LONG-TERM AND INTANGIBLE ASSETS

THE NAVIGATOR

• Understand Concepts for Review	
• Read <i>Feature Story</i>	
• Scan Study Objectives	
• Read <i>Preview</i>	
• Read text and answer <i>Before You Go On</i> <i>p.</i> 387 <i>p.</i> 396 <i>p.</i> 402	
Work Demonstration Problems	
• Review Summary of Study Objectives	
• Complete Assignments	



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

- a. The time period assumption. (Ch. 4, p. 113)
- b. The cost principle (Ch. 1, p. 9) and the matching principle. (Ch. 4, p. 114)
- c. What is depreciation? (Ch. 4, p. 119)
- d. How to make adjustments for depreciation. (Ch. 4, pp. 119-120)



EATURE STORY

Olympic Retrofit of the Homestead Resort in Midway, Utah—February 2002

In February 2002, Soldier Hollow hosted 40 percent of all the 2002 Olympic events and handled the majority of all spectators. Foreign Olympic teams began approaching the Homestead Resort more than two years before the games for alternate housing to the Olympic Village. Soldier Hollow is at 5,700 feet, whereas the Olympic Village, 50 miles away in Salt Lake City, is at 4,500 feet. The venue was at a record altitude for Cross Country, Biathlon, and Nordic Combined Olympic events. It was a competitive advantage to stay closer to the venue in order to acclimate and train at a higher altitude. It also significantly reduced transportation time. In addition, the resort's groomed golf course would provide a more convenient practice area.

The Controller of the Homestead Resort in Utah simply said, "It was a very profitable experience and we'd do it again. We also ended up with some significant long-term 'legacy' items and a tremendous sense of satisfaction and goodwill. Some funds were required for the preparation and the teardown phases for the 2002 Olympic guests. During the games, things went smoothly, and everyone who worked with us had a really good time."

So, what does a resort need to get ready for the athletes? More important, how were these transactions being paid for and recorded? First,

major wiring was done for telecommunications. The Olympic sponsors, Nortel and Qwest, donated equipment, wiring, and labor. The Homestead Resort essentially became a telephone company "central office" with 12 pair or 24 strand fiber optic cable running to the all of the main buildings, including all banquet areas, for Internet access, additional phone lines as well as live and closed-circuit television broadcast. A year before the Olympics, the Homestead purchased a new phone switch: NEC 2400 on a three-year lease-purchase with a dollar buyout. The total cost was \$108,000, and it will be depreciated as Computer Equipment.

To accommodate additional traffic and add additional security, the Salt Lake Olympic Committee (SLOC) donated \$60,000 worth of grading and asphalt to create a new employee/ service entrance to the property. The Homestead added \$15,000 of wiring for lighting, poles, fixtures, and electrical connections. This was capitalized in Grounds to be written off over 12 years.

Of course, a great deal of funds was spent retrofitting the guest rooms. Each athlete required a separate bed. Thus, in each of the King/sofa bedrooms a single bed was added. The Queen rooms were already furnished with two beds. In the Condos, all the beds were removed and refurnished with two single beds in each bedroom. The Homestead purchased 120 single mattresses, boxes, and frames, as well as additional linens for these beds. The beds were purchased at a major discount from SLOC. After the games they were sold off for more than the original price to employees and a local university dormitory. Purchases were recorded in a prepaid account and sales were recorded against that account. Remaining profits were recorded in Other Income.

As the Olympics approached, demand for housing in the area overtook supply. Local residents rented out homes and apartments and took a vacation. The Homestead had an unfinished summer cabin that had been acquired during the construction of its golf course. It had been used as a makeshift stable operation. This cabin was completely remodeled and furnished to accommodate six guests. For this improvement, \$60,000 was charged to Fixed Assets: \$35,000 to Building & Improvements, and \$25,000 to Furniture, Fixtures, and Equipment.

As you can see, this is a major project. But, it is also the Olympics!



PREVIEW OF CHAPTER 12

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 remodeling done at **the Homestead Resort**. 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 12 are as follows.



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.



OBJECTIVES

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 12-1 shows the percentages of long-term assets in relation to total assets of companies in a number of industries.



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 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 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

STUDY OBJECTIVE 1

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

INTERNATIONAL NOTE

The United Kingdom (UK) is more flexible than the U.S. about asset valuation. Most companies in the UK make revaluations to fair value when they believe fair value is more relevant. Other countries that permit revaluations are Switzerland and the Netherlands. 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 12-2.

Illustration 12-2

Computation of cost of land

Land	
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	\$115,000

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 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 insur-ance during transit paid by the purchaser**. They also include **expenditures requiredin 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 Merten Hotels purchases kitchen equipment at a cash price of \$50,000. Related expenditures consist of sales taxes \$3,000, insurance dur-

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.

of

ing shipping \$500, and installation and testing \$1,000. The cost of the kitchen equipment is \$54,500, computed in Illustration 12-3.

Kitchen Equipmer	nt	Illustration 12-3
Cash price Sales taxes Insurance during shipping Installation and testing Cost of factory machinery	\$50,000 3,000 500 1,000 \$54,500	Computation of cost 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)		

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 12-4.

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

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

Illustration 12-4

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)		

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 **Hilton** report on its balance sheet under the heading "Property and equipment, net"? The answer to this question is provided on p. 411.

🕨 DO IT

Assume that a 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.

Image rights not available

L +

A +23,820

+1,600-25,500 SE

-80

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.

Related exercise material: 12-1 and 12-5.



DEPRECIATION

Explain the concept of depreciation.

STUDY OBJECTIVE 2

Illustration 12-5

Depreciation as an allocation concept 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 12-5).



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: land improvements, buildings, and equipment. Each asset in these classes is considered to be a **de-preciable asset**. Why? Because the usefulness to the company and 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 may also 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.

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 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.

Illustration 12-6 summarizes the three factors used in computing depreciation.

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

HELPFUL HINT



ACCOUNTING IN ACTION Business Insight

The Homestead Resort, highlighted in the feature story, also hosted athletes from around the world during the 2000 and 2001 Cross Country/Biathlon/ Nordic Combined World Cup events held at Soldier Hollow. The demand for Internet access for the athletes, coaches, and officials was overwhelming. The resort accommodated that need with a request to Gateway, an official Olympic sponsor. They packed up the summer merchandise and fixtures in their Golf Shop and brought in comfortable chairs and sofas. Tables were placed around the room, and Gateway provided software and 14 brand-new flat-screen units that were linked to the Internet through the Olympic Village in Salt Lake for security purposes. The Salt Lake Olympic Committee (SLOC) brought in a live, commercial-free television feed from the various venues, and IBM installed other computers and printers with biographical and team information. This equipment provided instant times and results in several athlete lounge areas. The Homestead Resort provided wiring, hubs, a printer, and the use of their T-1 line that fed into the SLOC network. Local volunteers were organized to monitor the room from 7:00 A.M. to 10:00 P.M. The Internet Lounge was a very popular place, used by 200 to 300 athletes, coaches, and officials a day. As for the accounting procedures, the Homestead Resort capitalized the wiring and hubs as Computer Equipment, which is now used for banquets and other meetings.



STUDY OBJECTIVE 3

Compute periodic depreciation using different methods.

Depreciation Methods

Depreciation is generally computed using one of the following methods:

- 1. Straight-line
- Units-of-activity 2.
- 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 following data for a small delivery truck purchased by Barb's Florists on January 1, 2004. Barb's supplies many arrangement to hotels for weddings and special events.

Illustration 12-7	Cost	\$13,000	
Delivery truck data	Expected salvage value	\$ 1,000	
	Estimated useful life in years	5	
	Estimated useful life in miles	100,000	

Depreciation affects the balance sheet through accumulated depreciation and the income statement through depreciation expense. Illustration 12-8 (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. Depreciable cost is 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 is shown in Illustration 12-9.





Illustration 12-8

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

Illustration 12-9

Formula for straight-line method

Alternatively, we also can compute an **annual rate of depreciation**. In this case, the rate is 20% ($100\% \div 5$ 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 12-10.

BARB'S FLORISTS								
	Computation			Annual	End of Year			
Year	Depreciable Cost	×	Depreciation Rate	=	Depreciation Expense	Accumulated Depreciation	Book Value	
2004	\$12,000		20%		\$2,400	\$ 2,400	\$10,600*	
2005	12,000		20		2,400	4,800	8,200	
2006	12,000		20		2,400	7,200	5,800	
2007	12,000		20		2,400	9,600	3,400	
2008	12.000		20		2,400	12,000	1,000	

Illustration 12-10

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, 2004, the depreciation for 2004 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 machinery. Production can be measured in units of output or in machine hours. This method can also 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 shown in Illustration 12-11:

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



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

392 CHAPTER 12 Long-Term and Intangible Assets



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

Illustration 12-12

Units-of-activity depreciation schedule



			BAR	B'S F	LORISTS			
Computation					Annual	End of Year		
Year	Units of Activity	×	Depreciation Cost/Unit	=	Depreciation Expense	Accumulated Depreciation	Book Value	
2004	15,000		\$0.12		\$1,800	\$ 1,800	\$11,200*	
2005	30,000		0.12		3,600	5,400	7,600	
2006	20,000		0.12		2,400	7,800	5,200	
2007	25,000		0.12		3,000	10,800	2,200	
2008	10,000		0.12		1,200	12,000	1,000	
*(\$13,00	00 - \$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 12-8), 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

HELPFUL HINT

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

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 ($2 \times$ the straight-line rate of 20%). The computation of depreciation for the first year on the delivery truck is shown in Illustration 12-13:



Illustration 12-14 shows the depreciation schedule under this method.

	BARB'S FLORISTS						
	Compu	tati	on		Annual	End of Ye	ear
Year	Book Value Beginning of Year	×	Depreciation Rate	=	Depreciation Expense	Accumulated Depreciation	Book Value
2004	\$13,000		40%		\$5,200	\$ 5,200	\$7,800
2005	7,800		40		3,120	8,320	4,680
2006	4,680		40		1,872	10,192	2,808
2007	2,808		40		1,123	11,315	1,685
2008	1,685		40		685 *	12,000	1,000
*Comp	outation of \$674 (\$1,685 >	< 409	%) is adjusted to \$	685 i	n order for book v	alue to equal salvag	ge value.

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, 2004, depreciation for 2004 would become \$3,900 ($$13,000 \times 40\% \times 9/12$). The book value at the beginning of 2005 is then \$9,100

Illustration 12-14

Illustration 12-13 Formula for declining-

balance method

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 decliningbalance method. (\$13,000 - \$3,900), and the 2005 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 is shown below.

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:

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 12-15 shows the depreciation schedule for the sum-of-years'-digits method for Barb's Florists.

Computation				End of Y	ear		
Year	Rate		Depreciable Cost		Annual Depreciation	Accumulated Depreciation	Book Value
2004	5/15	\times	\$12,000	=	\$4,000	\$ 4,000	\$9,000*
2005	4/15	\times	12,000	=	3,200	7,200	5,800
2006	3/15	\times	12,000	=	2,400	9,600	3,400
2007	2/15	\times	12,000	=	1,600	11,200	1,800
2008	1/15	\times	12,000	=	800	12,000	1,000

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 12-16.

Illustration 12-16		Straight-	Units-of-	Declining-	Sum-of-
Comparison of depreciation	Year	Line	Activity	Balance	Years'-Digits
methods	2004	\$ 2,400	\$ 1,800	\$ 5,200	\$ 4,000
	2005	2,400	3,600	3,120	3,200
	2006	2,400	2,400	1,872	2,400
	2007	2,400	3,000	1,123	1,600
	2008	2,400	1,200	685	800
		\$12,000	\$12,000	\$12,000	\$12,000

Illustration 12-15 Sum-of-years'-digits depreci-

ation schedule

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 12-17.





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 method, it allows taxpayers to depreciate their assets in an accelerated rate, faster than the straight-line method. MACRS classifies property into six recovery classes of: 3-, 5-, 7-, 10-, 15-, and 20-year. For example, computers are classified as a 5-year life property, while office desks are a 10-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.

lechnology 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.



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, 2007, 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 12-18.

Book value, 1/1/07 Less: Salvage value	\$5,800 1,000	
Depreciable cost	\$4,800	
Remaining useful life	3 years (20)	007–2010)
Revised annual depreciation (\$4,800 ÷ 3)	\$1,600	

Barb's Florists makes no entry for the change in estimate. On December 31, 2007, 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, 2004, Iron Mountain Ski Corporation purchased a new snow-grooming machine for \$50,000. The machine is estimated to have a 10-year life with a \$2,000 salvage value. What journal entry would Iron Mountain Ski Corporation make at December 31, 2004, 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.

Illustration 12-18

Revised depreciation computation

HELPFUL HINT

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

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:



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 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.

LONG-TERM ASSET DISPOSALS

Long-term assets may be disposed of in three ways—retirement, sale, or exchange—as shown in Illustration 12-19. 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.

STUDY OBJECTIVE 5

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

STUDY OBJECTIVE 6

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



Illustration 12-19

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.

L	+	SE
	L	L +

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			

A -8,000

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

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, 2004, Wright Hotels sells some of its hotel furniture for \$16,000 cash. The furniture originally cost \$60,000. As of January 1, 2004, it had accumulated depreciation of \$41,000. Depreciation for the first 6 months of 2004 is \$8,000. The entry to record depreciation expense and update accumulated depreciation to July 1 is as follows.

L T	July 1	Depreciation Expense	8,000	
-8000		Accumulated Depreciation—Furniture		8,000
0,000		(To record depreciation expense for the first		
		6 months of 2004)		l

After the accumulated depreciation balance is updated, a gain on disposal of \$5,000 is computed, as shown in Illustration 12-20:

Cost of furniture	\$60,000	Illustration 12-20
Less: Accumulated depreciation (\$41,000 + \$8,000)	49,000	Computation of gain on
Book value at date of disposal	11,000	disposal
Proceeds from sale	16,000	
Gain on disposal	\$ 5,000	

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

49,000 60,000 5,000	A = L + SE + 16,000 + 5,000 + 49,000 - 60,000
4	9,000 60,000 5,000

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:

Cost of furniture Less: Accumulated depreciation Book value at date of disposal Proceeds from sale		Illustration 12-21 Computation of loss on disposal
Loss on disposal	\$ 2,000	

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

July 1	Cash Accumulated Depreciation—Furniture Loss on Disposal Furniture (To record sale of furniture at a loss)	9,000 49,000 2,000	60,000	$ \begin{array}{rcl} A &= & L \\ +9,000 \\ +49,000 \\ -60,000 \end{array} $	+ SE -2,000
	(To record sale of furniture at a loss)		,	00,000	

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 may also 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.

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 disposition of building. Answer: Debit Cash \$325,000; debit Accumulated Depreciation \$150,000; credit Building \$200,000; and credit Gain on Disposal \$275,000.

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...

Illustration Computation disposal

A =

+91,000+44,000-70,000-81,000

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 \$10,000, and cash of \$81,000 is paid. Illustration 12-22 shows the cost of the new equipment, \$91,000:

Illustration 12-22	Fair market value of old kitchen equipment	\$10,000
Computation of cost of new	Cash	81,000
office equipment	Cost of new kitchen equipment	\$91,000

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 12-23.

n of loss on	Book value of old kitchen equipment (\$70,000 – \$44,000) Fair market value of old kitchen equipment	\$26,000 10,000	
	Loss on disposal	\$16,000	

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)		

HELPFUL HINT

L

+

SE

-16,000

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. **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 12-24:

Fair market value of old delivery equipment	\$19,000	Illustration 12-24
Cash	3,000	Cost of new equipment
Cost of new delivery equipment (before deferral of gain)	\$22,000	(before deferral of gain)

A gain results when the fair market value is greater than the book value of the asset given up. Illustration 12-25 shows that for Mark's Express, there is a gain of \$7,000 on the disposal.

Fair market value of old delivery equipment Book value of old delivery equipment (\$40,000 - \$28,000) Gain on disposal	\$19,000 <u>12,000</u> \$ 7,000	Illustration 12-25 Computation of gain on disposal
Gain on disposa	\$ 7,000	

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 12-26.

Cost of new delivery equipment (before deferral of gain)	\$22,000	Illustration 12-26
Less: Gain on disposal	7,000	Cost of new equipment
Cost of new delivery equipment (after deferral of gain)	\$15,000	(after deferral of gain)

The entry to record the exchange is as follows.

Delivery Equipment (new) Accumulated Depreciation—Delivery Equipment (old) Delivery Equipment (old) Cash (To record exchange of old delivery equipment for similar new delivery equipment)	15,000 28,000	40,000 3,000	A = L +15,000 +28,000 -40,000 -3,000	+ SE
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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 12-27 summarizes the rules for accounting for exchanges of similar assets:

Type of Event	Recognition	Illustration 12-27
Loss Gain	Recognize immediately by debiting Loss on Disposal Defer and reduce cost of new asset	Accounting rules for plant asset exchanges

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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 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.

Related exercise material: 12-4 and 12-7.

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 loss, if any, is recorded.

There are several differences between accounting for intangible assets and accounting for long-term assets. First, assuming 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.

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 20 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 20-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 8 years, the annual amortization expense is \$7,500 ($$60,000 \div 8$). The entry to record the annual amortization looks like this:

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

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



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

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 70 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 20 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 *devel*oped 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 geographical 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, 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.

ACCOUNTING IN ACTION Business Insight



Best Western International is "THE WORLD'S LARGEST HOTEL CHAIN[®]" with over 4,000 hotels 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. In fiscal 2001, Best Western posted revenues of over \$157 million by providing marketing, reservations, and operational support to its members.

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 40 years. If a more reasonable life had been used to amortize the rights, the company's reported profits would, instead, have been huge losses

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 listed above (exceptional management, desirable location, 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

Until recently, U.S. companies were required to amortize goodwill. Many people argued that this created a disadvantage for U.S. companies. British companies did not have to amortize goodwill against earnings. Rather, they bypassed the income statement completely and charged goodwill directly to stockholders' equity. For ex-

ample, **Pillsbury** was purchased by **Grand Met**, a British firm. Many complained that U.S. companies were reluctant to bid for Pillsbury because it would mean that they would have to record a large amount of goodwill, which would substantially depress income in the future.

What can or should be done when accounting practices are different among countries and perhaps give one country a competitive edge? Image rights not available

Demonstration problem 1

DuPage Restaurant purchases an ice machine at a cost of \$18,000 on January 1, 2004. 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: 2004, 40,000; 2005, 60,000; 2006, 35,000; and 2007, 25,000.

Instructions

Prepare depreciation schedules for the following methods: (a) the 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)			Straigh	nt-L	ine Method		
	Con	nput	ation		Annual	End of Y	Year
	Depreciable		Depreciation		Depreciation	Accumulated	Book
Year	Cost	\times	Rate	=	Expense	Depreciation	Value
2004	\$16,000		25%		\$4,000	\$ 4,000	\$14,000*
2005	16,000		25%		4,000	8,000	10,000
2006	16,000		25%		4,000	12,000	6,000
2007	16,000		25%		4,000	16,000	2,000
*\$18,000 -	- \$4,000.						

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 decliningbalance 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.

(b)						
		Units-	of-A	ctivity Method		
	Cor	nputation		Annual	End of Year	
	Units of	Depreciation		Depreciation	Accumulated Boo	ok
Year	Activity	× Cost/Unit	=	Expense	Depreciation Val	ue
2004	40,000	\$0.10		\$4,000	\$ 4,000 \$14,0	000
2005	60,000	0.10		6,000	10,000 8,0	000
2006	35,000	0.10		3,500	13,500 4,4	500
2007	25,000	0.10		2,500	16,000 2,0	000

(c)

Declining-Balance Method

	Computation					End of Year			
	Book Value Beginning		Depreciation		Annual Depreciation	Accumulated		Book	
Year	of Year	\times	Rate	=	Expense	Depreciation		Value	
2004	\$18,000		50%		\$9,000	\$ 9,000		\$9,000	
2005	9,000		50%		4,500	13,500		4,500	
2006	4,500		50%		2,250	15,750		2,250	
2007	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

			8				
	Computation					End of Y	Year
Year	Depreciation Cost	×	Depreciation Rate	=	Annual Depreciation	Accumulated Depreciation	Book Value
2004	4/10		\$16,000		\$6,400	\$ 6,400	\$11,600*
2005	3/10		16,000		4,800	11,200	6,800
2006	2/10		16,000		3,200	14,400	3,600
2007	1/10		16,000		1,600	16,000	2,000
*\$18,00	*\$18,000 - \$6,400.						

DEMONSTRATION PROBLEM 2

On January 1, 2002, 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:

- (a) Retired and scrapped with no salvage value on January 1, 2006.
- **(b)** Sold for \$5,000 on July 1, 2005.
- (c) Traded in on a new van on January 1, 2005. The fair market value of the old vehicle was \$9,000, and \$22,000 was paid in cash.
- (d) Traded in on a new van on January 1, 2005. The fair market value of the old vehicle was \$11,000, and \$22,000 was paid in cash.

SOLUTION TO DEMONSTRATION PROBLEM 2

(a)	1/1/06	Accumulated Depreciation—Van Loss on Disposal Van (To record retirement of van)	24,000 4,000	28,000
(b)	7/1/05	Depreciation Expense Accumulated Depreciation—Van (To record depreciation to date of disposal)	3,000	3,000
		Cash Accumulated Depreciation—Van Loss on Disposal Van (To record sale of van)	5,000 21,000 2,000	28,000
(c)	1/1/05	Van (new) Accumulated Depreciation—Van (old) Loss on Disposal Van (old) Cash (To record exchange of limousines)	31,000 18,000 1,000	28,000 22,000
(d)	1/1/035	Van (new)* Accumulated Depreciation—Van (old) Van (old) Cash (To record exchange of vans) *(\$11,000 + \$22,000 - \$1,000)	32,000 18,000	28,000 22,000

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.



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 not a process of valuation. Nor is it 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:

1.00

Method	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 \times Declining- balance rate
Sum-of-years'- digits	Decreasing amount	Depreciable cost × Rate*
*rate	Depred	ciable year

 $rate = \frac{1}{\text{Sum of digits of asset's useful life}}$

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:

- (a) Eliminate the book value of the long-term asset at the date of disposal.
- (b) Record cash proceeds, if any.
- (c) Account for the difference between the book value and the cash proceeds as a gain or loss on disposal.
- In accounting for exchanges of similar assets:
- (a) Eliminate the book value of the old asset at the date of the exchange.
- (b) Record the acquisition cost of the new asset.
- (c) Account for the loss or gain, if any, on the old asset:(1) If a loss, recognize it immediately.

(2) 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 dif-

ference 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. 393).
- Additions and improvements Costs incurred to increase the operating efficiency, productive capacity, or useful life of a long-term asset (p. 397).
- **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. 403).
- **Capital expenditures** Expenditures that increase the company's investment in productive facilities (p. 397).
- **Copyright** Exclusive grant from the federal government that allows the owner to reproduce and sell an artistic or published work (p. 404).
- **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. 392).
- **Depreciable cost** The cost of a long-term asset less its salvage value (p. 390).
- **Franchise (license)** 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. 404).
- **Goodwill** The value of all favorable attributes that relate to a business enterprise (p. 405).
- **Intangible assets** Rights, privileges, and competitive advantages that result from the ownership of long-lived assets that do not possess physical substance (p. 402).
- **Licenses** Operating rights to use public property, granted to a business enterprise by a governmental agency (p. 404).

- **Long-term assets** Tangible resources that are used in the operations of the business and are not intended for sale to customers (p. 384).
- **Modified Accelerated Cost Recovery System (MACRS)** Depreciation method where assets are classified into recovery classes and are depreciated at an accelerated rate (p. 395).
- **Ordinary repairs** Expenditures to maintain the operating efficiency and productive life of the unit (p. 397).
- **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 20 years from the date of the grant (p. 403).
- **Revenue expenditures** Expenditures that are immediately charged against revenues as an expense (p. 397).
- **Salvage value** An estimate of an asset's value at the end of its useful life (p. 389).
- **Straight-line method** Depreciation method in which periodic depreciation is the same for each year of the asset's useful life (p. 390).
- **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. 394).
- **Trademark (trade name)** A word, phrase, jingle, or symbol that identifies a particular enterprise or product (p. 404).
- **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. 391).
- **Useful life** An estimate of the expected productive life, also called service life, of an asset (p. 389).

Exercises

Determine the cost of land. (SO 1)

Compute straight-line depreciation. (SO 3)

Compute revised depreciation. (SO 4)

Prepare entries for disposal by retirement. (SO 6) **12-1** The following expenditures were incurred by Shumway Hotel in purchasing land: cash price \$50,000, accrued taxes \$3,000, attorneys' fees \$2,500, real estate broker's commission \$2,000, and clearing and grading \$3,500. What is the cost of the land?

12-2 Mabasa Foods Company acquires a delivery truck at a cost of \$30,000. 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.

- **12-3** On January 1, 2004, the Villaluz Mexican Foods ledger shows Equipment \$32,000 and Accumulated Depreciation \$9,000. The depreciation resulted from using the straight-line method with a useful life of 10 years and salvage value of \$2,000. 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.
- **12-4** Prepare journal entries to record the following.
- (a) Ruiz Company retires its delivery equipment, which cost \$41,000. Accumulated depreciation is also \$41,000 on this delivery equipment. No salvage value is received.

(b) Assume the same information as (a), except that accumulated depreciation for Ruiz Company is \$39,000, instead of \$41,000.

12-5 The following expenditures relating to long-term assets were made by Kosinski Sandwiches during the first two months of 2004.

- 1. Paid \$5,000 of accrued taxes at time his restaurant site was acquired.
- 2. Paid \$200 insurance to cover possible accident loss on new kitchen equipment while the equipment was in transit.
- 3. Paid \$850 sales taxes on new delivery truck.
- 4. Paid \$17,500 for parking lots and driveways on new plant site.
- 5. Paid \$250 to have company name and advertising slogan painted on new delivery truck.
- 6. Paid \$8,000 for installation of new factory machinery.
- 7. Paid \$900 for one-year accident insurance policy on new delivery truck.
- 8. Paid \$75 motor vehicle license fee on the new truck.

Instructions

- (a) Explain the application of the cost principle in determining the acquisition cost of plant assets.
- (b) List the numbers of the foregoing transactions, and opposite each indicate the account title to which each expenditure should be debited.

12-6 Always-Late Bus Lines uses the units-of-activity method in depreciating its buses. One bus was purchased on January 1, 2004, at a cost of \$128,000. Over its four-year useful life, the bus 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: 2004, 26,000; 2005, 32,000; 2006, 25,000; and 2007, 17,000.

12-7 Presented below are selected transactions at Beck's Company for 2004.

- Jan. 1 Retired a piece of kitchen equipment that was purchased on January 1, 1994. The machine cost \$62,000 on that date. It had a useful life of 10 years with no salvage value.
- June 30 Sold a computer that was purchased on January 1, 2001. The computer cost \$35,000. It had a useful life of seven years with no salvage value. The computer was sold for \$22,000.
- Dec. 31 Discarded a delivery truck that was purchased on January 1, 2000. The truck cost \$30,000. It was depreciated based on a six-year useful life with a \$3,000 salvage value.

Instructions

Journalize all entries required on the above dates, including entries to update depreciation, where applicable, on assets disposed of. Beck's Company uses straight-line depreciation. (Assume depreciation is up to date as of December 31, 2003.)

12-8 Mendoza Company was organized on January 1. During the first year of operations, the following long-term asset expenditures and receipts were recorded in random order.

Debits

1. Cost of filling and grading the land	\$ 4,000				
2. Full payment to building contractor					
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	20,000				
6. Architect's fees on building plans	10,000				
7. Accrued real estate taxes paid at time of purchase of real estate					
8. Cost of parking lots and driveways					
9. Cost of demolishing building to make land suitable for construction of new					
building	15,000				
	\$915,000				
Credits					

Determine cost of plant acquisitions. (SO 1)

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

Journalize entries for disposal of plant assets. (SO 6)

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

3,500

10. Proceeds from salvage of demolished building

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.

Item I	Land	Building	Other Accounts
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Compute depreciation under different methods. (SO 3)

12-9 In recent years, Waterfront Tours purchased three used buses. Because of frequent turnover in the accounting department, a different accountant selected the depreciation method for each bus, and various methods were selected. Information concerning the buses is summarized below.

Bus	Acquired	Cost	Salvage Value	Useful Life in Years	Depreciation Method
1	1/1/00	\$ 86,000	\$ 6,000	4	Straight-line
2	1/1/00	140,000	10,000	5	Declining-balance
3	1/1/01	80,000	8,000	5	Units-of-activity
4	1/1/01	100,000	10,000	5	Sum-of-years'-digits

For the declining-balance method, the company uses the double-declining rate. For the units-of-activity method, total miles are expected to be 120,000. Actual miles of use in the first three years were: 2003, 24,000; 2004, 34,000; and 2005, 30,000.

Instructions

- (a) Compute the amount of accumulated depreciation on each bus at December 31, 2004.
- (b) If bus no. 2 was purchased on April 1 instead of January 1, what is the depreciation expense for this bus in (1) 2002 and (2) 2003?

12-10 At the beginning of 2002, Duncan Company acquired kitchen 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 2004 (the third year of the equipment'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 2007 the estimated residual value was reduced to \$4,400.

Instructions

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

Year	Depreciation Expense	Accumulated Depreciation
2002		
2003		
2004		
2005		
2006		
2007		
2008		

EXPLORING THE WEB

12-11 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, choose Library of Annual Reports.
- 2. Select a particular company.

Calculate revisions to depreciation expense. (SO 3, 4)

- 3. Choose Annual Report.
- 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?

Answer to Hilton Review It Question 2, p. 387

Hilton reports the following categories and amounts under the heading "Property, plant and equipment, net": \$3,911 million.

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