CHAPTER **10**

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Plant Assets, Natural Resources, and Intangible Assets

Chapter Preview

The accounting for long-term assets has important implications for a company's reported results. In this chapter, we explain the application of the historical 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.

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 that you know—**Hertz**, **Avis**, and **Budget**. But a booth at the far end catches your eye—**Rent-A-Wreck**. 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.

Rent-A-Wreck's 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 Rent-A-Wreck is 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 businessperson. This owner 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 tow truck.

Chapter Outline

LEARNING OBJECTIVES

LO 1 Explain the accounting for plant asset expenditures.	• Determining the cost of plant assets • Expenditures during useful life	**DO IT! 1** Cost of Plant Assets
LO 2 Apply depreciation methods to plant assets.	• Factors in computing depreciation • Depreciation methods • Depreciation and income taxes • Revising periodic depreciation • Impairments	**DO IT! 2a** Straight-Line Depreciation **2b** Revised Depreciation
LO 3 Explain how to account for the disposal of plant assets.	• Retirement of plant assets • Sale of plant assets	**DO IT! 3** Plant Asset Disposal
LO 4 Describe how to account for natural resources and intangible assets.	• Natural resources • Depletion • Intangible assets • Accounting for intangible assets • Research and development costs	**DO IT! 4** Classification Concepts
LO 5 Discuss how plant assets, natural resources, and intangible assets are reported and analyzed.	• Presentation • Analysis	**DO IT! 5** Asset Turnover

Go to the Review and Practice section at the end of the chapter for a review of key concepts and practice applications with solutions.
Visit WileyPLUS with ORION for additional tutorials and practice opportunities.

Plant Asset Expenditures

LEARNING OBJECTIVE 1

Explain the accounting for plant asset expenditures.

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 be of use 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 10.1** shows the percentages of plant assets in relation to total assets of companies in a number of industries.

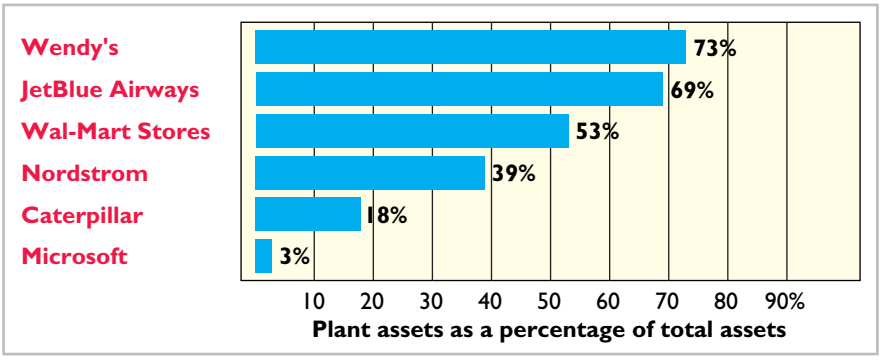

ILLUSTRATION 10.1
Percentages of plant assets in relation to total assets

Determining the Cost of Plant Assets

The historical 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 historical cost principle to each of the major classes of plant assets.

Land

Companies often use **land** as a building site for a manufacturing plant or office building. 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** (see Helpful Hint). 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.

HELPFUL HINT
Management's intended use is important in applying the historical cost principle.

To illustrate, assume that Hayes 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 shown in **Illustration 10.2**.

Land

Cash price of property	$100,000
Net removal cost of warehouse ($7,500 − $1,500)	6,000
Attorney's fee	1,000
Real estate broker's commission	8,000
Cost of land	**$115,000**

ILLUSTRATION 10.2
Computation of cost of land

A = L + OE
+115,000
−115,000

Cash Flows
−115,000

Hayes makes the following entry to record the acquisition of the land.

Land	115,000	
Cash		115,000
(To record purchase of land)		

Land Improvements

Land improvements are structural additions with limited lives that are 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. As a result, 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**, its 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 interest costs incurred during 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, as computed in **Illustration 10.3**.

ILLUSTRATION 10.3
Computation of cost of factory machinery

Factory Machinery	
Cash price	$50,000
Sales taxes	3,000
Insurance during shipping	500
Installation and testing	1,000
Cost of factory machinery	**$54,500**

Merten makes the following summary entry to record the purchase and related expenditures.

Equipment	54,500	
Cash		54,500
(To record purchase of factory machinery)		

A = L + OE
+54,500
−54,500

Cash Flows
−54,500

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 shown in **Illustration 10.4**.

ILLUSTRATION 10.4
Computation of cost of delivery truck

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

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:

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

A = L + OE
+23,820
−80 Exp
+ 1,600
−25,500

Cash Flows
−25,500

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 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 Maintenance and Repairs Expense as they are incurred. Because they are immediately charged as an expense against revenues, these costs are often referred to as **revenue expenditures**.

In contrast, **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**.

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. The proper accounting would appear to be to capitalize and then depreciate these wastepaper baskets over their useful life. However, Rodriguez will generally expense these wastepaper baskets 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 operations. The **materiality concept** 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.

Anatomy of a Fraud

Bernie Ebbers was the founder and CEO of the phone company **WorldCom**. The company engaged in a series of increasingly large, debt-financed acquisitions of other companies. These acquisitions made the company grow quickly, which made the stock price increase dramatically. However, because the acquired companies all had different accounting systems, WorldCom's financial records were a mess. When WorldCom's performance started to flatten out, Bernie coerced WorldCom's accountants to engage in a number of fraudulent activities to make net income look better than it really was and thus prop up the stock price. One of these frauds involved treating $7 billion of line costs as capital expenditures. The line costs, which were rental fees paid to other phone companies to use their phone lines, had always been properly expensed in previous years. Capitalization delayed expense recognition to future periods and thus boosted current-period profits.

Total take: $7 billion

The Missing Controls

Documentation procedures. The company's accounting system was a disorganized collection of non-integrated systems, which resulted from a series of corporate acquisitions. Top management took advantage of this disorganization to conceal its fraudulent activities.

Independent internal verification. A fraud of this size should have been detected by a routine comparison of the actual physical assets with the list of physical assets shown in the accounting records.

Accounting Across the Organization

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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 $800 billion. Leasing accounted for about 33% of all business investments ($264 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. **Lease Finance Corporation** in Los Angeles owns more planes than any airline in the world. Leasing is also becoming increasingly common in the hotel industry. **Marriott**, **Hilton**, and **InterContinental** are choosing to lease hotels that are owned by someone else.

Why might airline managers choose to lease rather than purchase their planes? (Go to WileyPLUS for this answer and additional questions.)

DO IT! 1 | Cost of Plant Assets

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.

ACTION PLAN

- Identify expenditures made in order to get delivery equipment ready for its intended use.
- Treat operating costs as expenses.

Solution

The first four payments ($15,000 purchase price, $900 sales taxes, $500 delivery costs, and $200 painting and lettering) 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 incurred annually and therefore are expensed.

Related exercise material: **BE10.1, BE10.2, BE10.3, DO IT! 10.1, E10.1, E10.2, and E10.3.**

Depreciation Methods

LEARNING OBJECTIVE 2

Apply depreciation methods to plant assets.

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, as shown in Illustration 10.5.

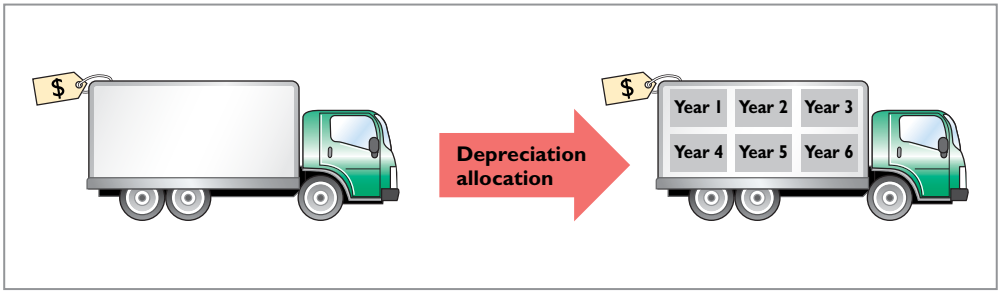


ILLUSTRATION 10.5
Depreciation as a cost allocation concept

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 fair value during ownership. So, the **book value** (cost less accumulated depreciation) of a plant asset may be quite different from its **fair value**. In fact, if an asset is fully depreciated, it can have a zero book value but still have a fair value (see Ethics Note).

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**.

During a depreciable asset's useful life, its revenue-producing ability declines because of **wear and tear**. A delivery truck that has been driven 100,000 miles will be less useful to a company than one driven only 800 miles.

Revenue-producing ability may also decline because of obsolescence. **Obsolescence** is the process of becoming out of date before the asset physically wears out. For example, major airlines moved from Chicago's 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 fair value. In that case, depreciation of these assets is not needed.

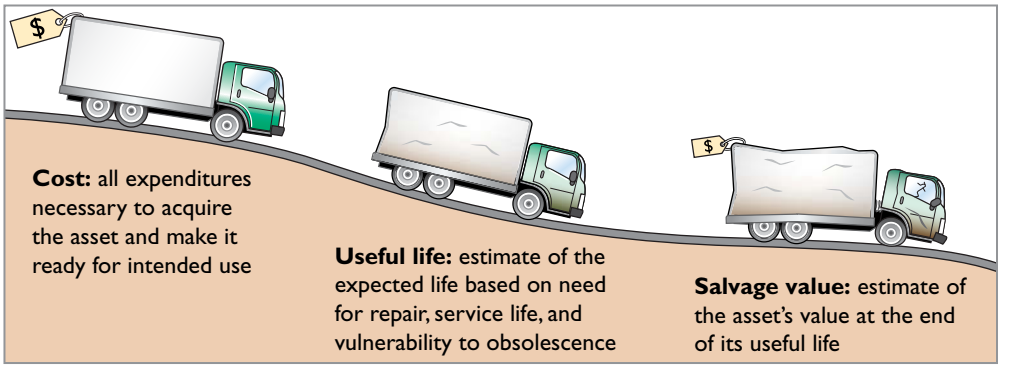
ETHICS NOTE

When a business is acquired, proper allocation of the purchase price to various asset classes is important since different depreciation treatments can materially affect income. For example, buildings are depreciated, but land is not.

Factors in Computing Depreciation

Three factors affect the computation of depreciation, as shown in Illustration 10.6.

ILLUSTRATION 10.6
Three factors in computing 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 historical cost principle.
2. **Useful life.** Useful life is an estimate of the expected productive life, also called service life, of the asset for its owner. 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 (see Alternative Terminology). This value may be based on the asset's worth as scrap or on its expected trade-in value. Like useful life, salvage value is an estimate. In making the estimate, management considers how it plans to dispose of the asset and its experience with similar assets.

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

Depreciation Methods

Depreciation is generally computed using one of the following methods:

1. Straight-line
2. Units-of-activity
3. Declining-balance

HELPFUL HINT
Depreciation expense is reported on the income statement. Accumulated depreciation is reported on the balance sheet as a deduction from plant assets.

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 (see Helpful Hint).

We will compare the three depreciation methods using the data for a small delivery truck purchased by Barb's Florists on January 1, 2020 (see Illustration 10.7).

ILLUSTRATION 10.7
Delivery truck data

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

Illustration 10.8 shows the use of the primary depreciation methods in a sample of the largest companies in the United States.

Straight-Line Method

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.

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 10.9** shows the computation of the first year's depreciation expense for Barb's Florists.

ILLUSTRATION 10.9 **Formula for straight-line method**

Cost	–	Salvage Value	=	Depreciable Cost
$13,000	–	$1,000	=	$12,000

Depreciable Cost	÷	Useful Life (in years)	=	Annual Depreciation Expense
$12,000	÷	5	=	$2,400

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 10.10** shows a **depreciation schedule** using an annual rate.

Barb's Florists

	Computation			Annual	End of Year	
Year	Depreciable Cost	× Depreciation Rate	=	Depreciation Expense	Accumulated Depreciation	Book Value
2020	$12,000	20%		$2,400	$ 2,400	$10,600*
2021	12,000	20		2,400	4,800	8,200
2022	12,000	20		2,400	7,200	5,800
2023	12,000	20		2,400	9,600	3,400
2024	12,000	20		2,400	12,000	1,000

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

Note 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, 2020, the company would own the truck for nine months of the first year (April–December). Thus, depreciation for 2020 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.

ILLUSTRATION 10.8 **Use of depreciation methods in large U.S. companies**

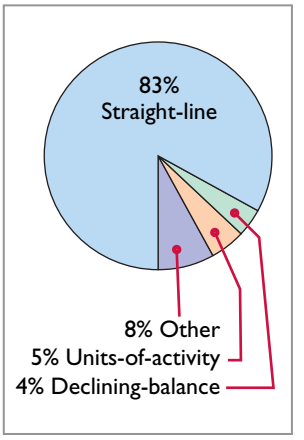
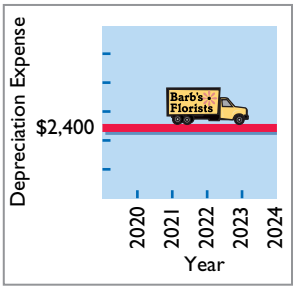


ILLUSTRATION 10.10 **Straight-line depreciation schedule**



DO IT! 2a | Straight-Line Depreciation

On January 1, 2020, 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, 2020, if it uses the straight-line method of depreciation?

ACTION PLAN

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

Solution

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

The entry to record the first year's depreciation would be:

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

Related exercise material: **BE10.4, BE10.5, and DO IT! 10.2a.**

Units-of-Activity Method

ALTERNATIVE TERMINOLOGY

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

HELPFUL HINT

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

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 (see **Alternative Terminology**). 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 depreciable cost per unit. The depreciable cost per unit is then applied to the units of activity during the year to determine the annual depreciation expense (see **Helpful Hint**).

To illustrate, assume that Barb's Florists drives its delivery truck 15,000 miles in the first year. **Illustration 10.11** shows the units-of-activity formula and the computation of the first year's depreciation expense.

ILLUSTRATION 10.11

Formula for units-of-activity method

Depreciable Cost	÷	Total Units of Activity	=	Depreciable Cost per Unit
$12,000	÷	100,000 miles	=	$0.12

Depreciable Cost per Unit	×	Units of Activity during the Year	=	Annual Depreciation Expense
$0.12	×	15,000 miles	=	$1,800

Illustration 10.12 presents the units-of-activity depreciation schedule, using assumed mileage.

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.

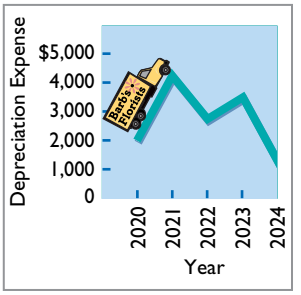
The units-of-activity method is not nearly as popular as the straight-line method (see Illustration 10.8) primarily because it is often difficult for companies to reasonably estimate total activity. However, some very large companies, such as **Chevron** and **Boise Cascade** (a forestry company),

Barb's Florists

Year	Computation: Units of Activity	×	Computation: Depreciable Cost/Unit	=	Annual Depreciation Expense	End of Year: Accumulated Depreciation	End of Year: Book Value
2020	15,000		$0.12		**$1,800**	$ 1,800	$11,200*
2021	30,000		0.12		**3,600**	5,400	7,600
2022	20,000		0.12		**2,400**	7,800	5,200
2023	25,000		0.12		**3,000**	10,800	2,200
2024	10,000		0.12		**1,200**	12,000	**1,000**

*($13,000 – $1,800).

ILLUSTRATION 10.12
Units-of-activity depreciation schedule



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 Method

The **declining-balance method** produces a decreasing annual depreciation expense over the asset's useful life. The method is so named because the periodic depreciation is based on a **declining book value** (cost less accumulated depreciation) of the asset. 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 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 in computing annual depreciation expense. 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 10.13** shows the declining-balance formula and the computation of the first year's depreciation on the delivery truck.

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

ILLUSTRATION 10.13
Formula for declining-balance method

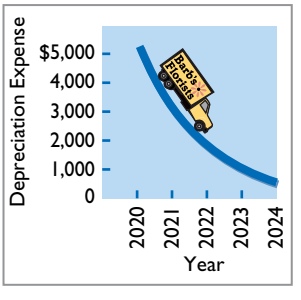
Illustration 10.14 shows the depreciation schedule under this method.

Barb's Florists

Year	Computation: Book Value Beginning of Year	×	Computation: Depreciation Rate	=	Annual Depreciation Expense	End of Year: Accumulated Depreciation	End of Year: Book Value
2020	$13,000		40%		**$5,200**	$ 5,200	$7,800
2021	7,800		40		**3,120**	8,320	4,680
2022	4,680		40		**1,872**	10,192	2,808
2023	2,808		40		**1,123**	11,315	1,685
2024	1,685		40		**685***	12,000	**1,000**

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

ILLUSTRATION 10.14
Double-declining-balance depreciation schedule



HELPFUL HINT

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

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 (see **Helpful Hint**).

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, 2020, depreciation for 2020 would become $3,900 ($13,000 × 40% × 9/12). The book value at the beginning of 2021 is then $9,100 ($13,000 − $3,900), and the 2021 depreciation is $3,640 ($9,100 × 40%). Subsequent computations would follow from those amounts.

Comparison of Methods

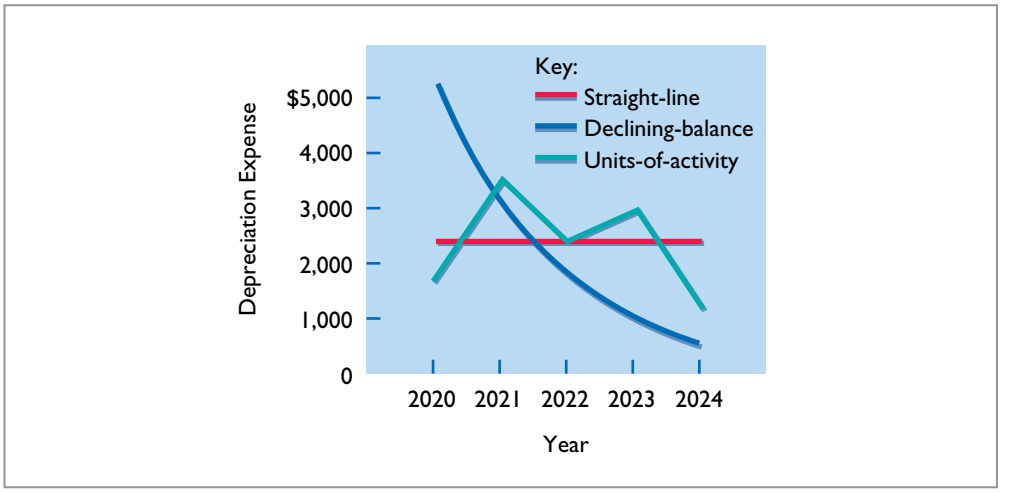
Illustration 10.15 compares annual and total depreciation expense under each of the three methods for Barb's Florists.

ILLUSTRATION 10.15
Comparison of depreciation methods

Year	Straight-Line	Units-of-Activity	Declining-Balance
2020	$ 2,400	$ 1,800	$ 5,200
2021	2,400	3,600	3,120
2022	2,400	2,400	1,872
2023	2,400	3,000	1,123
2024	2,400	1,200	685
	$12,000	$12,000	$12,000

Annual depreciation varies considerably among the methods, but **total depreciation expense is the same ($12,000) 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 10.16** graphs the depreciation expense pattern under each method.

ILLUSTRATION 10.16
Patterns of depreciation



Depreciation and Income Taxes

The Internal Revenue Service (IRS) allows taxpayers to deduct depreciation expense when they compute taxable income. However, the IRS does not require taxpayers 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 (see **Helpful Hint**).

HELPFUL HINT

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

To illustrate, assume that Barb's Florists decides on January 1, 2023, to extend the useful life of the truck one year (a total life of six years) and increase its salvage value to $2,200. The company has used the straight-line method to depreciate the asset to date. Depreciation per year was $2,400 [($13,000 − $1,000) ÷ 5]. Accumulated depreciation after three years (2020–2022) is $7,200 ($2,400 × 3), and book value is $5,800 ($13,000 − $7,200). The new annual depreciation is $1,200, computed as shown in **Illustration 10.17**.

ILLUSTRATION 10.17
Revised depreciation computation

Book value, 1/1/23	$ 5,800	
Less: Salvage value	2,200	
Depreciable cost	$ 3,600	
Remaining useful life	3 years	(2023–2025)
Revised annual depreciation ($3,600 ÷ 3)	**$ 1,200**	

Barb's Florists makes no entry for the change in estimate. On December 31, 2023, during the preparation of adjusting entries, it records depreciation expense of $1,200. Companies must describe in the financial statements significant changes in estimates.

Impairments

As noted earlier, the book value of plant assets is rarely the same as the fair value. In instances where the value of a plant asset declines substantially, its fair value might fall materially below book value. This may happen because a machine has become obsolete, or the market for the product made by the machine has dried up or has become very competitive. A **permanent decline** in the fair value of an asset is referred to as an **impairment**. So as not to overstate the asset on the books, the company records a write-down, whereby the asset's cost is reduced to its new fair value during the year in which the decline in value occurs. Recently, **Disney** recorded a $200 million write-down on its action movie *John Carter*. Disney spent more than $300 million producing the film.

DO IT! 2b | Revised Depreciation

Chambers Corporation purchased a piece of equipment for $36,000. It estimated a 6-year life and $6,000 salvage value. Thus, straight-line depreciation was $5,000 per year [($36,000 − $6,000) ÷ 6]. At the end of year three (before the depreciation adjustment), it estimated the new total life to be 10 years and the new salvage value to be $2,000. Compute the revised depreciation.

ACTION PLAN

- Calculate depreciable cost.
- Divide depreciable cost by new remaining life.

Solution

Original depreciation expense = [($36,000 − $6,000) ÷ 6] = $5,000
Accumulated depreciation after 2 years = 2 × $5,000 = $10,000
Book value = $36,000 − $10,000 = $26,000

Book value after 2 years of depreciation	$26,000
Less: New salvage value	2,000
Depreciable cost	$24,000
Remaining useful life	8 years
Revised annual depreciation ($24,000 ÷ 8)	$ 3,000

Related exercise material: **BE10.8, DO IT! 10.2b, and E10.8.**

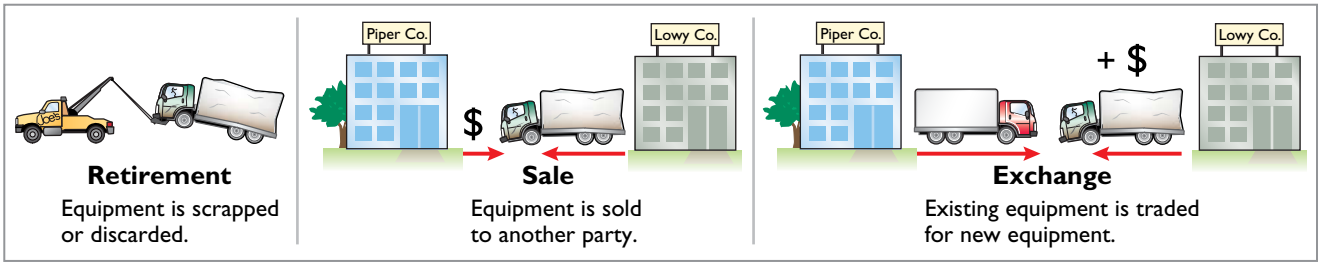
Plant Asset Disposals

LEARNING OBJECTIVE 3

Explain how to account for the disposal of plant assets.

Companies dispose of plant assets that are no longer useful to them. Illustration 10.18 shows the three ways in which companies make plant asset disposals.

ILLUSTRATION 10.18 Methods of plant asset disposal



HELPFUL HINT

When disposing of a plant asset, a company removes from the accounts all amounts related to the asset. This includes the original cost and the total depreciation to date in the accumulated depreciation account.

Whatever the disposal method, the company must determine the book value of the plant asset at the disposal date to determine the gain or loss. Recall that the book value is the difference between the cost of the plant asset and the accumulated depreciation to date. If the disposal does not occur on the first day of the year, the company must record depreciation for the fraction of the year to the date of disposal. The company then eliminates the book value by reducing (debiting) Accumulated Depreciation for the total depreciation associated with that asset to the date of disposal and reducing (crediting) the asset account for the cost of the asset (see Helpful Hint).

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 Company 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.

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

A	=	L	+	OE
+32,000				
−32,000				

Cash Flows
no effect

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.

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

A	=	L	+	OE
+14,000				
				−4,000 Exp
−18,000				

Cash Flows
no effect

Companies report a loss on disposal of plant assets 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 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 million gain on the sale of five **Boeing** B727-200 aircraft and five **Lockheed** L-1011-1 aircraft.

Gain on Sale

To illustrate a gain on sale of plant assets, assume that on July 1, 2020, Wright Company sells office furniture for $16,000 cash. The office furniture originally cost $60,000. As of January 1, 2020, it had accumulated depreciation of $41,000. Depreciation for the first six months of 2020 is $8,000. Wright records depreciation expense and updates accumulated depreciation to July 1 with the following entry.

July 1	Depreciation Expense		8,000	
	Accumulated Depreciation—Equipment			8,000
	(To record depreciation expense for the first 6 months of 2020)			

A	=	L	+	OE
				–8,000 Exp
–8,000				

Cash Flows
no effect

After the accumulated depreciation balance is updated, the company computes the gain or loss. The gain or loss is the difference between the proceeds from the sale and the book value at the date of disposal. **Illustration 10.19** shows this computation for Wright Company, which has a gain on disposal of $5,000.

ILLUSTRATION 10.19
Computation of gain on disposal

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

Wright records the sale and the gain on disposal of the plant asset as follows.

A = L + OE
+16,000
+49,000
−60,000
+5,000 Rev

Cash Flows
+16,000

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

Companies report a gain on disposal of plant assets in the "Other revenues and gains" section of the income statement.

Loss on Sale

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 shown in **Illustration 10.20**.

ILLUSTRATION 10.20
Computation of loss on disposal

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

Wright records the sale and the loss on disposal of the plant asset as follows.

A = L + OE
+ 9,000
+49,000
−2,000 Exp
−60,000

Cash Flows
+9,000

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

Companies report a loss on disposal of plant assets in the "Other expenses and losses" section of the income statement.

DO IT! 3 | Plant Asset Disposal

Overland Trucking has decided to sell an old truck that cost $30,000 and which has accumulated depreciation of $16,000. (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?

ACTION PLAN

- At the time of disposal, determine the book value of the asset.
- Compare the asset's book value with the proceeds received to determine whether a gain or loss has occurred.

Solution

a. Sale of truck for cash at a gain:

Cash	17,000	
Accumulated Depreciation—Equipment	16,000	
Equipment		30,000
Gain on Disposal of Plant Assets		
[$17,000 – ($30,000 – $16,000)]		3,000
(To record sale of truck at a gain)		

b. Sale of truck for cash at a loss:

Cash	10,000	
Accumulated Depreciation—Equipment	16,000	
Loss on Disposal of Plant Assets		
[$10,000 – ($30,000 – $16,000)]	4,000	
Equipment		30,000
(To record sale of truck at a loss)		

Related exercise material: **BE10.9, BE10.10, DO IT! 10.3, E10.9, and E10.10.**

Natural Resources and Intangible Assets

LEARNING OBJECTIVE 4

Describe how to account for natural resources and intangible assets.

Natural Resources

Natural resources consist of standing timber and underground deposits of oil, gas, and minerals (see **Helpful Hint**). These long-lived productive assets have two distinguishing characteristics: (1) they are physically extracted in operations (such as mining, cutting, or pumping), and (2) they are replaceable only by an act of nature.

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.

HELPFUL HINT

On a balance sheet, natural resources may be described more specifically as *timberlands*, *mineral deposits*, *oil reserves*, and so on.

Depletion

The allocation of the cost of natural resources 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. To compute depletion, the cost per unit is then multiplied by the number of units extracted.

To illustrate, assume that Lane Coal Company invests $5 million in a mine estimated to have 1 million tons of coal and no salvage value. **Illustration 10.21** shows the computation of the depletion cost per unit.

ILLUSTRATION 10.21
Computation of depletion cost per unit

Total Cost − Salvage Value / Total Estimated Units Available	=	Depletion Cost per Unit
$5,000,000 / 1,000,000	=	$5.00 per ton

If Lane extracts 250,000 tons in the first year, then the depletion for the year is $1,250,000 (250,000 tons × $5). It records the depletion as follows.

Inventory (coal)	1,250,000	
Accumulated Depletion		1,250,000
(To record depletion of coal mine)		

A = L + OE
+1,250,000
−1,250,000

Cash Flows
no effect

Lane debits Inventory for the total depletion for the year and credits Accumulated Depletion to reduce the carrying value of the natural resource. Accumulated Depletion is a contra asset similar to Accumulated Depreciation. Lane credits Inventory when it sells the inventory and debits Cost of Goods Sold. The amount not sold remains in inventory and is reported in the current assets section of the balance sheet (see **Ethics Note**).

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

ETHICS NOTE

Investors were stunned at news that Royal Dutch/Shell Group had significantly overstated its reported oil reserves—and perhaps had done so intentionally.

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, licenses, trademarks, and trade names.
2. Acquisition of another business, in which the purchase price includes a payment for **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

HELPFUL HINT

***Amortization* is to intangibles what *depreciation* is to plant assets and *depletion* is to natural resources.**

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** (see **Helpful Hint**). 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. Alternatively, some companies choose to credit a contra account, such as Accumulated Amortization. *For homework purposes, you should directly credit the specific intangible asset.*

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.

Dec. 31	Amortization Expense	7,500	
	Patents		7,500
	(To record patent amortization)		

A = L + OE
−7,500 Exp
−7,500

Cash Flows
no effect

Companies classify Amortization Expense as an operating expense in the income statement.

There is a difference between intangible assets and plant assets in determining cost. For plant assets, cost includes both the purchase price of the asset and the costs incurred in designing and constructing the asset. In contrast, the initial cost for an intangible asset includes **only the purchase price**. Companies expense any costs incurred in developing an intangible asset.

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 by competitors. 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 Patents 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 small fee paid to the U.S. Copyright Office. Or, it may amount to much more if a copyright is acquired from another party.

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, Monopoly, Big Mac, Kleenex, 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.

Accounting Across the Organization Google

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We Want to Own Glass

Google, which has trademarked the term "Google Glass," now wants to trademark the term "Glass." Why? Because the simple word Glass has marketing advantages over the term Google Glass. It is easy to remember and is more universal. Regulators, however, are balking at Google's request. They say that the possible trademark is too similar to other existing or pending software trademarks that contain the word "glass." Also, regulators suggest that the term Glass is merely descriptive and therefore lacks trademark protection. For example, regulators note that a company that makes salsa could not trademark the term "Spicy Salsa."

BorderStylo LLC, which developed a Web-browser extension called Write on Glass, has filed a notice of opposition to Google's request. Google is fighting back and has sent the trademark examiner a 1,928-page application defense.

Source: Jacob Gershman, "Google Wants to Own 'Glass'," *Wall Street Journal* (April 4, 2014), p. B5.

If Google is successful in registering the term Glass, where will this trademark be reported on its financial statements? (Go to WileyPLUS for this answer and additional questions.)

Franchises

When you fill up your tank at the corner **Shell** station, eat lunch at **Subway**, 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, perform specific services, or use certain trademarks or trade names, usually within a designated geographic area.

Another type of franchise is a **license**. A license granted by a governmental body permits a company to use public property in performing its services. Examples are the use of city streets for a bus line or taxi service, the use of public land for telephone and electric lines, and the use of airwaves for radio or TV broadcasting. In a recent license agreement, **FOX**, **CBS**, and **NBC** agreed to pay $27.9 billion for the right to broadcast **NFL** football games over an eight-year period. Franchises and licenses may be granted for a definite period of time, an indefinite period, or perpetually.

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.

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 that are not attributable to any other specific asset. 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 value of the net assets (assets less liabilities) acquired.**

In recording the purchase of a business, the company debits (increases) the identifiable acquired assets, credits liabilities at their fair values, credits cash for the purchase price, and records the difference as goodwill. **Goodwill is not amortized** because it is considered to have an indefinite life. However, goodwill must be written down if a company determines that its value has been permanently impaired. 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 (see **Helpful Hint**). Many companies spend considerable sums of money on research and development (R&D). For example, in a recent year, **Google** spent over $9.8 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 that resulted in two highly successful patents. It spent $20,000 on legal fees for the patents. The company would add the lawyers' fees to the Patents account. The R&D costs, however, cannot be included in the cost of the patents. 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. Who is right is difficult to determine.

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! 4 | Classification Concepts

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

Copyrights	Depletion
Intangible assets	Franchises
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.
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.

ACTION PLAN

- **Know that the accounting for intangibles often depends on whether the item has a finite or indefinite life.**
- **Recognize the many similarities and differences between the accounting for natural resources, plant assets, and intangible assets.**

Solution

1. Depletion
2. Intangible assets
3. Copyrights
4. Franchises
5. Research and development costs

Related exercise material: **BE10.11, BE10.12, DO IT! 10.4, E10.11, E10.12, and E10.13.**

Statement Presentation and Analysis

LEARNING OBJECTIVE 5

Discuss how plant assets, natural resources, and intangible assets are reported and analyzed.

Presentation

Usually, companies combine plant assets and natural resources under "Property, plant, and equipment" in the balance sheet. They show intangible assets separately. **Illustration 10.22**

shows the assets section from the balance sheet of Artex Company, with emphasis on the reporting of plant assets.

ILLUSTRATION 10.22
Presentation of property, plant, and equipment, and intangible assets

Artex Company
Balance Sheet (partial)
(in thousands)

Current assets			
Cash		$ 430	
Accounts receivable		100	
Inventory		910	
Total current assets			$ 1,440
Property, plant, and equipment			
Gold mine	$ 530		
Less: Accumulated depletion	210	320	
Land		600	
Buildings	7,600		
Less: Accumulated depreciation—buildings	500	7,100	
Equipment	3,870		
Less: Accumulated depreciation—equipment	620	3,250	
Total property, plant, and equipment			11,270
Intangible assets			
Patents		440	
Trademarks		180	
Goodwill		900	1,520
Total assets			$14,230

Companies may disclose in the balance sheet or the notes to the financial statements the major classes of assets such as land, land improvements, 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. *For homework purposes, use the format in Illustration 10.22 for preparing balance sheet information.*

Analysis

Using ratios, we can analyze how efficiently a company uses its assets to generate sales. The **asset turnover** 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. **Illustration 10.23** shows the computation of the asset turnover for **The Procter & Gamble Company**. P&G's net sales for 2015 were $76,279 million. Its total ending assets were $129,495 million, and beginning assets were $144,266 million.

ILLUSTRATION 10.23
Asset turnover formula and computation

Net Sales	÷	Average Total Assets	=	Asset Turnover
$76,279	÷	$\frac{\$144,266 + \$129,495}{2}$	=	.56 times

Thus, each dollar invested in assets produced $0.56 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).

People, Planet, and Profit Insight BHP Billiton

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Sustainability Report Please

Sustainability reports identify how the company is meeting its corporate social responsibilities. Many companies, both large and small, are now issuing these reports. For example, companies such as **Disney**, **Best Buy**, **Microsoft**, **Ford**, and **ConocoPhilips** issue these reports. Presented below is an adapted section of a recent **BHP Billiton** (a global mining, oil, and gas company) sustainability report on its environmental policies. These policies are to (1) take action to address the challenges of climate change, (2) set and achieve targets that reduce pollution, and (3) enhance biodiversity by assessing and considering ecological values and land-use aspects. Here is how BHP Billiton measures the success or failure of some of these policies:

Environment	Commentary	Target Date
We will maintain total greenhouse gas emissions below FY2006 levels.	FY2013 greenhouse gas emissions were lower than the FY2006 baseline.	30 June 2017
All operations to offset impacts to biodiversity and the related benefits derived from ecosystems.	Land and Biodiversity Management Plans were developed at all our operations.	Annual
We will finance the conservation and continuing management of areas of high biodiversity and ecosystem value.	Two projects of international conservation significance were established—the Five Rivers Conservation Project, in Australia, and the Valdivian Coastal Reserve Conservation Project, in Chile.	30 June 2017

In addition to the environment, BHP Billiton has sections in its sustainability report which discuss people, safety, health, and community.

Why do you believe companies issue sustainability reports? (Go to WileyPLUS for this answer and additional questions.)

DO IT! 5 | Asset Turnover

Paramour Company reported net income of $180,000, net sales of $420,000, and had total assets of $460,000 on January 1, 2020, and total assets on December 31, 2020, of $540,000 billion. Determine Paramour's asset turnover for 2020.

ACTION PLAN

- **Recognize that the asset turnover analyzes the productivity of a company's assets.**
- **Know the formula: Net sales ÷ Average total assets = Asset turnover.**

Solution

The asset turnover for Paramour Company is computed as follows.

Net Sales ÷ Average Total Assets = Asset Turnover

$$\$420{,}000 \div \frac{\$460{,}000 + \$540{,}000}{2} = .84 \text{ times}$$

Related Exercise material: **BE10.14, DO IT! 10.5, and E10.14.**

Appendix 10A Exchange of Plant Assets

LEARNING OBJECTIVE *6

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.

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 secondhand market, indicates that the used trucks have a fair 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 shown in **Illustration 10A.1**.

ILLUSTRATION 10A.1
Cost of semi-truck

Fair value of used trucks	$26,000
Cash paid	17,000
Cost of semi-truck	$43,000

Roland incurs a loss on disposal of plant assets of $16,000 on this exchange. The reason is that the book value of the used trucks is greater than the fair value of these trucks. **Illustration 10A.2** shows the computation.

ILLUSTRATION 10A.2
Computation of loss on disposal

Book value of used trucks ($64,000 – $22,000)	$42,000
Fair value of used trucks	26,000
Loss on disposal of plant assets	**$16,000**

In recording an exchange at a loss, four steps are required: (1) eliminate the book value of the asset given up, (2) record the cost of the asset acquired, (3) recognize the loss on disposal of plant assets, and (4) record cash paid or received. Roland Company thus records the exchange on the loss as follows.

A = L + OE
+43,000
+22,000
–16,000 Exp
–64,000
–17,000

Cash Flows
–17,000

Equipment (new)	43,000	
Accumulated Depreciation—Equipment	22,000	
Loss on Disposal of Plant Assets	16,000	
Equipment (old)		64,000
Cash		17,000
(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 value of the old delivery equipment is $19,000.

The cost of the new asset is the fair 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 shown in **Illustration 10A.3**.

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

ILLUSTRATION 10A.3
Cost of new delivery equipment

A gain results when the fair value of the old delivery equipment is greater than its book value. For Mark Express, there is a gain of $7,000 on disposal of plant assets, computed as shown in **Illustration 10A.4**.

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

ILLUSTRATION 10A.4
Computation of gain on disposal

Mark Express Delivery records the exchange as follows.

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

A	=	L	+	OE
+22,000				
+28,000				
−40,000				
				+7,000 Rev
– 3,000				

Cash Flows
– 3,000

In recording an exchange at a gain, the following four steps are involved: (1) eliminate the book value of the asset given up, (2) record the cost of the asset acquired, (3) recognize the gain on disposal of plant assets, and (4) record cash paid or received. 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.

Review and Practice

Learning Objectives Review

1 Explain the accounting for plant asset expenditures.

The cost of plant assets includes all expenditures necessary to acquire the asset and make it ready for its intended use. Once cost is established, the company uses that amount as the basis of accounting for the plant assets over its useful life.

Companies incur revenue expenditures to maintain the operating efficiency and productive life of an asset. They debit these expenditures to Maintenance and Repairs Expense as incurred. Capital expenditures increase the operating efficiency, productive capacity, or expected useful life of the asset. Companies generally debit these expenditures to the plant asset affected.

2 Apply depreciation methods to plant assets.

Depreciation is the allocation of the cost of a plant asset to expense over its useful (service) life in a rational and systematic manner. Depreciation is not a process of valuation, nor is it a process that results in an accumulation of cash.

Three depreciation methods are:

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

Companies make revisions of periodic depreciation in present and future periods, not retroactively. They determine the new annual depreciation by dividing the depreciable cost at the time of the revision by the remaining useful life.

3 Explain how to account for the disposal of plant assets.

The accounting for disposal of a plant asset through retirement or sale is as follows. (a) Eliminate the book value of the plant asset at the date of disposal. (b) Record cash proceeds, if any. (c) Account for the difference between the book value and the cash proceeds as a gain or loss on disposal (d) Record the cash paid or received.

4 Describe how to account for natural resources and intangible assets.

Companies compute depletion cost per unit by dividing the 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.

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

5 Discuss how plant assets, natural resources, and intangible assets are reported and analyzed.

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 measures the productivity of a company's assets in generating sales.

*6 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.

Glossary Review

Accelerated-depreciation method Depreciation method that produces higher depreciation expense in the early years than in the later years. (p. 10-12).

Additions and improvements Costs incurred to increase the operating efficiency, productive capacity, or useful life of a plant asset. (p. 10-5).

Amortization The allocation of the cost of an intangible asset to expense over its useful life in a systematic and rational manner. (p. 10-18).

Asset turnover A measure of how efficiently a company uses its assets to generate sales; calculated as net sales divided by average total assets. (p. 10-22).

Capital expenditures Expenditures that increase the company's investment in productive facilities. (p. 10-5).

Copyrights Exclusive grant from the federal government that allows the owner to reproduce and sell an artistic or published work. (p. 10-19).

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. 10-11).

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. 10-17).

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. 10-7).

Franchise (license) A contractual arrangement under which the franchisor grants the franchisee the right to sell certain products, perform specific services, or use certain trademarks or trade names, usually within a designated geographic area. (p. 10-20).

Going concern assumption States that the company will continue in operation for the foreseeable future. (p. 10-7).

Goodwill The value of all favorable attributes that relate to a company that is not attributable to any other specific asset. (p. 10-20).

Impairment A permanent decline in the fair value of an asset. (p. 10-13).

Intangible assets Rights, privileges, and competitive advantages that result from the ownership of long-lived assets that do not possess physical substance. (p. 10-18).

Materiality concept If an item would not make a difference in decision-making, a company does not have to follow GAAP in reporting it. (p. 10-5).

Natural resources Assets that consist of standing timber and underground deposits of oil, gas, and minerals. (p. 10-17).

Ordinary repairs Expenditures to maintain the operating efficiency and productive life of the unit. (p. 10-5).

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. 10-19).

Plant assets Tangible resources that are used in the operations of the business and are not intended for sale to customers. (p. 10-2).

Research and development (R&D) costs Expenditures that may lead to patents, copyrights, new processes, or new products. (p. 10-21).

Revenue expenditures Expenditures that are immediately charged against revenues as an expense. (p. 10-5).

Salvage value An estimate of an asset's value at the end of its useful life. (p. 10-8).

Straight-line method Depreciation method in which periodic depreciation is the same for each year of the asset's useful life. (p. 10-9).

Trademark (trade name) A word, phrase, jingle, or symbol that identifies a particular enterprise or product. (p. 10-19).

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. 10-10).

Useful life An estimate of the expected productive life, also called service life, of an asset. (p. 10-8).

Practice Multiple-Choice Questions

1. **(LO 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. **c.** $25,400.
b. $25,200. **d.** $25,800.

2. **(LO 1)** Additions to plant assets are:

a. revenue expenditures.
b. debited to the Maintenance and Repairs Expense account.
c. debited to the Purchases account.
d. capital expenditures.

3. **(LO 2)** Depreciation is a process of:

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

4. **(LO 2)** Micah Bartlett Company purchased equipment on January 1, 2019, 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, 2020, if the straight-line method of depreciation is used, is:

a. $80,000. **c.** $78,000.
b. $160,000. **d.** $156,000.

5. **(LO 2)** Ann Torbert purchased a truck for $11,000 on January 1, 2019. 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, 2020, can be computed by the following formula:

a. ($11,000 ÷ Total estimated activity) × Units of activity for 2020.
b. ($10,000 ÷ Total estimated activity) × Units of activity for 2020.
c. ($11,000 ÷ Total estimated activity) × Units of activity for 2019 and 2020.
d. ($10,000 ÷ Total estimated activity) × Units of activity for 2019 and 2020.

6. **(LO 2)** Jefferson Company purchased a piece of equipment on January 1, 2020. The equipment cost $60,000 and has an estimated life of 8 years and a salvage value of $8,000. What was the depreciation expense for the asset for 2021 under the double-declining-balance method?

a. $6,500. **c.** $15,000.
b. $11,250. **d.** $6,562.

7. **(LO 2)** 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.

8. **(LO 2)** Able Towing Company purchased a tow truck for $60,000 on January 1, 2018. It was originally depreciated on a straight-line basis over 10 years with an assumed salvage value of $12,000. On December 31, 2020, before adjusting entries had been made, the company decided to change the remaining estimated life to 4 years (including 2020) and the salvage value to $2,000. What was the depreciation expense for 2020?

a. $6,000. **c.** $15,000.
b. $4,800. **d.** $12,100.

9. **(LO 3)** Bennie Razor Company has decided to sell one of its old manufacturing machines on June 30, 2020. The machine was purchased for $80,000 on January 1, 2016, 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. **c.** $22,000.
b. $54,000. **d.** $46,000.

10. **(LO 4)** 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 in the first year, the entry to record depletion will include a:

a. debit to Accumulated Depletion of $2,000,000.
b. credit to Depletion Expense of $1,200,000.
c. debit to Inventory of $1,200,000.
d. credit to Accumulated Depletion of $2,000,000.

11. **(LO 4)** 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. **(LO 4)** Martha Beyerlein Company incurred $150,000 of research and development costs in its laboratory to develop a patent granted on January 2, 2020. On July 31, 2020, Beyerlein paid $35,000 for legal fees in a successful defense of the patent. The total amount debited to Patents through July 31, 2020, should be:

a. $150,000. **c.** $185,000.
b. $35,000. **d.** $170,000.

13. **(LO 5)** 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. **(LO 5)** 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?

a. 0.90. **c.** 0.72.

b. 0.20. **d.** 1.39.

***15.** **(LO 6)** Schopenhauer Company exchanged an old machine, with a book value of $39,000 and a fair 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. **c.** $49,000.

b. $46,000. **d.** $50,000.

***16.** **(LO 6)** 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.

Solutions

1. d. All of the costs ($1,200 + $200 + $400) in addition to the cash price ($24,000) should be included in the cost of the equipment because they were necessary expenditures to acquire the asset and make it ready for its intended use. The other choices are therefore incorrect.

2. d. When an addition is made to plant assets, it is intended to increase productive capacity, increase the assets' useful life, or increase the efficiency of the assets. This is called a capital expenditure. The other choices are incorrect because (a) additions to plant assets are not revenue expenditures because the additions will have a long-term useful life whereas revenue expenditures are minor repairs and maintenance that do not prolong the life of the assets; (b) additions to plant assets are debited to Plant Assets, not Maintenance and Repairs Expense, because the Maintenance and Repairs Expense account is used to record expenditures not intended to increase the life of the assets; and (c) additions to plant assets are debited to Plant Assets, not Purchases, because the Purchases account is used to record assets intended for resale (inventory).

3. b. Depreciation is a process of allocating the cost of an asset over its useful life, not a process of (a) valuation, (c) cash accumulation, or (d) appraisal.

4. d. Accumulated depreciation will be the sum of 2 years of depreciation expense. Annual depreciation for this asset is ($400,000 − $10,000)/5 = $78,000. The sum of 2 years' depreciation is therefore $156,000 ($78,000 + $78,000), not (a) $80,000, (b) $160,000, or (c) $78,000.

5. d. The units-of-activity method takes salvage value into consideration; therefore, the depreciable cost is $10,000. This amount is divided by total estimated activity. The resulting number is multiplied by the units of activity used in 2019 and 2020 to compute the accumulated depreciation at the end of 2020, the second year of the asset's use. The other choices are therefore incorrect.

6. b. For the double-declining method, the depreciation rate would be 25% or (1/8 × 2). For 2020, annual depreciation expense is $15,000 ($60,000 book value × 25%); for 2021, annual depreciation expense is $11,250 [($60,000 − $15,000) × 25%], not (a) $6,500, (c) $15,000, or (d) $6,562.

7. b. When there is a change in estimated depreciation, the current and future years' depreciation computation should reflect the new estimates. The other choices are incorrect because (a) previous years' depreciation should not be adjusted when new estimates are made for depreciation, and (c) when there is a change in estimated depreciation, the current and future years' depreciation computation should reflect the new estimates. Choice (d) is wrong because there is a correct answer.

8. d. First, calculate accumulated depreciation from January 1, 2018, through December 31, 2019, which is $9,600 {[($60,000 − $12,000)/10 years] × 2 years}. Next, calculate the revised depreciable cost, which is $48,400 ($60,000 − $9,600 − $2,000). Thus, the depreciation expense for 2020 is $12,100 ($48,400/4), not (a) $6,000, (b) $4,800, or (c) $15,000.

9. a. First, the book value needs to be determined. The accumulated depreciation as of June 30, 2020, is $36,000 [($80,000/10) × 4.5 years]. Thus, the cost of the machine less accumulated depreciation equals $44,000 ($80,000 − $36,000). The loss recorded at the time of sale is $18,000 ($26,000 − $44,000), not (b) $54,000, (c) $22,000, or (d) $46,000.

10. c. The amount of depletion is determined by computing the depletion per unit ($12 million/20 million tons = $0.60 per ton) and then multiplying that amount times the number of units extracted during the year (2 million tons × $0.60 = $1,200,000). This amount is debited to Inventory and credited to Accumulated Depletion. The other choices are therefore incorrect.

11. d. Research and development (R&D) costs are expensed when incurred, regardless of whether the research and development expenditures result in a successful patent or not. The other choices are true statements.

12. b. Because the $150,000 was spent developing the patent rather than buying it from another firm, it is debited to Research and Development Expense. Only the $35,000 spent on the successful defense can be debited to Patents, not (a) $150,000, (c) $185,000, or (d) $170,000.

13. c. Reporting only totals of major classes of assets in the balance sheet is appropriate. Additional details can be shown in the notes to the financial statements. The other choices are false statements.

14. c. Asset turnover = Net sales ($180,000)/Average total assets [($200,000 + $300,000)/2] = 0.72 times, not (a) 0.90, (b) 0.20, or (d) 1.39 times.

***15. a.** When an exchange has commercial substance, the debit to the new asset is equal to the fair value of the old asset plus the cash paid ($35,000 + $10,000 = $45,000), not (b) $46,000, (c) $49,000, or (d) $50,000.

***16. d.** Both gains and losses are recognized immediately when an exchange of assets has commercial substance. The other choices are therefore incorrect.

Practice Brief Exercises

1. (LO 2) Fulmer Company acquires a delivery truck at a cost of $50,000. The truck is expected to have a salvage value of $5,000 at the end of its 5-year useful life. Compute annual depreciation expense for the first and second years using (a) the straight-line method and (b) double-declining balance.

Compute straight-line and declining-balance depreciation.

Solution

1. a. Depreciable cost of $45,000, ($50,000 − $5,000). With a 5-year useful life, annual depreciation is $9,000, ($45,000 ÷ 5). Under the straight-line method, depreciation is the same each year. Thus, depreciation is $9,000 for both the first and second years.

b. The declining-balance rate is 40% (20% × 2), which is applied to book value at the beginning of the year. The computations are:

	Book Value	×	Rate	=	Depreciation
Year 1	$50,000		40%		$20,000
Year 2	($50,000 − $20,000)		40%		$12,000

2. (LO 3) Giolito Company sells equipment on August 31, 2020, for $20,000 cash. The equipment originally cost $60,000 and as of January 1, 2020, had accumulated depreciation of $38,000. Depreciation for the first 8 months of 2020 is $6,000. Prepare the journal entries to (a) update depreciation to August 31, 2020 and (b) record the sale of the equipment.

Prepare entries for disposal by sale.

Solution

2. a. Depreciation Expense	6,000	
Accumulated Depreciation—Equipment		6,000
b. Cash	20,000	
Accumulated Depreciation—Equipment	44,000	
Equipment		60,000
Gain on Disposal of Plant Assets		4,000

Cost of equipment	$60,000
Less: Accumulated depreciation	44,000*
Book value at date of disposal	16,000
Proceeds from sale	20,000
Gain on disposal	$ 4,000

*$38,000 + $6,000

3. (LO 4) **Financial Statement** Lucas Company acquires a limited-life franchise for $200,000 on January 2, 2020. Its estimated useful life is 10 years. (a) Prepare the journal entry to record amortization expense for the first year. (b) Show how this franchise is reported on the balance sheet at the end of the first year.

Prepare amortization expense entry and balance sheet presentation for intangibles.

Solution

3. a. Amortization Expense ($200,000 ÷ 10)	20,000	
Franchises		20,000
b. Intangible assets		
Franchises		$180,000

Practice Exercises

1. (LO 2) Numo Company purchased a new machine on October 1, 2020, at a cost of $145,000. The company estimated that the machine will have a salvage value of $25,000.The machine is expected to be used for 20,000 working hours during its 5-year life.

Determine depreciation for partial periods

Instructions

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

a. Straight-line for 2020.

b. Units-of-activity for 2020, assuming machine usage was 3,400 hours.

c. Declining-balance using double the straight-line rate for 2020 and 2021.

Solution

1. a. Straight-line method:

$$\left(\frac{\$145{,}000 - \$25{,}000}{5}\right) = \$24{,}000 \text{ per year}$$

2020 depreciation = $24,000 × 3/12 = $6,000

b. Units-of-activity method:

$$\left(\frac{\$145{,}000 - \$25{,}000}{20{,}000}\right) = \$6.00 \text{ per hour}$$

2020 depreciation = 3,400 hours × $6.00 = $20,400

c. Declining-balance method:

2020 depreciation = $145,000 × 40% × 3/12 = $14,500

Book value January 1, 2021 = $145,000 − $14,500 = $130,500

2021 depreciation = $130,500 × 40% = $52,200

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

2. (LO 4) Henning Company, organized in 2020, has the following transactions related to intangible assets.

1/2/20	Purchased patent (7-year life)	$840,000
4/1/20	Goodwill purchased (indefinite life)	450,000
7/1/20	10-year franchise: expiration date 7/1/2030	330,000
9/1/20	Research and development costs	210,000

Instructions

Prepare the necessary entries to record these intangibles. All costs incurred were for cash. Make the adjusting entries as of December 31, 2020, recording any necessary amortization and reflecting all balances accurately as of that date.

Solution

2.

1/2/20	Patents	840,000	
	Cash		840,000
4/1/20	Goodwill	450,000	
	Cash		450,000
	(Part of the entry to record purchase of another company)		
7/1/20	Franchises	330,000	
	Cash		330,000
9/1/20	Research and Development Expense	210,000	
	Cash		210,000
12/31/20	Amortization Expense		
	($840,000 ÷ 7) + [($330,000 ÷ 10) × 1/2]	136,500	
	Patents		120,000
	Franchises		16,500

Ending balances, 12/31/20:

Patents = $720,000 ($840,000 − $120,000)

Goodwill = $450,000

Franchises = $313,500 ($330,000 − $16,500)

R&D expense = $210,000

Practice Problems

1. (LO 2) DuPage Company purchases a factory machine at a cost of $18,000 on January 1, 2020. 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 2020, 40,000; 2021, 60,000; 2022, 35,000; and 2023, 25,000.

Compute depreciation under different methods.

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

1. a.

Straight-Line Method

	Computation				Annual	End of Year	
Year	Depreciable Cost*	×	Depreciation Rate	=	Depreciation Expense	Accumulated Depreciation	Book Value
2020	$16,000		25%		$4,000	$ 4,000	$14,000**
2021	16,000		25%		4,000	8,000	10,000
2022	16,000		25%		4,000	12,000	6,000
2023	16,000		25%		4,000	16,000	2,000

*$18,000 − $2,000.
**$18,000 − $4,000.

b.

Units-of-Activity Method

	Computation				Annual	End of Year	
Year	Units of Activity	×	Depreciable Cost/Unit	=	Depreciation Expense	Accumulated Depreciation	Book Value
2020	40,000		$0.10*		$4,000	$ 4,000	$14,000
2021	60,000		0.10		6,000	10,000	8,000
2022	35,000		0.10		3,500	13,500	4,500
2023	25,000		0.10		2,500	16,000	2,000

*($18,000 − $2,000) ÷ 160,000.

c.

Declining-Balance Method

	Computation				Annual	End of Year	
Year	Book Value Beginning of Year	×	Depreciation Rate*	=	Depreciation Expense	Accumulated Depreciation	Book Value
2020	$18,000		50%		$9,000	$ 9,000	$9,000
2021	9,000		50%		4,500	13,500	4,500
2022	4,500		50%		2,250	15,750	2,250
2023	2,250		50%		250**	16,000	2,000

*¼ × 2.
**Adjusted to $250 because ending book value should not be less than expected salvage value.

2. (LO 3) On January 1, 2020, 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.

Record disposal of plant asset.

Instructions

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

a. Retired and scrapped on January 1, 2024.

b. Sold for $5,000 on July 1, 2023.

Solution

2. a.	1/1/24	Accumulated Depreciation—Equipment	24,000	
		Loss on Disposal of Plant Assets	4,000	
		Equipment		28,000
		(To record retirement of limousine)		
b.	7/1/23	Depreciation Expense*	3,000	
		Accumulated Depreciation—Equipment		3,000
		(To record depreciation to date of disposal)		
		Cash	5,000	
		Accumulated Depreciation—Equipment**	21,000	
		Loss on Disposal of Plant Assets	2,000	
		Equipment		28,000
		(To record sale of limousine)		

*[($28,000 − $4,000) ÷ 4] × $\frac{1}{2}$.

**[($28,000 − $4,000) ÷ 4] × 3 = $18,000; $18,000 + $3,000.

WileyPLUS

Brief Exercises, DO IT! Exercises, Exercises, Problems, and many additional resources are available for practice in WileyPLUS.

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

Questions

1. Sid Watney is uncertain about the applicability of the historical cost principle to plant assets. Explain the principle to Sid.

2. What are some examples of land improvements?

3. Lynn Company acquires the land and building owned by Noble Company. What types of costs may be incurred to make the asset ready for its intended use if Lynn Company wants to use (a) only the land, and (b) both the land and the building?

4. In a recent newspaper release, the president of Downs Company asserted that something has to be done about depreciation. The president said, "Depreciation does not come close to accumulating the cash needed to replace the asset at the end of its useful life." What is your response to the president?

5. Andrew is studying for the next accounting examination. He asks your help on two questions: (a) What is salvage value? (b) Is salvage value used in determining periodic depreciation under each depreciation method? Answer Andrew's questions.

6. Contrast the straight-line method and the units-of-activity method as to (a) useful life, and (b) the pattern of periodic depreciation over useful life.

7. Contrast the effects of the three depreciation methods on annual depreciation expense.

8. In the fourth year of an asset's 5-year useful life, the company decides that the asset will have a 6-year service life. How should the revision of depreciation be recorded? Why?

9. Distinguish between revenue expenditures and capital expenditures during useful life.

10. How is a gain or loss on the sale of a plant asset computed?

11. Romero Corporation owns a machine that is fully depreciated but is still being used. How should Romero account for this asset and report it in the financial statements?

12. What are natural resources, and what are their distinguishing characteristics?

13. Explain the concept of depletion and how it is computed.

14. What are the similarities and differences between the terms depreciation, depletion, and amortization?

15. Rowand Company hires an accounting intern who says that intangible assets should always be amortized over their legal lives. Is the intern correct? Explain.

16. Goodwill has been defined as the value of all favorable attributes that relate to a business. What types of attributes could result in goodwill?

17. Jimmy West, a business major, is working on a case problem for one of his classes. In the case problem, the company needs to raise cash to market a new product it developed. Ron Thayer, an engineering major, takes one look at the company's balance sheet and says, "This company has an awful lot of goodwill. Why don't you recommend that they sell some of it to raise cash?" How should Jimmy respond to Ron?

18. Under what conditions is goodwill recorded?

19. Often, research and development costs provide companies with benefits that last a number of years. (For example, these costs can lead to the development of a patent that will increase the company's income for many years.) However, generally accepted accounting principles require that such costs be recorded as an expense when incurred. Why?

20. McDonald's Corporation reports total average assets of $28.9 billion and net sales of $20.5 billion. What is the company's asset turnover?

21. Stark Corporation and Zuber Corporation operate in the same industry. Stark uses the straight-line method to account for depreciation; Zuber uses an accelerated method. Explain what complications might arise in trying to compare the results of these two companies.

22. Gomez Corporation uses straight-line depreciation for financial reporting purposes but an accelerated method for tax purposes. Is it acceptable to use different methods for the two purposes? What is Gomez's motivation for doing this?

23. You are comparing two companies in the same industry. You have determined that Ace Corp. depreciates its plant assets over a 40-year life, whereas Liu Corp. depreciates its plant assets over a 20-year life. Discuss the implications this has for comparing the results of the two companies.

24. Sosa Company is doing significant work to revitalize its warehouses. It is not sure whether it should capitalize these costs or expense them. What are the implications for current-year net income and future net income of expensing versus capitalizing these costs?

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

***26.** Unruh Refrigeration Company trades in an old machine on a new model when the fair value of the old machine is greater than its book value. The transaction has commercial substance. Should Unruh recognize a gain on disposal of plant assets? If the fair value of the old machine is less than its book value, should Unruh recognize a loss on disposal of plant assets?

Brief Exercises

BE10.1 (LO 1) The following expenditures were incurred by McCoy Company in purchasing land: cash price $50,000, accrued taxes $3,000, attorneys' fees $2,500, real estate broker's commission $2,000, and clearing and grading $3,500. What is the cost of the land?

Determine the cost of land.

BE10.2 (LO 1) Rich Castillo Company incurs the following expenditures in purchasing a truck: cash price $30,000, accident insurance $2,000, sales taxes $2,100, motor vehicle license $100, and painting and lettering $400. What is the cost of the truck?

Determine the cost of a truck.

BE10.3 (LO 1) Flaherty Company had the following two transactions related to its delivery truck.

1. Paid $45 for an oil change.
2. Paid $400 to install special gear unit, which increases the operating efficiency of the truck.

Prepare Flaherty's journal entries to record these two transactions.

Prepare entries for delivery truck costs.

BE10.4 (LO 2) Corales Company acquires a delivery truck at a cost of $38,000. The truck is expected to have a salvage value of $6,000 at the end of its 4-year useful life. Compute annual depreciation expense for the first and second years using the straight-line method.

Compute straight-line depreciation.

BE10.5 (LO 2) Chisenhall Company purchased land and a building on January 1, 2020. Management's best estimate of the value of the land was $100,000 and of the building $200,000. However, 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 15 years with no salvage value. Why do you suppose management requested this accounting treatment? Is it ethical?

Compute depreciation and evaluate treatment.

BE10.6 (LO 2) Depreciation information for Corales Company is given in BE10.4. 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.

Compute declining-balance depreciation.

BE10.7 (LO 2) Rosco 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 $39,500 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.

Compute depreciation using the units-of-activity method.

BE10.8 (LO 2) On January 1, 2020, the Morgantown Company ledger shows Equipment $32,000 and Accumulated Depreciation—Equipment $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.

Compute revised depreciation.

BE10.9 (LO 3) Prepare journal entries to record the following.

a. Sound Tracker Company retires its delivery equipment, which cost $41,000. Accumulated depreciation is also $41,000 on this delivery equipment. No salvage value is received.

Prepare entries for disposal by retirement.

b. Assume the same information as (a), except that accumulated depreciation is $37,000, instead of $41,000, on the delivery equipment.

Prepare entries for disposal by sale.

BE10.10 (LO 3) Gunkelson Company sells equipment on September 30, 2020, for $18,000 cash. The equipment originally cost $72,000 and as of January 1, 2020, had accumulated depreciation of $42,000. Depreciation for the first 9 months of 2020 is $5,250. Prepare the journal entries to (a) update depreciation to September 30, 2020, and (b) record the sale of the equipment.

Prepare depletion entry and balance sheet presentation for natural resources.

BE10.11 (LO 4) **Financial Statement** Franceour 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, 5 million tons of ore are extracted.

a. Prepare the journal entry to record depletion for the first year.

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

Prepare amortization expense entry and balance sheet presentation for intangibles.

BE10.12 (LO 4) **Financial Statement** Campanez Company purchases a patent for $140,000 on January 2, 2020. Its estimated useful life is 10 years.

a. Prepare the journal entry to record amortization expense for the first year.

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

Classify long-lived assets on balance sheet.

BE10.13 (LO 5) **Financial Statement** Information related to plant assets, natural resources, and intangibles at the end of 2020 for Dent Company is as follows: buildings $1,100,000, accumulated depreciation—buildings $600,000, goodwill $410,000, coal mine $500,000, and accumulated depletion—coal mine $108,000. Prepare a partial balance sheet of Dent Company for these items.

Calculate asset turnover.

BE10.14 (LO 5) In a recent annual report, **Target** reported beginning total assets of $44.1 billion, ending total assets of $44.5 billion, and net sales of $63.4 billion. Compute Target's asset turnover.

Prepare entry for disposal by exchange.

*__BE10.15 (LO 6)__ Olathe 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 value is $24,000, and cash of $5,000 is paid. Prepare the entry to record the exchange, assuming the transaction has commercial substance.

Prepare entry for disposal by exchange.

*__BE10.16 (LO 6)__ Assume the same information as BE10.15, except that the fair value of the old delivery equipment is $33,000. Prepare the entry to record the exchange.

DO IT! Exercises

Explain accounting for cost of plant assets.

DO IT! 10.1 (LO 1) Lofton Company purchased a delivery truck. The total cash payment was $27,900, including the following items.

Negotiated purchase price	$24,000
Installation of special shelving	1,100
Painting and lettering	900
Motor vehicle license	100
Annual insurance policy	500
Sales tax	1,300
Total paid	$27,900

Explain how each of these costs would be accounted for.

Calculate depreciation expense and make journal entry.

DO IT! 10.2a (LO 2) On January 1, 2020, Emporia Country Club purchased a new riding mower for $15,000. The mower is expected to have an 8-year life with a $3,000 salvage value. What journal entry would Emporia make at December 31, 2020, if it uses straight-line depreciation?

Calculate revised depreciation

DO IT! 10.2b (LO 2) Pinewood Corporation purchased a piece of equipment for $70,000. It estimated an 8-year life and $2,000 salvage value. At the end of year four (before the depreciation adjustment), it estimated the new total life to be 10 years and the new salvage value to be $6,000. Compute the revised depreciation.

Make journal entries to record plant asset disposal.

DO IT! 10.3 (LO 3) Napoli Manufacturing has old equipment that cost $52,000. The equipment has accumulated depreciation of $28,000. Napoli has decided to sell the equipment.

a. What entry would Napoli make to record the sale of the equipment for $26,000 cash?

b. What entry would Napoli make to record the sale of the equipment for $15,000 cash?

DO IT! 10.4 (LO 4) Match the statement with the term most directly associated with it. *Match intangibles classifications concepts.*

Goodwill	Amortization
Intangible assets	Franchises
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 value of the net assets acquired.

DO IT! 10.5 (LO 5) For 2020, Sale Company reported beginning total assets of $300,000 and ending total assets of $340,000. Its net income for this period was $50,000, and its net sales were $400,000. Compute the company's asset turnover for 2020. *Calculate asset turnover.*

Exercises

E10.1 (LO 1) Writing The following expenditures relating to plant assets were made by Prather Company during the first 2 months of 2020. *Determine cost of plant acquisitions.*

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 historical 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.

E10.2 (LO 1) Benedict Company incurred the following costs. *Determine property, plant, and equipment 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 Benedict would debit each of the costs.

Determine acquisition costs of land.

E10.3 (LO 1) On March 1, 2020, Westmorlan Company acquired real estate on which it planned to construct a small office building. The company paid $75,000 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.

E10.4 (LO 2) Tom Parkey 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 fair 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 as true or false. If false, indicate how to correct the statement.

Compute depreciation under units-of-activity method.

E10.5 (LO 2) Yello Bus Lines uses the units-of-activity method in depreciating its buses. One bus was purchased on January 1, 2020, at a cost of $148,000. 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 depreciable cost per unit.

b. Prepare a depreciation schedule assuming actual mileage was: 2020, 26,000; 2021, 32,000; 2022, 25,000; and 2023, 17,000.

Determine depreciation for partial periods.

E10.6 (LO 2) Rottino Company purchased a new machine on October 1, 2020, at a cost of $150,000. 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 2020.

b. Units-of-activity for 2020, assuming machine usage was 1,700 hours.

c. Declining-balance using double the straight-line rate for 2020 and 2021.

Compute depreciation using different methods.

E10.7 (LO 2) **Financial Statement** Linton Company purchased a delivery truck for $34,000 on January 1, 2020. 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 2020 and 12,000 in 2021.

Instructions

a. Compute depreciation expense for 2020 and 2021 using (1) the straight-line method, (2) the units-of-activity method, and (3) the double-declining-balance method.

b. Assume that Linton uses the straight-line method.

1. Prepare the journal entry to record 2020 depreciation.

2. Show how the truck would be reported in the December 31, 2020, balance sheet.

E10.8 (LO 2) Terry Wade, the new controller of Hellickson Company, has reviewed the expected useful lives and salvage values of selected depreciable assets at the beginning of 2020. His findings are as follows. *Compute revised annual depreciation.*

Type of Asset	Date Acquired	Cost	Accumulated Depreciation 1/1/20	Useful Life in Years		Salvage Value	
				Old	Proposed	Old	Proposed
Building	1/1/14	$800,000	$114,000	40	50	$40,000	$26,000
Warehouse	1/1/15	100,000	19,000	25	20	5,000	6,000

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

Instructions

a. Compute the revised annual depreciation on each asset in 2020. (Show computations.)

b. Prepare the entry (or entries) to record depreciation on the building in 2020.

E10.9 (LO 3) Presented below are selected transactions at Ridge Company for 2020. *Journalize entries for disposal of plant assets.*

Jan. 1 Retired a piece of machinery that was purchased on January 1, 2010. 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, 2017. The computer cost $45,000. 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, 2016. The truck cost $33,000. 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. Ridge Company uses straight-line depreciation. (Assume depreciation is up to date as of December 31, 2019.)

E10.10 (LO 3) Pryce Company owns equipment that cost $65,000 when purchased on January 1, 2017. 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. *Journalize entries for disposal of equipment.*

Instructions

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

a. Sold for $31,000 on January 1, 2020.

b. Sold for $31,000 on May 1, 2020.

c. Sold for $11,000 on January 1, 2020.

d. Sold for $11,000 on October 1, 2020.

E10.11 (LO 4) On July 1, 2020, Friedman Inc. invested $720,000 in a mine estimated to have 900,000 tons of ore of uniform grade. During the last 6 months of 2020, 100,000 tons of ore were mined. *Journalize entries for natural resources depletion.*

Instructions

a. Prepare the journal entry to record depletion.

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?

E10.12 (LO 4) The following are selected 2020 transactions of Pedigo Corporation. *Prepare adjusting entries for amortization.*

Jan. 1 Purchased a small company and recorded goodwill of $150,000. Its useful life is indefinite.

May 1 Purchased for $75,000 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.

E10.13 (LO 4) Gill Company, organized in 2020, has the following transactions related to intangible assets.

1/2/20	Purchased patent (7-year life)	$595,000
4/1/20	Goodwill purchased (indefinite life)	360,000
7/1/20	10-year franchise; expiration date 7/1/2030	480,000
9/1/20	Research and development costs	185,000

Instructions

Prepare the necessary entries to record these intangibles. All costs incurred were for cash. Make the adjusting entries as of December 31, 2020, recording any necessary amortization and reflecting all balances accurately as of that date.

Calculate asset turnover.

E10.14 (LO 5) During 2020, Paola Corporation reported net sales of $3,500,000 and net income of $1,500,000. Its balance sheet reported average total assets of $1,400,000.

Instructions

Calculate the asset turnover.

Journalize entries for exchanges.

***E10.15 (LO 6)** Presented below are two independent transactions. Both transactions have commercial substance.

1. Mercy 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 value of $38,000.
2. Pence 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 value of $11,000), Pence also paid cash of $3,000.

Instructions

a. Prepare the entry to record the exchange of assets by Mercy Co.

b. Prepare the entry to record the exchange of assets by Pence Inc.

Journalize entries for the exchange of plant assets.

***E10.16 (LO 6)** Rizzo's Delivery Company and Overland's Express Delivery exchanged delivery trucks on January 1, 2020. Rizzo's truck cost $22,000. It has accumulated depreciation of $15,000 and a fair value of $3,000. Overland's truck cost $10,000. It has accumulated depreciation of $8,000 and a fair value of $3,000. The transaction has commercial substance.

Instructions

a. Journalize the exchange for Rizzo's Delivery Company.

b. Journalize the exchange for Overland's Express Delivery.

Problems: Set A

Determine acquisition costs of land and building.

P10.1A (LO 1) Venable Company was organized on January 1. During the first year of operations, the following plant asset expenditures and receipts were recorded in random order.

	Debit
1. Cost of filling and grading the land	$ 4,000
2. Full payment to building contractor	690,000
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	25,000
	$930,000

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

Instructions

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

Totals
Land $172,500
Buildings $735,000

Item	Land	Buildings	Other Accounts

P10.2A (LO 2) In recent years, Avery 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 as follows.

Compute depreciation under different methods.

Bus	Acquired	Cost	Salvage Value	Useful Life in Years	Depreciation Method
1	1/1/18	$ 96,000	$ 6,000	5	Straight-line
2	1/1/18	110,000	10,000	4	Declining-balance
3	1/1/19	92,000	8,000	5	Units-of-activity

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 2019, 24,000; 2020, 34,000; and 2021, 30,000.

Instructions

a. Compute the amount of accumulated depreciation on each bus at December 31, 2020.

a. Bus 2, 12/31/19, $82,500

b. If Bus 2 was purchased on April 1 instead of January 1, what is the depreciation expense for this bus in (1) 2018 and (2) 2019?

P10.3A (LO 2) On January 1, 2020, Evers Company purchased the following two machines for use in its production process.

Compute depreciation under different methods.

Machine A: The cash price of this machine was $48,000. 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. Evers estimates that the useful life of the 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 $180,000. Evers 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, 2020.

2. The journal entry to record annual depreciation at December 31, 2020.

b. Calculate the amount of depreciation expense that Evers should record for Machine B each year of its useful life under the following assumptions.

1. Evers uses the straight-line method of depreciation.

2. Evers uses the declining-balance method. The rate used is twice the straight-line rate.

b. (2) 2020 DDB depreciation $90,000

3. Evers uses the units-of-activity method and estimates that the useful life of the machine is 125,000 units. Actual usage is as follows: 2020, 45,000 units; 2021, 35,000 units; 2022, 25,000 units; 2023, 20,000 units.

c. Which method used to calculate depreciation on Machine B reports the highest amount of depreciation expense in year 1 (2020)? The highest amount in year 4 (2023)? The highest total amount over the 4-year period?

P10.4A (LO 2) At the beginning of 2018, Mazzaro Company acquired equipment costing $120,000. It was estimated that this equipment would have a useful life of 6 years and a salvage value of $12,000 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.

Calculate revisions to depreciation expense.

During 2020 (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 salvage value was not changed at that time. However, during 2023 the estimated salvage 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.

Year	Depreciation Expense	Accumulated Depreciation
2018		
2019		
2020		
2021		
2022		
2023		
2024		

2024 depreciation expense $17,900

Journalize a series of equipment transactions related to purchase, sale, retirement, and depreciation.

P10.5A (LO 2, 3, 5) **Financial Statement** At December 31, 2020, Grand Company reported the following as plant assets.

Land		$ 4,000,000
Buildings	$28,500,000	
Less: Accumulated depreciation—buildings	12,100,000	16,400,000
Equipment	48,000,000	
Less: Accumulated depreciation—equipment	5,000,000	43,000,000
Total plant assets		$63,400,000

During 2021, the following selected cash transactions occurred.

April 1 Purchased land for $2,130,000.
May 1 Sold equipment that cost $750,000 when purchased on January 1, 2017. The equipment was sold for $450,000.
June 1 Sold land purchased on June 1, 2011 for $1,500,000. The land cost $400,000.
July 1 Purchased equipment for $2,500,000.
Dec. 31 Retired equipment that cost $500,000 when purchased on December 31, 2011. The company received no proceeds related to salvage.

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. Depreciation Expense—Buildings $570,000; Equipment $4,800,000

b. Record adjusting entries for depreciation for 2021.

c. Total plant assets $61,760,000

c. Prepare the plant assets section of Grand's balance sheet at December 31, 2021.

Record disposals.

P10.6A (LO 3) Ceda Co. has equipment that cost $80,000 and that has been depreciated $50,000.

Instructions

Record the disposal under the following assumptions.

a. It was scrapped as having no value.

b. $9,000 loss

b. It was sold for $21,000.

c. It was sold for $31,000.

Prepare entries to record transactions related to acquisition and amortization of intangibles; prepare the intangible assets section.

P10.7A (LO 4, 5) **Financial Statement** The intangible assets section of Sappelt Company at December 31, 2020, is presented below.

Patents ($70,000 cost less $7,000 amortization)	$63,000
Franchises ($48,000 cost less $19,200 amortization)	28,800
Total	$91,800

The patent was acquired in January 2020 and has a useful life of 10 years. The franchise was acquired in January 2017 and also has a useful life of 10 years. The following cash transactions may have affected intangible assets during 2021.

Jan. 2	Paid $27,000 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 $140,000. The franchise has a useful life of 50 years.

b. Amortization Expense (patents) $10,000
Amortization Expense (franchises) $5,500

c. Total intangible assets $243,300

Instructions

a. Prepare journal entries to record the transactions above.

b. Prepare journal entries to record the 2021 amortization expense.

c Prepare the intangible assets section of the balance sheet at December 31, 2021.

P10.8A (LO 4) Due to rapid turnover in the accounting department, a number of transactions involving intangible assets were improperly recorded by Goins Company in 2020.

Prepare entries to correct errors made in recording and amortizing intangible assets.

1. Goins 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, Goins capitalized $196,000 as the cost of the patents. Patent amortization expense of $19,600 was recorded based on a 10-year useful life.
2. On July 1, 2020, Goins purchased a small company and as a result acquired goodwill of $92,000. Goins recorded a half-year's amortization in 2020, 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 2020. Assume the books have not yet been closed for 2020.

1. R&D Exp. $136,000

P10.9A (LO 5) Writing LaPorta Company and Lott 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.

Calculate and comment on asset turnover.

	LaPorta Co.	Lott Corp.
Net income	$ 800,000	$1,000,000
Sales revenue	1,300,000	1,180,000
Average total assets	2,500,000	2,000,000
Average plant assets	1,800,000	1,000,000

Instructions

a. For each company, calculate the asset turnover.

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.

P10.10A (LO 5) Financial Statement The adjusted trial balance of Feagler Company for the year ended December 31, 2020, is as follows.

Prepare financial statements.

	Debit	Credit
Cash	$ 5,500	
Accounts Receivable	3,100	
Note Receivable (due February 20, 2021)	2,000	
Inventory	6,000	
Timberland	21,000	
Land	14,000	
Equipment	35,400	
Patents	11,000	
Accumulated Depletion		$ 3,900
Allowance for Doubtful Accounts		1,000

	Debit	Credit
Accumulated Depreciation—Equipment		$ 8,300
Notes Payable (due January 15, 2021)		4,600
Accounts Payable		2,300
Owner's Capital		68,500
Sales Revenue		52,000
Interest Revenue		400
Cost of Goods Sold	$ 23,000	
Salaries and Wages Expense	11,400	
Depreciation Expense	2,100	
Amortization Expense	1,600	
Research and Development Expense	1,300	
Bad Debt Expense	500	
License Expense	300	
Interest Expense	800	
Loss on Disposal of Plant Assets	2,000	
Total	$141,000	$141,000

Instructions

Net income $9,400

Prepare a multiple-step income statement and retained earnings statement for 2020, and a classified balance sheet as of December 31, 2020.

Continuing Case

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Cookie Creations

(*Note:* This is a continuation of the Cookie Creations case from Chapters 1 through 9.)

CC10 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 WileyPLUS for complete case details and instructions.

Ethics Case

EC10 Turner Container Company is suffering declining sales of its principal product, nonbiodegradable plastic cartons. The president, Robert Griffin, instructs his controller, Alexis Landrum, to lengthen asset lives to reduce depreciation expense. A processing line of automated plastic extruding equipment, purchased for $3.5 million in January 2020, 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. Robert wants the estimated life changed to 12 years total, and the straight-line method continued. Alexis is hesitant to make the change, believing it is unethical to increase net income in this manner. Robert 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 astute president?

c. What is the effect of Robert Griffin's proposed change on income before taxes in the year of change?

Comprehensive Accounting Cycle Review

ACR10 Hassellhouf Company's trial balance at December 31, 2020, is as follows. All 2020 transactions have been recorded except for the items described following the trial balance.

	Debit	Credit
Cash	$ 28,000	
Accounts Receivable	36,800	
Notes Receivable	10,000	
Interest Receivable	–0–	
Inventory	36,200	
Prepaid Insurance	3,600	
Land	20,000	
Buildings	150,000	
Equipment	60,000	
Patents	9,000	
Allowance for Doubtful Accounts		$ 500
Accumulated Depreciation—Buildings		50,000
Accumulated Depreciation—Equipment		24,000
Accounts Payable		27,300
Salaries and Wages Payable		–0–
Unearned Rent Revenue		6,000
Notes Payable (due in 2021)		11,000
Interest Payable		–0–
Notes Payable (due after 2021)		30,000
Owner's Capital		113,600
Owner's Drawings	12,000	
Sales Revenue		905,000
Interest Revenue		–0–
Rent Revenue		–0–
Gain on Disposal of Plant Assets		–0–
Bad Debt Expense	–0–	
Cost of Goods Sold	630,000	
Depreciation Expense	–0–	
Insurance Expense	–0–	
Interest Expense	–0–	
Other Operating Expenses	61,800	
Amortization Expense	–0–	
Salaries and Wages Expense	110,000	
Total	$1,167,400	$1,167,400

Unrecorded transactions:

1. On May 1, 2020, Hassellhouf purchased equipment for $21,200 plus sales taxes of $1,600 (all paid in cash).
2. On July 1, 2020, Hassellhouf sold for $3,500 equipment which originally cost $5,000. Accumulated depreciation on this equipment at January 1, 2020, was $1,800; 2020 depreciation prior to the sale of the equipment was $450.
3. On December 31, 2020, Hassellhouf sold on account $9,000 of inventory that cost $6,300.
4. Hassellhouf estimates that uncollectible accounts receivable at year-end is $3,500.
5. The note receivable is a one-year, 8% note dated April 1, 2020. No interest has been recorded.
6. The balance in prepaid insurance represents payment of a $3,600 6-month premium on September 1, 2020.
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, 2020, 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, 2020, and has a useful life of 10 years from that date.
11. Unpaid salaries and wages at December 31, 2020, total $5,200.
12. The unearned rent revenue of $6,000 was received on December 1, 2020, for 3 months' rent.
13. Both the short-term and long-term notes payable are dated January 1, 2020, and carry a 9% interest rate. All interest is payable in the next 12 months.

b. Totals $1,205,040
d. Total assets $259,200

Instructions

a. Prepare journal entries for the transactions listed above.

b. Prepare an updated December 31, 2020, trial balance.

c. Prepare a 2020 income statement and an owner's equity statement.

d. Prepare a December 31, 2020, classified balance sheet.

Expand Your Critical Thinking

Financial Reporting Problem: Apple Inc.

CT10.1 The financial statements of **Apple Inc.** are presented in Appendix A. The complete annual report, including the notes to the financial statements, is available at the company's website.

Instructions

Refer to Apple's financial statements and answer the following questions.

a. What was the total cost and book value of property, plant, and equipment at September 26, 2015?

b. What was the amount of depreciation and amortization expense for each of the three years 2013–2015?

c. Using the statement of cash flows, what is the amount of capital spending in 2015 and 2014? (Ignore business acquisitions and intangible assets.)

d. Where does the company disclose its intangible assets, and what types of intangibles did it have at September 26, 2015?

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

CT10.2 **PepsiCo, Inc.**'s financial statements are presented in Appendix B. Financial statements of **The Coca-Cola Company** are presented in Appendix C. The complete annual reports of PepsiCo and Coca-Cola, including the notes to the financial statements, are available at each company's respective website.

Instructions

a. Compute the asset turnover for each company for 2015.

b. What conclusions concerning the efficiency of assets can be drawn from these data?

Comparative Analysis Problem: Amazon.com, Inc. vs. Wal-Mart Stores, Inc.

CT10.3 **Amazon.com, Inc.**'s financial statements are presented in Appendix D. Financial statements of **Wal-Mart Stores, Inc.** are presented in Appendix E. The complete annual reports of Amazon and Wal-Mart, including the notes to the financial statements, are available at each company's respective website.

Instructions

a. Compute the asset turnover for each company using the financial statements in Appendices D and E.

b. What conclusions concerning the efficiency of assets can be drawn from these data?

Real-World Focus

CT10.4 A company's annual report identifies the amount of its plant assets and the depreciation method used.

Instructions

Search the Internet for the annual report of a company of your choice and then answer the following questions.

a. What is the name of the company?

b. What is the Internet address of the annual report?

c. At fiscal year-end, what is the net amount of its plant assets?

d. What is the accumulated depreciation?

e. Which method of depreciation does the company use?

Decision-Making Across the Organization

CT10.5 Pinson Company and Estes Company are two proprietorships that are similar in many respects. One difference is that Pinson Company uses the straight-line method and Estes Company uses the declining-balance method at double the straight-line rate. On January 2, 2018, both companies acquired the depreciable assets shown below.

Asset	Cost	Salvage Value	Useful Life
Buildings	$360,000	$20,000	40 years
Equipment	130,000	10,000	10 years

Including the appropriate depreciation charges, annual net income for the companies in the years 2018, 2019, and 2020 and total income for the 3 years were as follows.

	2018	2019	2020	Total
Pinson Company	$84,000	$88,400	$90,000	$262,400
Estes Company	68,000	76,000	85,000	229,000

At December 31, 2020, the balance sheets of the two companies are similar except that Estes Company has more cash than Pinson Company.

Lynda Peace 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.

b. Assuming that Estes 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 Lynda Peace buy? Why?

Communication Activity

CT10.6 The chapter presented some concerns regarding the current accounting standards for research and development expenditures.

Instructions

Assume that you are either (a) the president of a company that is very dependent on ongoing research and development, writing a memo to the FASB complaining about the current accounting standards regarding research and development, or (b) the FASB member defending the current standards regarding research and development. Your memo should address the following questions.

1. By requiring expensing of R&D, do you think companies will spend less on R&D? Why or why not? What are the possible implications for the competitiveness of U.S. companies?
2. If a company makes a commitment to spend money for R&D, it must believe it has future benefits. Shouldn't these costs therefore be capitalized just like the purchase of any long-lived asset that is believed to have future benefits?

All About You

CT10.7 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 four 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.
3. Philip 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.

b. How do you think the value of these brands is reported on the appropriate company's balance sheet?

FASB Codification Activity

CT10.8 If your school has a subscription to the FASB Codification, log in and 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.

A Look at IFRS

LEARNING OBJECTIVE 7

Compare the accounting for long-lived assets under GAAP and IFRS.

IFRS follows most of the same principles as GAAP in the accounting for property, plant, and equipment. There are, however, some significant differences in the implementation. IFRS allows the use of revaluation of property, plant, and equipment, and it also requires the use of component depreciation. In addition, there are some significant differences in the accounting for both intangible assets and impairments.

Key Points

The following are the key similarities and differences between GAAP and IFRS as related to the recording process for long-lived assets.

Similarities

- The definition for plant assets for both IFRS and GAAP is essentially the same.
- Both IFRS and GAAP follow the historical cost principle when accounting for property, plant, and equipment at date of acquisition. Cost consists of all expenditures necessary to acquire the asset and make it ready for its intended use.
- Under both IFRS and GAAP, interest costs incurred during construction are capitalized. Recently, IFRS converged to GAAP requirements in this area.
- IFRS also views depreciation as an allocation of cost over an asset's useful life. IFRS permits the same depreciation methods (e.g., straight-line, accelerated, and units-of-activity) as GAAP.
- Under both GAAP and IFRS, changes in the depreciation method used and changes in useful life are handled in current and future periods. Prior periods are not affected. GAAP recently conformed to international standards in the accounting for changes in depreciation methods.
- The accounting for subsequent expenditures (such as ordinary repairs and additions) are essentially the same under IFRS and GAAP.
- The accounting for plant asset disposals is essentially the same under IFRS and GAAP.

- Initial costs to acquire natural resources are recorded in essentially the same manner under IFRS and GAAP.
- The definition of intangible assets is essentially the same under IFRS and GAAP.
- The accounting for exchanges of nonmonetary assets has recently converged between IFRS and GAAP. GAAP now requires that gains on exchanges of nonmonetary assets be recognized if the exchange has commercial substance. This is the same framework used in IFRS.

Differences

- IFRS uses the term **residual value** rather than salvage value to refer to an owner's estimate of an asset's value at the end of its useful life for that owner.
- IFRS allows companies to revalue plant assets to fair value at the reporting date. Companies that choose to use the revaluation framework must follow revaluation procedures. If revaluation is used, it must be applied to all assets in a class of assets. Assets that are experiencing rapid price changes must be revalued on an annual basis, otherwise less frequent revaluation is acceptable.
- IFRS requires component depreciation. **Component depreciation** specifies that any significant parts of a depreciable asset that have different estimated useful lives should be separately depreciated. Component depreciation is allowed under GAAP but is seldom used.
- As in GAAP, under IFRS the costs associated with research and development are segregated into the two components. Costs in the research phase are always expensed under both IFRS and GAAP. Under IFRS, however, costs in the development phase are capitalized as Development Costs once technological feasibility is achieved.
- IFRS permits revaluation of intangible assets (except for goodwill). GAAP prohibits revaluation of intangible assets.

Looking to the Future

The IASB and FASB have identified a project that would consider expanded recognition of internally generated intangible assets. IFRS permits more recognition of intangibles compared to GAAP.

IFRS Practice

IFRS Self-Test Questions

1. Which of the following statements is **correct**?
   a. Both IFRS and GAAP permit revaluation of property, plant, and equipment and intangible assets (except for goodwill).
   b. IFRS permits revaluation of property, plant, and equipment and intangible assets (except for goodwill).
   c. Both IFRS and GAAP permit revaluation of property, plant, and equipment but not intangible assets.
   d. GAAP permits revaluation of property, plant, and equipment but not intangible assets.
2. Research and development costs are:
   a. expensed under GAAP.
   b. expensed under IFRS.
   c. expensed under both GAAP and IFRS.
   d. None of the above.

IFRS Exercises

IFRS10.1 What is component depreciation, and when must it be used?

IFRS10.2 What is revaluation of plant assets? When should revaluation be applied?

IFRS10.3 Some product development expenditures are recorded as development expenses and others as development costs. Explain the difference between these accounts and how a company decides which classification is appropriate.

International Financial Statement Analysis: Louis Vuitton

IFRS10.4 The financial statements of **Louis Vuitton** are presented in Appendix F. The complete annual report, including the notes to its financial statements, is available at the company's website.

Instructions

Use the company's annual report to answer the following questions.

a. According to the notes to the financial statements, what method or methods does the company use to depreciate "property, plant, and equipment?" What useful lives does it use to depreciate property, plant, and equipment?

b. Using the notes to the financial statements, explain how the company accounted for its intangible assets with indefinite lives.

c. Using the notes to the financial statements, determine (1) the balance in Accumulated Amortization and Impairment for intangible assets (other than goodwill), and (2) the balance in Depreciation (and impairment) for property, plant, and equipment.

Answers to IFRS Self-Test Questions

1. b **2.** a