

LONG-TERM AND INTANGIBLE ASSETS



THE NAVIGATOR ✓

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CONCEPTS FOR REVIEW

Before studying this chapter, you should know or, if necessary, review:

- a. The time period assumption. (Ch. 4, p. 105)
- b. The cost principle (Ch. 1, p. 9) and the matching principle. (Ch. 4, p. 106)
- c. Depreciation. (Ch. 4, p. 111)
- d. How to make adjustments for depreciation. (Ch. 4, pp. 111–112)

F E A T U R E S T O R Y

Time to Relax

Trellis is a spectacular spa within the tranquil setting of the eighteen-acre property of The Houstonian Hotel, Club & Spa in Houston, Texas. A Mediterranean-style, two-story, residential-style building surrounds a courtyard that offers a beautiful natural garden environment that can be seen through large windows located throughout the spa. Outside the second story of Trellis, there is a balcony overlooking the Houstonian's lush landscape.

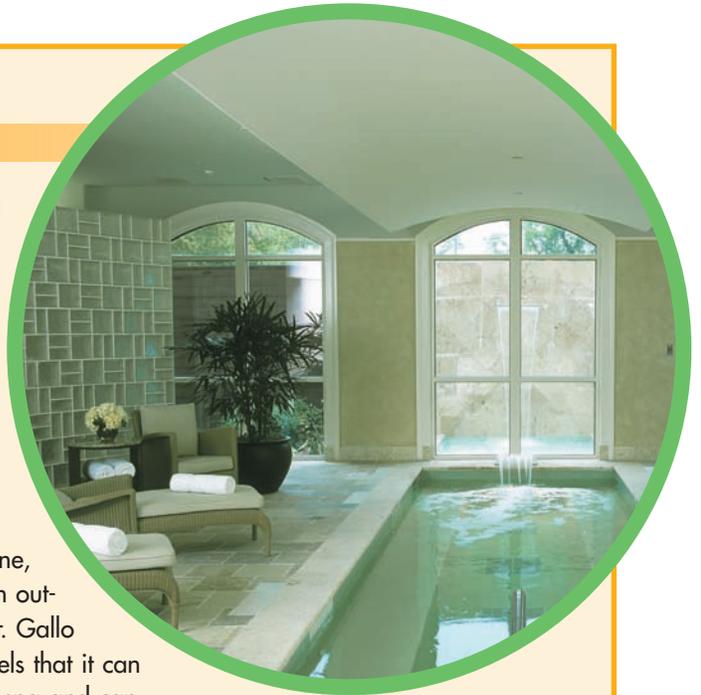
This 17,000-square-foot spa houses nineteen treatment rooms, including ten rooms for body treatments, six facial rooms, two couples' rooms (each including two treatment tables and couples' showers and tubs), and a hydrotherapy room. In addition, there are hair-styling stations, manicure and pedicure stations, luxurious locker rooms with Jacuzzi and steam room, an indoor float pool, a comfortable upstairs lounge with a fireplace, and a quiet room for before and after treatments.

How much does it cost to build such a luxurious sanctuary just next to the Galleria and business center in Houston? \$5.6 million. This includes \$4.26 million in construction; \$450,000 in furniture, fixtures, and equipment; \$124,000 in computing; \$380,000 in architecture and consultant fees; and other costs of \$392,000. Why did the Houstonian decide to go with this investment? Al Gallo, the chief financial officer of Redstone Hospitality, which owns and operates the Houstonian Hotel, Club & Spa, offers the following:

First, the existing spa of 5,000 square feet that serves the members

of the fitness club and the hotel and catering patrons is too small. It had long appointment waiting lists; and the facility itself, although somewhat historic, had outlived its usefulness. In addition, though it was owned by Redstone, it was managed by an outside spa company. Mr. Gallo notes that Redstone feels that it can manage and own the spa and can do a better job of controlling member and guest expectations. Finally, demolition of the old spa building made room for the latest addition, the new family-resort-style swimming pool. The new spa was relocated across the street, a few yards away, on a vacant parcel of land previously used as green space and some parking. The name Trellis was chosen in order to incorporate the luscious outdoor landscaping element of the property, and some elements of water were added for a feel of tranquility and relaxation.

The entire project from ground breaking to grand opening took sixteen months, from September 2002 through December 2003. The hiring and training were done two months in advance of opening, and Redstone offered complimentary spa treatments to staff and members for the month prior to opening. Given the clientele, Redstone is quite selective in its hiring of licensed massage therapists. All the new hires go through "Seven Habits" training, a Franklin Covey-style leadership training program. The guests have given it rave reviews, as have the members.



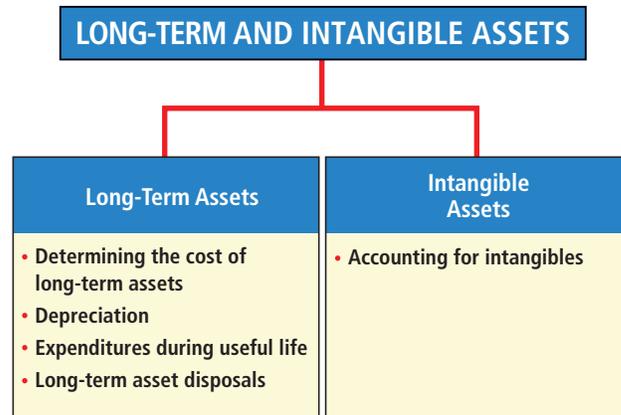
Trellis is the only Mobil four-star spa in the city of Houston. Although 50 percent of the guests are active fitness club members and about 10 percent are hotel guests, 40 percent of the clients are from the local Houston area. Determining the correct balance of treatment rooms to locker rooms and leisure space is a challenge. To accomplish this, Redstone enlisted outside spa consultants. With the current demand, Trellis can use an additional two to three rooms beyond what it has today and therefore has plans already to expand in the near future.

Is it different to be the CFO of a hotel than to be one of a hotel, a club, and a spa all at the same time? Mr. Gallo says that the key is to understand the accounting for the hotel. He has found if one can understand the nuances of hotel accounting, the club and/or spa accounting is much easier to digest because they are large businesses but viewed as additional outlets to the hotel. He did have to learn much more about the spa business with regard to payroll, such as hourly payments versus flat fees for each serv-

PREVIEW OF CHAPTER 13

The accounting for long-term assets has important implications for a company's reported results. In this chapter we explain the application of the cost principle of accounting to property, plant, and equipment, such as the building of the Trellis Spa at the **Houstonian Hotel, Club & Spa**. We also describe the methods that may be used to allocate an asset's cost over its useful life. In addition, the accounting for expenditures incurred during the useful life of assets, such as the cost of replacing kitchen equipment and a catering delivery truck, is discussed.

The content and organization of Chapter 13 are as follows:



FEATURE STORY (CONTINUED)

ice performed.

The volume of work increases significantly within the accounting department itself because the spa is a large generator of invoices to pay,

employees on staff, gift certificates to track, and software to keep up-to-date and interfaced with the other hotel and club systems. By setting the club and spa up similar to, say, an

outlet of the hotel, staff can process the payables, payroll, and receivables in a similar fashion without adding a whole



STUDY OBJECTIVES

After studying this chapter, you should be able to

1. Describe the application of the cost principle to long-term assets.
2. Explain the concept of depreciation.
3. Compute periodic depreciation using different methods.
4. Describe the procedure for revising periodic depreciation.
5. Distinguish between revenue and capital expenditures, and explain the entries for these expenditures.
6. Explain how to account for the disposal of a long-term asset through retirement, sale, or exchange.
7. Contrast the accounting for intangible assets with the accounting for long-term assets.



LONG-TERM ASSETS

Long-term assets are tangible resources that are used in the operations of a business and are not intended for sale to customers. They are also called **property, plant, and equipment; furniture, fixtures, and equipment; or fixed assets**. These assets are generally long-lived. They are expected to provide services to the company for a number of years. Except for land, long-term assets decline in service potential over their useful lives. Many companies have substantial investments in long-term assets. Illustration 13-1 shows the percentages of long-term assets in relation to total assets of companies in several industries.

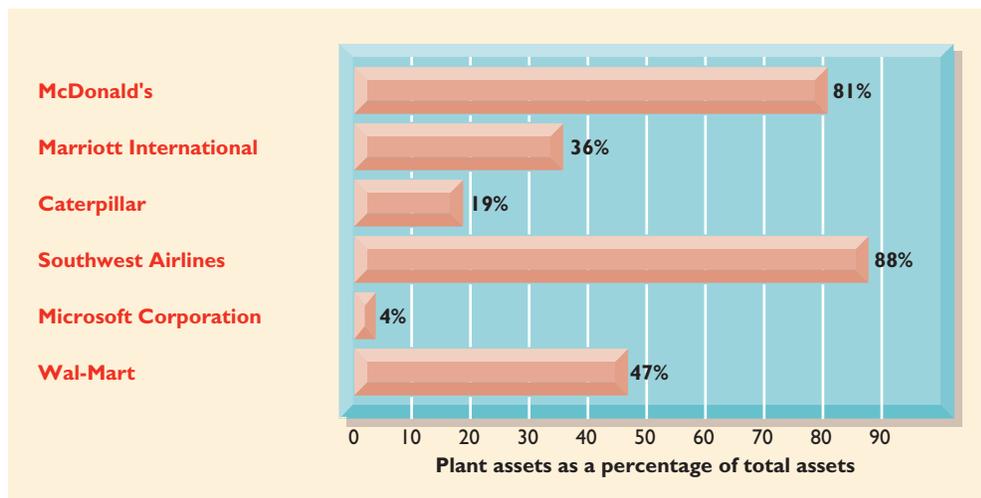


Illustration 13-1

Percentages of long-term assets in relation to total assets

Long-term assets are often subdivided into four classes:

1. **Land**, such as a building site
2. **Land improvements**, such as driveways, parking lots, fences, and underground sprinkler systems
3. **Buildings**, such as stores, offices, hotels, restaurants, retail shops, and warehouses
4. **Equipment**, such as store checkout counters, cash registers, coolers, office furniture, and delivery equipment

Like the purchase of a home by an individual, the acquisition of long-term assets is an important decision for a business. It is also important for a business to (1) keep assets in good operating condition, (2) replace worn-out or outdated assets, and (3) expand its productive resources as needed. The decline of rail travel in the United States can be traced in part to the failure of railroad companies to meet the first two conditions. The growth of U.S. air travel is due in part to airlines having generally met these conditions.

DETERMINING THE COST OF LONG-TERM ASSETS

Long-term assets are recorded *at cost* in accordance with the **cost principle** of accounting. Thus the delivery vehicles at a catering company are recorded at cost. **Cost consists of all expenditures necessary to acquire the asset and to make it ready for its intended use.** For example, the cost of factory machinery includes the purchase price, freight costs paid by the purchaser, and installation costs. Once cost is

STUDY OBJECTIVE 1

Describe the application of the cost principle to long-term assets.

established, it becomes the basis of accounting for the long-term asset over its useful life. Current market or replacement values are not used after acquisition.

The application of the cost principle to each of the major classes of long-term assets is explained in the following sections.

LAND

The cost of land includes the cash purchase price plus other related costs. These costs might include closing costs, such as title and attorney's fees, real estate broker's commissions, and accrued property taxes and other liens on the land assumed by the purchaser. For example, if the cash price is \$50,000 and the purchaser agrees to pay accrued taxes of \$5,000, the cost of the land is \$55,000.

All necessary costs incurred to make land *ready for its intended use* are debited to the Land account. For vacant land, these costs include expenditures for clearing, draining, filling, and grading. Sometimes the land has a building on it that must be removed before construction of a new building. In this case, all demolition and removal costs, less any proceeds from salvaged materials, are debited to the Land account. To illustrate, assume that Hayes Hotel Company acquires land for \$100,000. An old warehouse on the property is razed at a net cost of \$6,000 (\$7,500 in costs less \$1,500 proceeds from salvaged materials). Other expenditures are the attorney's fee, \$1,000, and the real estate broker's commission, \$8,000. The cost of the land is \$115,000, computed in Illustration 13-2.

INTERNATIONAL NOTE

The United Kingdom is more flexible than the United States about asset valuation. Most companies in the United Kingdom make revaluations to fair value when they believe fair value is more relevant. Other countries that permit revaluations are Switzerland and the Netherlands.

Illustration 13-2

Computation of cost of land

<u>Land</u>	
Cash price of property	\$100,000
Net removal cost of warehouse	6,000
Attorney's fee	1,000
Real estate broker's commission	8,000
Cost of land	<u>\$115,000</u>

In recording the acquisition, Land is debited for \$115,000 and Cash is credited for \$115,000.

LAND IMPROVEMENTS

The cost of land improvements includes all expenditures needed to make the improvements ready for their intended use. For example, the cost of a new hotel parking lot will include the amount paid for paving, fencing, and lighting. Thus these costs are debited to Land Improvements. Because these improvements have limited useful lives and their maintenance and replacement are the responsibility of the company, *they are depreciated over their useful lives*.

BUILDINGS

All necessary costs related to the purchase or the construction of a building are debited to the Buildings account. When a building is purchased, such costs include the purchase price, closing costs (attorney's fees, title insurance, etc.), and broker's commission. Costs to make the building ready for its intended use include expenditures for remodeling and replacing or repairing the roof, floors, electrical wiring, and plumbing.

When a new building is constructed, cost consists of the contract price plus payments for architects' fees, building permits, and excavation costs. Also, interest costs incurred to finance the project are included when a significant period of time is required to get the building ready for use. These interest costs are considered as necessary as materials and labor. The inclusion of interest costs is

limited to the *construction period*, however. When construction has been completed, subsequent interest payments on funds borrowed to finance the construction are debited to Interest Expense.

EQUIPMENT

The cost of equipment, such as vehicles, consists of the cash purchase price plus certain related costs. These costs include **sales taxes, freight charges, and insurance during transit paid by the purchaser**. They also include **expenditures required in assembling, installing, and testing the unit**. However, motor vehicle licenses and accident insurance on company trucks and cars are not included in the cost of equipment. They are treated as expenses as they are incurred. They represent annual recurring expenditures and do not benefit future periods.

To illustrate, assume that Merten Hotels purchases kitchen equipment at a cash price of \$50,000. Related expenditures consist of sales taxes \$3,000; insurance during shipping \$500; and installation and testing \$1,000. The cost of the kitchen equipment is \$54,500, computed in Illustration 13-3.

<u>Kitchen Equipment</u>	
Cash price	\$50,000
Sales taxes	3,000
Insurance during shipping	500
Installation and testing	1,000
Cost of kitchen equipment	<u>\$54,500</u>

HELPFUL HINT

Two criteria apply in determining cost here: (1) the frequency of the cost—one-time or recurring and (2) the benefit period—life of asset or one year.

Illustration 13-3

Computation of cost of kitchen equipment

A summary entry is made to record the purchase and related expenditures:

Kitchen Equipment	54,500	
Cash		54,500
(To record purchase of kitchen equipment)		

A	=	L	+	SE
+54,500				
-54,500				

For another example, assume that Lenard Catering purchases a delivery truck at a cash price of \$22,000. Related expenditures consist of sales taxes \$1,320; painting and lettering \$500; motor vehicle license \$80; and a three-year accident insurance policy \$1,600. The cost of the delivery truck is \$23,820, computed in Illustration 13-4.

<u>Delivery Truck</u>	
Cash price	\$22,000
Sales taxes	1,320
Painting and lettering	500
Cost of delivery truck	<u>\$23,820</u>

Illustration 13-4

Computation of cost of delivery truck

The motor vehicle license is expensed when incurred; the insurance policy is a prepaid asset. The summary entry to record the purchase of the truck and related expenditures looks like this:

Delivery Truck	23,820	
License Expense	80	
Prepaid Insurance	1,600	
Cash		25,500
(To record purchase of delivery truck and related expenditures)		

A	=	L	+	SE
+23,820				-80
+1,600				
-25,500				



BEFORE YOU GO ON...

REVIEW IT

1. What are long-term assets? What are the major classes of long-term assets? How is the cost principle applied to accounting for long-term assets?
2. What classifications and amounts does **PepsiCo** report on its balance sheet under the heading “Property and equipment, net”?

DO IT

Assume that a restaurant delivery truck is purchased for \$15,000 cash, plus sales taxes of \$900 and delivery costs to the dealer of \$500. The restaurant also pays \$200 for painting and lettering, \$600 for an annual insurance policy, and \$80 for a motor vehicle license. Explain how each of these costs would be accounted for.

ACTION PLAN

- Identify expenditures made in order to get delivery equipment ready for its intended use.
- Expense operating costs incurred during the useful life of the equipment.

SOLUTION

The first four payments (\$15,000, \$900, \$500, and \$200) are considered to be expenditures necessary to make the truck ready for its intended use. Thus, the cost of the truck is \$16,600. The payments for insurance and the license are considered to be operating expenses incurred during the useful life of the asset.



STUDY OBJECTIVE 2

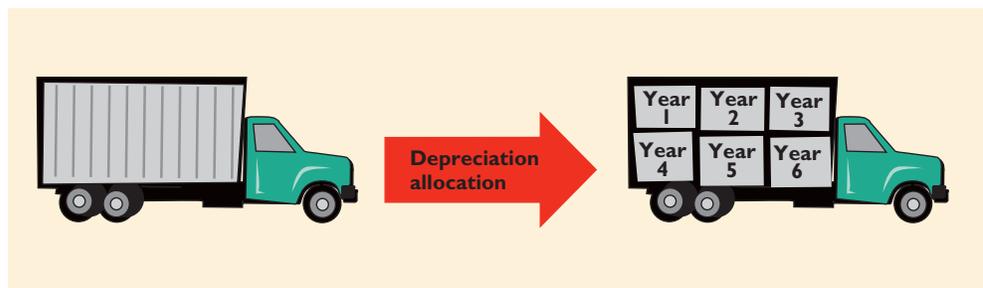
Explain the concept of depreciation.

DEPRECIATION

As explained in Chapter 3, **depreciation is the allocation of the cost of a plant asset to expense over its useful (service) life in a rational and systematic manner.** Cost allocation provides for the proper matching of expenses with revenues in accordance with the matching principle (see Illustration 13-5).

Illustration 13-5

Depreciation as an allocation concept



HELPFUL HINT

Remember that depreciation is the allocation of cost over the useful life of an asset. It is not a measure of value.

Depreciation is a process of cost allocation, not a process of asset valuation. The change in an asset’s market value is not measured during ownership because plant assets are not held for resale. So the **book value** (cost less accumulated depreciation) of a plant asset may be quite different from its market value.

Depreciation applies to three classes of plant assets: (1) land improvements (2) buildings, and (3) equipment. Each asset in these classes is considered to be a **depreciable asset**. Why? Because the usefulness to the company and the revenue-producing ability of each asset will decline over the asset’s useful life. Depreciation does not apply to land because its usefulness and revenue-producing ability generally remain intact over time. In fact, in many cases, the usefulness of land is greater over time because of the scarcity of good land sites. Thus land is *not* a depreciable asset.

During a depreciable asset's useful life, its revenue-producing ability will decline because of wear and tear. A delivery truck that has been driven 100,000 miles will be less useful to a company than one driven only 800 miles. Trucks and planes exposed to snow and salt will deteriorate faster than equipment that is not exposed to these elements.

Revenue-producing ability also may decline because of *obsolescence*. Obsolescence is the process of becoming out of date before the asset physically wears out. Major airlines were rerouted from Chicago's Midway Airport to Chicago-O'Hare International Airport because Midway's runways were too short for jumbo jets, for example.

It is important to understand that **recognizing depreciation on an asset does not result in an accumulation of cash for replacement of the asset**. The balance in Accumulated Depreciation represents the total cost that has been charged to expense. It is not a cash fund. However, not recognizing depreciation will lead to overvaluing the asset and thus misrepresenting the financial picture of the hospitality company. Therefore, it is important that depreciation is recognized properly.

Factors in Computing Depreciation

Three factors affect the computation of depreciation:

1. **Cost.** Issues affecting the cost of a depreciable asset were explained earlier in this chapter. Recall that plant assets are recorded at cost, in accordance with the cost principle.
2. **Useful life.** **Useful life** is an estimate of the expected productive life, also called *service life*, of the asset. Useful life may be expressed in terms of units of time, units of activity (such as machine hours), or units of output. Useful life is an estimate. In making the estimate, management considers such factors as the intended use of the asset, its expected repair and maintenance, and its vulnerability to obsolescence. Past experience with similar assets is often helpful in deciding on expected useful life. We might reasonably expect the estimated useful life used by **Rent-a-Wreck** to differ from that used by **Avis**.
3. **Salvage value.** **Salvage value** is an estimate of the asset's value at the end of its useful life. This value may be based on the asset's worth as scrap or on its expected trade-in value. Like useful life, salvage value is an estimate. In making the estimate, management considers how it plans to dispose of the asset and its experience with similar assets.

ALTERNATIVE TERMINOLOGY
Another term sometimes used for salvage value is *residual value*.

Illustration 13-6 summarizes the three factors used in computing depreciation.

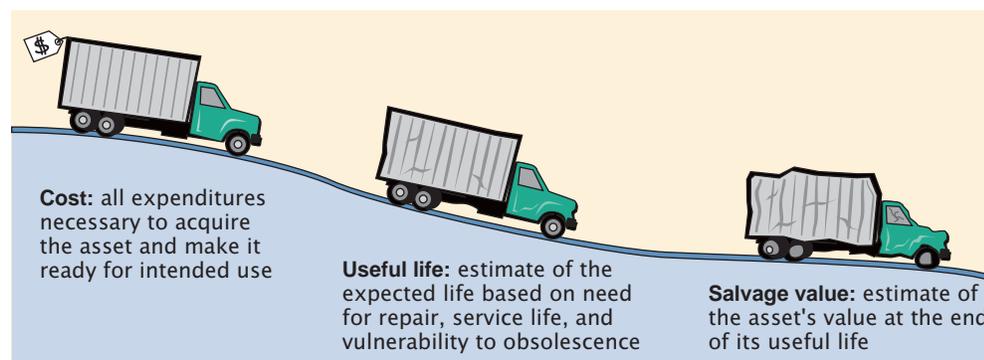


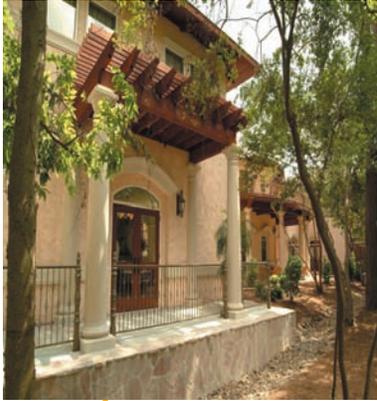
Illustration 13-6

Three factors in computing depreciation

HELPFUL HINT

Depreciation expense is reported on the income statement, and accumulated depreciation is reported as a deduction from plant assets on the balance sheet.

ACCOUNTING IN ACTION *Business Insight*



The **Houstonian Hotel, Club & Spa** welcomes 86,000 guests per year and has a member list of about 10,000. It also hosts meetings and interviews for President George W. Bush. Therefore, anything that is done at the Houstonian is always first class. However, with buildings that depreciate, renovations and upkeeps, and building a new spa, how does the Houstonian deal with the issue of depreciation?

Mr. Al Gallo explains: “We capitalize our assets and break them out in terms of hard construction costs, soft costs—or those costs associated with architectural fees, project managers and consultants, also furniture fixtures and equipment—and finally we categorize separately our computer equipment and security and surveillance equipment. Each category listed above has a unique life established. We would employ MACRS [Modified Accelerated Cost Recovery System] for tax and simple depreciation for book as well. After the project is finished, we would move the ‘work in progress’ amounts into the ‘fixed assets’ and depreciate them monthly in order to properly match revenues and expenses.”

STUDY OBJECTIVE 3

Compute periodic depreciation using different methods.

Depreciation Methods

Depreciation is generally computed using one of four methods:

1. Straight-line
2. Units-of-activity
3. Declining-balance
4. Sum-of-years'-digits

Each method is acceptable under generally accepted accounting principles. Management selects the method(s) it believes to be appropriate. The objective is to select the method that best measures an asset's contribution to revenue over its useful life. Once a method is chosen, it should be applied consistently over the useful life of the asset. Consistency enhances the comparability of financial statements.

We will compare the three depreciation methods using the data in Illustration 13-7 for a small delivery truck purchased by Barb's Florists on January 1, 2008. Barb's supplies many arrangement to hotels for weddings and special events.

Illustration 13-7

Delivery truck data

Cost	\$13,000
Expected salvage value	\$ 1,000
Estimated useful life in years	5
Estimated useful life in miles	100,000

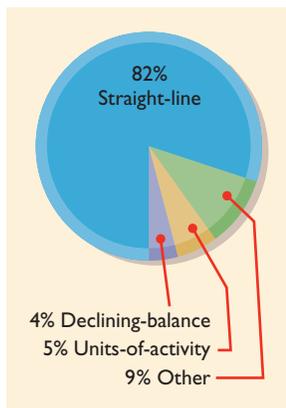


Illustration 13-8

Use of depreciation methods in 600 large U.S. companies

Depreciation affects the balance sheet through accumulated depreciation and the income statement through depreciation expense. Illustration 13-8 (in the margin) shows the use of the different depreciation methods in 600 of the largest companies in the United States.

STRAIGHT-LINE Under the **straight-line method**, depreciation is the same for each year of the asset's useful life. It is measured solely by the passage of time.

In order to compute depreciation expense under the straight-line method, it is necessary to determine **depreciable cost**—the cost of the asset less its salvage value. It represents the total amount subject to depreciation. Under the straight-line method, depreciable cost is divided by the asset's useful life to determine annual depreciation expense. The computation of depreciation expense in the first year for Barb's Florists' delivery truck is shown in Illustration 13-9.

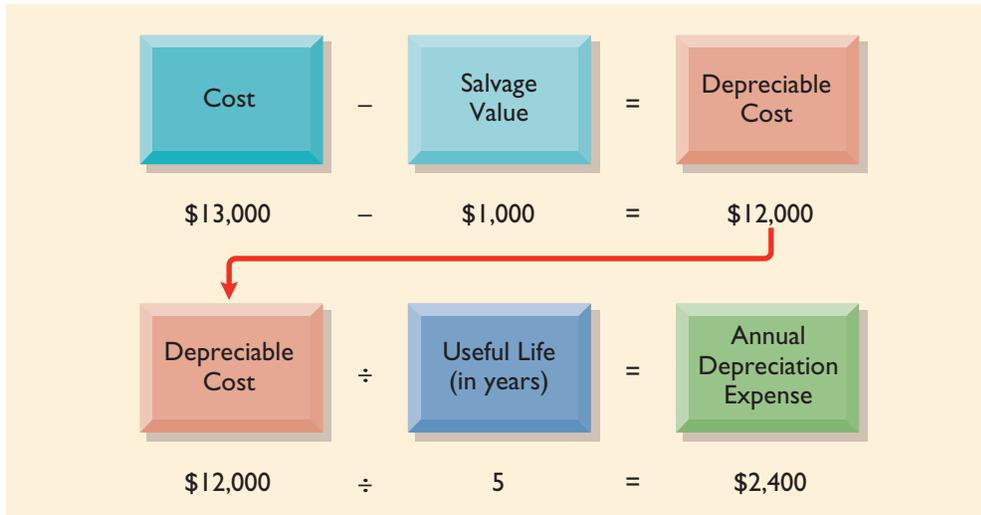


Illustration 13-9

Formula for straight-line method

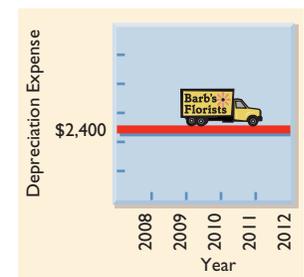
Alternatively, we also can compute an **annual rate of depreciation**. In this case, the rate is 20 percent ($100\% \div 5$ years). When an annual straight-line rate is used, the percentage rate is applied to the depreciable cost of the asset. The use of an annual rate is shown in the **depreciation schedule** in Illustration 13-10.

BARB'S FLORISTS						
Year	Computation		Annual Depreciation Expense	End of Year		
	Depreciable Cost	× Depreciation Rate		Accumulated Depreciation	Book Value	
2008	\$12,000	20%	\$2,400	\$ 2,400	\$10,600*	
2009	12,000	20	2,400	4,800	8,200	
2010	12,000	20	2,400	7,200	5,800	
2011	12,000	20	2,400	9,600	3,400	
2012	12,000	20	2,400	12,000	1,000	

*($\$13,000 - \$2,400$)

Illustration 13-10

Straight-line depreciation schedule



Note that the depreciation expense of \$2,400 is the same each year. The book value at the end of the useful life is equal to the estimated \$1,000 salvage value.

What happens when an asset is purchased *during* the year, rather than on January 1, as in our example? In that case, it is necessary to *prorate the annual depreciation* on a time basis. If Barb's Florists had purchased the delivery truck on April 1, 2008, the depreciation for 2008 would be \$1,800 ($\$12,000 \times 20\% \times 9/12$ of a year).

The straight-line method predominates in practice. Such large companies as **Campbell Soup**, **Marriott Corporation**, and **General Mills** use the straight-line method. It is simple to apply, and it matches expenses with revenues when the use of the asset is reasonably uniform throughout the service life.

UNITS-OF-ACTIVITY Under the **units-of-activity method**, useful life is expressed in terms of the total units of production or use expected from the asset rather than as a time period. The units-of-activity method is ideally suited to factory

ALTERNATIVE TERMINOLOGY

Another term often used is the *units-of-production method*.

machinery. Production can be measured in units of output (machine hours). This method also can be used for such assets as delivery equipment (miles driven) and airplanes (hours in use). The units-of-activity method is generally not suitable for buildings or furniture because depreciation for these assets is more a function of time than of use.

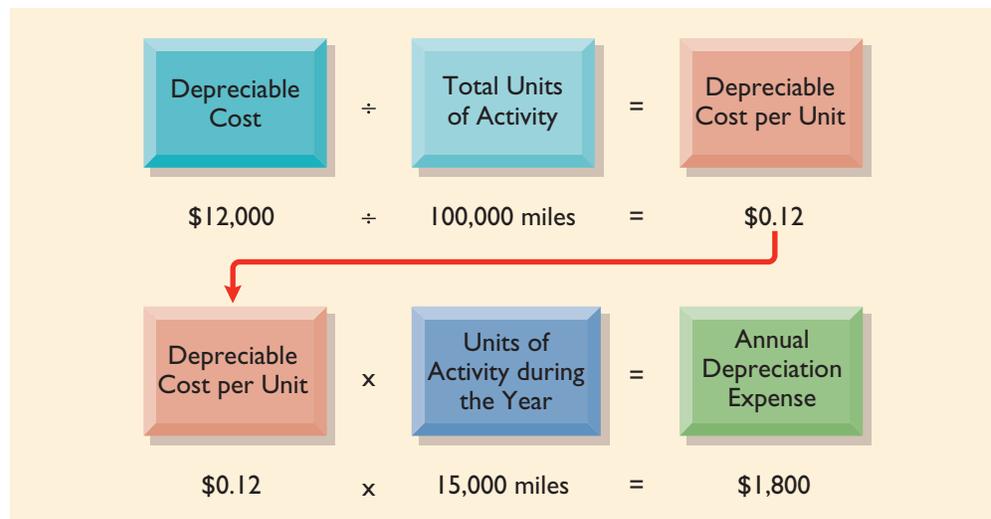
To use this method, the total units of activity for the entire useful life are estimated, and these units are divided into depreciable cost. The resulting number represents the depreciation cost per unit. The depreciation cost per unit is then applied to the units of activity during the year to determine the annual depreciation expense.

To illustrate, assume that Barb’s Florists’ delivery truck is driven 15,000 miles in the first year. The computation of depreciation expense in the first year is shown in Illustration 13-11.

HELPFUL HINT
Under any method, depreciation stops when the asset’s book value equals expected salvage value.

Illustration 13-11

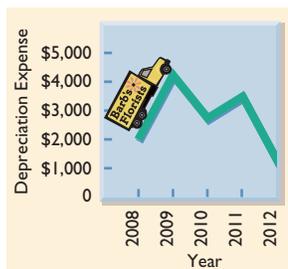
Formula for units-of-activity method



The units-of-activity depreciation schedule, using assumed mileage, is shown in Illustration 13-12.

Illustration 13-12

Units-of-activity depreciation schedule



BARB'S FLORISTS						
Year	Computation		Annual Depreciation Expense	End of Year		
	Units of Activity	× Depreciation Cost/Unit		Accumulated Depreciation	Book Value	
2008	15,000	× \$0.12	= \$1,800	\$ 1,800	\$11,200*	
2009	30,000	× 0.12	= 3,600	5,400	7,600	
2010	20,000	× 0.12	= 2,400	7,800	5,200	
2011	25,000	× 0.12	= 3,000	10,800	2,200	
2012	10,000	× 0.12	= 1,200	12,000	1,000	

*(\$13,000 – \$1,800)

This method is easy to apply when assets are purchased during the year. In such a case, the productivity of the asset for the partial year is used in computing the depreciation.

The units-of-activity method is not nearly as popular as the straight-line method (see Illustration 13-8) primarily because it is often difficult to make a

reasonable estimate of total activity. It is also not widely used in hospitality businesses. However, this method is used by some very large companies, such as **ChevronTexaco Corp.** and **Boise Cascade Corporation** (a forestry company). When the productivity of an asset varies significantly from one period to another, the units-of-activity method results in the best matching of expenses with revenues.

DECLINING-BALANCE The **declining-balance method** produces a decreasing annual depreciation expense over the asset’s useful life. The method is so named because the periodic depreciation is based on a *declining book value* (cost less accumulated depreciation) of the asset. Annual depreciation expense is computed by multiplying the book value at the beginning of the year by the declining-balance depreciation rate. **The depreciation rate remains constant from year to year, but the book value to which the rate is applied declines each year.**

Book value at the beginning of the first year is the cost of the asset. This is so because the balance in accumulated depreciation at the beginning of the asset’s useful life is zero. In subsequent years, book value is the difference between cost and accumulated depreciation to date. Unlike the other depreciation methods, the declining-balance method does not use depreciable cost. That is, **salvage value is ignored in determining the amount to which the declining-balance rate is applied.** Salvage value, however, does limit the total depreciation that can be taken. Depreciation stops when the asset’s book value equals expected salvage value.

A common declining-balance rate is double the straight-line rate. As a result, the method is often referred to as the **double-declining-balance method**. If Barb’s Florists uses the double-declining-balance method, the depreciation rate is 40 percent (2 × the straight-line rate of 20%). The computation of depreciation for the first year on the delivery truck is shown in Illustration 13-13.

HELPFUL HINT
Book value is variable, and the depreciation rate is constant for this method.

Book Value at Beginning of Year	×	Declining- Balance Rate	=	Annual Depreciation Expense
\$13,000	×	40%	=	\$5,200

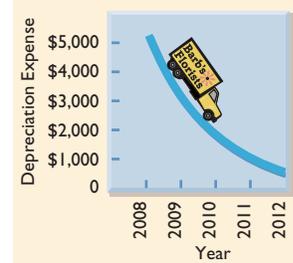
Illustration 13-13
Formula for declining-balance method

Illustration 13-14 shows the depreciation schedule under this method.

BARB’S FLORISTS						
Year	Computation		=	Annual Depreciation Expense	End of Year	
	Book Value Beginning of Year	Depreciation Rate			Accumulated Depreciation	Book Value
2008	\$13,000	40%		\$5,200	\$ 5,200	\$7,800
2009	7,800	40		3,120	8,320	4,680
2010	4,680	40		1,872	10,192	2,808
2011	2,808	40		1,123	11,315	1,685
2012	1,685	40		685*	12,000	1,000

*Computation of \$674 (\$1,685 × 40%) is adjusted to \$685 in order for book value to equal salvage value.

Illustration 13-14
Double-declining-balance depreciation schedule



HELPFUL HINT

The method to be used for an asset that is expected to be more productive in the first half of its useful life is the declining-balance method.

You can see that the delivery equipment is 69 percent depreciated ($\$8,320 \div \$12,000$) at the end of the second year. Under the straight-line method it would be depreciated 40 percent ($\$4,800 \div \$12,000$) at that time. Because the declining-balance method produces higher depreciation expense in the early years than in the later years, it is considered an **accelerated-depreciation method**. The declining-balance method is compatible with the matching principle. The higher depreciation expense in early years is matched with the higher benefits received in these years. On the other hand, lower depreciation expense is recognized in later years when the asset's contribution to revenue is less. Also, some assets lose usefulness rapidly because of obsolescence. In these cases, the declining-balance method provides a more appropriate depreciation amount.

When an asset is purchased during the year, the first year's declining-balance depreciation must be prorated on a time basis. For example, if Barb's Florists had purchased the truck on April 1, 2008, depreciation for 2008 would become \$3,900 ($\$13,000 \times 40\% \times 9/12$). The book value at the beginning of 2009 is then \$9,100 ($\$13,000 - \$3,900$), and the 2009 depreciation is \$3,640 ($\$9,100 \times 40\%$). Subsequent computations would follow from those amounts.

SUM-OF-YEARS'-DIGITS Similar to the straight-line method, in the **sum-of-years'-digits method**, it is necessary to determine the salvage value and the depreciable cost. Once these are determined, the digits of the years of the asset's expected useful life will be added to be used as the denominator of the calculation, while the years' digits are used in reverse order as the numerator for depreciation. Using this method, depreciation expense will be highest during the first year of usage and will decline as time passes, giving the business the most depreciation write-off at the beginning of the asset's useful life. The computation of depreciation expense for Barb's Florists' truck follows:

With a five-year useful life, the denominator for the calculation will be, as the name of this method suggests, the sum of the digits: $1 + 2 + 3 + 4 + 5 = 15$. In case the life of an asset runs up to some higher figures, this formula may come in handy:

$$\text{Sum of years' digits} = n(n + 1) / 2$$

Since 5 is the number of years of useful life, then the sum of years' digits will be

$$(5 \times 6) \div 2 = 15$$

Illustration 13-15 shows the depreciation schedule for the sum-of-years'-digits method for Barb's Florists.

Illustration 13-15

Sum-of-years'-digits depreciation schedule

BARB'S FLORISTS							
Year	Rate	Computation			End of Year		
		×	Depreciable Cost	=	Annual Depreciation	Accumulated Depreciation	Book Value
2008	5/15	×	\$12,000	=	\$4,000	\$ 4,000	\$9,000*
2009	4/15	×	12,000	=	3,200	7,200	5,800
2010	3/15	×	12,000	=	2,400	9,600	3,400
2011	2/15	×	12,000	=	1,600	11,200	1,800
2012	1/15	×	12,000	=	800	12,000	1,000

*($\$13,000 - \$4,000$)

Comparison of Methods

A comparison of annual and total depreciation expense under each of the four methods is shown for Barb's Florists in Illustration 13-16.

Year	Straight-Line	Units-of-Activity	Declining-Balance	Sum-of-Years'-Digits
2008	\$ 2,400	\$ 1,800	\$ 5,200	\$ 4,000
2009	2,400	3,600	3,120	3,200
2010	2,400	2,400	1,872	2,400
2011	2,400	3,000	1,123	1,600
2012	2,400	1,200	685	800
	<u>\$12,000</u>	<u>\$12,000</u>	<u>\$12,000</u>	<u>\$12,000</u>

Illustration 13-16

Comparison of depreciation methods

Observe that annual depreciation varies considerably among the methods. But total depreciation is the same for the five-year period under all four methods. Each method is acceptable in accounting because each recognizes the decline in service potential of the asset in a rational and systematic manner. The depreciation expense pattern under each method is presented graphically in Illustration 13-17.

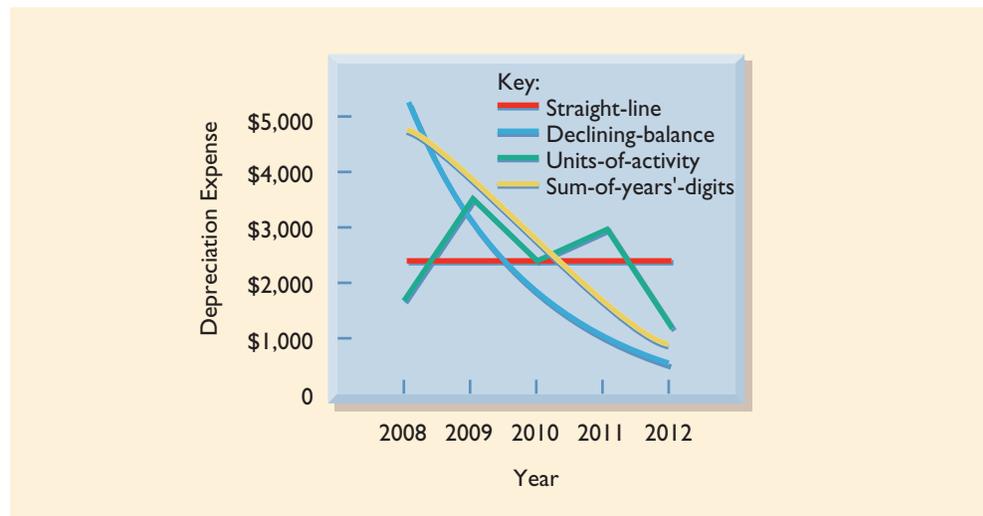


Illustration 13-17

Patterns of depreciation

Depreciation and Income Taxes

The Internal Revenue Service (IRS) allows corporate taxpayers to deduct depreciation expense when they compute taxable income. However, the IRS does not require the taxpayer to use the same depreciation method on the tax return that is used in preparing financial statements. Many corporations use straight-line in their financial statements to maximize net income. At the same time, they use a special **accelerated-depreciation method** on their tax returns to minimize their income taxes. Taxpayers must use on their tax returns either the straight-line method or a special accelerated-depreciation method called the **Modified Accelerated Cost Recovery System (MACRS)**.

MACRS

MACRS has been in place since 1986. As its name implies, and similar to the double-declining-balance and sum-of-years'-digits methods, it allows taxpayers to

depreciate their assets at an accelerated rate, faster than the straight-line method. MACRS classifies property into six recovery classes of three-, five-, seven-, ten-, fifteen-, and twenty-year. For example, computers are classified as a five-year life property, whereas office desks are a ten-year property. A table is normally used to assist taxpayers in determining the percentage that can be written off as depreciation for the asset depending on its class life and when in the year the asset is purchased. You will learn more about MACRS in a finance class regarding taxation implications.

TECHNOLOGY IN ACTION



Software packages to account for long-term assets exist for both large and small computer systems. Even the least sophisticated packages can maintain a control and subsidiary ledger for long-term assets and make the necessary depreciation computations and adjusting entries. Many packages also maintain separate depreciation schedules for both financial statement and income tax purposes, with reconciliations made for any differences.

STUDY OBJECTIVE 4

Describe the procedure for revising periodic depreciation.

REVISING PERIODIC DEPRECIATION

Depreciation is one example of the use of estimation in the accounting process. Annual depreciation expense should be reviewed periodically by management. If wear and tear or obsolescence indicate that annual depreciation estimates are inadequate or excessive, a change should be made.

When a change in an estimate is required, the change is made in *current and future years*. It is not made retroactively to *prior periods*. Thus there is no correction of previously recorded depreciation expense. Instead, depreciation expense for current and future years is revised. The rationale is that continual restatement of prior periods would adversely affect confidence in financial statements.

To determine the new annual depreciation expense, we first compute the asset's depreciable cost at the time of the revision. We then allocate the revised depreciable cost to the remaining useful life. To illustrate, assume that Barb's Florists decides on January 1, 2009, to extend the useful life of the truck one year because of its excellent condition. The company has used the straight-line method to depreciate the asset to date, and book value is \$5,800 (\$13,000 - \$7,200). The new annual depreciation is \$1,600, computed in Illustration 13-18.

Barb's Florists makes no entry for the change in estimate. On December 31,

Illustration 13-18

Revised depreciation computation

Book value, 1/1/09	\$ 5,800
Less: Salvage value	1,000
Depreciable cost	<u>\$ 4,800</u>
Remaining useful life	<u>3 years</u> (2009–2012)
Revised annual depreciation (\$4,800 ÷ 3)	<u>\$ 1,600</u>

HELPFUL HINT

Use a step-by-step approach: (1) Determine new depreciable cost; (2) divide by remaining useful life.

2009, during the preparation of adjusting entries, it would record depreciation expense of \$1,600. Significant changes in estimates must be described in the financial statements.

BEFORE YOU GO ON...

► **REVIEW IT**

1. What is the relationship, if any, of depreciation to (a) cost allocation, (b) asset valuation, and (c) cash accumulation?
2. Explain the factors that affect the computation of depreciation.
3. What are the formulas for computing annual depreciation under each of the depreciation methods?
4. How do the methods differ in terms of their effects on annual depreciation over the useful life of the asset?
5. Are revisions of periodic depreciation made to prior periods? Explain.

► **DO IT**

On January 1, 2008, Iron Mountain Ski Corporation purchased a new snow-grooming machine for \$50,000. The machine is estimated to have a ten-year life with a \$2,000 salvage value. What journal entry would Iron Mountain Ski Corporation make at December 31, 2008, if it uses the straight-line method of depreciation?

ACTION PLAN

- Calculate depreciable cost (Cost – Salvage value).
- Divide the depreciable cost by the estimated useful life.

SOLUTION

$$\text{Depreciation expense} = \frac{\text{Cost} - \text{Salvage value}}{\text{Useful life}} = \frac{\$50,000 - \$2,000}{10} = \$4,800$$

The entry to record the first year’s depreciation would be

Dec. 31	Depreciation Expense Accumulated Depreciation (To record annual depreciation on snow-grooming machine)	4,800	4,800
---------	--	-------	-------



EXPENDITURES DURING USEFUL LIFE

During the useful life of a plant asset, a company may incur costs for ordinary repairs, additions, or improvements. **Ordinary repairs** are expenditures to maintain the operating efficiency and the productive life of the unit. They usually are fairly small amounts that occur frequently. Motor tune-ups and oil changes, the painting of buildings, and the replacing of worn-out gears on machinery are examples. Such repairs are debited to Repair (or Maintenance) Expense as they are incurred. Because they are immediately charged as an expense against revenues, these costs are often referred to as **revenue expenditures**.

Additions and improvements are costs incurred to increase the operating efficiency, productive capacity, or useful life of a long-term asset. They are usually material in amount and occur infrequently. Additions and improvements increase the company’s investment in productive facilities and are generally debited to the long-term asset affected. They are often referred to as **capital expenditures**. Most major U.S. corporations disclose annual capital expenditures. The **Venetian** in Las Vegas spent over \$275 million in an expansion project in 2003, while **Coca-Cola** reported capital expenditures of \$851 million in 2002.

STUDY OBJECTIVE 5

Distinguish between revenue and capital expenditures, and explain the entries for these expenditures.

ACCOUNTING IN ACTION *Ethics Insight*

In what could become one of the largest accounting frauds in history, **WorldCom** announced the discovery of \$7 billion in expenses improperly booked as capital expenditures, a gimmick that boosted profit over a recent five-quarter period. If these expenses had been recorded properly, WorldCom, one of the biggest stock market stars of the 1990s, would have reported a net loss for 2001, as well as for the first quarter of 2002. Instead, WorldCom reported a profit of \$1.4 billion for 2001 and \$130 million for the first quarter of 2002. As a result of these problems, WorldCom declared bankruptcy, to the dismay of its investors and creditors.

What erroneous accounting entries (accounts debited and credited) were made by WorldCom? What is the correcting entry that should be recorded, and what is its effect on WorldCom's financial statements?

LONG-TERM ASSET DISPOSALS

STUDY OBJECTIVE 6

Explain how to account for the disposal of a long-term asset through retirement, sale, or exchange.

Long-term assets may be disposed of in three ways—(1) retirement, (2) sale, or (3) exchange—as shown in Illustration 13-19. Whatever the method, at the time of disposal, it is necessary to determine the book value of the long-term asset. As noted earlier, *book value* is the difference between the cost of a long-term asset and the accumulated depreciation to date.



Illustration 13-19

Methods of long-term asset disposal

At the time of disposal, depreciation for the fraction of the year to the date of disposal must be recorded. The book value is then eliminated by debiting (decreasing) Accumulated Depreciation for the total depreciation to date and crediting (decreasing) the asset account for the cost of the asset. In this section we will examine the accounting for each of the three methods of long-term asset disposal.

Retirement of Long-Term Assets

To illustrate the retirement of long-term assets, assume that Hobart Country Club retires its computer printers, which cost \$32,000. The accumulated depreciation on these printers is \$32,000. The equipment, therefore, is fully depreciated (zero book value). The entry to record this retirement is as follows:

A = L + SE
+32,000
-32,000

Accumulated Depreciation—Printing Equipment	32,000	
Printing Equipment		32,000
(To record retirement of fully depreciated equipment)		

What happens if a fully depreciated long-term asset is still useful to the company? In this case, the asset and its accumulated depreciation continue to be reported on the balance sheet without further depreciation adjustment until the asset

is retired. Reporting the asset and related accumulated depreciation on the balance sheet informs the financial statement reader that the asset is still in use. However, once an asset is fully depreciated, even if it is still being used, no additional depreciation should be taken. In no situation can the accumulated depreciation on a long-term asset exceed its cost.

If a long-term asset is retired before it is fully depreciated and no scrap or salvage value is received, a loss on disposal occurs. For example, assume that Sunset Catering discards delivery equipment that cost \$18,000 and has accumulated depreciation of \$14,000. The entry is as follows:

Accumulated Depreciation—Delivery Equipment	14,000	18,000
Loss on Disposal	4,000	
Delivery Equipment		
(To record retirement of delivery equipment at a loss)		

HELPFUL HINT

When a long-term asset is disposed of, all amounts related to the asset must be removed from the accounts. This includes the original cost in the asset account and the total depreciation to date in the accumulated depreciation account.

A	=	L	+	SE
+14,000				-4,000
-18,000				

The loss on disposal is reported in the “other expenses and losses” section of the income statement.

Sale of Long-Term Assets

In a disposal by sale, the book value of the asset is compared with the proceeds received from the sale. **If the proceeds of the sale exceed the book value of the long-term asset, a gain on disposal occurs. If the proceeds of the sale are less than the book value of the long-term asset sold, a loss on disposal occurs.**

Only by coincidence will the book value and the fair market value of the asset be the same when the asset is sold. Gains and losses on sales of plant assets are therefore quite common. For example, **Delta Airlines** reported a \$94,343,000 gain on the sale of five **Boeing** B-727-200 aircraft and five **Lockheed** L-1011-1 aircraft.

GAIN ON DISPOSAL. To illustrate a gain, assume that on July 1, 2008, Wright Hotels sells some of its hotel furniture for \$16,000 cash. The furniture originally cost \$60,000. As of January 1, 2008, it had accumulated depreciation of \$41,000. Depreciation for the first six months of 2008 is \$8,000. The entry to record depreciation expense and update accumulated depreciation to July 1 is as follows:

July 1	Depreciation Expense	8,000	8,000
	Accumulated Depreciation—Furniture		
	(To record depreciation expense for the first		
	6 months of 2008)		

A	=	L	+	SE
-8,000				-8,000

After the accumulated depreciation balance is updated, a gain on disposal of \$5,000 is computed, as shown in Illustration 13-20.

Cost of furniture	\$60,000
Less: Accumulated depreciation (\$41,000 + \$8,000)	49,000
Book value at date of disposal	11,000
Proceeds from sale	16,000
Gain on disposal	\$ 5,000

Illustration 13-20

Computation of gain on disposal

The entry to record the sale and the gain on disposal is as follows:

A	=	L	+	SE
+16,000				+5,000
+49,000				
-60,000				

July 1	Cash	16,000	
	Accumulated Depreciation—Furniture	49,000	
	Furniture		60,000
	Gain on Disposal		5,000
	(To record sale of furniture at a gain)		

The gain on disposal is reported in the “other revenues and gains” section of the income statement.

LOSS ON DISPOSAL. Assume that instead of selling the furniture for \$16,000, Wright sells it for \$9,000. In this case, a loss of \$2,000 is computed, as shown in Illustration 13-21.

Illustration 13-21

Computation of loss on disposal

Cost of furniture	\$60,000
Less: Accumulated depreciation	49,000
Book value at date of disposal	11,000
Proceeds from sale	9,000
Loss on disposal	\$2,000

The entry to record the sale and the loss on disposal is as follows:

A	=	L	+	SE
+9,000				-2,000
+49,000				
-60,000				

July 1	Cash	9,000	
	Accumulated Depreciation—Furniture	49,000	
	Loss on Disposal	2,000	
	Furniture		60,000
	(To record sale of furniture at a loss)		

The loss on disposal is reported in the “other expenses and losses” section of the income statement.

Exchange of Long-Term Assets

Long-term assets also may be disposed of through exchange. Exchanges can be for either similar or dissimilar assets. Because exchanges of similar assets are more common, they are discussed here. An exchange of similar assets occurs, for example, when old office furniture is exchanged for new office furniture. In an exchange of similar assets, the new asset performs the *same function* as the old asset.

In exchanges of similar long-term assets, it is necessary to determine two things: (1) the cost of the asset acquired and (2) the gain or loss on the asset given up. Because a noncash asset is given up in the exchange, cost is the **cash equivalent price paid**. That is, cost is the fair market value of the asset given up plus the cash paid. **The gain or loss on disposal is the difference between the fair market value and the book value of the asset given up.** These determinations are explained and illustrated below.

LOSS TREATMENT. A loss on the exchange of similar assets is recognized immediately. To illustrate, assume that Roland Foods exchanged old kitchen equipment for new kitchen equipment. The book value of the old equipment is \$26,000 (cost \$70,000 less accumulated depreciation \$44,000). Its fair market value is

HELPFUL HINT

A building costing \$200,000 was destroyed by fire. At the date of the fire, accumulated depreciation was \$150,000. Insurance proceeds were \$325,000. Prepare the entry to record the insurance proceeds and the disposition of building. Answer: Debit Cash \$325,000, debit Accumulated Depreciation \$150,000, credit Building \$200,000, and credit Gain on Disposal \$275,000.

\$10,000, and cash of \$81,000 is paid. Illustration 13-22 shows the cost of the new equipment, \$91,000.

Fair market value of old kitchen equipment	\$10,000
Cash	81,000
Cost of new kitchen equipment	<u>\$91,000</u>

Illustration 13-22

Computation of cost of new office equipment

A loss on disposal of \$16,000 on this exchange is incurred. The reason is that the book value is greater than the fair market value of the asset given up. The computation is shown in Illustration 13-23.

Book value of old kitchen equipment (\$70,000 – \$44,000)	\$26,000
Fair market value of old kitchen equipment	10,000
Loss on disposal	<u>\$16,000</u>

Illustration 13-23

Computation of loss on disposal

In recording an exchange at a loss, three steps are required: (1) Eliminate the book value of the asset given up, (2) record the cost of the asset acquired, and (3) recognize the loss on disposal. The entry for Roland Foods is as follows:

Kitchen Equipment (new)	91,000	
Accumulated Depreciation—Kitchen Equipment (old)	44,000	
Loss on Disposal	16,000	
Kitchen Equipment (old)		70,000
Cash		81,000
(To record exchange of old kitchen equipment for similar new equipment)		

A	=	L	+	SE
+91,000				-16,000
+44,000				
-70,000				
-81,000				

GAIN TREATMENT. A gain on the exchange of similar assets is not recognized immediately but instead is deferred. This is done by reducing the cost basis of the new asset. In determining the cost of the new asset, compute the *cost before deferral of the gain* and then the *cost after deferral of the gain*.

To illustrate, assume that Mark’s Express Catering decides to exchange its old delivery equipment plus cash of \$3,000 for new delivery equipment. The book value of the old delivery equipment is \$12,000 (cost \$40,000 less accumulated depreciation \$28,000). The fair market value of the old delivery equipment is \$19,000.

The cost of the new asset (before deferral of the gain) is the fair market value of the old asset exchanged plus any cash (or other consideration given up). The cost of the new delivery equipment (before deferral of the gain) is \$22,000, computed in Illustration 13-24.

HELPFUL HINT

Why aren’t gains on the exchange of similar assets recognized? Because the earnings process is not considered completed. To be conservative, however, losses are recognized.

Fair market value of old delivery equipment	\$19,000
Cash	3,000
Cost of new delivery equipment (before deferral of gain)	<u>\$22,000</u>

Illustration 13-24

Cost of new equipment (before deferral of gain)

A gain results when the fair market value is greater than the book value of the asset given up. Illustration 13-25 shows that for Mark’s Express, there is a gain of \$7,000 on the disposal.

Fair market value of old delivery equipment	\$19,000
Book value of old delivery equipment (\$40,000 – \$28,000)	12,000
Gain on disposal	<u>\$ 7,000</u>

Illustration 13-25

Computation of gain on disposal

The \$7,000 gain on disposal is then offset against the \$22,000 cost of the new delivery equipment. The result is a \$15,000 cost of the new delivery equipment, after deferral of the gain, as shown in Illustration 13-26.

Illustration 13-26

Cost of new equipment
(after deferral of gain)

Cost of new delivery equipment (before deferral of gain)	\$22,000	
Less: Gain on disposal	<u>7,000</u>	
Cost of new delivery equipment (after deferral of gain)	<u>\$15,000</u>	

The entry to record the exchange is as follows:

A	=	L	+	SE
+15,000				
+28,000				
-40,000				
-3,000				

Delivery Equipment (new)	15,000	
Accumulated Depreciation—Delivery Equipment (old)	28,000	
Delivery Equipment (old)		40,000
Cash		3,000
(To record exchange of old delivery equipment for similar new delivery equipment)		

This entry does not eliminate the gain; it just postpones or defers it to future periods. The deferred gain of \$7,000 reduces the \$22,000 cost to \$15,000. As a result, net income in future periods increases because depreciation expense on the newly acquired delivery equipment is less by \$7,000.

Illustration 13-27 summarizes the rules for accounting for exchanges of similar assets:

Illustration 13-27

Accounting rules for plant asset exchanges

Type of Event	Recognition
Loss	Recognize immediately by debiting Loss on Disposal
Gain	Defer and reduce cost of new asset

BEFORE YOU GO ON...

► REVIEW IT

1. How does a capital expenditure differ from a revenue expenditure?
2. What is the proper accounting for the retirement and sale of plant assets?
3. What is the proper accounting for the exchange of similar plant assets?

► DO IT

Overland Catering has an old truck that cost \$30,000. The truck has accumulated depreciation of \$16,000 and a fair value of \$17,000. Overland has a choice of either selling the truck for \$17,000 cash or exchanging the old truck and \$3,000 cash for a new truck. What is the entry that Overland Trucking would record under each option?

ACTION PLAN

- Compare the asset’s book value and fair value to determine whether a gain or a loss has occurred.
- Defer gains on the exchange of similar assets by reducing the recorded value of the new asset.

SOLUTION

Sale of truck for cash:

Cash	17,000	
Accumulated Depreciation—Truck (old)	16,000	
Truck (old)		30,000
Gain on Disposal [$\$17,000 - (\$30,000 - \$16,000)$]		3,000
(To record sale of truck at a gain)		

Exchange of old truck and cash for new truck:		
Truck (new)	17,000*	
Accumulated Depreciation—Truck (old)	16,000	
Truck (old)		30,000
Cash		3,000
(To record exchange of old truck for similar new truck)		
*(\$20,000 – \$3,000)		

If the old truck is exchanged for the new truck, the \$3,000 gain is deferred, and the recorded cost of the new truck is reduced by \$3,000.



INTANGIBLE ASSETS

Intangible assets are rights, privileges, and competitive advantages that result from the ownership of assets that do not possess physical substance. Evidence of intangibles may exist in the form of contracts or licenses. Intangibles may arise from any of the following:

- Government grants, such as patents, copyrights, and trademarks
- Acquisition of another business, in which the purchase price includes a payment for the company's favorable attributes (called *goodwill*)
- Private monopolistic arrangements arising from contractual agreements, such as franchises and leases

Some widely known intangibles are the franchises of **McDonald's** and the trade name of Col. Sanders's **Kentucky Fried Chicken**.

Intangible assets are recorded at cost. The cost of an intangible asset should be allocated over its useful life, assuming the useful life is limited. If the life of the intangible is indefinite, the cost of the intangible should not be allocated. *Indefinite* means that no legal, regulatory, contractual, competitive, economic, or other factors limit the intangible's useful life. At disposal, the book value of the intangible asset is eliminated; and a gain or a loss, if any, is recorded.

There are several differences between accounting for intangible assets and accounting for long-term assets. First, assuming that an intangible asset has a limited life, the term used to describe the allocation of the cost of an intangible asset to expense is **amortization**, rather than depreciation. Also, to record amortization of an intangible, an amortization expense is debited, and the specific intangible asset is credited (rather than crediting a contra account). An alternative is to credit an accumulated amortization account, similar to accumulated depreciation.

There is also a difference in determining cost. For long-term assets, cost includes both the purchase price of the asset and the costs incurred in designing and constructing the asset. In contrast, cost for an intangible asset includes only the purchase price. Any costs incurred in developing an intangible asset are expensed as incurred.

The method of amortizing an intangible asset with a limited life should reflect the pattern in which the asset's economic benefits are used. If such a pattern cannot be reliably determined, a straight-line method of amortization should be used. For homework purposes, use the straight-line method unless otherwise indicated.

An indefinite-life intangible asset should not be amortized until its life is determined to be limited. At that time, the intangible asset should be amortized.

STUDY OBJECTIVE 7

Contrast the accounting for intangible assets with the accounting for long-term assets.

PATENTS

A **patent** is an exclusive right issued by the U.S. Patent Office that enables the recipient to manufacture, sell, or otherwise control an invention for a period of twenty years from the date of the grant. A patent is nonrenewable. But the legal life of a patent may be extended by obtaining new patents for improvements or other changes in the basic design.

The initial cost of a patent is the cash or cash equivalent price paid to acquire the patent. The saying “A patent is only as good as the money you’re prepared to spend defending it” is very true. Many patents are subject to some type of litigation. Legal costs an owner incurs in successfully defending a patent in an infringement suit are considered necessary to establish the validity of the patent. They are added to the Patent account and amortized over the remaining life of the patent.

The cost of a patent should be amortized over its twenty-year legal life or its useful life, whichever is shorter. Obsolescence and inadequacy should be considered in determining useful life. These factors may cause a patent to become economically ineffective before the end of its legal life.

To illustrate the computation of patent expense, assume that National Labs purchases a patent at a cost of \$60,000. If the useful life of the patent is eight years, the annual amortization expense is \$7,500 ($\$60,000 \div 8$). The entry to record the annual amortization looks like this:

A	=	L	+	SE			
-7,500				-7,500	Dec. 31	Amortization Expense—Patents	7,500
						Patents	7,500
						(To record patent amortization)	

Amortization Expense—Patents is classified as an **operating expense** in the income statement.

COPYRIGHTS

Copyrights are grants from the federal government giving the owner the exclusive right to reproduce and sell an artistic or published work. Copyrights extend for the life of the creator plus seventy years. The cost of a copyright is the **cost of acquiring and defending it**. The cost may be only the \$10 fee paid to the U.S. Copyright Office. Or it may amount to a great deal more if a copyright infringement suit is involved. Because copyrights have an indefinite life, their cost is not amortized.

TRADEMARKS AND TRADE NAMES

A **trademark** or **trade name** is a word, phrase, jingle, or symbol that identifies a particular enterprise or product. Trade names like Wheaties, Hilton, Sunkist, Marriott, Coca-Cola, Big Mac, and Jeep create immediate product identification. They also generally enhance the sale of the product. The creator or original user may obtain exclusive legal right to the trademark or trade name by registering it with the U.S. Patent Office. Such registration provides twenty years’ protection. The registration may be renewed indefinitely as long as the trademark or trade name is in use.

If the trademark or trade name is *purchased* by the company that will sell the product, its cost is the purchase price. If the trademark or trade name is *developed* by the company itself, the cost includes attorney’s fees, registration fees, design costs, successful legal defense costs, and other expenditures directly related to securing it.

Because trademarks and trade names have indefinite lives, they are not amortized.

FRANCHISES AND LICENSES

When you drive down the street in your RAV4 purchased from a **Toyota** dealer, fill up your tank at the corner **Shell** station, or eat lunch at **Taco Bell**, you are dealing with franchises. A **franchise** is a contractual arrangement under which the franchisor grants the franchisee the right to sell certain products, render specific services, or use certain trademarks or trade names. The franchise is usually restricted to a designated geographic area.

Another type of franchise is that entered into between a governmental body (commonly municipalities) and a business enterprise. This franchise permits the enterprise to use public property in performing its services. Examples are the use of city streets for a bus line or taxi service, the use of public land for telephone and electric lines, and the use of airwaves for radio or TV broadcasting. Such operating rights are referred to as **licenses**.

When costs can be identified with the acquisition of a franchise or license, an intangible asset should be recognized. Franchises and licenses may be granted for a period of time, limited or indefinite. The cost of a limited-life franchise (or license) should be amortized over the useful life. If the life is indefinite, its cost is not amortized. Annual payments made under a franchise agreement are recorded as operating expenses in the period in which they are incurred.

ETHICS NOTE

A pharmaceutical company was growing rapidly by buying unwanted drug licensing rights. These licensing rights, reported as intangible assets, represented over 70 percent of the company's total assets. The company experienced a 50 percent drop in value when the market realized the rights were being amortized over forty years. If a more reasonable life had been used to amortize the rights, the company's reported profits would, instead, have been huge losses.

ACCOUNTING IN ACTION *Business Insight*



Best Western International is “THE WORLD’S LARGEST HOTEL CHAIN®” with over 4,200 hotels, 315,000 guest rooms, in 80 countries. Best Western does not own any of them but is in fact a membership organization of hotel owners and operators of Best Western properties. As for using technology, Best Western started utilizing Internet booking in 1995. Since January 2005, bestwestern.com has been booking over \$1 million per day in revenue for its members.

GOODWILL

Usually, the largest intangible asset that appears on a company's balance sheet is goodwill. **Goodwill** is the value of all favorable attributes that relate to a business enterprise. These include exceptional management, skilled employees, high-quality products, and harmonious relations with labor unions. Goodwill is unusual: Unlike other assets, such as investments, long-term assets, or patents, which can be sold individually in the marketplace, goodwill can be identified only with the business as a whole.

If goodwill can be identified only with the business as a whole, how can it be determined? One could try to put a dollar value on the factors previously listed (exceptional management, high-quality products, and so on), but the results would be very subjective. Such subjective valuations would not contribute to the reliability of financial statements. **Therefore, goodwill is recorded only when there is a transaction that involves the purchase of an entire business. In that case, goodwill is the excess of cost over the fair market value of the net assets (assets less liabilities) acquired.**

In recording the purchase of a business, the net assets are debited at their fair market values, cash is credited for the purchase price, and goodwill is debited for the difference. Goodwill is not amortized because it is considered to have an indefinite life, but it must be written down if its value is determined to have declined (been permanently impaired). Goodwill is reported in the balance sheet under intangible assets.

HELPFUL HINT

Goodwill is recorded only when it has been purchased along with tangible and identifiable intangible assets of a business.

ACCOUNTING IN ACTION *International Insight*



Internet use is very important to a number of segments of the hospitality industry, especially for lodging and travel booking. Increasingly, more and more restaurants also employ the Internet for reservations. Some fast-food places even offer “ordering” for pick-up or delivery through the Internet. It’s no wonder that the proper Internet domain name can make or break a company and that buying a domain name makes a hot market. While the cost of registration is negligible, if a company has to purchase its name from a cybersquatter—people who register names in the hopes of selling them for a profit—the cost can rise quickly.

When **eBay, Inc.**, the world’s largest online auction house, recently tried to register www.ebay.ca in Canada, it discovered that the name had been registered previously by an entrepreneur. eBay then had two options to consider. Since eBay is a registered trademark around the world, (1) the company could take legal action; or (2) it could negotiate the domain name www.ebaycanada.ca, which also had been registered previously by a self-described “Internet entrepreneur.” This entrepreneur said that he hoped to make some quick money when he registered www.ebaycanada.ca. He eventually gave up the name without a fight rather than go to court and face high legal bills.

DEMONSTRATION PROBLEM 1

DuPage Restaurant purchases an ice machine at a cost of \$18,000 on January 1, 2008. The machine is expected to have a salvage value of \$2,000 at the end of its four-year useful life.

During its useful life, the machine is expected to be used 160,000 hours. Actual annual hourly use was: 2008, 40,000; 2009, 60,000; 2010, 35,000; and 2011, 25,000.

Instructions

Prepare depreciation schedules for the following methods:

- (a) straight-line, (b) units-of-activity, (c) declining-balance using double the straight-line rate, and (d) sum-of-years'-digits.

SOLUTION TO DEMONSTRATION PROBLEM 1

(a)

Straight-Line Method

Year	Computation		Annual Depreciation Expense	End of Year	
	Depreciable Cost	Depreciation Rate		Accumulated Depreciation	Book Value
2008	\$16,000	25%	\$4,000	\$ 4,000	\$14,000*
2009	16,000	25%	4,000	8,000	10,000
2010	16,000	25%	4,000	12,000	6,000
2011	16,000	25%	4,000	16,000	2,000

*\$18,000 – \$4,000

(b)

Units-of-Activity Method

Year	Computation		Annual Depreciation Expense	End of Year	
	Units of Activity	Depreciation Cost/Unit		Accumulated Depreciation	Book Value
2008	40,000	\$0.10	\$4,000	\$ 4,000	\$14,000
2009	60,000	0.10	6,000	10,000	8,000
2010	35,000	0.10	3,500	13,500	4,500
2011	25,000	0.10	2,500	16,000	2,000

ACTION PLAN

- Under the straight-line method, apply the depreciation rate to depreciable cost.
- Under the units-of-activity method, compute the depreciation cost per unit by dividing depreciable cost by total units of activity.
- Under the declining-balance method, apply the depreciation rate to **book value** at the beginning of the year.
- Under the sum-of-years'-digits method, apply the depreciation rate to depreciable cost.

(c)

Declining-Balance Method

Year	Computation			End of Year	
	Book Value Beginning of Year	× Depreciation Rate	= Annual Depreciation Expense	Accumulated Depreciation	Book Value
2008	\$18,000	50%	\$9,000	\$ 9,000	\$9,000
2009	9,000	50%	4,500	13,500	4,500
2010	4,500	50%	2,250	15,750	2,250
2011	2,250	50%	250*	16,000	2,000

*Adjusted to \$250 because ending book value should not be less than expected salvage value.

(d)

Sum-of-Years'-Digits Method

Year	Computation			End of Year	
	Depreciation Cost	× Rate	= Annual Depreciation	Accumulated Depreciation	Book Value
2008	4/10	\$16,000	\$6,400	\$ 6,400	\$11,600*
2009	3/10	16,000	4,800	11,200	6,800
2010	2/10	16,000	3,200	14,400	3,600
2011	1/10	16,000	1,600	16,000	2,000

*\$18,000 – \$6,400



DEMONSTRATION PROBLEM 2

On January 1, 2008, Skyline Hotel Co. purchased a passenger van for transporting guests to and from airports and nearby shopping areas at an acquisition cost of \$28,000. The vehicle has been depreciated by the straight-line method using a four-year service life and a \$4,000 salvage value. The company's fiscal year ends on December 31.

Instructions

Prepare the journal entry or entries to record the disposal of the van assuming that it was

- Retired and scrapped with no salvage value on January 1, 2012.
- Sold for \$5,000 on July 1, 2011.
- Traded in on a new van on January 1, 2011. The fair market value of the old vehicle was \$9,000, and \$22,000 was paid in cash.
- Traded in on a new van on January 1, 2011. The fair market value of the old vehicle was \$11,000, and \$22,000 was paid in cash.

SOLUTION TO DEMONSTRATION PROBLEM 2

(a)	1/1/11	Accumulated Depreciation—Van	24,000	28,000
		Loss on Disposal	4,000	
		Van		
		(To record retirement of van)		
(b)	7/1/10	Depreciation Expense	3,000	3,000
		Accumulated Depreciation—Van		
		(To record depreciation to date of disposal)		
		Cash	5,000	28,000
		Accumulated Depreciation—Van	21,000	
		Loss on Disposal	2,000	
		Van		
		(To record sale of van)		

ACTION PLAN

- At the time of disposal, determine the book value of the asset.
- Recognize any gain or loss from disposal of the asset.
- Remove the book value of the asset from the records by debiting Accumulated Depreciation for the total depreciation to date of disposal and crediting the asset account for the cost of the asset.



(c)	1/1/10	Van (new)	31,000	
		Accumulated Depreciation—Van (old)	18,000	
		Loss on Disposal	1,000	
		Van (old)		28,000
		Cash		22,000
(To record exchange of vans)				
(d)	1/1/10	Van (new) (\$11,000 + \$22,000 – \$1,000)	32,000	
		Accumulated Depreciation—Van (old)	18,000	
		Van (old)		28,000
		Cash		22,000
		(To record exchange of vans)		

SUMMARY OF STUDY OBJECTIVES

1. Describe the application of the cost principle to long-term assets. The cost of long-term assets includes all expenditures necessary to acquire the asset and make it ready for its intended use. Cost is measured by the cash or cash equivalent price paid.

2. Explain the concept of depreciation. Depreciation is the allocation of the cost of a long-term asset to expense over its useful (service) life in a rational and systematic manner. Depreciation is neither a process of valuation nor a process that results in an accumulation of cash. Depreciation is caused by wear and tear or by obsolescence.

3. Compute periodic depreciation using different methods. There are four depreciation methods:

Method	Effect on Annual Depreciation	Formula
Straight-line	Constant amount	Depreciable cost ÷ Useful life (in years)
Units-of-activity	Varying amount	Depreciation cost per unit × Units of activity during the year
Declining-balance	Decreasing amount	Book value at beginning of year × Declining-balance rate
Sum-of-years'-digits	Decreasing amount	Depreciable cost × Rate*

$$*Rate = \frac{\text{Depreciable year}}{\text{Sum of digits of asset's useful life}}$$

4. Describe the procedure for revising periodic depreciation. Revisions of periodic depreciation are made in present and future periods, not retroactively. The new annual depreciation is found by dividing the depreciable cost at the time of the revision by the remaining useful life.

5. Distinguish between revenue and capital expenditures, and explain the entries for these expenditures. Revenue expenditures are incurred to maintain the operating efficiency and expected productive life of the asset. These expenditures are debited to Repair Expense as incurred. Capital expenditures increase the operating efficiency, productive capacity, or expected useful life of the asset. These expenditures are generally debited to the long-term asset affected.

6. Explain how to account for the disposal of a long-term asset through retirement, sale, or exchange. The accounting for disposal of a long-term asset through retirement or sale is as follows:

- Eliminate the book value of the long-term asset at the date of disposal.
- Record cash proceeds, if any.
- Account for the difference between the book value and the cash proceeds as a gain or a loss on disposal.

In accounting for exchanges of similar assets:

- Eliminate the book value of the old asset at the date of the exchange.
- Record the acquisition cost of the new asset.
- Account for the loss or gain, if any, on the old asset:
 - If a loss, recognize it immediately.
 - If a gain, defer and reduce the cost of the new asset.

7. Contrast the accounting for intangible assets with the accounting for long-term assets. The accounting for intangible assets and long-term assets is much the same. One difference is that the term used to describe the write-off of an intangible asset is amortization, rather than depreciation.

The straight-line method is normally used for amortizing intangible assets.



GLOSSARY

Accelerated-depreciation method Depreciation method that produces higher depreciation expense in the early years than in the later years (p. 392).

Additions and improvements Costs incurred to increase the operating efficiency, productive capacity, or useful life of a long-term asset (p. 395).

Amortization The allocation of the cost of a limited-life intangible asset to expense over its useful life in a systematic and rational manner (p. 401).

Capital expenditures Expenditures that increase the company's investment in productive facilities (p. 395).

Copyright Exclusive grant from the federal government that allows the owner to reproduce and sell an artistic or published work (p. 402).

Declining-balance method Depreciation method that applies a constant rate to the declining book value of the asset and produces a decreasing annual depreciation expense over the useful life of the asset (p. 391).

Depreciable cost The cost of a long-term asset less its salvage value (p. 388).

Franchise A contractual arrangement under which the franchisor grants the franchisee the right to sell certain products, render specific services, or use certain trademarks or trade names, usually within a designated geographical area (p. 403).

Goodwill The value of all favorable attributes that relate to a business enterprise (p. 403).

Intangible assets Rights, privileges, and competitive advantages that result from the ownership of long-lived assets that do not possess physical substance (p. 401).

Licenses Operating rights to use public property, granted to a business enterprise by a governmental agency (p. 403).

Long-term assets Tangible resources that are used in the operations of the business and are not intended for sale to customers (p. 383).

Modified Accelerated Cost Recovery System (MACRS) Depreciation method whereby assets are classified into recovery classes and are depreciated at an accelerated rate (p. 393).

Ordinary repairs Expenditures to maintain the operating efficiency and productive life of the unit (p. 395).

Patent An exclusive right issued by the U.S. Patent Office that enables the recipient to manufacture, sell, or otherwise control an invention for a period of twenty years from the date of the grant (p. 402).

Revenue expenditures Expenditures that are immediately charged against revenues as an expense (p. 395).

Salvage value An estimate of an asset's value at the end of its useful life (p. 387).

Straight-line method Depreciation method in which periodic depreciation is the same for each year of the asset's useful life (p. 388).

Sum-of-years'-digits method Depreciation method in which the digits of the years of the asset's expected useful life are totaled as the denominator of the calculation and the years' digits are used in reverse order as the numerator for depreciation (p. 392).

Trademark (trade name) A word, phrase, jingle, or symbol that identifies a particular enterprise or product (p. 402).

Units-of-activity method Depreciation method in which useful life is expressed in terms of the total units of production or use expected from an asset (p. 389).

Useful life An estimate of the expected productive life, also called service life, of an asset (p. 387).

EXERCISES

13-1 Ellen catering acquires a delivery truck at a cost of \$36,000. The truck is expected to have a salvage value of \$2,000 at the end of its four-year useful life. Compute annual depreciation for the first and second years using the straight-line method.

Compute straight-line depreciation.

(SO 3)

13-2 On January 1, 2008, the Villareal Mexican Bakery ledger shows Equipment \$40,000 and Accumulated Depreciation \$9,000. The depreciation resulted from using the straight-line method with a useful life of ten years and salvage value of \$4,000. On this date, the company concludes that the equipment has a remaining useful life of only five years with the same salvage value. Compute the revised annual depreciation.

Compute revised depreciation.

(SO 4)

13-3 Prepare journal entries to record the following:

- Mayorga Fine Foods retires its delivery equipment, which cost \$45,000. Accumulated depreciation is also \$45,000 on this delivery equipment. No salvage value is received.
- Assume the same information as (a), except that accumulated depreciation for Mayorga Fine Foods is \$41,000, instead of \$45,000.

Prepare entries for disposal by retirement.

(SO 6)

13-4 Tuscany Tours uses the units-of-activity method in depreciating its buses. One bus was purchased on January 1, 2008, at a cost of \$115,000. Over its five-year useful life, the bus is expected to be driven 100,000 miles. Salvage value is expected to be \$9,000.

Compute depreciation under units-of-activity method.

(SO 3)

Instructions

- Compute the depreciation cost per unit.
- Prepare a depreciation schedule assuming actual mileage was: 2008, 24,000; 2009, 36,000; 2010, 20,000; and 2011, 20,000.

13-5 On March 1, 2006, Tanger Resorts acquired real estate on which it planned to construct a small bed-and-breakfast. The company paid \$90,000 in cash. An old warehouse on the property was razed at a cost of \$6,600; the salvaged materials were sold for \$1,700. Additional expenditures before construction began included \$1,100 attorney's fee for work concerning the land purchase, \$5,000 real estate broker's fee, \$7,800 architect's fee, and \$14,000 to put in driveway and a parking lot.

Determine acquisition costs on land.

(SO 1)

Instructions

- (a) Determine the amount to be reported as the cost of the land.
- (b) For each cost not used in part (a), indicate the account to be debited.

Compute depreciation under units-of-activity method. (SO 3)

13-6 Waterways Tours uses the units-of-activity method in depreciating its tour boats. One boat was purchased on January 1, 2006, at a cost of \$148,000. Over its four-year useful life, the boat is expected to be driven 100,000 miles. Salvage value is expected to be \$8,000.

Instructions

- (a) Compute the depreciation cost per unit.
- (b) Prepare a depreciation schedule assuming actual mileage was: 2008, 26,000; 2009, 32,000; 2010, 25,00; and 2011, 17,000.

Determine depreciation for partial periods. (SO 3)

13-7 Solo Country Club purchased a new computer system on October 1, 2008, at a cost of \$96,000. The company estimated that the machine would have a salvage value of \$12,000. The system is expected to be used for 10,000 working hours during its five-year life.

Instructions

Compute the depreciation expense under the following methods for the year indicated:

- (a) Straight-line for 2008.
- (b) Units-of activity for 2008, assuming system usage was 1,700 hours.
- (c) Declining-balance using double the straight-line rate for 2008 and 2009.

Determine acquisition costs of land and building. (SO 1)

13-8 Mia Fitness Club was organized on January 1. During the first year of operations, the following plant asset expenditures and receipts were recorded in random order.

<u>Debits</u>	
1. Accrued real estate taxes paid at time of purchase of real estate	\$ 2,000
2. Real estate taxes on land paid for the current year	3,000
3. Full payment to building contractor	600,000
4. Excavation costs for new building	25,000
5. Cost of real estate purchased as a plant site (land \$100,000 and building \$25,000)	125,000
6. Cost of parking lots and driveways	15,000
7. Architect's fees on building plans	10,000
8. Installation cost of fences around property	4,000
9. Cost of demolishing building to make land suitable for construction of new building	21,000
	<u>\$805,000</u>
	<u>Credit</u>
10. Proceeds from salvage of demolished building	\$ 2,500

Instructions

Analyze the foregoing transactions using the following column headings. Insert the number of each transaction in the item space, and insert the amounts in the appropriate columns. For amounts in the Other Accounts column, also indicate the account title.

<u>Item</u>	<u>Land</u>	<u>Building</u>	<u>Other Accounts</u>
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Calculate revisions to depreciation expense. (SO 3, 4)

13-9 At the beginning of 2008, Bellamy Seafood acquired equipment costing \$60,000. It was estimated that this equipment would have a useful life of six years and a residual value of \$6,000 at that time. The straight-line method of depreciation was considered the most appropriate to use with this type of equipment. Depreciation is to be recorded at the end of each year.

During 2010 (the third year of the equipments's life), the company's engineers reconsidered their expectations and estimated that the equipment's useful life would probably be seven years (in total) instead of six years. The estimated residual value was not changed at that time. However, during 2013 the estimated residual value was reduced to \$3,000.

Instructions

Indicate how much depreciation expense should be recorded for this equipment each year by completing the following table.

<u>Year</u>	<u>Depreciation Expense</u>	<u>Accumulated Depreciation</u>
2008		
2009		
2010		
2011		
2012		
2013		
2014		

13-10 Foxx Saber Resorts was organized on January 1. During the first year of operations, the following plant asset expenditures and receipts were recorded in random order.

Determine acquisition costs of land and building.

(SO 1)

<u>Debits</u>		
1. Cost of filling and grading the land		\$ 4,000
2. Full payment to building contractor		700,000
3. Real estate taxes on land paid for the current year		5,000
4. Cost of real estate purchased as a plant site (land \$100,000 and building \$45,000)		145,000
5. Excavation costs for new building		30,000
6. Architect's fees on building plans		10,000
7. Accrued real estate taxes paid at time of purchase of real estate		2,000
8. Cost of parking lots and driveways		14,000
9. Cost of demolishing building to make land suitable for construction of new building		20,000
		<u>\$930,000</u>
<u>Credit</u>		
10. Proceeds from salvage of demolished building		\$ 3,500

Instructions

Analyze the foregoing transactions using the following column headings. Insert the number of each transaction in the Item space, and insert the amounts in the appropriate columns. For amounts entered in the Other Accounts column, also indicate the account titles.

<u>Item</u>	<u>Land</u>	<u>Building</u>	<u>Other Accounts</u>
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EXPLORING THE WEB

13-11 A company's annual report identifies the amount of its plant assets and the depreciation method used.

Address: www.reportgallery.com

Steps

1. From Report Gallery homepage, highlight the dialog box of "Search by Industry."
2. Select "Lodging" under the the "Leisure" category.
3. Select a particular company.
4. Follow instructions below.

Instructions

Answer the following questions.

- (a) What is the name of the company?
- (b) At fiscal year-end, what is the net amount of its long-term assets?
- (c) What is the accumulated depreciation?
- (d) Which method of depreciation does the company use?



Remember to go back to the Navigator box on the chapter-opening page and check off your completed work.