Chapter 9

Plant Assets, Natural Resources, and Intangible Assets

STUDY OBJECTIVES

After studying this chapter, you should be able to:
1. Describe how the cost principle applies to plant 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 each.
6. Explain how to account for the disposal of a plant asset.
7. Compute periodic depletion of natural resources.
8. Explain the basic issues related to accounting for intangible assets.
9. Indicate how plant assets, natural resources, and intangible assets are reported.

The Navigator

Scan Study Objectives
Read Feature Story
Read Preview
Read text and answer Do it! p. 402 p. 409 p. 412 p. 417
Work Comprehensive Do it! p. 421 p. 422
Review Summary of Study Objectives
Answer Self-Study Questions
Complete Assignments

Feature Story

HOW MUCH FOR A RIDE TO THE BEACH?

It's spring break. Your plane has landed, you've finally found your bags, and you're dying to hit the beach—but first you need a “vehicular unit” to get
you there. As you turn away from baggage claim you see a long row of rental agency booths. Many are names you are familiar with—Hertz, Avis, and Budget. But a booth at the far end catches your eye—Rent-A-Wreck (www.rent-a-wreck.com). Now there’s a company making a clear statement!

Any company that relies on equipment to generate revenues must make decisions about what kind of equipment to buy, how long to keep it, and how vigorously to maintain it. Rent-A-Wreck has decided to rent used rather than new cars and trucks. It rents these vehicles across the United States, Europe, and Asia. While the big-name agencies push vehicles with that “new car smell,” Rent-A-Wreck competes on price. The message is simple: Rent a used car and save some cash. It’s not a message that appeals to everyone. If you’re a marketing executive wanting to impress a big client, you probably don’t want to pull up in a Rent-A-Wreck car. But if you want to get from point A to point B for the minimum cash per mile, then they are playing your tune. The company’s message seems to be getting across to the right clientele. Revenues have increased significantly.

When you rent a car from Rent-A-Wreck, you are renting from an independent business person who has paid a “franchise fee” for the right to use the Rent-A-Wreck name. In order to gain a franchise, he or she must meet financial and other criteria, and must agree to run the rental agency according to rules prescribed by Rent-A-Wreck. Some of these rules require that each franchise maintain its cars in a reasonable fashion. This ensures that, though you won’t be cruising down Daytona Beach’s Atlantic Avenue in a Mercedes convertible, you can be reasonably assured that you won’t be calling a towtruck.

**Inside Chapter 9...**

- Many U.S. Firms Use Leases (p. 401)
- ESPN Wins Monday Night Football Franchise (p. 416)
- All About You: Buying a Wreck of Your Own (p. 420)
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 Rent-A-Wreck vehicles, as well as to natural resources and intangible assets such as the “Rent-A-Wreck” trademark. We also describe the methods that companies may use to allocate an asset’s cost over its useful life. In addition, we discuss the accounting for expenditures incurred during the useful life of assets, such as the cost of replacing tires and brake pads on rental cars.

The content and organization of Chapter 9 are as follows.

**Plant Assets, Natural Resources, and Intangible Assets**

**SECTION 1 Plant Assets**

**Plant assets** are resources that have three characteristics: they have a physical substance (a definite size and shape), are used in the operations of a business, and are not intended for sale to customers. They are also called property, plant, and equipment; plant and equipment; and fixed assets. These assets are expected to provide services to the company for a number of years. Except for land, plant assets decline in service potential over their useful lives.

Because plant assets play a key role in ongoing operations, companies keep plant assets in good operating condition. They also replace worn-out or outdated plant assets, and expand productive resources as needed. Many companies have substantial investments in plant assets. Illustration 9-1 shows the percentages of plant assets in relation to total assets of companies in a number of industries.

**Illustration 9-1**
Percentages of plant assets in relation to total assets

<table>
<thead>
<tr>
<th>Company</th>
<th>Plant assets as a percentage of total assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southwest Airlines</td>
<td>75%</td>
</tr>
<tr>
<td>Wendy’s</td>
<td>70%</td>
</tr>
<tr>
<td>Wal-Mart</td>
<td>56%</td>
</tr>
<tr>
<td>Nordstrom</td>
<td>36%</td>
</tr>
<tr>
<td>Caterpillar</td>
<td>18%</td>
</tr>
<tr>
<td>Microsoft Corporation</td>
<td>7%</td>
</tr>
</tbody>
</table>

**Plant Assets**
- Determining the cost of plant assets
- Depreciation
- Expenditures during useful life
- Plant asset disposals

**Natural Resources**
- Accounting for natural resources
- Financial statement presentation

**Intangible Assets**
- Accounting for intangibles
- Types of intangibles
- Research and development costs

**Statement Presentation and Analysis**
- Presentation
- Analysis
The cost principle requires that companies record plant assets at cost. Thus Rent-A-Wreck records its vehicles 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, the company uses that amount as the basis of accounting for the plant asset over its useful life.

In the following sections, we explain the application of the cost principle to each of the major classes of plant assets.

**Land**

Companies acquire **land** for use as a site upon which to build a manufacturing plant or office. The cost of land includes (1) the cash purchase price, (2) closing costs such as title and attorney’s fees, (3) real estate brokers’ commissions, and (4) accrued property taxes and other liens 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.

companies record as debits (increases) to the Land account all necessary costs incurred to make land ready for its intended use. When a company acquires 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, the company debits to the Land account all demolition and removal costs, less any proceeds from salvaged materials.

To illustrate, assume that Hayes Manufacturing Company acquires real estate at a cash cost of $100,000. The property contains an old warehouse that is razed at a net cost of $6,000 ($7,500 in costs less $1,500 proceeds from salvaged materials). Additional 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 as follows.

<table>
<thead>
<tr>
<th>Land</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash price of property</td>
<td>$100,000</td>
</tr>
<tr>
<td>Net removal cost of warehouse</td>
<td>6,000</td>
</tr>
<tr>
<td>Attorney’s fee</td>
<td>1,000</td>
</tr>
<tr>
<td>Real estate broker’s commission</td>
<td>8,000</td>
</tr>
<tr>
<td><strong>Cost of land</strong></td>
<td><strong>$115,000</strong></td>
</tr>
</tbody>
</table>

When Hayes records the acquisition, it debits Land for $115,000 and credits Cash for $115,000.

**Land Improvements**

**Land improvements** are structural additions made to land. Examples are driveways, parking lots, fences, landscaping, and underground sprinklers. The cost of land improvements includes all expenditures necessary to make the improvements ready for their intended use. For example, the cost of a new parking lot for Home Depot
includes the amount paid for paving, fencing, and lighting. Thus Home Depot debits to Land Improvements the total of all of these costs.

Land improvements have limited useful lives, and their maintenance and replacement are the responsibility of the company. Because of their limited useful life, companies expense (depreciate) the cost of land improvements over their useful lives.

Buildings

Buildings are facilities used in operations, such as stores, offices, factories, warehouses, and airplane hangars. Companies debit to the Buildings account all necessary expenditures related to the purchase or construction of a building. When a building is purchased, such costs include the purchase price, closing costs (attorney’s fees, title insurance, etc.) and real estate 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.

In addition, companies charge certain interest costs to the Buildings account: Interest costs incurred to finance the project are included in the cost of the building when a significant period of time is required to get the building ready for use. In these circumstances, interest costs are considered as necessary as materials and labor. However, the inclusion of interest costs in the cost of a constructed building is limited to the construction period. When construction has been completed, the company records subsequent interest payments on funds borrowed to finance the construction as debits (increases) to Interest Expense.

Equipment

Equipment includes assets used in operations, such as store check-out counters, office furniture, factory machinery, delivery trucks, and airplanes. The cost of equipment, such as Rent-A-Wreck vehicles, consists of the cash purchase price, sales taxes, freight charges, and insurance during transit paid by the purchaser. It also includes expenditures required in assembling, installing, and testing the unit. However, Rent-A-Wreck does not include motor vehicle licenses and accident insurance on company vehicles in the cost of equipment. These costs represent annual recurring expenditures and do not benefit future periods. Thus, they are treated as expenses as they are incurred.

To illustrate, assume Merten Company purchases factory machinery at a cash price of $50,000. Related expenditures are for sales taxes $3,000, insurance during shipping $500, and installation and testing $1,000. The cost of the factory machinery is $54,500, computed as follows.

<table>
<thead>
<tr>
<th>Factory Machinery</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash price</td>
<td>$50,000</td>
</tr>
<tr>
<td>Sales taxes</td>
<td>3,000</td>
</tr>
<tr>
<td>Insurance during shipping</td>
<td>500</td>
</tr>
<tr>
<td>Installation and testing</td>
<td>1,000</td>
</tr>
<tr>
<td><strong>Cost of factory machinery</strong></td>
<td><strong>$54,500</strong></td>
</tr>
</tbody>
</table>
Merten makes the following summary entry to record the purchase and related expenditures:

Factory Machinery  54,500  
Cash  54,500  
(To record purchase of factory machine)

For another example, assume that Lenard Company 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 as follows.

<table>
<thead>
<tr>
<th>Cost of delivery truck</th>
<th>$23,820</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash price</td>
<td>$22,000</td>
</tr>
<tr>
<td>Sales taxes</td>
<td>1,320</td>
</tr>
<tr>
<td>Painting and lettering</td>
<td>500</td>
</tr>
</tbody>
</table>

Lenard treats the cost of the motor vehicle license as an expense, and the cost of the insurance policy as a prepaid asset. Thus, Lenard makes the following entry to record the purchase of the truck and related expenditures:

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

Illustration 9-4
Computation of cost of delivery truck

ACCOUNTING ACROSS THE ORGANIZATION

Many U.S. Firms Use Leases

Leasing is big business for U.S. companies. For example, business investment in equipment in a recent year totaled $709 billion. Leasing accounted for about 31% of all business investment ($218 billion).

Who does the most leasing? Interestingly major banks, such as Continental Bank, J.P. Morgan Leasing, and US Bancorp Equipment Finance, are the major lessors. Also, many companies have established separate leasing companies, such as Boeing Capital Corporation, Dell Financial Services, and John Deere Capital Corporation. And, as an excellent example of the magnitude of leasing, leased planes account for nearly 40% of the U.S. fleet of commercial airlines. In addition, leasing is becoming increasingly common in the hotel industry. Marriott, Hilton, and InterContinental are increasingly choosing to lease hotels that are owned by someone else.

Why might airline managers choose to lease rather than purchase their planes?
Before you go on...

It is important to understand that depreciation is a process of cost allocation. It is not a process of asset valuation. No attempt is made to measure the change in an asset’s market value during ownership. 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 depreciable 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.

As explained in Chapter 3, depreciation is the process of allocating to expense the cost of a plant asset over its useful (service) life in a rational and systematic manner. Cost allocation enables companies to properly match expenses with revenues in accordance with the expense recognition principle (see Illustration 9-5).

Do it! Assume that Drummond Heating and Cooling Co. purchases a delivery truck for $15,000 cash, plus sales taxes of $900 and delivery costs of $500. The buyer 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.

Solution

The first four payments ($15,000, $900, $500, and $200) are 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 operating costs and therefore are expensed.


Ethics Note

When a business is acquired, proper allocation of the purchase price to various asset classes is important, since different depreciation treatment can materially affect income. For example, buildings are depreciated, but land is not.
Midway Airport to Chicago-O’Hare International Airport because Midway’s runways were too short for jumbo jets. Similarly, many companies replace their computers long before they originally planned to do so because improvements in new computing technology make the old computers obsolete.

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 amount of the asset’s cost that the company has charged to expense. It is not a cash fund.

Note that the concept of depreciation is consistent with the going-concern assumption. The going-concern assumption states that the company will continue in operation for the foreseeable future. If a company does not use a going-concern assumption, then plant assets should be stated at their market value. In that case, depreciation of these assets is not needed.

Factors in Computing Depreciation

Three factors affect the computation of depreciation:

1. **Cost.** Earlier, we explained the issues affecting the cost of a depreciable asset. Recall that companies record plant assets 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 Rent-A-Wreck and Avis to use different estimated useful lives for their vehicles.

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 9-6 summarizes the three factors used in computing depreciation.

Depreciation Methods

Depreciation is generally computed using one of the following methods:

1. **Straight-line**
2. **Units-of-activity**
3. **Declining-balance**
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 company chooses a method, it should apply it consistently over the useful life of the asset. Consistency enhances the comparability of financial statements. Depreciation affects the balance sheet through accumulated depreciation and the income statement through depreciation expense.

We will compare the three depreciation methods using the following data for a small delivery truck purchased by Barb’s Florists on January 1, 2011.

<table>
<thead>
<tr>
<th>Cost</th>
<th>$13,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected salvage value</td>
<td>$1,000</td>
</tr>
<tr>
<td>Estimated useful life in years</td>
<td>5</td>
</tr>
<tr>
<td>Estimated useful life in miles</td>
<td>100,000</td>
</tr>
</tbody>
</table>

Illustration 9-7 (Delivery truck data)

Illustration 9-8 (in the margin) shows the use of the primary depreciation methods in 600 of the largest companies in the United States.

**STRAIGHT-LINE**

Under the *straight-line method*, companies expense the same amount of depreciation 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, companies need 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, to determine annual depreciation expense, we divide depreciable cost by the asset’s useful life. Illustration 9-9 shows the computation of the first year’s depreciation expense for Barb’s Florists.

Illustration 9-9 (Formula for straight-line method)

Alternatively, we also can compute an annual rate of depreciation. In this case, the rate is 20% (100% ÷ 5 years). When a company uses an annual straight-line rate, it applies the percentage rate to the depreciable cost of the asset.

Illustration 9-10 (page 405) shows a *depreciation schedule* using an annual rate. This illustration indicates that the depreciation expense of $2,400 is the same each year. The book value (computed as cost minus accumulated depreciation) at the end of the useful life is equal to the expected $1,000 salvage value.
What happens to these computations for an asset purchased during the year, rather than on January 1? 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, 2011, the company would own the truck for nine months of the first year (April–December). Thus, depreciation for 2011 would be $1,800 ($12,000 / 20% / 9/12 of a year).

The straight-line method predominates in practice. Such large companies as Campbell Soup, Marriott, 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. For simplicity, Rent-A-Wreck is probably using the straight-line method of depreciation for its vehicles.

**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. Manufacturing companies can measure production 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, companies estimate the total units of activity for the entire useful life, and then divide these units 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 drives its delivery truck 15,000 miles in the first year. Illustration 9-11 shows the units-of-activity formula and the computation of the first year’s depreciation expense.

### Illustration 9-11

<table>
<thead>
<tr>
<th>Year</th>
<th>Depreciable Cost</th>
<th>Depreciation Rate</th>
<th>Annual Depreciation Expense</th>
<th>End of Year Accumulated Depreciation</th>
<th>Book Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>$12,000</td>
<td>20%</td>
<td>$2,400</td>
<td>$2,400</td>
<td>$10,600*</td>
</tr>
<tr>
<td>2012</td>
<td>12,000</td>
<td>20</td>
<td>2,400</td>
<td>4,800</td>
<td>8,200</td>
</tr>
<tr>
<td>2013</td>
<td>12,000</td>
<td>20</td>
<td>2,400</td>
<td>7,200</td>
<td>5,800</td>
</tr>
<tr>
<td>2014</td>
<td>12,000</td>
<td>20</td>
<td>2,400</td>
<td>9,600</td>
<td>3,400</td>
</tr>
<tr>
<td>2015</td>
<td>12,000</td>
<td>20</td>
<td>2,400</td>
<td>12,000</td>
<td>1,000</td>
</tr>
</tbody>
</table>

*Book value = Cost – Accumulated depreciation = ($13,000 – $2,400).

What happens to these computations for an asset purchased during the year, rather than on January 1? 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, 2011, the company would own the truck for nine months of the first year (April–December). Thus, depreciation for 2011 would be $1,800 ($12,000 / 20% / 9/12 of a year).

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To use this method, companies estimate the total units of activity for the entire useful life, and then divide these units 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 drives its delivery truck 15,000 miles in the first year. Illustration 9-11 shows the units-of-activity formula and the computation of the first year’s depreciation expense.

### Illustration 9-11

<table>
<thead>
<tr>
<th>Depreciable Cost</th>
<th>Total Units of Activity</th>
<th>Depreciation Cost per Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>$12,000</td>
<td>100,000 miles</td>
<td>$0.12</td>
</tr>
</tbody>
</table>

Depreciable Cost per Unit × Units of Activity during the Year = Annual Depreciation Expense

$0.12 × 15,000 miles = $1,800
The units-of-activity depreciation schedule, using assumed mileage, is as follows.

<table>
<thead>
<tr>
<th>Year</th>
<th>Units of Activity</th>
<th>Depreciation Cost/Unit</th>
<th>Depreciation Expense</th>
<th>Accumulated Depreciation</th>
<th>Book Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>15,000</td>
<td>$0.12</td>
<td>$1,800</td>
<td>$1,800</td>
<td>$11,200*</td>
</tr>
<tr>
<td>2012</td>
<td>30,000</td>
<td>0.12</td>
<td>3,600</td>
<td>5,400</td>
<td>7,600</td>
</tr>
<tr>
<td>2013</td>
<td>20,000</td>
<td>0.12</td>
<td>2,400</td>
<td>7,800</td>
<td>5,200</td>
</tr>
<tr>
<td>2014</td>
<td>25,000</td>
<td>0.12</td>
<td>3,000</td>
<td>10,800</td>
<td>2,200</td>
</tr>
<tr>
<td>2015</td>
<td>10,000</td>
<td>0.12</td>
<td>1,200</td>
<td>12,000</td>
<td>1,000</td>
</tr>
</tbody>
</table>

*($13,000 – $1,800).

This method is easy to apply for assets purchased mid-year. In such a case, the company computes the depreciation using the productivity of the asset for the partial year.

The units-of-activity method is not nearly as popular as the straight-line method (see Illustration 9-8, page 404), primarily because it is often difficult for companies to reasonably estimate total activity. However, some very large companies, such as Chevron and Boise Cascade (a forestry company), do use this method. 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. With this method, companies compute annual depreciation expense 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.

At the beginning of the first year, book value 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, it ignores salvage value 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. The method is often called the double-declining-balance method. If Barb’s Florists uses the double-declining-balance method, it uses a depreciation rate of 40% (2 × the straight-line rate of 20%). Illustration 9-13 shows the declining-balance formula and the computation of the first year’s depreciation on the delivery truck.
The delivery equipment is 69% depreciated ($8,320 / $12,000) at the end of the second year. Under the straight-line method, the truck would be depreciated 40% ($4,800 / $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 expense recognition principle. It matches the higher depreciation expense in early years with the higher benefits received in these years. It also recognizes lower depreciation expense in later years, when the asset’s contribution to revenue is less. Some assets lose usefulness rapidly because of obsolescence. In these cases, the declining-balance method provides the most appropriate depreciation amount.

When a company purchases an asset during the year, it must prorate the first year’s declining-balance depreciation on a time basis. For example, if Barb’s Florists had purchased the truck on April 1, 2011, depreciation for 2011 would become $3,900 ($13,000 / 40% / 9/12). The book value at the beginning of 2012 is then $9,100 ($13,000 − $3,900), and the 2012 depreciation is $3,640 ($9,100 × 40%). Subsequent computations would follow from those amounts.

COMPARISON OF METHODS
Illustration 9-15 compares annual and total depreciation expense under each of the three methods for Barb’s Florists.

<table>
<thead>
<tr>
<th>Year</th>
<th>Straight-Line</th>
<th>Units-of-Activity</th>
<th>Declining-Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>$2,400</td>
<td>$1,800</td>
<td>$5,200</td>
</tr>
<tr>
<td>2012</td>
<td>2,400</td>
<td>3,600</td>
<td>3,120</td>
</tr>
<tr>
<td>2013</td>
<td>2,400</td>
<td>2,400</td>
<td>1,872</td>
</tr>
<tr>
<td>2014</td>
<td>2,400</td>
<td>3,000</td>
<td>1,123</td>
</tr>
<tr>
<td>2015</td>
<td>2,400</td>
<td>1,200</td>
<td>685</td>
</tr>
<tr>
<td></td>
<td>$12,000</td>
<td>$12,000</td>
<td>$12,000</td>
</tr>
</tbody>
</table>

Annual depreciation varies considerably among the methods, but total depreciation is the same for the five-year period under all three methods. Each method is acceptable in accounting, because each recognizes in a rational and systematic manner the decline in service potential of the asset. Illustration 9-16 (page 408) graphs the depreciation expense pattern under each method.
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).

Revising Periodic Depreciation

Depreciation is one example of the use of estimation in the accounting process. Management should periodically review annual depreciation expense. If wear and tear or obsolescence indicate that annual depreciation estimates are inadequate or excessive, the company should change the amount of depreciation expense.

When a change in an estimate is required, the company makes the change in current and future years. **It does not change depreciation in prior periods.** The rationale is that continual restatement of prior periods would adversely affect confidence in financial statements.

To determine the new annual depreciation expense, the company first computes the asset’s depreciable cost at the time of the revision. It then allocates the revised depreciable cost to the remaining useful life.

To illustrate, assume that Barb’s Florists decides on January 1, 2014, 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 as follows.

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Book value, 1/1/14</td>
<td>$5,800</td>
</tr>
<tr>
<td>Less: Salvage value</td>
<td>$1,000</td>
</tr>
<tr>
<td>Depreciable cost</td>
<td>$4,800</td>
</tr>
<tr>
<td>Remaining useful life</td>
<td>3 years (2014–2016)</td>
</tr>
<tr>
<td><strong>Revised annual depreciation</strong></td>
<td><strong>$1,600</strong></td>
</tr>
</tbody>
</table>
Barb’s Florists makes no entry for the change in estimate. On December 31, 2014, during the preparation of adjusting entries, it records depreciation expense of $1,600. Companies must describe in the financial statements significant changes in estimates.

Expenditures During Useful Life

Do it!

On January 1, 2011, 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, 2011, if it uses the straight-line method of depreciation?

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

<table>
<thead>
<tr>
<th>Depreciation Expense</th>
<th>4,800</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accumulated Depreciation (To record annual depreciation on snow-grooming machine)</td>
<td>4,800</td>
</tr>
</tbody>
</table>


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. Examples are motor tune-ups and oil changes, the painting of buildings, and the replacing of worn-out gears on machinery. Companies record such repairs as debits 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 plant asset. They are usually material in amount and occur infrequently. Additions and improvements increase the company’s investment in productive facilities. Companies generally debit these amounts to the plant asset affected. They are often referred to as capital expenditures. Most major U.S. corporations disclose annual capital expenditures.

Companies must use good judgment in deciding between a revenue expenditure and capital expenditure. For example, assume that Rodriguez Co. purchases a number of wastepaper baskets. Although the proper accounting would appear to be to capitalize and then depreciate these wastepaper baskets over their useful life, it would be more usual for Rodriguez to expense them immediately. This practice is justified on the basis of materiality. Materiality refers to the impact of an item’s size on a company’s financial

ETHICS NOTE

WorldCom perpetrated the largest accounting fraud in history by treating $7 billion of “line costs” as capital expenditures. Line costs are rental payments to access other companies’ networks. Like any other rental payment, they should have been expensed as incurred. Instead, capitalization delayed expense recognition to future periods and thus boosted current-period profits.
operations. The materiality principle states that if an item would not make a difference in decision making, the company does not have to follow GAAP in reporting that item.

### Plant Asset Disposals

**STUDY OBJECTIVE 6**

Explain how to account for the disposal of a plant asset.

Companies dispose of plant assets in three ways—retirement, sale, or exchange—as Illustration 9-18 shows. Whatever the method, at the time of disposal the company must determine the book value of the plant asset. As noted earlier, book value is the difference between the cost of a plant asset and the accumulated depreciation to date.

**Illustration 9-18**

Methods of plant asset disposal

At the time of disposal, the company records depreciation for the fraction of the year to the date of disposal. The book value is then eliminated by (1) debiting (decreasing) Accumulated Depreciation for the total depreciation to date, and (2) crediting (decreasing) the asset account for the cost of the asset. In this chapter we examine the accounting for the retirement and sale of plant assets. In the appendix to the chapter we discuss and illustrate the accounting for exchanges of plant assets.

**Retirement of Plant Assets**

To illustrate the retirement of plant assets, assume that Hobart Enterprises 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.

<table>
<thead>
<tr>
<th>Description</th>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accumulated Depreciation—Printing Equipment</td>
<td>32,000</td>
<td>Printing Equipment</td>
</tr>
<tr>
<td>(To record retirement of fully depreciated equipment)</td>
<td></td>
<td>32,000</td>
</tr>
</tbody>
</table>

What happens if a fully depreciated plant 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 company retires the asset. Reporting the asset and related accumulated depreciation on the balance sheet informs the financial statement reader that the asset is still in use. Once fully depreciated, no additional depreciation should be taken, even if an asset is still being used. In no situation can the accumulated depreciation on a plant asset exceed its cost.

If a company retires a plant asset before it is fully depreciated, and no cash is received for scrap or salvage value, a loss on disposal occurs. For example, assume...
that Sunset Company discards delivery equipment that cost $18,000 and has accumulated depreciation of $14,000. The entry is as follows.

\[
\begin{align*}
\text{Accumulated Depreciation—Delivery Equipment} & \quad 14,000 \\
\text{Loss on Disposal} & \quad 4,000 \\
\text{Delivery Equipment} & \quad 18,000 \\
\end{align*}
\]

(To record retirement of delivery equipment at a loss)

Companies report a loss on disposal in the “Other expenses and losses” section of the income statement.

**Sale of Plant Assets**

In a disposal by sale, the company compares the book value of the asset with the proceeds received from the sale. If the proceeds of the sale exceed the book value of the plant asset, a gain on disposal occurs. If the proceeds of the sale are less than the book value of the plant 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 B727-200 aircraft and five Lockheed L-1011-1 aircraft.

**GAIN ON DISPOSAL**

To illustrate a gain, assume that on July 1, 2011, Wright Company sells office furniture for $16,000 cash. The office furniture originally cost $60,000. As of January 1, 2011, it had accumulated depreciation of $41,000. Depreciation for the first six months of 2011 is $8,000. Wright records depreciation expense and updates accumulated depreciation to July 1 with the following entry.

\[
\begin{align*}
\text{Accumulated Depreciation—Office Furniture} & \quad 8,000 \\
\text{Cost of office furniture} & \quad \text{\$60,000} \\
\text{Less: Accumulated depreciation ($41,000 + 8,000)} & \quad \text{49,000} \\
\text{Book value at date of disposal} & \quad 11,000 \\
\text{Proceeds from sale} & \quad 16,000 \\
\text{Gain on disposal} & \quad \text{\$5,000} \\
\end{align*}
\]

After the accumulated depreciation balance is updated, the company computes the gain or loss. Illustration 9-19 shows this computation for Wright Company, which has a gain on disposal of $5,000.

\[
\begin{align*}
\text{Cost of office furniture} & \quad \text{\$60,000} \\
\text{Less: Accumulated depreciation ($41,000 + 8,000)} & \quad \text{49,000} \\
\text{Book value at date of disposal} & \quad 11,000 \\
\text{Proceeds from sale} & \quad 16,000 \\
\text{Gain on disposal} & \quad \text{\$5,000} \\
\end{align*}
\]

Illustration 9-19
Computation of gain on disposal
Wright records the sale and the gain on disposal as follows.

<table>
<thead>
<tr>
<th>Date</th>
<th>Cash</th>
<th>Accumulated Depreciation—Office Furniture</th>
<th>Office Furniture</th>
<th>Gain on Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 1</td>
<td>16,000</td>
<td>49,000</td>
<td>60,000</td>
<td>5,000</td>
</tr>
</tbody>
</table>

(To record sale of office furniture at a gain)

Companies report a gain on disposal in the “Other revenues and gains” section of the income statement.

**LOSS ON DISPOSAL**

Assume that instead of selling the office furniture for $16,000, Wright sells it for $9,000. In this case, Wright computes a loss of $2,000 as follows.

<table>
<thead>
<tr>
<th>Cost of office furniture</th>
<th>$60,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less: Accumulated depreciation</td>
<td>49,000</td>
</tr>
<tr>
<td>Book value at date of disposal</td>
<td>11,000</td>
</tr>
<tr>
<td>Proceeds from sale</td>
<td>9,000</td>
</tr>
<tr>
<td><strong>Loss on disposal</strong></td>
<td><strong>$2,000</strong></td>
</tr>
</tbody>
</table>

Wright records the sale and the loss on disposal as follows.

<table>
<thead>
<tr>
<th>Date</th>
<th>Cash</th>
<th>Accumulated Depreciation—Office Furniture</th>
<th>Office Furniture</th>
<th>Loss on Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 1</td>
<td>9,000</td>
<td>49,000</td>
<td>2,000</td>
<td>60,000</td>
</tr>
</tbody>
</table>

(To record sale of office furniture at a loss)

Companies report a loss on disposal in the “Other expenses and losses” section of the income statement.

**Do it!**

Overland Trucking has an old truck that cost $30,000, and it has accumulated depreciation of $16,000 on this truck. Overland has decided to sell the truck. (a) What entry would Overland Trucking make to record the sale of the truck for $17,000 cash? (b) What entry would Overland Trucking make to record the sale of the truck for $10,000 cash?

**Solution**

**(a) Sale of truck for cash at a gain:**

<table>
<thead>
<tr>
<th>Cash</th>
<th>17,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accumulated Depreciation—Truck</td>
<td>16,000</td>
</tr>
<tr>
<td>Truck</td>
<td>30,000</td>
</tr>
<tr>
<td>Gain on Disposal [($17,000 − ($30,000 − $16,000))]</td>
<td>3,000</td>
</tr>
</tbody>
</table>

(To record sale of truck at a gain)
Natural resources consist of standing timber and underground deposits of oil, gas, and minerals. These long-lived productive assets have two distinguishing characteristics: (1) They are physically extracted in operations (such as mining, cutting, or pumping). (2) They are replaceable only by an act of nature.

ACCOUNTING FOR NATURAL RESOURCES

The acquisition cost of a natural resource is the price needed to acquire the resource and prepare it for its intended use. For an already-discovered resource, such as an existing coal mine, cost is the price paid for the property.

The allocation of the cost of natural resources to expense in a rational and systematic manner over the resource’s useful life is called depletion. (That is, depletion is to natural resources as depreciation is to plant assets.) Companies generally use the units-of-activity method (learned earlier in the chapter) to compute depletion. The reason is that depletion generally is a function of the units extracted during the year.

Under the units-of-activity method, companies divide the total cost of the natural resource minus salvage value by the number of units estimated to be in the resource. The result is a depletion cost per unit of product. They then multiply the depletion cost per unit by the number of units extracted and sold. The result is the annual depletion expense. Illustration 9-21 shows the formula to compute depletion expense.

To illustrate, assume that Lane Coal Company invests $5 million in a mine estimated to have 10 million tons of coal and no salvage value. In the first year, Lane extracts and sells 800,000 tons of coal. Using the formulas above, Lane computes the depletion expense as follows:

\[
\text{Depletion cost per ton} = \frac{\$5,000,000}{10,000,000} = \$0.50 \\
\text{Annual depletion expense} = \$0.50 \times 800,000 = \$400,000
\]
Lane records depletion expense for the first year of operation as follows.

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Depletion Expense</th>
<th>Accumulated Depletion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec. 31</td>
<td>Depletion Expense (To record depletion expense on coal deposits)</td>
<td>400,000</td>
<td>400,000</td>
</tr>
</tbody>
</table>

Cash Flows: no effect

The company reports the account Depletion Expense as a part of the cost of producing the product. Accumulated Depletion is a contra-asset account, similar to accumulated depreciation. It is deducted from the cost of the natural resource in the balance sheet, as Illustration 9-22 shows.

Illustration 9-22
Statement presentation of accumulated depletion

LANE COAL COMPANY
Balance Sheet (partial)

| Coal mine | $5,000,000 |
| Less: Accumulated depletion | 400,000 |
| | $4,600,000 |

Many companies do not use an Accumulated Depletion account. In such cases, the company credits the amount of depletion directly to the natural resources account.

Sometimes, a company will extract natural resources in one accounting period but not sell them until a later period. In this case, the company does not expense the depletion until it sells the resource. It reports the amount not sold as inventory in the current assets section.

SECTION 3 Intangible Assets

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

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

Some widely known intangibles are Microsoft’s patents, McDonald’s franchises, Apple’s trade name iPod, J.K. Rowling’s copyrights on the Harry Potter books, and the trademark Rent-A-Wreck in the Feature Story.

ACCOUNTING FOR INTANGIBLE ASSETS

Companies record intangible assets at cost. Intangibles are categorized as having either a limited life or an indefinite life. If an intangible has a limited life, the company allocates its cost over the asset’s useful life using a process similar to depreciation. The process of allocating the cost of intangibles is referred to as amortization. The cost of intangible assets with indefinite lives should not be amortized.
To record amortization of an intangible asset, a company increases (debits) Amortization Expense, and decreases (credits) the specific intangible asset. (Unlike depreciation, no contra account, such as Accumulated Amortization, is usually used.)

Intangible assets are typically amortized on a straight-line basis. For example, the legal life of a patent is 20 years. Companies amortize the cost of a patent over its 20-year life or its useful life, whichever is shorter. To illustrate the computation of patent amortization, assume that National Labs purchases a patent at a cost of $60,000. If National estimates the useful life of the patent to be eight years, the annual amortization expense is $7,500 ($60,000 / 8). National records the annual amortization as follows.

<table>
<thead>
<tr>
<th>Date</th>
<th>Account</th>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec. 31</td>
<td>Amortization Expense—Patent</td>
<td>7,500</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Patent</td>
<td></td>
<td>7,500</td>
</tr>
<tr>
<td></td>
<td>(To record patent amortization)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Companies amortize the cost of a patent over its 20-year life or its useful life, whichever is shorter. Companies consider obsolescence and inadequacy in determining useful life. These factors may cause a patent to become economically ineffective before the end of its legal life.

**TYPES OF INTANGIBLE 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 20 years from the date of the grant. A patent is nonrenewable. But companies can extend the legal life of a patent 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 litigation. Any legal costs an owner incurs in successfully defending a patent in an infringement suit are considered necessary to establish the patent’s validity. The owner adds those costs to the Patent account and amortizes them over the remaining life of the patent.

The patent holder amortizes the cost of a patent over its 20-year legal life or its useful life, whichever is shorter. Companies consider obsolescence and inadequacy in determining useful life. These factors may cause a patent to become economically ineffective before the end of its legal life.

**Copyrights**

The federal government grants copyrights which give 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 much more if an infringement suit is involved.

The useful life of a copyright generally is significantly shorter than its legal life. Therefore, copyrights usually are amortized over a relatively short period of time.
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, Game Boy, Frappuccino, Kleenex, Windows, Coca-Cola, 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 of protection. The registration may be renewed indefinitely as long as the trademark or trade name is in use.

If a company purchases the trademark or trade name, its cost is the purchase price. If a company develops and maintains the trademark or trade name, any costs related to these activities are expensed as incurred. Because trademarks and trade names have indefinite lives, they are not amortized.

Franchises and Licenses

When you fill up your tank at the corner Shell station, eat lunch at Taco Bell, or rent a car from Rent-A-Wreck, you are dealing with franchises. A franchise is a contractual arrangement between a franchisor and a franchisee. The franchisor grants the franchisee the right to sell certain products, provide specific services, or use certain trademarks or trade names, usually within a designated geographical area.

Another type of franchise is that entered into between a governmental body (commonly municipalities) and a company. This franchise permits the company 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 a company can identify costs with the purchase of a franchise or license, it should recognize an intangible asset. Companies should amortize the cost of a limited-life franchise (or license) over its useful life. If the life is indefinite, the 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 ACROSS THE ORGANIZATION

ESPN Wins Monday Night Football Franchise

What is a well-known franchise worth? Recently ESPN outbid its rivals for the right to broadcast Monday Night Football. At a price of $1.1 billion per year—nearly twice what rival ABC paid in previous years—it isn’t clear who won and who lost.

When bidding for a unique franchise like Monday Night Football, management must consider many factors to determine a price. As part of the deal, ESPN also got wireless rights and Spanish-language telecasts. By its estimation, ESPN will generate a profit of $200 million per year from Monday Night Football. ABC was losing $150 million per year.

Another factor in the decision was ESPN management’s concern that if ESPN didn’t win the bid, a buyer would emerge that would use Monday Night Football as a launching pad for a new sports network. ESPN doesn’t want any more competitors than it already has. It is hard to put a price tag on the value of keeping the competition to a minimum.


How should ESPN account for the $1.1 billion per year franchise fee?
Goodwill

Usually, the largest intangible asset that appears on a company’s balance sheet is goodwill. Goodwill represents the value of all favorable attributes that relate to a company. These include exceptional management, desirable location, good customer relations, skilled employees, high-quality products, and harmonious relations with labor unions. Goodwill is unique: Unlike assets such as investments and plant assets, 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 its amount 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, and such subjective valuations would not contribute to the reliability of financial statements. Therefore, companies record goodwill only when an entire business is purchased. 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 company debits (increases) the net assets at their fair market values, credits (decreases) cash for the purchase price, and debits goodwill for the difference. Goodwill is not amortized (because it is considered to have an indefinite life). Companies report goodwill in the balance sheet under intangible assets.

RESEARCH AND DEVELOPMENT COSTS

Research and development costs are expenditures that may lead to patents, copyrights, new processes, and new products. Many companies spend considerable sums of money on research and development (R&D). For example, in a recent year IBM spent over $6.15 billion on R&D.

Research and development costs present accounting problems. For one thing, it is sometimes difficult to assign the costs to specific projects. Also, there are uncertainties in identifying the extent and timing of future benefits. As a result, companies usually record R&D costs as an expense when incurred, whether the research and development is successful or not.

To illustrate, assume that Laser Scanner Company spent $3 million on R&D. This expenditure resulted in two highly successful patents, obtained with $20,000 in lawyers’ fees. The company would add the lawyers’ fees to the patent account. The R&D costs, however, cannot be included in the cost of the patent. Instead, the company would record the R&D costs as an expense when incurred.

Many disagree with this accounting approach. They argue that expensing R&D costs leads to understated assets and net income. Others, however, argue that capitalizing these costs will lead to highly speculative assets on the balance sheet. It is difficult to determine who is right. The controversy illustrates how difficult it can be to establish proper guidelines for financial reporting.

HELPFUL HINT

Research and development (R&D) costs are not intangible assets. But because they may lead to patents and copyrights, we discuss them in this section.

Do it!

Match the statement with the term most directly associated with it.

Copyright Depletion
Intangible assets Franchise
Research and development costs

1. _______ The allocation of the cost of a natural resource to expense in a rational and systematic manner.
2. _______ Rights, privileges, and competitive advantages that result from the ownership of long-lived assets that do not possess physical substance.
Chapter 9 Plant Assets, Natural Resources, and Intangible Assets

3. _______ An exclusive right granted by the federal government to reproduce and sell an artistic or published work.
4. _______ A right to sell certain products or services or to use certain trademarks or trade names within a designated geographic area.
5. _______ Costs incurred by a company that often lead to patents or new products. These costs must be expensed as incurred.

Solution
1. Depletion
2. Intangible assets
3. Copyright
4. Franchise
5. Research and development costs

Related exercise material: BE9-11, BE9-12, E9-11, E9-12, E9-13, and Do it! 9-4.

STATEMENT PRESENTATION AND ANALYSIS

Presentation

Usually companies combine plant assets and natural resources under “Property, plant, and equipment” in the balance sheet. They show intangibles separately. Companies disclose either in the balance sheet or the notes the balances of the major classes of assets, such as land, buildings, and equipment, and accumulated depreciation by major classes or in total. In addition, they should describe the depreciation and amortization methods that were used, as well as disclose the amount of depreciation and amortization expense for the period.

Illustration 9-23 shows the financial statement presentation of property, plant, and intangibles by The Procter & Gamble Company (P&G) in its 2008 balance sheet. The notes to P&G’s financial statements present greater details about the accounting for its long-term tangible and intangible assets.

THE PROCTER & GAMBLE COMPANY

Balance Sheet (partial)
(in millions)

June 30

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property, plant, and equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buildings</td>
<td>$7,052</td>
<td>$6,380</td>
</tr>
<tr>
<td>Machinery and equipment</td>
<td>30,145</td>
<td>27,492</td>
</tr>
<tr>
<td>Land</td>
<td>889</td>
<td>849</td>
</tr>
<tr>
<td></td>
<td>38,086</td>
<td>34,721</td>
</tr>
<tr>
<td>Accumulated depreciation</td>
<td>(17,446)</td>
<td>(15,181)</td>
</tr>
<tr>
<td>Net property, plant, and equipment</td>
<td>20,640</td>
<td>19,540</td>
</tr>
<tr>
<td>Goodwill and other intangible assets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goodwill</td>
<td>59,767</td>
<td>56,552</td>
</tr>
<tr>
<td>Trademarks and other intangible assets, net</td>
<td>34,233</td>
<td>33,626</td>
</tr>
<tr>
<td>Net goodwill and other intangible assets</td>
<td>$94,000</td>
<td>$90,178</td>
</tr>
</tbody>
</table>
Illustration 9-24 shows another comprehensive presentation of property, plant, and equipment, from the balance sheet of Owens-Illinois. The notes to the financial statements of Owens-Illinois identify the major classes of property, plant, and equipment. They also indicate that depreciation and amortization are by the straight-line method, and depletion is by the units-of-activity method.

### OWENS-ILLINOIS, INC.
Balances Sheet (partial) (in millions)

<table>
<thead>
<tr>
<th>Property, plant, and equipment</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Timberlands, at cost, less accumulated depletion</td>
<td>$ 95.4</td>
<td></td>
</tr>
<tr>
<td>Buildings and equipment, at cost</td>
<td>$2,207.1</td>
<td></td>
</tr>
<tr>
<td>Less: Accumulated depreciation</td>
<td>1,229.0</td>
<td></td>
</tr>
<tr>
<td>Total property, plant, and equipment</td>
<td>$1,073.5</td>
<td></td>
</tr>
<tr>
<td>Intangibles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patents</td>
<td>$410.0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$1,483.5</td>
<td></td>
</tr>
</tbody>
</table>

### Analysis

Using ratios, we can analyze how efficiently a company uses its assets to generate sales. The asset turnover ratio analyzes the productivity of a company's assets. It tells us how many dollars of sales a company generates for each dollar invested in assets. This ratio is computed by dividing net sales by average total assets for the period. The formula in Illustration 9-25 shows the computation of the asset turnover ratio for The Procter & Gamble Company. P&G’s net sales for 2008 were $83,503 million. Its total ending assets were $143,992 million, and beginning assets were $138,014 million.

\[
\text{Asset Turnover Ratio} = \frac{\text{Net Sales}}{\text{Average Total Assets}} = \frac{\$83,503}{\frac{\$143,992 + \$138,014}{2}} = .59 \text{ times}
\]

Thus, each dollar invested in assets produced $0.59 in sales for P&G. If a company is using its assets efficiently, each dollar of assets will create a high amount of sales. This ratio varies greatly among different industries—from those that are asset intensive (utilities) to those that are not (services).

Illustration 9-24
Owens-Illinois’ presentation of property, plant, and equipment, and intangible assets

Illustration 9-25
Asset turnover formula and computation

Be sure to read all about You
Buying a Wreck of Your Own
on page 420 for information on how topics in this chapter apply to your personal life.
Some Facts

* There are approximately 250 million vehicles in operation in the U.S. Around the world, there were 806 million cars and light trucks on the road in 2007. Currently, these vehicles burn over 260 billion gallons of fuel yearly.

* In the U.S., the 2008 car and light-truck market dropped diamatically, to approximately 13.2 million units, down by about 2.9 million from 2007.

* The cost of an average new car is about $22,000. The price of the average used car is now about $13,900.

* Financial institutions typically require a down payment of at least 10% of the value of a vehicle on a vehicle loan. Thus, the average new car will require a much higher down payment. However, interest rates on used-car loans are higher than on new-car loans.

* To stimulate car sales, individuals can generally deduct fees and taxes on the purchase price of a qualified new car, light truck, motor home, or motorcycle.

* A new car typically loses at least 30% of its value during the first two years, and about 40 to 50% after three years. Some brands maintain their value better than others.

* To keep monthly car payments down, car companies will now provide financing for up to six years. (It used to be two or three years.) With such a long loan, you might end up “upside down on the loan”—that is, you might actually owe more money than the car is worth if you decide to sell the car before the end of the loan.

Buying a Wreck of Your Own

The opening story to this chapter discusses car rental company Rent-A-Wreck. Recall that Rent-A-Wreck determined it can maximize its profitability by buying and renting used, rather than new, cars. What about you? Could you maximize your economic well-being by buying a used car rather than a new one?

What Do You Think?

Should you buy a new car?

YES: I have enough stress in my life. I don’t want to worry about my car breaking down—and if it does break down, I want it to be covered by a warranty. Besides, I have an image to maintain—I don’t want to be seen in anything less than the latest styling and the latest technology.

NO: I’m a college student, and I need to keep my costs down. Also, used cars are a lot more dependable than they used to be. In addition, my self-image is strong enough that I don’t need a fancy new car to feel good about myself (despite what the car advertisements say).

DuPage Company purchases a factory machine at a cost of $18,000 on January 1, 2011. DuPage expects the machine to have a salvage value of $2,000 at the end of its 4-year useful life. During its useful life, the machine is expected to be used 160,000 hours. Actual annual hourly use was: 2011, 40,000; 2012, 60,000; 2013, 35,000; and 2014, 25,000.

Instructions
Prepare depreciation schedules for the following methods: (a) straight-line, (b) units-of-activity, and (c) declining-balance using double the straight-line rate.

Solution to Comprehensive

(a) **Straight-Line Method**

<table>
<thead>
<tr>
<th>Year</th>
<th>Depreciable Cost*</th>
<th>Depreciation Rate</th>
<th>Annual Depreciation Expense</th>
<th>End of Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>$16,000</td>
<td>25%</td>
<td>$4,000</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>16,000</td>
<td>25%</td>
<td>4,000</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>16,000</td>
<td>25%</td>
<td>4,000</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>16,000</td>
<td>25%</td>
<td>4,000</td>
<td></td>
</tr>
</tbody>
</table>

*(\$18,000 − \$2,000), **(\$18,000 − \$4,000).

(b) **Units-of-Activity Method**

<table>
<thead>
<tr>
<th>Year</th>
<th>Units of Activity</th>
<th>Depreciation Cost/Unit</th>
<th>Annual Depreciation Expense</th>
<th>End of Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>40,000</td>
<td>$0.10*</td>
<td>$4,000</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>60,000</td>
<td>0.10</td>
<td>6,000</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>35,000</td>
<td>0.10</td>
<td>3,500</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>25,000</td>
<td>0.10</td>
<td>2,500</td>
<td></td>
</tr>
</tbody>
</table>

*(\$18,000 − \$2,000) ÷ 160,000.

(c) **Declining-Balance Method**

<table>
<thead>
<tr>
<th>Year</th>
<th>Book Value Beginning of Year</th>
<th>Depreciation Rate*</th>
<th>Annual Depreciation Expense</th>
<th>End of Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>$18,000</td>
<td>50%</td>
<td>$9,000</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>9,000</td>
<td>50%</td>
<td>4,500</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>4,500</td>
<td>50%</td>
<td>2,250</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>2,250</td>
<td>50%</td>
<td>250**</td>
<td></td>
</tr>
</tbody>
</table>

*\(\frac{1}{4} \times 2\), **Adjusted to $250 because ending book value should not be less than expected salvage value.
On January 1, 2011, Skyline Limousine Co. purchased a limo at an acquisition cost of $28,000. The vehicle has been depreciated by the straight-line method using a 4-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 limousine assuming that it was:
(a) Retired and scrapped with no salvage value on January 1, 2015.
(b) Sold for $5,000 on July 1, 2014.

Solution to Comprehensive

(a) 1/1/15
Accumulated Depreciation—Limousine 24,000
Loss on Disposal 4,000
Limousine 28,000
(To record retirement of limousine)

(b) 7/1/14
Depreciation Expense 3,000
Accumulated Depreciation—Limousine 3,000
Cash 5,000
Accumulated Depreciation—Limousine 21,000
Loss on Disposal 2,000
Limousine 28,000
(To record sale of limousine)
total cost of the natural resource minus salvage value by the number of units estimated to be in the resource. They then multiply the depletion cost per unit by the number of units extracted and sold.

8 Explain the basic issues related to accounting for intangible assets. The process of allocating the cost of an intangible asset is referred to as amortization. The cost of intangible assets with indefinite lives are not amortized. Companies normally use the straight-line method for amortizing intangible assets.

9 Indicate how plant assets, natural resources, and intangible assets are reported. Companies usually combine plant assets and natural resources under property, plant, and equipment; they show intangibles separately under intangible assets. Either within the balance sheet or in the notes, companies should disclose the balances of the major classes of assets, such as land, buildings, and equipment, and accumulated depreciation by major classes or in total. They also should describe the depreciation and amortization methods used, and should disclose the amount of depreciation and amortization expense for the period. The asset turnover ratio measures the productivity of a company’s assets in generating sales.

GLOSSARY

Accelerated-depreciation method Depreciation method that produces higher depreciation expense in the early years than in the later years. (p. 407).

Additions and improvements Costs incurred to increase additions and improvements.

Accelerated-depreciation method Depreciation method

Amortization The process of allocating the cost of an intangible asset referred to as amortization. (p. 401).

Asset turnover ratio A measure of how efficiently a company uses its assets to generate sales; calculated as net sales divided by average total assets. (p. 419).

Capital expenditures Expenditures that increase the company’s investment in productive facilities. (p. 409).

Copyright Exclusive grant from the federal government that allows the owner to reproduce and sell an artistic or published work. (p. 415).

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. 406).

Depletion The allocation of the cost of a natural resource to expense in a rational and systematic manner over the resource’s useful life. (p. 413).

Depreciation The process of allocating to expense the cost of a plant asset over its useful (service) life in a rational and systematic manner. (p. 403).

Depreciable cost The cost of a plant asset less its salvage value. (p. 404).

Franchise (license) A contractual arrangement under which the franchisor grants the franchisee the right to sell certain products, provide specific services, or use certain trademarks or trade names, usually within a designated geographical area. (p. 416).

Going-concern assumption States that the company will continue in operation for the foreseeable future. (p. 403).

Goodwill The value of all favorable attributes that relate to a business enterprise. (p. 417).

Intangible assets Rights, privileges, and competitive advantages that result from the ownership of long-lived assets that do not possess physical substance. (p. 414).

Licenses Operating rights to use public property, granted to a business enterprise by a governmental agency. (p. 416).

Materiality principle If an item would not make a difference in decision making, a company does not have to follow GAAP in reporting it. (p. 410).

Natural resources Assets that consist of standing timber and underground deposits of oil, gas, or minerals. (p. 413).

Ordinary repairs Expenditures to maintain the operating efficiency and productive life of the unit. (p. 409).

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. 415).

Plant assets Tangible resources that are used in the operations of the business and are not intended for sale to customers. (p. 398).

Research and development (R&D) costs Expenditures that may lead to patents, copyrights, new processes, or new products. (p. 417).

Revenue expenditures Expenditures that are immediately charged against revenues as an expense. (p. 409).

Salvage value An estimate of an asset’s value at the end of its useful life. (p. 403).

Straight-line method Depreciation method in which periodic depreciation is the same for each year of the asset’s useful life. (p. 404).

Trademark (trade name) A word, phrase, jingle, or symbol that identifies a particular enterprise or product. (p. 416).

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. 405).

Useful life An estimate of the expected productive life, also called service life, of an asset. (p. 403).
Ordinarily, companies record a gain or loss on the exchange of plant assets. The rationale for recognizing a gain or loss is that most exchanges have commercial substance. An exchange has commercial substance if the future cash flows change as a result of the exchange.

To illustrate, Ramos Co. exchanges some of its equipment for land held by Brodhead Inc. It is likely that the timing and amount of the cash flows arising from the land will differ significantly from the cash flows arising from the equipment. As a result, both Ramos and Brodhead are in different economic positions. Therefore, the exchange has commercial substance, and the companies recognize a gain or loss in the exchange. Because most exchanges have commercial substance (even when similar assets are exchanged), we illustrate only this type of situation, for both a loss and a gain.

### Loss Treatment

To illustrate an exchange that results in a loss, assume that Roland Company exchanged a set of used trucks plus cash for a new semi-truck. The used trucks have a combined book value of $42,000 (cost $64,000 less $22,000 accumulated depreciation). Roland’s purchasing agent, experienced in the second-hand market, indicates that the used trucks have a fair market value of $26,000. In addition to the trucks, Roland must pay $17,000 for the semi-truck. Roland computes the cost of the semi-truck as follows.

<table>
<thead>
<tr>
<th>Fair value of used trucks</th>
<th>$26,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash paid</td>
<td>17,000</td>
</tr>
<tr>
<td>Cost of semi-truck</td>
<td>$43,000</td>
</tr>
</tbody>
</table>

Roland incurs a loss on disposal of $16,000 on this exchange. The reason is that the book value of the used trucks is greater than the fair market value of these trucks. The computation is as follows.

\[
\text{Book value of used trucks} = \text{Cost} - \text{Accumulated Depreciation} = 64,000 - 22,000 = 42,000 \\
\text{Fair market value of used trucks} = 26,000 \\
\text{Loss on disposal} = 42,000 - 26,000 = 16,000
\]

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. Roland Company thus records the exchange on the loss as follows.

<table>
<thead>
<tr>
<th>Semi-truck</th>
<th>43,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accumulated Depreciation—Used Trucks</td>
<td>22,000</td>
</tr>
<tr>
<td>Loss on Disposal</td>
<td>16,000</td>
</tr>
<tr>
<td>Used Trucks</td>
<td>64,000</td>
</tr>
<tr>
<td>Cash</td>
<td>17,000</td>
</tr>
</tbody>
</table>

(To record exchange of used trucks for semi-truck)

### Gain Treatment

To illustrate a gain situation, assume that Mark Express Delivery 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 is the fair market value of the old asset exchanged plus any cash paid (or other consideration given up). The cost of the new delivery equipment is $22,000 computed as follows.

| Fair market value of old delivery equipment | $19,000 |
| Cash paid | 3,000 |
| **Cost of new delivery equipment** | **$22,000** |

A gain results when the fair market value of the old delivery equipment is greater than its book value. For Mark Express there is a gain of $7,000 on disposal, computed as follows.

| Fair market value of old delivery equipment | $19,000 |
| Book value of old delivery equipment ($40,000 – $28,000) | 12,000 |
| **Gain on disposal** | **$  7,000** |

Mark Express Delivery records the exchange as follows.

| Delivery Equipment (new) | 22,000 |
| Accumulated Depreciation—Delivery Equipment (old) | 28,000 |
| Delivery Equipment (old) | 40,000 |
| Gain on Disposal | 7,000 |
| Cash | 3,000 |
| (To record exchange of old delivery equipment for new delivery equipment) |

In recording an exchange at a gain, the following three steps are involved: (1) Eliminate the book value of the asset given up, (2) record the cost of the asset acquired, and (3) recognize the gain on disposal. Accounting for exchanges of plant assets becomes more complex if the transaction does not have commercial substance. This issue is discussed in more advanced accounting classes.

**SUMMARY OF STUDY OBJECTIVE FOR APPENDIX**

10 Explain how to account for the exchange of plant assets. Ordinarily companies record a gain or loss on the exchange of plant assets. The rationale for recognizing a gain or loss is that most exchanges have commercial substance. An exchange has commercial substance if the future cash flows change as a result of the exchange.

*Note: All asterisked Questions, Exercises, and Problems relate to material in the appendix to the chapter.

**SELF-STUDY QUESTIONS**

**Answers are at the end of the chapter.**

(SO 1) 1. Erin Danielle Company purchased equipment and incurred the following costs.

| Cash price | $24,000 |
| Sales taxes | 1,200 |
| Insurance during transit | 200 |
| Installation and testing | 400 |
| **Total costs** | **$25,800** |

What amount should be recorded as the cost of the equipment?

a. $24,000. b. $25,200. c. $25,400. d. $25,800.

2. Depreciation is a process of:

a. valuation. b. cost allocation. c. cash accumulation. d. appraisal.

(SO 2)
Chapter 9 Plant Assets, Natural Resources, and Intangible Assets

3. Micah Bartlett Company purchased equipment on January 1, 2010, at a total invoice cost of $400,000. The equipment has an estimated salvage value of $10,000 and an estimated useful life of 5 years. The amount of accumulated depreciation at December 31, 2011, if the straight-line method of depreciation is used, is:
   a. $80,000.
   b. $160,000.
   c. $78,000.
   d. $156,000.

4. Ann Torbert purchased a truck for $11,000 on January 1, 2010. The truck will have an estimated salvage value of $1,000 at the end of 5 years. Using the units-of-activity method, the balance in accumulated depreciation at December 31, 2011, can be computed by the following formula:
   a. $(11,000 \div \text{Total estimated activity}) \times \text{Units of activity for 2011}.
   b. $(10,000 \div \text{Total estimated activity}) \times \text{Units of activity for 2011}.
   c. $(11,000 \div \text{Total estimated activity}) \times \text{Units of activity for 2010 and 2011}.
   d. $(10,000 \div \text{Total estimated activity}) \times \text{Units of activity for 2010 and 2011}.

5. Jefferson Company purchased a piece of equipment on January 1, 2011. The equipment cost $60,000 and had an estimated life of 8 years and a salvage value of $8,000. What was the depreciation expense for the asset for 2012 under the double-declining-balance method?
   a. $6,500.
   b. $11,250.
   c. $15,000.
   d. $6,562.

6. When there is a change in estimated depreciation:
   a. previous depreciation should be corrected.
   b. current and future years’ depreciation should be revised.
   c. only future years’ depreciation should be revised.
   d. None of the above.

7. Able Towing Company purchased a tow truck for $60,000 on January 1, 2011. It was originally depreciated on a straight-line basis over 10 years with an assumed salvage value of $12,000. On December 31, 2013, before adjusting entries had been made, the company decided to change the remaining estimated life to 4 years (including 2013) and the salvage value to $2,000. What was the depreciation expense for 2013?
   a. $6,000.
   b. $4,800.
   c. $15,000.
   d. $12,100.

8. Additions to plant assets are:
   a. revenue expenditures.
   b. debited to a Repair Expense account.
   c. debited to a Purchases account.
   d. capital expenditures.

9. Bennie Razor Company has decided to sell one of its old manufacturing machines on June 30, 2011. The machine was purchased for $80,000 on January 1, 2007, and was depreciated on a straight-line basis for 10 years assuming no salvage value. If the machine was sold for $26,000, what was the amount of the gain or loss recorded at the time of the sale?
   a. $18,000.
   b. $54,000.
   c. $22,000.
   d. $46,000.

10. Maggie Sharrer Company expects to extract 20 million tons of coal from a mine that cost $12 million. If no salvage value is expected, and 2 million tons are mined and sold in the first year, the entry to record depletion will include:
   a. debit to Accumulated Depletion of $2,000,000.
   b. credit to Depletion Expense of $1,200,000.
   c. debit to Depletion Expense of $1,200,000.
   d. credit to Accumulated Depletion of $2,000,000.

11. Which of the following statements is false?
   a. If an intangible asset has a finite life, it should be amortized.
   b. The amortization period of an intangible asset can exceed 20 years.
   c. Goodwill is recorded only when a business is purchased.
   d. Research and development costs are expensed when incurred, except when the research and development expenditures result in a successful patent.

12. Martha Beyerlein Company incurred $150,000 of research and development costs in its laboratory to develop a patent granted on January 2, 2011. On July 31, 2011, Beyerlein paid $35,000 for legal fees in a successful defense of the patent. The total amount debited to Patents through July 31, 2011, should be:
   a. $150,000.
   b. $35,000.
   c. $185,000.
   d. $170,000.

13. Indicate which of the following statements is true.
   a. Since intangible assets lack physical substance, they need be disclosed only in the notes to the financial statements.
   b. Goodwill should be reported as a contra-account in the owner’s equity section.
   c. Totals of major classes of assets can be shown in the balance sheet, with asset details disclosed in the notes to the financial statements.
   d. Intangible assets are typically combined with plant assets and natural resources and shown in the property, plant, and equipment section.

14. Lake Coffee Company reported net sales of $180,000, net income of $54,000, beginning total assets of $200,000, and ending total assets of $300,000. What was the company’s asset turnover ratio?
   a. 0.90
   b. 0.20
   c. 0.72
   d. 1.39
15. Schopenhauer Company exchanged an old machine, with a book value of $39,000 and a fair market value of $35,000, and paid $10,000 cash for a similar new machine. The transaction has commercial substance. At what amount should the machine acquired in the exchange be recorded on Schopenhauer’s books? 
   a. $45,000.  
   b. $46,000.  
   c. $49,000.  
   d. $50,000. 

16. In exchanges of assets in which the exchange has commercial substance:
   a. neither gains nor losses are recognized immediately. 
   b. gains, but not losses, are recognized immediately. 
   c. losses, but not gains, are recognized immediately. 
   d. both gains and losses are recognized immediately. 

### Chapter 9: Plant Assets, Natural Resources, and Intangible Assets

**25.** What classifications and amounts are shown in PepsiCo’s Note 4 to explain its total property, plant, and equipment (net) of $11,663 million?

**26.** When assets are exchanged in a transaction involving commercial substance, how is the gain or loss on disposal computed?

### Brief Exercises

<table>
<thead>
<tr>
<th>Exercise</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BE9-1</strong></td>
<td>The following expenditures were incurred by Obermeyer Company in purchasing land: cash price $70,000, 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?</td>
</tr>
<tr>
<td><strong>BE9-2</strong></td>
<td>Neeley Company incurs the following expenditures in purchasing a truck: cash price $30,000, accident insurance $2,000, sales taxes $1,500, motor vehicle license $100, and painting and lettering $400. What is the cost of the truck?</td>
</tr>
<tr>
<td><strong>BE9-3</strong></td>
<td>Conlin Company acquires a delivery truck at a cost of $42,000. The truck is expected to have a salvage value of $6,000 at the end of its 4-year useful life. Compute annual depreciation for the first and second years using the straight-line method.</td>
</tr>
<tr>
<td><strong>BE9-4</strong></td>
<td>Ecklund Company purchased land and a building on January 1, 2011. Management’s best estimate of the value of the land was $100,000 and of the building $200,000. But management told the accounting department to record the land at $220,000 and the building at $80,000. The building is being depreciated on a straight-line basis over 20 years with no salvage value. Why do you suppose management requested this accounting treatment? Is it ethical?</td>
</tr>
<tr>
<td><strong>BE9-5</strong></td>
<td>Depreciation information for Conlin Company is given in BE9-3. Assuming the declining-balance depreciation rate is double the straight-line rate, compute annual depreciation for the first and second years under the declining-balance method.</td>
</tr>
<tr>
<td><strong>BE9-6</strong></td>
<td>Speedy Taxi Service uses the units-of-activity method in computing depreciation on its taxicabs. Each cab is expected to be driven 150,000 miles. Taxi no. 10 cost $33,500 and is expected to have a salvage value of $500. Taxi no. 10 is driven 30,000 miles in year 1 and 20,000 miles in year 2. Compute the depreciation for each year.</td>
</tr>
<tr>
<td><strong>BE9-7</strong></td>
<td>On January 1, 2011, the Ramirez Company ledger shows Equipment $29,000 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 4 years with the same salvage value. Compute the revised annual depreciation.</td>
</tr>
<tr>
<td><strong>BE9-8</strong></td>
<td>Firefly Company had the following two transactions related to its delivery truck. 1. Paid $45 for an oil change. 2. Paid $400 to install special shelving units, which increase the operating efficiency of the truck. Prepare Firefly’s journal entries to record these two transactions.</td>
</tr>
<tr>
<td><strong>BE9-9</strong></td>
<td>Prepare journal entries to record the following. (a) Gomez 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 is $39,000, instead of $41,000, on the delivery equipment.</td>
</tr>
<tr>
<td><strong>BE9-10</strong></td>
<td>Chan Company sells office equipment on September 30, 2011, for $20,000 cash. The office equipment originally cost $72,000 and as of January 1, 2011, had accumulated depreciation of $42,000. Depreciation for the first 9 months of 2011 is $5,250. Prepare the journal entries to (a) update depreciation to September 30, 2011, and (b) record the sale of the equipment.</td>
</tr>
<tr>
<td><strong>BE9-11</strong></td>
<td>Olpe Mining Co. purchased for $7 million a mine that is estimated to have 35 million tons of ore and no salvage value. In the first year, 6 million tons of ore are extracted and sold. (a) Prepare the journal entry to record depletion expense for the first year. (b) Show how this mine is reported on the balance sheet at the end of the first year.</td>
</tr>
</tbody>
</table>
Galena Company purchases a patent for $120,000 on January 2, 2011. Its estimated useful life is 10 years.

(a) Prepare the journal entry to record patent expense for the first year.

(b) Show how this patent is reported on the balance sheet at the end of the first year.

Information related to plant assets, natural resources, and intangibles at the end of 2011 for Spain Company is as follows: buildings $1,100,000; accumulated depreciation—buildings $650,000; goodwill $410,000; coal mine $500,000; accumulated depletion—coal mine $108,000. Prepare a partial balance sheet of Spain Company for these items.

In a recent annual report, Target reported beginning total assets of $37.3 billion; ending total assets of $44.6 billion; property and equipment (net) of $24.1 billion; and net sales of $61.5 billion. Compute Target's asset turnover ratio.

Rivera Company exchanges old delivery equipment for new delivery equipment. The book value of the old delivery equipment is $31,000 (cost $61,000 less accumulated depreciation $30,000). Its fair market value is $19,000, and cash of $5,000 is paid. Prepare the entry to record the exchange, assuming the transaction has commercial substance.

Assume the same information as BE9-15, except that the fair market value of the old delivery equipment is $38,000. Prepare the entry to record the exchange.

African Lakes Company purchased a delivery truck. The total cash payment was $27,900, including the following items.

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negotiated purchase price</td>
<td>$24,000</td>
</tr>
<tr>
<td>Installation of special shelving</td>
<td>1,100</td>
</tr>
<tr>
<td>Painting and lettering</td>
<td>900</td>
</tr>
<tr>
<td>Motor vehicle license</td>
<td>100</td>
</tr>
<tr>
<td>Annual insurance policy</td>
<td>500</td>
</tr>
<tr>
<td>Sales tax</td>
<td>1,300</td>
</tr>
<tr>
<td><strong>Total paid</strong></td>
<td><strong>$27,900</strong></td>
</tr>
</tbody>
</table>

Explain how each of these costs would be accounted for.

On January 1, 2011, Pine Grove Country Club purchased a new riding mower for $15,000. The mower is expected to have an 8-year life with a $1,000 salvage value. What journal entry would Pine Grove make at December 31, 2011, if it uses straight-line depreciation?

Ritenour Manufacturing has an old factory machine that cost $50,000. The machine has accumulated depreciation of $28,000 and a fair value of $26,000. Ritenour has decided to sell the machine.

(a) What entry would Ritenour make to record the sale of the truck for $26,000 cash?

(b) What entry would Ritenour make to record the sale of the truck for $15,000 cash?

Match the statement with the term most directly associated with it.

(a) Goodwill                          (d) Amortization
(b) Intangible assets                 (e) Franchise
(c) Research and development costs

1. _____ Rights, privileges, and competitive advantages that result from the ownership of long-lived assets that do not possess physical substance.
2. _____ The allocation of the cost of an intangible asset to expense in a rational and systematic manner.
3. _____ A right to sell certain products or services, or use certain trademarks or trade names within a designated geographic area.
4. _____ Costs incurred by a company that often lead to patents or new products. These costs must be expensed as incurred.
5. _____ The excess of the cost of a company over the fair market value of the net assets acquired.
Chapter 9  Plant Assets, Natural Resources, and Intangible Assets

EXERCISES

Determine cost of plant acquisitions.  

(SO 1)

E9-1  The following expenditures relating to plant assets were made by Spaulding Company during the first 2 months of 2011.

1. Paid $5,000 of accrued taxes at time plant site was acquired.
2. Paid $200 insurance to cover possible accident loss on new factory machinery while the machinery 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.

Determine property, plant, and equipment costs.  

(SO 1)

E9-2  Trudy Company incurred the following costs.

1. Sales tax on factory machinery purchased  $ 5,000
2. Painting of and lettering on truck immediately upon purchase 700
3. Installation and testing of factory machinery 2,000
4. Real estate broker’s commission on land purchased 3,500
5. Insurance premium paid for first year’s insurance on new truck 880
6. Cost of landscaping on property purchased 7,200
7. Cost of paving parking lot for new building constructed 17,900
8. Cost of clearing, draining, and filling land 13,300
9. Architect’s fees on self-constructed building 10,000

Instructions
Indicate to which account Trudy would debit each of the costs.

Determine acquisition costs of land.  

(SO 1)

E9-3  On March 1, 2011, Penner Company acquired real estate on which it planned to construct a small office building. The company paid $80,000 in cash. An old warehouse on the property was razed at a cost of $8,600; 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 driveways and a parking lot.

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.

Understand depreciation concepts.  

(SO 2)

E9-4  Chris Rock has prepared the following list of statements about depreciation.

1. Depreciation is a process of asset valuation, not cost allocation.
2. Depreciation provides for the proper matching of expenses with revenues.
3. The book value of a plant asset should approximate its market value.
4. Depreciation applies to three classes of plant assets: land, buildings, and equipment.
5. Depreciation does not apply to a building because its usefulness and revenue-producing ability generally remain intact over time.
6. The revenue-producing ability of a depreciable asset will decline due to wear and tear and to obsolescence.
7. Recognizing depreciation on an asset results in an accumulation of cash for replacement of the asset.
8. The balance in accumulated depreciation represents the total cost that has been charged to expense.
9. Depreciation expense and accumulated depreciation are reported on the income statement.
10. Four factors affect the computation of depreciation: cost, useful life, salvage value, and residual value.
Instructions
Identify each statement on page 430 as true or false. If false, indicate how to correct the statement.

E9-5 Younger Bus Lines uses the units-of-activity method in depreciating its buses. One bus was purchased on January 1, 2011, at a cost of $168,000. Over its 4-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: 2011, 26,000; 2012, 32,000; 2013, 25,000; and 2014, 17,000.

E9-6 Kelm Company purchased a new machine on October 1, 2011, at a cost of $120,000. The company estimated that the machine will have a salvage value of $12,000. The machine is expected to be used for 10,000 working hours during its 5-year life.

Instructions
Compute the depreciation expense under the following methods for the year indicated.
(a) Straight-line for 2011.
(b) Units-of-activity for 2011, assuming machine usage was 1,700 hours.
(c) Declining-balance using double the straight-line rate for 2011 and 2012.

E9-7 Brainiac Company purchased a delivery truck for $30,000 on January 1, 2011. The truck has an expected salvage value of $2,000, and is expected to be driven 100,000 miles over its estimated useful life of 8 years. Actual miles driven were 15,000 in 2011 and 12,000 in 2012.

Instructions
(a) Compute depreciation expense for 2011 and 2012 using (1) the straight-line method, (2) the units-of-activity method, and (3) the double-declining balance method.
(b) Assume that Brainiac uses the straight-line method.
(1) Prepare the journal entry to record 2011 depreciation.
(2) Show how the truck would be reported in the December 31, 2011, balance sheet.

E9-8 Jerry Grant, the new controller of Blackburn Company, has reviewed the expected useful lives and salvage values of selected depreciable assets at the beginning of 2011. His findings are as follows.

<table>
<thead>
<tr>
<th>Type of Asset</th>
<th>Date Acquired</th>
<th>Cost</th>
<th>Accumulated Depreciation</th>
<th>Useful Life in Years</th>
<th>Salvage Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building</td>
<td>1/1/05</td>
<td>$800,000</td>
<td>$114,000</td>
<td>40, 50</td>
<td>$40,000, 37,000</td>
</tr>
<tr>
<td>Warehouse</td>
<td>1/1/06</td>
<td>100,000</td>
<td>25,000</td>
<td>25, 20</td>
<td>5,000, 3,600</td>
</tr>
</tbody>
</table>

All assets are depreciated by the straight-line method. Blackburn Company uses a calendar year in preparing annual financial statements. After discussion, management has agreed to accept Jerry’s proposed changes.

Instructions
(a) Compute the revised annual depreciation on each asset in 2011. (Show computations.)
(b) Prepare the entry (or entries) to record depreciation on the building in 2011.

E9-9 Presented below are selected transactions at Ingles Company for 2011.

Jan. 1  Retired a piece of machinery that was purchased on January 1, 2001. 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, 2008. The computer cost $40,000. It had a useful life of 5 years with no salvage value. The computer was sold for $14,000.

Dec. 31 Discarded a delivery truck that was purchased on January 1, 2007. The truck cost $39,000. It was depreciated based on a 6-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. Ingles Company uses straight-line depreciation. (Assume depreciation is up to date as of December 31, 2010.)
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**Journalize entries for disposal of equipment.**

**E9-10** Beka Company owns equipment that cost $50,000 when purchased on January 1, 2008. It has been depreciated using the straight-line method based on estimated salvage value of $5,000 and an estimated useful life of 5 years.

**Instructions**

Prepare Beka Company’s journal entries to record the sale of the equipment in these four independent situations.

(a) Sold for $28,000 on January 1, 2011.
(b) Sold for $28,000 on May 1, 2011.
(c) Sold for $11,000 on January 1, 2011.
(d) Sold for $11,000 on October 1, 2011.

**Journalize entries for natural resources depletion.**

**E9-11** On July 1, 2011, Hurtig Inc. invested $720,000 in a mine estimated to have 800,000 tons of ore of uniform grade. During the last 6 months of 2011, 100,000 tons of ore were mined and sold.

**Instructions**

(a) Prepare the journal entry to record depletion expense.
(b) Assume that the 100,000 tons of ore were mined, but only 80,000 units were sold. How are the costs applicable to the 20,000 unsold units reported?

**Prepare adjusting entries for amortization.**

**E9-12** The following are selected 2011 transactions of Franco Corporation.

Jan. 1 Purchased a small company and recorded goodwill of $150,000. Its useful life is indefinite.
May 1 Purchased for $90,000 a patent with an estimated useful life of 5 years and a legal life of 20 years.

**Instructions**

Prepare necessary adjusting entries at December 31 to record amortization required by the events above.

**Prepare entries to set up appropriate accounts for different intangibles; amortize intangible assets.**

**E9-13** Herzogg Company, organized in 2011, has the following transactions related to intangible assets.

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2/11</td>
<td>Purchased patent (7-year life)</td>
<td>$560,000</td>
</tr>
<tr>
<td>4/1/11</td>
<td>Goodwill purchased (indefinite life)</td>
<td>$360,000</td>
</tr>
<tr>
<td>7/1/11</td>
<td>10-year franchise; expiration date 7/1/2021</td>
<td>$440,000</td>
</tr>
<tr>
<td>9/1/11</td>
<td>Research and development costs</td>
<td>$185,000</td>
</tr>
</tbody>
</table>

**Instructions**

Prepare the necessary entries to record these intangibles. All costs incurred were for cash. Make the adjusting entries as of December 31, 2011, recording any necessary amortization and reflecting all balances accurately as of that date.

**Calculate asset turnover ratio.**

**E9-14** During 2011 Nasra Corporation reported net sales of $4,900,000 and net income of $1,500,000. Its balance sheet reported average total assets of $1,400,000.

**Instructions**

Calculate the asset turnover ratio.

**Journalize entries for exchanges.**

**E9-15** Presented below are two independent transactions. Both transactions have commercial substance.

1. Sidney Co. exchanged old trucks (cost $64,000 less $22,000 accumulated depreciation) plus cash of $17,000 for new trucks. The old trucks had a fair market value of $36,000.
2. Lupa Inc. trades its used machine (cost $12,000 less $4,000 accumulated depreciation) for a new machine. In addition to exchanging the old machine (which had a fair market value of $9,000), Lupa also paid cash of $3,000.

**Instructions**

(a) Prepare the entry to record the exchange of assets by Sidney Co.
(b) Prepare the entry to record the exchange of assets by Lupa Inc.

**Journalize entries for the exchange of plant assets.**

**E9-16** Coran’s Delivery Company and Enright’s Express Delivery exchanged delivery trucks on January 1, 2011. Coran’s truck cost $22,000. It has accumulated depreciation of $15,000 and a fair market value of $4,000. Enright’s truck cost $10,000. It has accumulated depreciation of $8,000 and a fair market value of $4,000. The transaction has commercial substance.

**Instructions**

(a) Journalize the exchange for Coran’s Delivery Company.
(b) Journalize the exchange for Enright’s Express Delivery.
Problems: Set A

Diaz Company was organized on January 1. During the first year of operations, the following plant 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 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 35,000
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 15,000

**Credits**
10. Proceeds from salvage of demolished building $ 3,500

**Totals**
Land $162,500
Building $745,000

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.

<table>
<thead>
<tr>
<th>Item</th>
<th>Land</th>
<th>Building</th>
<th>Other Accounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P9-2A In recent years, Juresic Transportation 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.

<table>
<thead>
<tr>
<th>Bus</th>
<th>Acquired</th>
<th>Cost</th>
<th>Salvage Value</th>
<th>Useful Life in Years</th>
<th>Depreciation Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/1/09</td>
<td>96,000</td>
<td>$ 6,000</td>
<td>5</td>
<td>Straight-line</td>
</tr>
<tr>
<td>2</td>
<td>1/1/09</td>
<td>120,000</td>
<td>10,000</td>
<td>4</td>
<td>Declining-balance</td>
</tr>
<tr>
<td>3</td>
<td>1/1/10</td>
<td>80,000</td>
<td>8,000</td>
<td>5</td>
<td>Units-of-activity</td>
</tr>
</tbody>
</table>

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 3 years were: 2010, 24,000; 2011, 34,000; and 2012, 30,000.

Instructions
(a) Compute the amount of accumulated depreciation on each bus at December 31, 2011.
(b) If bus no. 2 was purchased on April 1 instead of January 1, what is the depreciation expense for this bus in (1) 2009 and (2) 2010?

P9-3A On January 1, 2011, Pele Company purchased the following two machines for use in its production process.

Machine A: The cash price of this machine was $38,000. Related expenditures included:
- sales tax $1,700,
- shipping costs $150,
- insurance during shipping $80,
- installation and testing costs $70, and
- $100 of oil and lubricants to be used with the machinery during its first year of operations. Pele estimates that the useful life of the
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Machine is 5 years with a $5,000 salvage value remaining at the end of that time period. Assume that the straight-line method of depreciation is used.

Machine B: The recorded cost of this machine was $160,000. Pele estimates that the useful life of the machine is 4 years with a $10,000 salvage value remaining at the end of that time period.

Instructions
(a) Prepare the following for machine A.
   (1) The journal entry to record its purchase on January 1, 2011.
   (2) The journal entry to record annual depreciation at December 31, 2011.
(b) Calculate the amount of depreciation expense that Pele should record for machine B each year of its useful life under the following assumptions.
   (1) Pele uses the straight-line method of depreciation.
   (2) Pele uses the declining-balance method. The rate used is twice the straight-line rate.
   (3) Pele uses the units-of-activity method and estimates that the useful life of the machine is 125,000 units. Actual usage is as follows: 2011, 45,000 units; 2012, 35,000 units; 2013, 25,000 units; 2014, 20,000 units.
(c) Which method used to calculate depreciation on machine B reports the highest amount of depreciation expense in year 1 (2011)? The highest amount in year 4 (2014)? The highest total amount over the 4-year period?

P9-4A  At the beginning of 2009, Lehman Company acquired equipment costing $90,000. It was estimated that this equipment would have a useful life of 6 years and a residual value of $9,000 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 2011 (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 7 years (in total) instead of 6 years. The estimated residual value was not changed at that time. However, during 2014 the estimated residual value was reduced to $5,000.

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Depreciation Expense</th>
<th>Accumulated Depreciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P9-5A  At December 31, 2011, Jimenez Company reported the following as plant assets.

<table>
<thead>
<tr>
<th>Land</th>
<th>$ 4,000,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buildings</td>
<td>$28,500,000</td>
</tr>
<tr>
<td>Less: Accumulated depreciation—buildings</td>
<td>$12,100,000</td>
</tr>
<tr>
<td>Equipment</td>
<td>$48,000,000</td>
</tr>
<tr>
<td>Less: Accumulated depreciation—equipment</td>
<td>$5,000,000</td>
</tr>
<tr>
<td>Total plant assets</td>
<td>$63,400,000</td>
</tr>
</tbody>
</table>

During 2012, the following selected cash transactions occurred.

April 1  Purchased land for $2,130,000.
May 1  Sold equipment that cost $780,000 when purchased on January 1, 2008. The equipment was sold for $450,000.
June 1  Sold land purchased on June 1, 2002 for $1,500,000. The land cost $400,000.
July 1  Purchased equipment for $2,000,000.
Dec. 31  Retired equipment that cost $500,000 when purchased on December 31, 2002. No salvage value was received.
Instructions
(a) Journalize the above transactions. The company uses straight-line depreciation for buildings and equipment. The buildings are estimated to have a 50-year life and no salvage value. The equipment is estimated to have a 10-year useful life and no salvage value. Update depreciation on assets disposed of at the time of sale or retirement.
(b) Record adjusting entries for depreciation for 2012.
(c) Prepare the plant assets section of Jimenez’s balance sheet at December 31, 2012.

P9-6A  Puckett Co. has office furniture that cost $75,000 and that has been depreciated $50,000. Record the disposal under the following assumptions.
(a) It was scrapped as having no value.
(b) It was sold for $21,000.
(c) It was sold for $31,000.

P9-7A  The intangible assets section of Redeker Company at December 31, 2011, is presented below.

<table>
<thead>
<tr>
<th>Intangible Asset</th>
<th>Cost</th>
<th>Amortization</th>
<th>Net Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patent</td>
<td>$70,000</td>
<td>$7,000</td>
<td>$63,000</td>
</tr>
<tr>
<td>Franchise</td>
<td>$48,000</td>
<td>$19,200</td>
<td>$28,800</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$118,000</strong></td>
<td><strong>$26,200</strong></td>
<td><strong>$91,800</strong></td>
</tr>
</tbody>
</table>

The patent was acquired in January 2011 and has a useful life of 10 years. The franchise was acquired in January 2008 and also has a useful life of 10 years. The following cash transactions may have affected intangible assets during 2012.

- Jan. 2 Paid $45,000 legal costs to successfully defend the patent against infringement by another company.
- Jan.–June Developed a new product, incurring $140,000 in research and development costs. A patent was granted for the product on July 1. Its useful life is equal to its legal life.
- Sept. 1 Paid $50,000 to an extremely large defensive lineman to appear in commercials advertising the company’s products. The commercials will air in September and October.
- Oct. 1 Acquired a franchise for $100,000. The franchise has a useful life of 50 years.

Instructions
(a) Prepare journal entries to record the transactions above.
(b) Prepare journal entries to record the 2012 amortization expense.
(c) Prepare the intangible assets section of the balance sheet at December 31, 2012.

P9-8A  Due to rapid turnover in the accounting department, a number of transactions involving intangible assets were improperly recorded by the Thorne Company in 2011.

1. Thorne developed a new manufacturing process, incurring research and development costs of $136,000. The company also purchased a patent for $60,000. In early January, Thorne capitalized $196,000 as the cost of the patents. Patent amortization expense of $9,800 was recorded based on a 20-year useful life.
2. On July 1, 2011, Thorne purchased a small company and as a result acquired goodwill of $92,000. Thorne recorded a half-year’s amortization in 2011, based on a 50-year life ($920 amortization). The goodwill has an indefinite life.

Instructions
Prepare all journal entries necessary to correct any errors made during 2011. Assume the books have not yet been closed for 2011.

P9-9A  Lebo Company and Ritter Corporation, two corporations of roughly the same size, are both involved in the manufacture of in-line skates. Each company depreciates its plant assets using the straight-line approach. An investigation of their financial statements reveals the following information.

<table>
<thead>
<tr>
<th></th>
<th>Lebo Co.</th>
<th>Ritter Corp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net income</td>
<td>$800,000</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Sales</td>
<td>1,200,000</td>
<td>1,080,000</td>
</tr>
<tr>
<td>Average total assets</td>
<td>2,500,000</td>
<td>2,000,000</td>
</tr>
<tr>
<td>Average plant assets</td>
<td>1,800,000</td>
<td>1,000,000</td>
</tr>
</tbody>
</table>

Instructions
(a) Calculate and comment on the asset turnover ratio.
Chapter 9 Plant Assets, Natural Resources, and Intangible Assets

Instructions
(a) For each company on page 435, calculate the asset turnover ratio.
(b) Based on your calculations in part (a), comment on the relative effectiveness of the two companies in using their assets to generate sales and produce net income.

PROBLEMS: SET B

P9-1B Dewey Company was organized on January 1. During the first year of operations, the following plant asset expenditures and receipts were recorded in random order.

Debits
1. Accrued real estate taxes paid at time of purchase of real estate $ 5,000
2. Real estate taxes on land paid for the current year 7,500
3. Full payment to building contractor 500,000
4. Excavation costs for new building 19,000
5. Cost of real estate purchased as a plant site (land $75,000 and building $25,000) 100,000
6. Cost of parking lots and driveways 18,000
7. Architect’s fees on building plans 9,000
8. Installation cost of fences around property 6,000
9. Cost of demolishing building to make land suitable for construction of new building 17,000

Credits
10. Proceeds from salvage of demolished building $ 3,500

Totals
Land $118,500
Building $528,000

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 title.

<table>
<thead>
<tr>
<th>Item</th>
<th>Land</th>
<th>Building</th>
<th>Other Accounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(a) Machine 2, 2010, $28,125

P9-2B In recent years, Pablo Company purchased three machines. Because of heavy turnover in the accounting department, a different accountant was in charge of selecting the depreciation method for each machine, and each selected a different method. Information concerning the machines is summarized below.

Machine Acquired Cost Salvage Value Useful Life in Years Depreciation Method
1 1/1/09 $105,000 $ 5,000 10 Straight-line
2 1/1/09 150,000 10,000 8 Declining-balance
3 11/1/11 100,000 15,000 6 Units-of-activity

For the declining-balance method, the company uses the double-declining rate. For the units-of-activity method, total machine hours are expected to be 25,000. Actual hours of use in the first 3 years were: 2011, 2,000; 2012, 4,500; and 2013, 5,500.

Instructions
(a) Compute the amount of accumulated depreciation on each machine at December 31, 2011.
(b) If machine 2 had been purchased on May 1 instead of January 1, what would be the depreciation expense for this machine in (1) 2009 and (2) 2010?

P9-3B On January 1, 2011, Arlo Company purchased the following two machines for use in its production process.

Machine A: The cash price of this machine was $55,000. Related expenditures included: sales tax $2,750, shipping costs $100, insurance during shipping $75, installation and testing costs $75, and $90 of oil and lubricants to be used with the machinery during its first year of operation. Arlo estimates that the useful life of the machine is 4 years with a $5,000 salvage value remaining at the end of that time period.
Machine B: The recorded cost of this machine was $100,000. Arlo estimates that the useful life of the machine is 4 years with a $10,000 salvage value remaining at the end of that time period.

Instructions
(a) Prepare the following for machine A.
(1) The journal entry to record its purchase on January 1, 2011.
(2) The journal entry to record annual depreciation at December 31, 2011, assuming the straight-line method of depreciation is used.

(b) Calculate the amount of depreciation expense that Arlo should record for machine B each year of its useful life under the following assumption.
(1) Arlo uses the straight-line method of depreciation.
(2) Arlo uses the declining-balance method. The rate used is twice the straight-line rate.
(3) Arlo uses the units-of-activity method and estimates the useful life of the machine is 25,000 units. Actual usage is as follows: 2011, 5,500 units; 2012, 7,000 units; 2013, 8,000 units; 2014, 4,500 units.

(c) Which method used to calculate depreciation on machine B reports the lowest amount of depreciation expense in year 1 (2011)? The lowest amount in year 4 (2014)? The lowest total amount over the 4-year period?

P9-4B At the beginning of 2009, Anfernee Company acquired equipment costing $200,000. It was estimated that this equipment would have a useful life of 6 years and a residual value of $20,000 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 2011 (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 7 years (in total) instead of 6 years. The estimated residual value was not changed at that time. However, during 2014 the estimated residual value was reduced to $5,000.

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Depreciation Expense</th>
<th>Accumulated Depreciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P9-5B At December 31, 2011, Starkey Company reported the following as plant assets.

<table>
<thead>
<tr>
<th>Land</th>
<th>$ 2,000,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buildings</td>
<td>$20,000,000</td>
</tr>
<tr>
<td>Less: Accumulated depreciation—buildings</td>
<td>$12,000,000</td>
</tr>
<tr>
<td>Equipment</td>
<td>$30,000,000</td>
</tr>
<tr>
<td>Less: Accumulated depreciation—equipment</td>
<td>$26,000,000</td>
</tr>
<tr>
<td>Total plant assets</td>
<td>$40,000,000</td>
</tr>
</tbody>
</table>

During 2012, the following selected cash transactions occurred.

April 1 Purchased land for $1,200,000.
May 1 Sold equipment that cost $420,000 when purchased on January 1, 2008. The equipment was sold for $240,000.
June 1 Sold land purchased on June 1, 2002, for $1,000,000. The land cost $340,000.
July 1 Purchased equipment for $1,100,000.
Dec. 31 Retired equipment that cost $300,000 when purchased on December 31, 2002. No salvage value was received.

Instructions
(a) Journalize the above transactions. Starkey uses straight-line depreciation for buildings and equipment. The buildings are estimated to have a 50-year useful life and no salvage value.
Chapter 9 Plant Assets, Natural Resources, and Intangible Assets

(b) Depreciation expense—
   Building $400,000;
   Equipment $2,983,000
(c) Total plant assets
   $38,293,000

Record disposals:
(SO 6)

Prepare entries to record transactions related to acquisition and amortization of intangibles; prepare the intangible assets section.
(SO 8, 9)

(b) Amortization Expense—
   Patents $15,000;
   Amortization Expense—
   Copyrights $7,000
(c) Total intangible assets, $349,000

Prepare entries to correct errors made in recording and amortizing intangible assets.
(SO 8)

R&D Exp. $110,000

Calculate and comment on asset turnover ratio.
(SO 9)

The equipment is estimated to have a 10-year useful life and no salvage value. Update depreciation on assets disposed of at the time of sale or retirement.

(b) Record adjusting entries for depreciation for 2012.

(c) Prepare the plant assets section of Starkey’s balance sheet at December 31, 2012.

P9-6B Bobby’s has delivery equipment that cost $40,000 and that has been depreciated $26,000. Record the disposal under the following assumptions.
(a) It was scrapped as having no value.
(b) It was sold for $29,000.
(c) It was sold for $10,000.

P9-7B The intangible assets section of Time Company at December 31, 2011, is presented below.

| Patent ($100,000 cost less $10,000 amortization) | $ 90,000 |
| Copyright ($60,000 cost less $24,000 amortization) | 36,000 |
| Total | $126,000 |

The patent was acquired in January 2011 and has a useful life of 10 years. The copyright was acquired in January 2008 and also has a useful life of 10 years. The following cash transactions may have affected intangible assets during 2012:

Jan. 2 Paid $45,000 legal costs to successfully defend the patent against infringement by another company.
Jan.–June Developed a new product, incurring $230,000 in research and development costs. A patent was granted for the product on July 1. Its useful life is equal to its legal life.
Sept. 1 Paid $125,000 to an Xgames star to appear in commercials advertising the company’s products. The commercials will air in September and October.
Oct. 1 Acquired a copyright for $200,000. The copyright has a useful life of 50 years.

Instructions
(a) Prepare journal entries to record the transactions above.
(b) Prepare journal entries to record the 2012 amortization expense for intangible assets.
(c) Prepare the intangible assets section of the balance sheet at December 31, 2012.
(d) Prepare the note to the financials on Time’s intangibles as of December 31, 2012.

P9-8B Due to rapid turnover in the accounting department, a number of transactions involving intangible assets were improperly recorded by Wasp Company in 2011.

1. Wasp developed a new manufacturing process, incurring research and development costs of $110,000. The company also purchased a patent for $50,000. In early January, Wasp capitalized $160,000 as the cost of the patents. Patent amortization expense of $8,000 was recorded based on a 20-year useful life.
2. On July 1, 2011, Wasp purchased a small company and as a result acquired goodwill of $200,000. Wasp recorded a half-year’s amortization in 2011, based on a 50-year life ($2,000 amortization). The goodwill has an indefinite life.

Instructions
Prepare all journal entries necessary to correct any errors made during 2011. Assume the books have not yet been closed for 2011.

P9-9B McLead Corporation and Gene Corporation, two corporations of roughly the same size, are both involved in the manufacture of canoes and sea kayaks. Each company depreciates its plant assets using the straight-line approach. An investigation of their financial statements reveals the following information.

<table>
<thead>
<tr>
<th></th>
<th>McLead Corp.</th>
<th>Gene Corp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net income</td>
<td>$ 300,000</td>
<td>$ 325,000</td>
</tr>
<tr>
<td>Sales</td>
<td>1,100,000</td>
<td>990,000</td>
</tr>
<tr>
<td>Average total assets</td>
<td>1,000,000</td>
<td>1,050,000</td>
</tr>
<tr>
<td>Average plant assets</td>
<td>750,000</td>
<td>770,000</td>
</tr>
</tbody>
</table>

Instructions
(a) For each company, calculate the asset turnover ratio.
(b) Based on your calculations in part (a), comment on the relative effectiveness of the two companies in using their assets to generate sales and produce net income.
PROBLEMS: SET C

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

COMPREHENSIVE PROBLEM

The following problem reviews concepts from Chapters 3–9.

CP9-1  Pinkerton Corporation’s trial balance at December 31, 2011, is presented below. All 2011 transactions have been recorded except for the items described after the trial balance.

<table>
<thead>
<tr>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash $ 28,000</td>
<td></td>
</tr>
<tr>
<td>Accounts Receivable 36,800</td>
<td></td>
</tr>
<tr>
<td>Notes Receivable 10,000</td>
<td></td>
</tr>
<tr>
<td>Interest Receivable –0–</td>
<td></td>
</tr>
<tr>
<td>Merchandise Inventory 36,200</td>
<td></td>
</tr>
<tr>
<td>Prepaid Insurance 3,600</td>
<td></td>
</tr>
<tr>
<td>Land 20,000</td>
<td></td>
</tr>
<tr>
<td>Building 150,000</td>
<td></td>
</tr>
<tr>
<td>Equipment 60,000</td>
<td></td>
</tr>
<tr>
<td>Patent 9,000</td>
<td></td>
</tr>
<tr>
<td>Allowance for Doubtful Accounts</td>
<td>$ 500</td>
</tr>
<tr>
<td>Accumulated Depreciation—Building 50,000</td>
<td></td>
</tr>
<tr>
<td>Accumulated Depreciation—Equipment 24,000</td>
<td></td>
</tr>
<tr>
<td>Accounts Payable 27,300</td>
<td></td>
</tr>
<tr>
<td>Salaries Payable –0–</td>
<td></td>
</tr>
<tr>
<td>Unearned Rent 6,000</td>
<td></td>
</tr>
<tr>
<td>Notes Payable (short-term) 11,000</td>
<td></td>
</tr>
<tr>
<td>Interest Payable –0–</td>
<td></td>
</tr>
<tr>
<td>Notes Payable (long-term) 35,000</td>
<td></td>
</tr>
<tr>
<td>Common Stock 50,000</td>
<td></td>
</tr>
<tr>
<td>Retained Earnings 63,600</td>
<td></td>
</tr>
<tr>
<td>Dividends 12,000</td>
<td></td>
</tr>
<tr>
<td>Sales 900,000</td>
<td></td>
</tr>
<tr>
<td>Interest Revenue –0–</td>
<td></td>
</tr>
<tr>
<td>Rent Revenue –0–</td>
<td></td>
</tr>
<tr>
<td>Gain on Disposal –0–</td>
<td></td>
</tr>
<tr>
<td>Bad Debts Expense –0–</td>
<td></td>
</tr>
<tr>
<td>Cost of Goods Sold 630,000</td>
<td></td>
</tr>
<tr>
<td>Depreciation Expense—Buildings –0–</td>
<td></td>
</tr>
<tr>
<td>Depreciation Expense—Equipment –0–</td>
<td></td>
</tr>
<tr>
<td>Insurance Expense –0–</td>
<td></td>
</tr>
<tr>
<td>Interest Expense –0–</td>
<td></td>
</tr>
<tr>
<td>Other Operating Expenses 61,800</td>
<td></td>
</tr>
<tr>
<td>Amortization Expense—Patents –0–</td>
<td></td>
</tr>
<tr>
<td>Salaries Expense 110,000</td>
<td></td>
</tr>
<tr>
<td>Total $1,167,400</td>
<td>$1,167,400</td>
</tr>
</tbody>
</table>

Unrecorded transactions

1. On May 1, 2011, Pinkerton purchased equipment for $16,000 plus sales taxes of $800 (all paid in cash).
2. On July 1, 2011, Pinkerton sold for $3,500 equipment which originally cost $5,000. Accumulated depreciation on this equipment at January 1, 2011, was $1,800; 2011 depreciation prior to the sale of equipment was $450.
3. On December 31, 2011, Pinkerton sold for $5,000 on account inventory that cost $3,500.
Chapter 9 Plant Assets, Natural Resources, and Intangible Assets

4. Pinkerton estimates that uncollectible accounts receivable at year-end are $4,000.
5. The note receivable is a one-year, 8% note dated April 1, 2011. No interest has been recorded.
6. The balance in prepaid insurance represents payment of a $3,600, 6-month premium on September 1, 2011.
7. The building is being depreciated using the straight-line method over 30 years. The salvage value is $30,000.
8. The equipment owned prior to this year is being depreciated using the straight-line method over 5 years. The salvage value is 10% of cost.
9. The equipment purchased on May 1, 2011, is being depreciated using the straight-line method over 5 years, with a salvage value of $1,800.
10. The patent was acquired on January 1, 2011, and has a useful life of 9 years from that date.
12. The unearned rent of $6,000 was received on December 1, 2011, for 3 months' rent.
13. Both the short-term and long-term notes payable are dated January 1, 2011, and carry a 10% interest rate. All interest is payable in the next 12 months.
14. Income tax expense was $15,000. It was unpaid at December 31.

Instructions
(a) Prepare journal entries for the transactions listed above.
b) Prepare an updated December 31, 2011, trial balance.
(c) Prepare a 2011 income statement and a 2011 retained earnings statement.
(d) Prepare a December 31, 2011, balance sheet.

CONTINUING COOKIE CHRONICLE
(Note: This is a continuation of the Cookie Chronicle from Chapters 1 through 8.)
CCC9 Natalie is also thinking of buying a van that will be used only for business. Natalie is concerned about the impact of the van’s cost on her income statement and balance sheet. She has come to you for advice on calculating the van’s depreciation.

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

BROADENING YOUR PERSPECTIVE

FINANCIAL REPORTING AND ANALYSIS

Financial Reporting Problem: PepsiCo, Inc.

BYP9-1 The financial statements and the Notes to Consolidated Financial Statements of PepsiCo, Inc. are presented in Appendix A.

Instructions
Refer to PepsiCo’s financial statements and answer the following questions.
(a) What was the total cost and book value of property, plant, and equipment at December 27, 2008?
(b) What method or methods of depreciation are used by the company for financial reporting purposes?
(c) What was the amount of depreciation and amortization expense for each of the three years 2006–2008?
(d) Using the statement of cash flows, what is the amount of capital spending in 2008 and 2007?
(e) Where does the company disclose its intangible assets, and what types of intangibles did it have at December 27, 2008?

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

BYP9-2  PepsiCo’s financial statements are presented in Appendix A. Financial statements of The Coca-Cola Company are presented in Appendix B.

**Instructions**

(a) Compute the asset turnover ratio for each company for 2008.
(b) What conclusions concerning the efficiency of assets can be drawn from these data?

**Exploring the Web**

BYP9-3  A company’s annual report identifies the amount of its plant assets and the depreciation method used.

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

**Steps**

1. From Report Gallery Homepage, choose **Search by Alphabet**, and pick a letter.
2. Select a particular company.
3. Choose the most recent **Annual Report**.
4. Follow instructions below.

**Instructions**

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

---

**CRITICAL THINKING**

**Decision Making Across the Organization**

BYP9-4  Reimer Company and Lingo Company are two proprietorships that are similar in many respects. One difference is that Reimer Company uses the straight-line method and Lingo Company uses the declining-balance method at double the straight-line rate. On January 2, 2009, both companies acquired the following depreciable assets.

<table>
<thead>
<tr>
<th>Asset</th>
<th>Cost</th>
<th>Salvage Value</th>
<th>Useful Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building</td>
<td>$320,000</td>
<td>$20,000</td>
<td>40 years</td>
</tr>
<tr>
<td>Equipment</td>
<td>110,000</td>
<td>10,000</td>
<td>10 years</td>
</tr>
</tbody>
</table>

Including the appropriate depreciation charges, annual net income for the companies in the years 2009, 2010, and 2011 and total income for the 3 years were as follows.

<table>
<thead>
<tr>
<th>Year</th>
<th>Reimer Company</th>
<th>Lingo Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>$84,000</td>
<td>68,000</td>
</tr>
<tr>
<td>2010</td>
<td>$88,400</td>
<td>76,000</td>
</tr>
<tr>
<td>2011</td>
<td>$90,000</td>
<td>85,000</td>
</tr>
<tr>
<td>Total</td>
<td>$262,400</td>
<td>$229,000</td>
</tr>
</tbody>
</table>

At December 31, 2011, the balance sheets of the two companies are similar except that Lingo Company has more cash than Reimer Company.

Sally Vogts is interested in buying one of the companies. She comes to you for advice.

**Instructions**

With the class divided into groups, answer the following.

(a) Determine the annual and total depreciation recorded by each company during the 3 years.
Chapter 9 Plant Assets, Natural Resources, and Intangible Assets

(b) Assuming that Lingo Company also uses the straight-line method of depreciation instead of the declining-balance method as in (a), prepare comparative income data for the 3 years.

(c) Which company should Sally Vogts buy? Why?

Communication Activity

BYP9-5 The following was published with the financial statements to American Exploration Company.

AMERICAN EXPLORATION COMPANY
Notes to the Financial Statements

Property, Plant, and Equipment—The Company accounts for its oil and gas exploration and production activities using the successful efforts method of accounting. Under this method, acquisition costs for proved and unproved properties are capitalized when incurred. . . . The costs of drilling exploratory wells are capitalized pending determination of whether each well has discovered proved reserves. If proved reserves are not discovered, such drilling costs are charged to expense. . . . Depletion of the cost of producing oil and gas properties is computed on the units-of-activity method.

Instructions
Write a brief memo to your instructor discussing American Exploration Company’s note regarding property, plant, and equipment. Your memo should address what is meant by the “successful efforts method” and “units-of-activity method.”

Ethics Case

BYP9-6 Buster Container Company is suffering declining sales of its principal product, non-biodegradable plastic cartons. The president, Dennis Harwood, instructs his controller, Shelly McGlone, to lengthen asset lives to reduce depreciation expense. A processing line of automated plastic extruding equipment, purchased for $3.1 million in January 2011, was originally estimated to have a useful life of 8 years and a salvage value of $300,000. Depreciation has been recorded for 2 years on that basis. Dennis wants the estimated life changed to 12 years total, and the straight-line method continued. Shelly is hesitant to make the change, believing it is unethical to increase net income in this manner. Dennis says, “Hey, the life is only an estimate, and I’ve heard that our competition uses a 12-year life on their production equipment.”

Instructions
(a) Who are the stakeholders in this situation?
(b) Is the change in asset life unethical, or is it simply a good business practice by an astutely president?
(c) What is the effect of Dennis Harwood’s proposed change on income before taxes in the year of change?

“All About You” Activity

BYP9-7 Both the “All About You” story and the Feature Story at the beginning of the chapter discussed the company Rent-A-Wreck. Note that the trade name Rent-A-Wreck is a very important asset to the company, as it creates immediate product identification. As indicated in the chapter, companies invest substantial sums to ensure that their product is well-known to the consumer. Test your knowledge of who owns some famous brands and their impact on the financial statements.

Instructions
(a) Provide an answer to the five multiple-choice questions below.

1. Which company owns both Taco Bell and Pizza Hut?
   (a) McDonald’s.  
   (b) CKE.  
   (c) Yum Brands.  
   (d) Wendy’s.

2. Dairy Queen belongs to:
   (a) Breyer.  
   (b) Berkshire Hathaway.  
   (c) GE.  
   (d) The Coca-Cola Company.
Broadening Your Perspective

(3) Phillip Morris, the cigarette maker, is owned by:
   (a) Altria.
   (b) GE.
   (c) Boeing.
   (d) ExxonMobil.

(4) AOL, a major Internet provider, belongs to:
   (a) Microsoft.
   (b) Cisco.
   (c) NBC.
   (d) Time Warner.

(5) ESPN, the sports broadcasting network, is owned by:
   (a) Procter & Gamble.
   (b) Altria.
   (c) Walt Disney.
   (d) The Coca-Cola Company.

(b) How do you think the value of these brands is reported on the appropriate company’s balance sheet?

FASB Codification Activity

BYP9-8 Access the FASB Codification at http://asc.fasb.org to prepare responses to the following.
   (a) What does it mean to capitalize an item?
   (b) What is the definition provided for an intangible asset?
   (c) Your great-uncle, who is a CPA, is impressed that you are taking an accounting class. Based on his experience, he believes that depreciation is something that companies do based on past practice, not on the basis of authoritative guidance. Provide the authoritative literature to support the practice of fixed-asset depreciation.

Answers to Insight and Accounting Across the Organization Questions

p. 401 Many U.S. Firms Use Leases
Q: Why might airline managers choose to lease rather than purchase their planes?
A: The reasons for leasing include favorable tax treatment, better financing options, increased flexibility, reduced risk of obsolescence, and low airline income.

p. 416 ESPN Wins Monday Night Football Franchise
Q: How should ESPN account for the $1.1 billion per year franchise fee?
A: Since this is an annual franchise fee, ESPN should expense it each year, rather than capitalizing and amortizing it.

Authors’ Comments on All About You: Buying a Wreck of Your Own (p. 420)
As the data in the box suggest, this decision can have significant implications for your personal budget. For many college students, vehicle costs are among their biggest expenses—and vehicle expenses often offer the greatest opportunities for savings. But for many people their vehicle choice is not just about how to get around. Some view their car as an expression of their personality. That said, many people simply don’t realize just how much this particular expression of their personality is actually costing them.

You should approach this decision using the skills you have acquired in your business studies. Evaluate your transportation needs, collect information about all of your alternatives, and understand exactly what the real costs are of each. For example, everyone knows that the original purchase price of a new car is higher than a used car, but few people stop to consider the fact that insurance costs and annual motor vehicle costs on a new vehicle are also much higher.

We cannot tell you whether a new or used car is right for you, but we do hope that we have convinced you to carefully consider all aspects of the financial implications of your decision the next time you shop for new wheels. In later chapters, we will provide you with additional tools to help you evaluate this decision.

Answers to Self-Study Questions

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