. What journal entry should Romulus make if management believes the discrepancy is due to errors in the accounting process?

a. *Figure 8.12*

Cost of Goods Sold	750	
Loss on Inventory Shortage		750

b. *Figure 8.13*

Loss on Inventory Shortage	30	
Inventory		30

c. *Figure 8.14*

Loss on Inventory Shortage	750	
Inventory		750

d. *Figure 8.15*



12. Real South Products holds \$400,000 worth of inventory on January 1. Between January and March 13, Real South purchased an additional \$190,000 in inventory. During that period, sales of \$530,000 were made. On March 13, Real South's warehouse flooded and all but \$15,000 worth of inventory was ruined. Historical records show that Real South has an average gross profit percentage of 25 percent. What was the approximate value of the inventory destroyed in the flood?
- a. \$177,500
 - b. \$207,500
 - c. \$240,000
 - d. \$275,000

VIDEO PROBLEMS

Professor Joe Hoyle discusses the answers to these two problems at the links that are indicated. After formulating your answers, watch each video to see how Professor Hoyle answers these questions.

1. Your roommate is an English major. The roommate's parents own a chain of ice cream shops throughout Florida. One day, while driving over to the car wash, your roommate poses this question: "My parents are having a problem with their insurance company. As you know, we recently had a hurricane come through the Florida area. It knocked out the electricity at one of their stores for several hours. It was very hot that day, and all the ice cream at that store melted. Luckily, each store is insured. However, they are having a dispute with the insurance company as to the amount of ice cream that was destroyed. It all melted and ran down the drain so there is no proof. The insurance company argues that only half as much ice cream was destroyed as my parents claim. For a big store, that is a lot of money. How will they ever be able to sort out this mess? My parents only want a fair amount." How would you respond?

[\(click to see video\)](#)

2. Your uncle and two friends started a small office supply store several years ago. The company has expanded and now has several large locations. Your uncle knows that you are taking a financial accounting class and asks you the following question: "When we first started, we did not spend much money on monitoring inventory. The stores were small, and a good manager could walk through and see where we needed to buy more goods. Now, however, every year we seem to have to spend more money in order to upgrade our inventory systems. Is this cost really worth what we continue to spend?" How would you respond?

[\(click to see video\)](#)

PROBLEMS

- Here are several T-account balances that the Absalom Company has in its ledger at the end of the current year before a physical inventory count is to be taken.

Figure 8.16

Advertising expense	\$22,000
Rent expense	46,000
Purchases of inventory	332,000
Sales	696,000
Inventory, January 1	77,000
Transportation-in	8,000
Purchase Discounts	14,000

- What was the amount of goods available for sale for this company?
 - If the company counts its ending inventory and finds merchandise costing \$84,000, what should be reported as cost of goods sold for the year?
 - What adjusting entry should Absalom make at the end of the current year to record cost of goods sold and ending inventory?
- The Darth Corporation starts Year Two with 8,000 units of inventory. All inventory costs \$1.00 per unit with an additional cost of \$0.12 each for transportation costs. These costs continue to be consistent throughout Year Two. Inventory on January 1, Year Two, was reported as 8,000 units times \$1.12 or \$8,960.

After these 8,000 units were sold, Darth Corporation buys an additional 20,000 units in Year Two. During that year, Darth sells 22,000 units for \$2.00 each. No inventory was lost or stolen. During Year Two, the company accountant accidentally expensed all transportation costs incurred that period.

- What amount did the Darth Corporation report as its gross profit for Year Two?

- b. What amount should the Darth Corporation have reported as its gross profit for Year Two?
3. Overland Inc. starts buying and selling widgets this year. A box of 100 widgets can be bought for \$600 on credit. Transportation to receive each box of widgets costs an additional \$50 in cash. Overland uses a perpetual inventory system. Make journal entries for the following transactions.
 - January 15 – bought 4 boxes of widgets
 - February 19 – sold 3 boxes of widgets for cash of \$1,100 each
 - April 3 – bought 5 boxes of widgets
 - June 15 – sold 3 boxes of widgets for cash of \$1,200 each
 - September 4 – bought 6 boxes of widgets
 - October 5 – sold 4 boxes of widgets for cash of \$1,250 each
4. Do problem 3 again but assume that Overland Inc. uses a periodic inventory system. Also assume that no widgets are lost, broken, or stolen. Include the needed year-end adjusting entry.
5. ConnecTech bought 400 computers in Year Two for \$300 each on account. It paid \$260 to have them delivered to its store. During January of Year Three, ConnecTech sold 220 of the computers for cash of \$550 each. ConnecTech uses a perpetual inventory system.
 - a. Prepare the journal entry or entries to record ConnecTech's purchase of the computers.
 - b. Prepare the journal entry or entries to record the sale of the computers.
 - c. Determine the balance in ConnecTech's ending inventory on January 31, Year Three.
6. Montez Muffins and More (MM&M) is a bakery located in New York City. MM&M purchases a great deal of flour in bulk from a wholesaler. The wholesaler offers purchase discounts for fast payment. MM&M purchased 600 pounds of flour for \$0.20 per pound on May 1, under terms 2/10, n/30. Determine the amount MM&M should pay under the following scenarios.
 - a. MM&M pays the full balance on May 25.
 - b. MM&M pays the full balance on May 7.

- c. MM&M pays half the balance on May 7 and half on May 18.
7. Racer's ATVs sells many makes and models of all-terrain vehicles at its store in Indianapolis, Indiana. Racer's uses a periodic inventory system because its entire inventory is located in one large room and all employees know what is on hand and what new inventory is needed. On January 1, Racer's had beginning inventory costing \$48,600. On January 14, Racer's received a new shipment of vehicles with a purchase price of \$34,700 and additional transportation costs of \$1,200. On May 19, Racers received a second shipment of vehicles with a purchase price of \$36,900 and transportation costs of \$950. On November 1, Racers received its pre-Christmas shipment of vehicles with a purchase price of \$67,800 and transportation costs of \$1,750. The company buys vehicles on account but pays cash for transportation.
 - a. Make the necessary journal entries for January 14, May 19, and November 1 to show the purchase of this inventory.
 - b. Assume that a physical inventory count on December 31 showed an ending inventory costing \$35,800. Determine the cost of goods sold to be reported for the year.
 - c. If sales for the year were reported as \$296,700, what gross profit did Racer's make?
 - d. Racer's is considering replacing its periodic inventory system with a perpetual one. Write a memo to Racer's management giving the pros and cons of this switch.
 8. Ace Company counts inventory at the end of the current year and arrives at a cost of \$300,000. Assume that each of the following four situations is independent of the others. In each case, assume that the inventory in question was not included in the count that was taken at the end of the year.
 - a. Inventory costing \$10,000 was sold by Ace for \$16,000 on credit and shipped to the customer on December 29 and arrived on January 3. The shipment was marked FOB destination. If Ace reported \$300,000 in inventory on its balance sheet, what amount should have been reported?
 - b. Inventory costing \$11,000 was shipped from the seller on December 29 and received by Ace on January 3. The shipment was marked FOB destination. If Ace reported \$300,000 in

- inventory on its balance sheet, what amount should have been reported?
- c. Inventory costing \$12,000 was sold by Ace for \$17,000 on credit and shipped to the customer on December 30 and arrived on January 4. The shipment was marked FOB shipping point. If Ace reported \$300,000 in inventory on its balance sheet, what amount should have been reported?
 - d. Inventory costing \$13,000 was shipped from the seller on December 30 and received by Ace on January 4. The shipment was marked FOB shipping point. If Ace reported \$300,000 in inventory on its balance sheet, what amount should have been reported?
9. Magic Carpets Inc. sells a full line of area rugs, from top quality to bargain basement. Economic conditions have hit the textile industry, and the accountant for Magic Carpets is concerned that the rug inventory might not be worth the amount Magic paid. The following is information about three lines of rugs.

Figure 8.17

	Cost	Replacement Cost	Sales Price	Cost to Sell	Number in Inventory
High Flyers	\$230	\$240	\$350	\$40	80
Midflight	150	120	220	25	125
Under the Radar	100	100	110	20	165

- a. Determine lower of cost or market for each type of rug.
 - b. Assume that Magic Carpets applies lower of cost or market to the individual types of rugs rather than to the entire stock of inventory as a whole. Determine if Magic Carpets has suffered a loss of value on its inventory, and if so, the amount of that loss.
10. Costello Corporation uses a perpetual inventory system. At the end of the year, the inventory balance reported by its system is \$45,270. Costello performs an inventory count and determines that the actual ending inventory is \$39,780.
- a. Discuss why a company that uses a perpetual inventory system would still go to the trouble to perform a physical inventory count.

- b. Why might the ending balance differ between the perpetual inventory system and physical inventory count?
 - c. Assume that Costello determines that the difference between the perpetual records and the physical count is due to an accident that occurred during the year. What journal entry should Costello make?
 - d. Assume that Costello believes the difference between the perpetual records and the physical count is due to errors made by the company's accounting staff. On occasion, the staff fail to transfer inventory to cost of goods sold when a sale were made. What journal entry should Costello make in this case?
11. Fabulous Fay's is a boutique clothing store in San Diego, California. Fay's uses a perpetual inventory system. In March, Fay's purchased a type of swimwear designed to be slimming to the wearer. The company purchased twenty suits of varying sizes for \$40 each and priced them at \$120 each. They sold out almost immediately, so Fay purchased forty more suits in April for \$40 each and sold thirty-eight of them for \$130 each. Again in July, Fay made one more purchase of twenty suits at \$40 each and sold fifteen of them for \$130 each. Fay decided not to put the rest of this inventory on sale at the end of the summer, but to hold onto the items until cruise season started the following winter. She believed she could sell the remainder of this merchandise without having to mark the items down.
 - a. Make the journal entries for the purchases Fay made.
 - b. Make the journal entries for the sales Fay made.
 - c. Determine the balance in ending inventory on December 31.
 - d. Fay performed a physical count on December 31 and determined that three of the swimsuits had been severely damaged due to a leaky pipe. They had to be thrown away. Make the journal entry to show the loss of this inventory.
12. Nakatobi Company has an inventory warehouse in Fargo, North Dakota. The company utilizes a periodic inventory system. At the beginning of the year, the warehouse contained \$369,000 worth of inventory. During the first quarter of the year, Nakatobi purchased another \$218,000 worth of inventory and made sales of \$450,000. On April 1, a flood hit Fargo and destroyed 70 percent of the inventory housed in the warehouse. Nakatobi

must estimate the cost of the destroyed inventory for insurance purposes. According to records kept for the past several years, Nakatobi has typically reported its cost of goods sold at 55 percent of sales.

- a. Determine the value of the inventory on March 31, before the flood hit.
- b. Determine Nakatobi's loss on April 1.

COMPREHENSIVE PROBLEM

This problem will carry through over several chapters to enable students to build their accounting skills using knowledge gained in previous chapters.

In Chapter 7 "In Financial Reporting, What Information Is Conveyed about Receivables?", financial statements were prepared for Webworks for July 31 and the month then ended. Those financial statements are included here as a starting point for the financial reporting for August.

Here are Webworks financial statements as of July 31.

Figure 8.18

Webworks Income Statement As of July 31	
Revenue	\$2,300
Expenses	(1,295)
Earnings before Tax	1,005
Tax Expense	(300)
Net Income	\$705

Figure 8.19

Webworks Stmt. Of Retained Earnings As of July 31	
Retained Earnings, July 1	\$470
Net Income	705
Retained Earnings, July 31	\$1,175

Figure 8.20

Webworks Balance Sheet July 31			
Assets		Liabilities	
Current		Current	
Cash	\$5,720	Accounts Payable	\$240
Accounts Receivable	1,050	Salaries Payable	200
Less Allowance for Doubtful Accounts	(105)	Unearned Revenue	500
Net Accounts Receivable	945	Total Current Liabilities	\$940
Supplies Inventory	50		
Prepaid Rent	400		
Total Current Assets	\$7,115		
Noncurrent		Noncurrent	
Equipment	\$7,000	Notes Payable	\$10,000
		Owners' Equity	
		Capital Stock	\$2,000
		Retained Earnings	1,175
		Total Owners' Equity	\$3,175
Total Assets	\$14,115	Total Liabilities & Owners' Equity	\$14,115

The following events occur during August:

- a. Webworks decides to begin selling a limited selection of inventory items related to its business. During August, Webworks purchases several specialty keyboards for \$4,900 and flash drives for \$3,200 both on account with the hopes of selling them to Web site customers or others who might be interested. Due to the limited quantity of inventory, Webworks will use a periodic system.
- b. Webworks purchases supplies for \$100 on account.
- c. Webworks starts and completes six more Web sites and bills those clients a total of \$2,700.
- d. In July, Webworks received \$500 in advance to design two Web sites. Webworks also completes both of these sites during August.
- e. Webworks collects \$2,400 in accounts receivable.
- f. Webworks pays Nancy Po (the company employee hired in June) \$600 for her work during the first three weeks of August.
- g. In June, Webworks designed a Web site for Pauline Smith and billed her. Unfortunately, before she paid this bill completely, Ms. Smith's business folded. Webworks is not likely to collect any of the remaining money and writes off the \$100 balance as uncollectible.

- h. Webworks sells several keyboards for \$4,500 and flash drives for \$3,000. All of these transactions were for cash.
- i. Webworks pays the salaries payable from July.
- j. Webworks pays \$6,000 of its accounts payable.
- k. Webworks receives \$100 in advance to work on a Web site for a local dentist. Work will not begin on the Web site until September.
- l. Webworks pays Leon Jackson (owner of the company) a salary of \$2,000 for his work.

- m. Webworks pays taxes of \$475 in cash.

Required:

- a. Prepare journal entries for the previous events.
 - b. Post the journal entries to T-accounts.
 - c. Prepare an unadjusted trial balance for Webworks at the end of August.
 - d. Prepare adjusting entries for the following and post them to the appropriate T-accounts.
- n. Webworks owes Nancy Po \$250 for her work during the last week of August.
 - o. Leon's parents let him know that Webworks owes \$250 toward the electricity bill. Webworks will pay them in September.
 - p. Webworks determines that it still has \$60 worth of supplies remaining at the end of August.
 - q. Prepaid rent should be adjusted for August's portion.
 - r. Webworks assumes that 10 percent of its accounts receivable at the end of the month will prove to be uncollectible.
- s. Webworks performs a count of ending inventory and determines that \$1,900 in keyboards and \$1,100 in flash drives remain. Cost of goods sold for the month should be recorded.
- e. Prepare an adjusted trial balance.
 - f. Prepare financial statements for August 31 and the month then ended.

RESEARCH ASSIGNMENT

Assume that you take a job as a summer employee for an investment advisory service. One of the partners for that firm is currently looking at the possibility of investing in **Sears Holdings Corporations**. The partner is a bit concerned about the impact of the recession on this company. The partner is especially interested in what has happened to the company's ability to sell the merchandise inventory that it elects to buy. The partner asks you to look at the 2010 financial statements for **Sears** by following this path:

- Go to <http://www.sears.com>.
 - At the bottom of this screen, click on “About **Sears**” and then on “Investor Relations.”
 - On the right side of the next screen, click on “Financial Information.”
 - On the left side of the next screen, click on “2010 Annual Report” to download.
 - Go to page 49 and find the 2008, 2009, and 2010 income statements.
 - Go to page 50 and find the balance sheets for the years ended January 30, 2010 and January 29, 2011.
- a. Using the figures found on these three income statements, subtract the cost of sales, buying, and occupancy from merchandise sales and services to get an approximation of gross profit earned by **Sears** for each year. Divide that number by the merchandise sales and services figure to derive a gross profit percentage for each year. How has that percentage changed over these three years? What might that signal?
 - b. Using the figures found on the balance sheets, locate the amount reported for merchandise inventories for each year. Divide that figure by the amount reported each year by **Sears** as its total assets. How did the percentage change from the first year to the second? What might that signal?