10 Plant Assets, Natural Resources, and Intangible Assets

Learning Objectives

1. Explain the accounting for plant asset expenditures.
2. Apply depreciation methods to plant assets.
3. Explain how to account for the disposal of plant assets.
4. Describe how to account for natural resources and intangible assets.
5. Discuss how plant assets, natural resources, and intangible assets are reported and analyzed.

LEARNING OBJECTIVE 1

Explain the accounting for plant asset expenditures.

Plant assets are resources that have

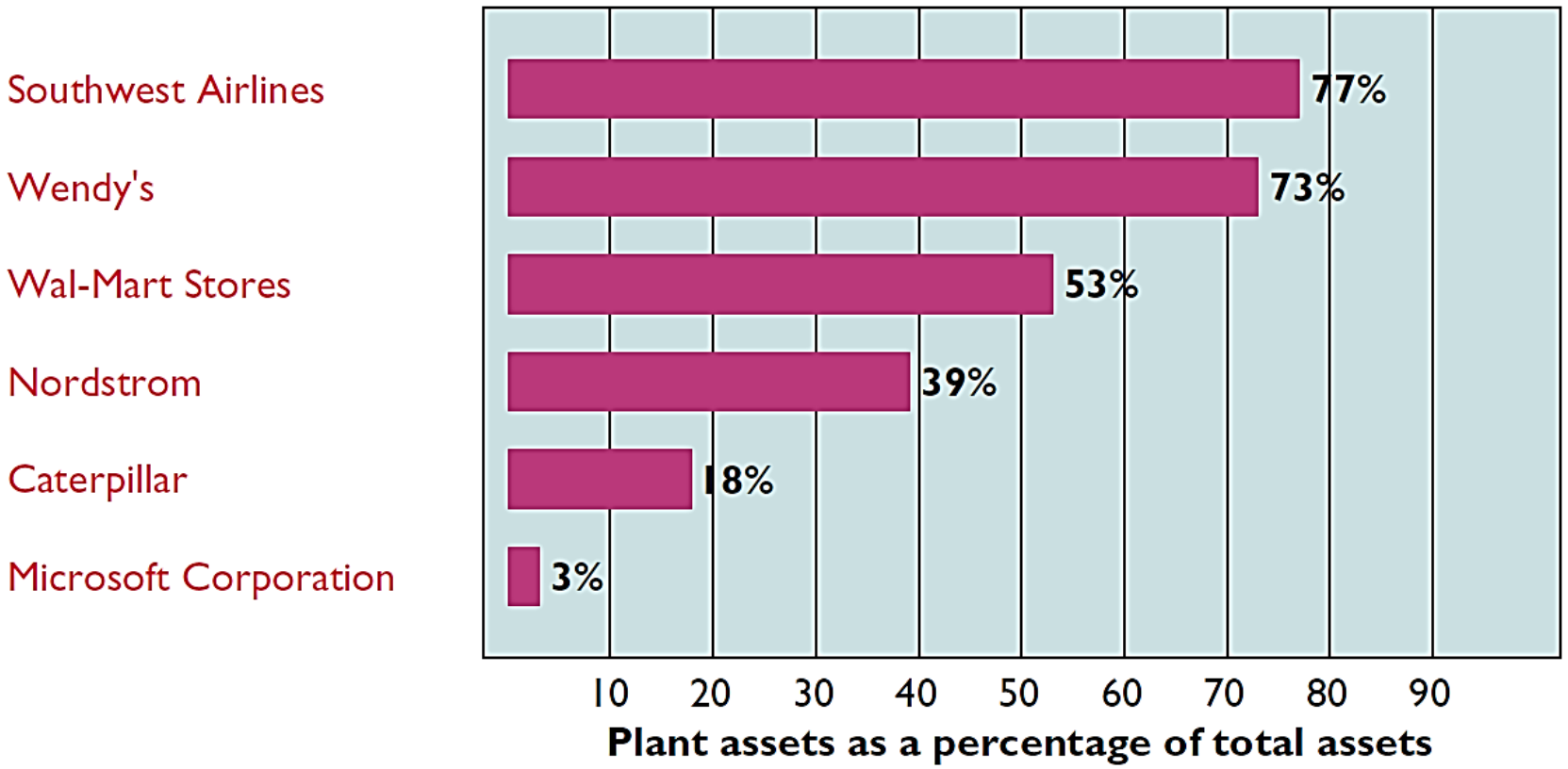
- **physical substance** (a definite size and shape),
- are **used in the operations** of a business,
- are **not intended for sale** to customers,
- are expected to **be of use** to the company for a number of years.

Referred to as property, plant, and equipment; plant and equipment; and fixed assets.

Plant Assets

Plant assets are critical to a company's success

Illustration 10-1



LO 1

Determining the Cost of Plant Assets

Historical Cost Principle requires that companies record plant assets at cost.

Cost consists of all expenditures necessary to acquire an asset and make it ready for its intended use.

LO 1

Determining the Cost of Plant Assets

LAND

All necessary costs incurred in making the land **ready for its intended use** increase **(debit)** the Land account.

Costs typically include:

1. 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 on the land assumed by the purchaser.

LO 1

Determining the Cost of Plant Assets

Illustration: 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.

Required: Determine the amount to be reported as the cost of the land.

LO 1

Determining the Cost of Plant Assets

Required: Determine amount to be reported as the cost of the land.

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

Illustration 10-2
Computation of cost of land

LO 1

Determining the Cost of Plant Assets

LAND IMPROVEMENTS

Structural additions made to land. **Cost includes all expenditures** necessary to make the improvements **ready for their intended use**.

- **Examples:** driveways, parking lots, fences, landscaping, and underground sprinklers.
- Limited useful lives.
- Expense (depreciate) the cost of land improvements over their useful lives.

LO 1

Determining the Cost of Plant Assets

BUILDINGS

Includes all costs related directly to purchase or construction.

Purchase costs:

- Purchase price, closing costs (attorney's fees, title insurance, etc.) and real estate broker's commission.
- Remodeling and replacing or repairing the roof, floors, electrical wiring, and plumbing.

Construction costs:

- Contract price plus payments for architects' fees, building permits, and excavation costs.

LO 1

Determining the Cost of Plant Assets

EQUIPMENT

Include all costs incurred in acquiring the equipment and **preparing it for use.**

Costs typically include:

- Cash purchase price.
- Sales taxes.
- Freight charges.
- Insurance during transit paid by the purchaser.
- Expenditures required in assembling, installing, and testing the unit.

LO 1

Determining the Cost of Plant Assets

Illustration: Lenard Company purchases a delivery truck at a cash price of $22,000. Related expenditures are sales taxes $1,320, painting and lettering $500, motor vehicle license $80, and a three-year accident insurance policy $1,600. **Compute the cost** of the delivery truck.

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

Illustration 10-4
Computation of cost of delivery truck

Determining the Cost of Plant Assets

Illustration: Lenard Company purchases a delivery truck at a cash price of $22,000. Related expenditures are sales taxes $1,320, painting and lettering $500, motor vehicle license $80, and a three-year accident insurance policy $1,600. **Prepare the journal entry** to record these costs.

Equipment	23,820	
License Expense	80	
Prepaid Insurance	1,600	
Cash		25,500

Expenditures During Useful Life

Ordinary Repairs are expenditures to **maintain** the operating efficiency and productive life of the unit.

- **Debit** to Maintenance and Repair Expense.
- Referred to as **revenue expenditures**.

Additions and Improvements are costs incurred to **increase** the operating efficiency, productive capacity, or useful life of a plant asset.

- **Debit** the plant asset affected.
- Referred to as **capital expenditures**.

LO 1

ANATOMY OF A FRAUD

Bernie Ebers 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

LO 1

Accounting Across the Organization

Many U.S. Firms Use Leases

Leasing is big business for U.S. companies. For example, business investment in equipment in a recent year totaled $800 billion. Leasing accounted for about 33% of all business investment ($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. Leasing is also becoming more common in the hotel industry. Marriott, Hilton, and InterContinental are increasingly choosing to lease hotels that are owned by someone else.

Why might airline managers choose to lease rather than purchase their planes? (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.

Solution

- The first four payments ($15,000, $900, $500, and $200) are include in the **cost of the truck ($16,600)**.
- The payments for **insurance** and the **license** are operating costs and therefore are **expensed**.

LO 1

LEARNING OBJECTIVE 2

Apply depreciation methods to plant assets.

Depreciation

Process of allocating to expense the cost of a plant asset over its useful (service) life in a rational and systematic manner.

- Process of **cost allocation**, **not asset valuation**.
- Applies to land improvements, buildings, and equipment, **not land**.
- Depreciable because the **revenue-producing ability of asset will decline** over the asset's useful life.

Factors in Computing Depreciation

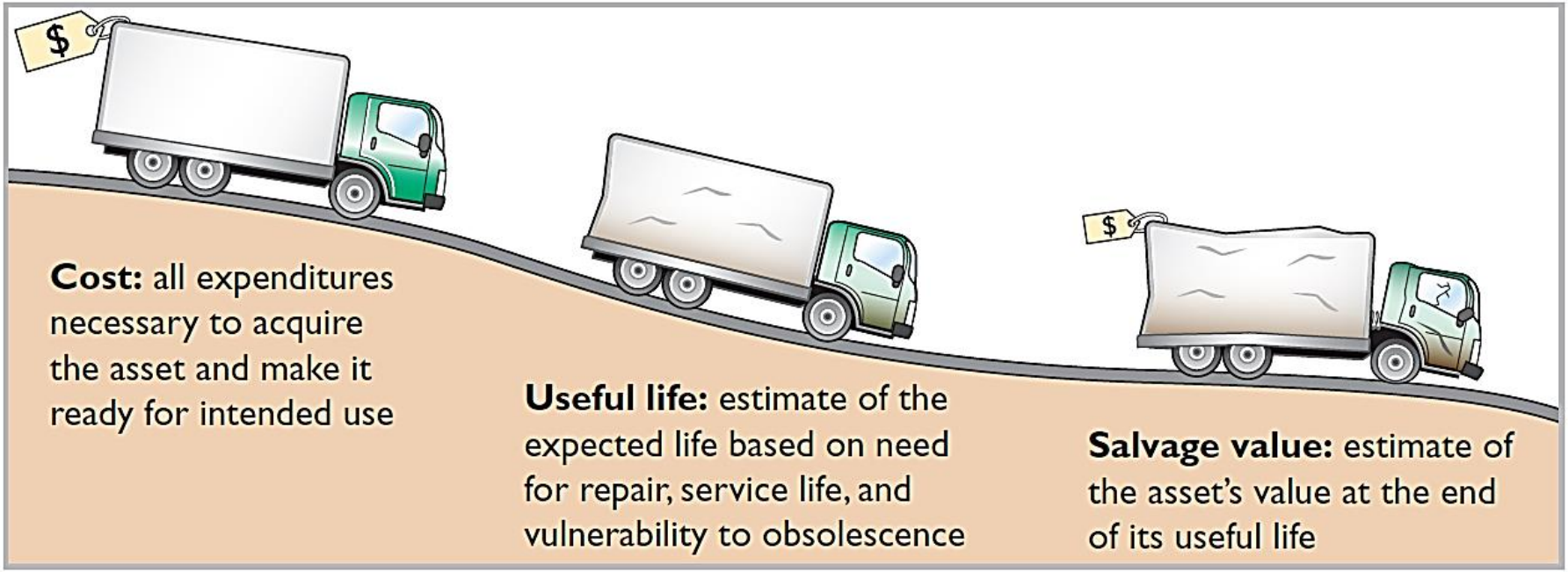


Illustration 10-6
Three factors in computing depreciation

Alternative Terminology
Another term sometimes used for salvage value is *residual value*.

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

LO 2

Depreciation Methods

Management selects the method it believes best measures an asset's contribution to revenue over its useful life.

Examples include:

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

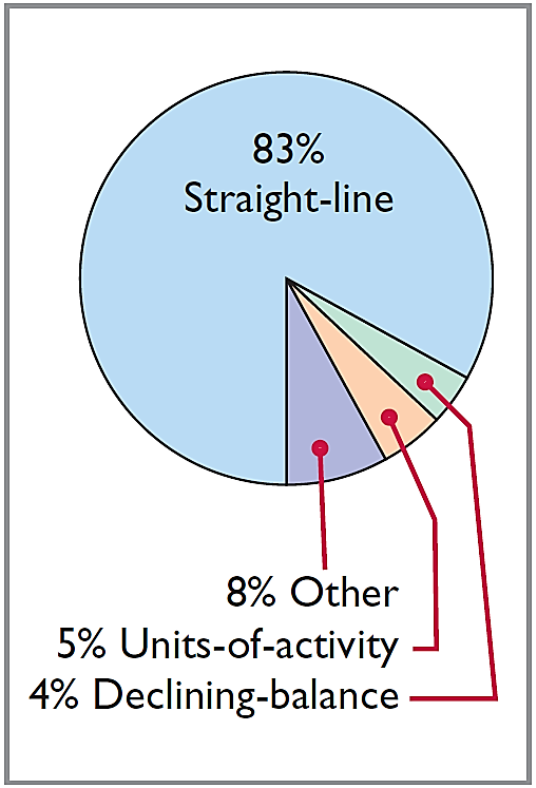


Illustration 10-8
Use of depreciation methods in major U.S. companies

LO 2

Depreciation Methods

Illustration: Barb's Florists purchased a small delivery truck on January 1, 2017.

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

Required: Compute depreciation using the following.

(a) Straight-Line (b) Units-of-Activity (c) Declining Balance

LO 2

Depreciation Methods

STRAIGHT-LINE METHOD

- Expense is **same amount** for each year.
- Depreciable cost = Cost less salvage value.

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

Illustration 10-9
Formula for straight-line method

LO 2

Depreciation Methods

Illustration: (Straight-Line)

Illustration 10-10

Year	Depreciable Cost	x	Rate	=	Annual Depreciation Expense	Accumulated Depreciation	Book Value
2017	$ 12,000		20%		$ 2,400	$ 2,400	$ 10,600 *
2018	12,000		20		2,400	4,800	8,200
2019	12,000		20		2,400	7,200	5,800
2020	12,000		20		2,400	9,600	3,400
2021	12,000		20		2,400	12,000	1,000

2017 Journal Entry

Depreciation expense		2,400	
Accumulated depreciation			2,400

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

LO 2

Depreciation Methods

Partial Year

Illustration: (Straight-Line)

Assume the delivery truck was purchased on April 1, 2017.

Year	Depreciable Cost		Rate		Annual Depreciation Expense		Partial Year		Current Year Expense	Accumulated Depreciation
2017	$ 12,000	x	20%	=	$ 2,400	x	9/12	=	$ 1,800	$ 1,800
2018	12,000	x	20%	=	2,400				2,400	4,200
2019	12,000	x	20%	=	2,400				2,400	6,600
2020	12,000	x	20%	=	2,400				2,400	9,000
2021	12,000	x	20%	=	2,400				2,400	11,400
2022	12,000	x	20%	=	2,400	x	3/12	=	600	12,000
									$ 12,000	

Journal entry:

2017	Depreciation expense	1,800	
	Accumulated depreciation		1,800

LO 2

DO IT! 2 Straight-Line Depreciation

On January 1, 2017, 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, 2017, if it uses the straight-line method of depreciation?

Solution

Depreciation expense	4,800	
Accumulated depreciation		4,800

($50,000 - $2,000) ÷ 10 = $4,800

Depreciation Methods

UNITS-OF-ACTIVITY METHOD

- Companies estimate total units of activity to calculate depreciation cost per unit.
- Expense varies based on units of activity.
- Depreciable cost is cost less salvage value.

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

Depreciation Methods

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 10-11
Formula for units-of-activity method

LO 2

Depreciation Methods

Illustration: (Units-of-Activity)

Illustration 10-12

Year	Miles Driven	x	Cost per Unit	=	Annual Depreciation Expense	Accumulated Depreciation	Book Value
2017	15,000		$ 0.12		$ 1,800	$ 1,800	$ 11,200
2018	30,000		0.12		3,600	5,400	7,600
2019	20,000		0.12		2,400	7,800	5,200
2020	25,000		0.12		3,000	10,800	2,200
2021	10,000		0.12		1,200	12,000	1,000

2017 Journal Entry

Depreciation expense		1,800	
Accumulated depreciation			1,800

LO 2

Depreciation Methods

DECLINING-BALANCE METHOD

- Accelerated method.
- Decreasing annual depreciation expense over the asset's useful life.
- Twice the straight-line rate with Double-Declining-Balance.
- Rate applied to book value.

Illustration 10-13

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

LO 2

Depreciation Methods

Illustration: (Declining-Balance)

Illustration 10-14

Year	Beginning Book value	x	Declining Balance Rate	=	Annual Depreciation Expense	Accumulated Depreciation	Book Value
2017	$13,000		40%		$ 5,200	$ 5,200	$ 7,800
2018	7,800		40		3,120	8,320	4,680
2019	4,680		40		1,872	10,192	2,808
2020	2,808		40		1,123	11,315	1,685
2021	1,685		40		685*	12,000	1,000

2017 Journal Entry

Depreciation expense		5,200	
	Accumulated depreciation		5,200

* Computation of $674 ($1,685 x 40%) is adjusted to $685.

LO 2

Depreciation Methods

Partial Year

Illustration: (Declining-Balance)

Year	Beginning Book Value		Declining Balance Rate		Annual Depreciation Expense		Partial Year		Current Year Expense	Accumulated Depreciation
2017	$ 13,000	x	40%	=	$ 5,200	x	9/12	=	$ 3,900	$ 3,900
2018	9,100	x	40%	=	3,640				3,640	7,540
2019	5,460	x	40%	=	2,184				2,184	9,724
2020	3,276	x	40%	=	1,310				1,310	11,034
2021	1,966	x	40%	=	786				786	11,820
2022	1,180	x	40%	=	472		Plug	→	180	12,000
									$ 12,000	

Journal entry:

2017	Depreciation expense	3,900	
	Accumulated depreciation		3,900

LO 2

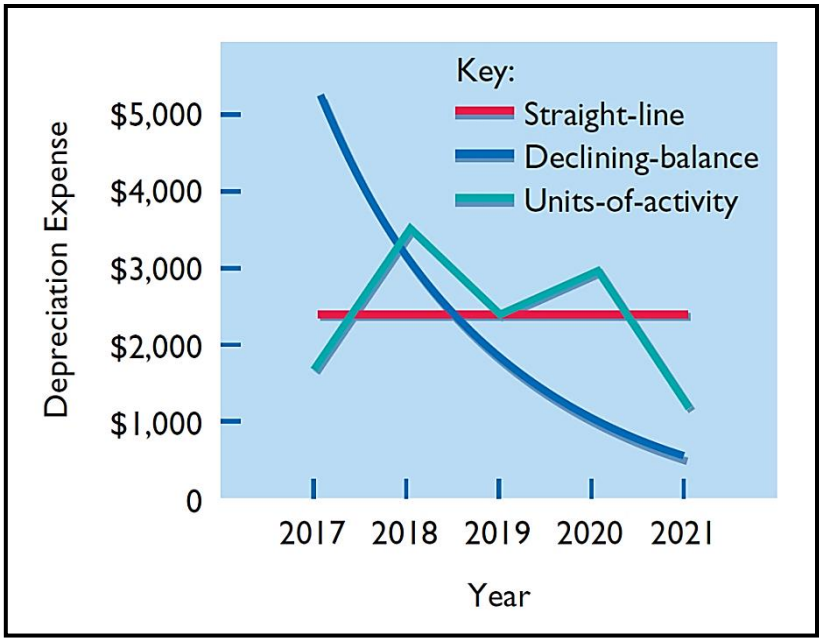
Depreciation Methods

Illustration 10-15

COMPARISON OF METHODS

Year	Straight-Line	Units-of-Activity	Declining-Balance
2017	$ 2,400	$ 1,800	$ 5,200
2018	2,400	3,600	3,120
2019	2,400	2,400	1,872
2020	2,400	3,000	1,123
2021	2,400	1,200	685
	$12,000	$12,000	$12,000

Illustration 10-16



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

LO 2

Depreciation and Income Taxes

IRS does not require taxpayer to use the same depreciation method on the tax return that is used in preparing financial statements.

Taxpayers must use the **straight-line** method or a special accelerated-depreciation method called the **Modified Accelerated Cost Recovery System** (MACRS).

MACRS is **NOT acceptable** under GAAP.

Revising Periodic Depreciation

- Accounted for in the period of change and future periods **(Change in Estimate)**.
- No change in depreciation reported for prior years.
- Not considered an error.

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

Revising Periodic Depreciation

Illustration: Arcadia HS, purchased equipment for $510,000 which was estimated to have a useful life of 10 years with a salvage value of $10,000 at the end of that time. Depreciation has been recorded for 7 years on a straight-line basis. In 2015 (year 8), it is determined that the total estimated life should be 15 years with a salvage value of $5,000 at the end of that time.

Questions:

- What is the journal entry to correct the prior years' depreciation?
- Calculate the depreciation expense for 2015.

No Entry Required

Revising Depreciation

After 7 years

Equipment cost	$510,000
Salvage value	- 10,000
Depreciable base	500,000
Useful life (original)	÷ 10 years
Annual depreciation	$ 50,000

First, establish NBV at date of change in estimate.

x 7 years = **$350,000**

Balance Sheet (Dec. 31, 2014)

Plant Assets:

Equipment	$510,000
Accumulated depreciation	350,000
Net book value (NBV)	$160,000

LO 2

Revising Depreciation

After 7 years

Net book value	$160,000
Salvage value (new)	- 5,000
Depreciable base	155,000
Useful life remaining	8 years
Annual depreciation	$ 19,375

Depreciation Expense calculation for 2015.

Journal entry for 2015 and future years.

Depreciation Expense	19,375	
Accumulated Depreciation		19,375

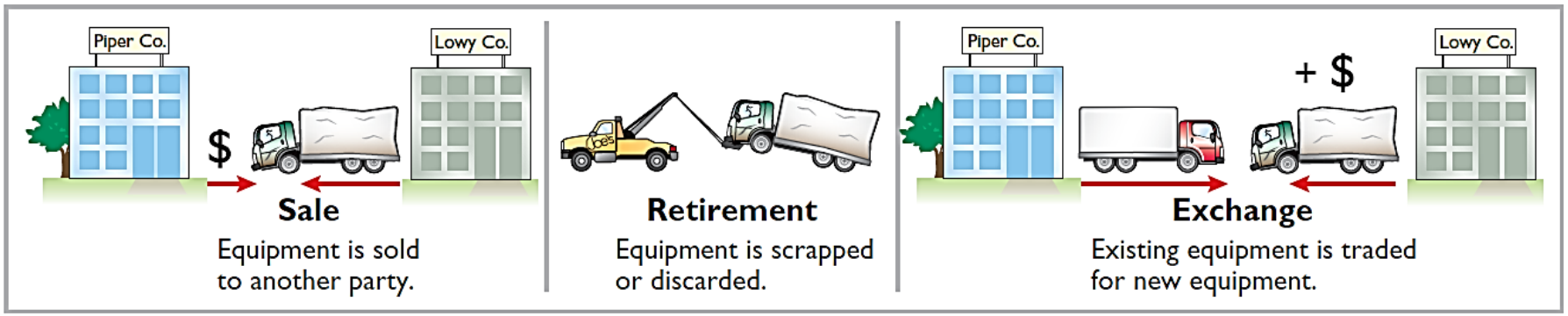
LO 2

LEARNING OBJECTIVE 3

Explain how to account for the disposal of plant assets.

Companies dispose of plant assets in three ways — **Retirement**, **Sale**, or **Exchange** (appendix).

Illustration 10-18
Methods of plant asset disposal



Record depreciation up to the **date of disposal**.

Eliminate asset by (1) debiting Accumulated Depreciation, and (2) crediting the asset account.

Retirement of Plant Assets

- **No cash** is received.
- **Decrease (credit) the asset account** for the original cost in the asset.
- **Decrease (debit) Accumulated Depreciation** for the full amount of depreciation taken over the life of the asset.

Retirement of Plant Assets

Illustration: Hobart Enterprises retires its computer printers, which cost $32,000. The accumulated depreciation on these printers is $32,000. Prepare the entry to record this retirement.

Accumulated Depreciation	32,000	
Equipment		32,000

Question: What happens if a fully depreciated plant asset is still useful to the company?

Company continues to use the asset with no additional depreciation being recorded as the asset is fully depreciated.

Retirement of Plant Assets

Illustration: Sunset Company discards delivery equipment that cost $18,000 and has accumulated depreciation of $14,000. The journal entry is?

Accumulated Depreciation	14,000	
Loss on Disposal of Plant Assets	4,000	
Equipment		18,000

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

Sale of Plant Assets

Compare the **book value** of the asset with the **proceeds** received from the sale.

- If proceeds **exceed** the book value, a **gain** on disposal occurs.
- If proceeds **are less than** the book value, a **loss** on disposal occurs.

LO 3

Sale of Plant Assets

GAIN ON SALE

Illustration: On July 1, 2017, Wright Company sells office furniture for $16,000 cash. The office furniture originally cost $60,000. As of January 1, 2017, it had accumulated depreciation of $41,000. Depreciation for the first six months of 2017 is $8,000. Prepare the journal entry to record depreciation expense up to the date of sale.

July 1	Depreciation Expense	8,000	
	Accumulated Depreciation		8,000

LO 3

GAIN ON SALE

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**

Illustration: Wright records the sale as follows.

July 1	Cash	16,000	
	Accumulated Depreciation	49,000	
	Equipment		60,000
	Gain on Disposal of Plant Assets		5,000

LO 3

LOSS ON SALE

Illustration: Assume that instead of selling the office furniture for $16,000, Wright sells it for $9,000.

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**

July 1	Cash	9,000	
	Accumulated Depreciation	49,000	
	Loss on Disposal of Plant Assets	2,000	
	Equipment		60,000

LO 3

DO IT! 3 Plant Asset Disposal

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

Solution

Cash	17,000	
Accumulated Depreciation—Equipment	16,000	
Equipment		30,000
Gain on Disposal of Plant Assets		3,000

[$17,000 - ($30,000 - $16,000)]

DO IT! 3 Plant Asset Disposal

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

Solution

Cash	10,000	
Accumulated Depreciation—Equipment	16,000	
Loss on Disposal of Plant Assets	4,000	
Equipment		30,000

[$10,000 - ($30,000 - $16,000)]

LEARNING OBJECTIVE 4

Describe how to account for natural resources and intangible assets.

Natural resources consist of standing timber and underground deposits of oil, gas, and minerals.

Distinguishing characteristics:

- Physically extracted in operations.
- Replaceable only by an act of nature.

Cost is the price needed to acquire the resource **and** prepare it for its intended use.

Depletion

The allocation of the cost to expense in a rational and systematic manner over the resource's useful life.

- Companies generally use **units-of-activity** method.
- Depletion generally is a function of the **units extracted**.

$$\frac{\text{Total Cost} - \text{Salvage Value}}{\text{Total Estimated Units Available}} = \text{Depletion Cost per Unit}$$

Illustration 10-21
Formula to compute depletion expense

Depletion

Illustration: Lane Coal Company invests $5 million in a mine estimated to have 1 million tons of coal and no salvage value.

$$\frac{\text{Total Cost} - \text{Salvage Value}}{\text{Total Estimated Units Available}} = \text{Depletion Cost per Unit}$$

$$\frac{\$5{,}000{,}000}{\$1{,}000{,}000} = \$5.00 \text{ per ton}$$

Illustration 10-21
Formula to compute depletion expense

Depletion

Illustration: Lane Coal Company invests $5 million in a mine estimated to have 1 million tons of coal and no salvage value. In the first year, Lane extracts and sells 250,000 tons of coal. Lane computes the depletion expense as follows:

$5,000,000 ÷ 1,000,000 = $5.00 depletion cost per ton

$5.00 x 250,000 = $1,250,000 annual depletion expense

Journal entry:

Inventory (coal)	1,250,000	
Accumulated Depletion		1,250,000

Intangible Assets

Intangible assets are rights, privileges, and competitive advantages that result from ownership of long-lived assets that do not possess physical substance.

Limited life or **indefinite life**.

Common types of intangibles:

- Patents
- Copyrights
- Goodwill
- Trademarks and Trade Names
- Franchises

Accounting for Intangible Assets

Limited-Life Intangibles:

- Amortize to expense.
- Credit asset account.

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

Indefinite-Life Intangibles:

- No foreseeable limit on time the asset is expected to provide cash flows.
- No amortization.

LO 4

Accounting for Intangible Assets

PATENTS

- Exclusive right to manufacture, sell, or otherwise control an invention for a period of **20 years** from the date of the grant.
- **Capitalize costs of purchasing** a patent and amortize over its 20-year life or its useful life, whichever is shorter.
- **Expense any R&D** costs in developing a patent.
- **Legal fees** incurred successfully defending a patent are capitalized to the Patent account.

Accounting for Intangible Assets

Illustration: National Labs purchases a patent at a cost of $60,000. National estimates the useful life of the patent to be eight years. Prepare the journal entry to record the annual amortization expense.

Cost	$60,000
Useful life	÷ 8
Annual expense	$ 7,500

Amortization Expense	7,500	
Patents		7,500

Accounting for Intangible Assets

COPYRIGHTS

- Give the owner the exclusive right to reproduce and sell an artistic or published work.
- Extend for the life of the creator plus 70 years.
- Cost of the copyright is the cost of acquiring and defending it.
- Amortized to expense over useful life.

Accounting for Intangible Assets

TRADEMARKS AND TRADE NAMES

- Word, phrase, jingle, or symbol that identifies a particular enterprise or product.
  - Wheaties, Monopoly, Kleenex, Coca-Cola, Big Mac, and Jeep.
- Legal protection for indefinite number of **20 year renewal periods**.
- Capitalize acquisition costs.
- No amortization.

Accounting for Intangible Assets

FRANCHISES

- Contractual arrangement between a franchisor and a franchisee.
  - Shell, Subway, and Rent-A-Wreck are franchises.
- Franchise (or license) with a limited life should be amortized to expense over its useful life.
- If the life is indefinite, the cost is not amortized.

Accounting for Intangible Assets

GOODWILL

- **Includes** exceptional management, desirable location, good customer relations, skilled employees, high-quality products, etc.
- **Only recorded** when an **entire business is purchased**.
- Goodwill is recorded as the excess of **purchase price over the fair value of the net assets** acquired.
- Not amortized.

Accounting Across the Organization

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 fi led 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.

Research and Development Costs

Expenditures that may lead to

- patents,
- copyrights,
- new processes, and
- new products.

All R & D costs are **expensed when incurred.**

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

Illustration: Identify the term most directly associated with each statement.

1. The allocation of the cost of a natural resource to expense in a rational and systematic manner. — **Depletion**
2. Rights, privileges, and competitive advantages that result from the ownership of long-lived assets that do not possess physical substance. — **Intangible Assets**
3. An exclusive right granted by the federal government to reproduce and sell an artistic or published work. — **Copyrights**

DO IT! 4 Classification Concepts

Illustration: Identify the term most directly associated with each statement.

4. A right to sell certain products or services or to use certain trademarks or trade names within a designated geographic area. — **Franchise**

5. Costs incurred by a company that often lead to patents or new products. These costs must be expensed as incurred. — **Research and Development Costs**

LEARNING OBJECTIVE 5

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

Real World

THE PROCTER & GAMBLE COMPANY

Balance Sheet (partial)
(in millions)

	June 30	
	2013	2012
Property, plant, and equipment		
Buildings	$ 7,829	$ 7,324
Machinery and equipment	34,305	32,029
Land	878	880
	43,012	40,233
Accumulated depreciation	(21,346)	(19,856)
Net property, plant, and equipment	21,666	20,377
Goodwill and other intangible assets		
Goodwill	55,188	53,773
Trademarks and other intangible assets, net	31,572	30,988
Net goodwill and other intangible assets	$86,760	$84,761

Illustration 10-22

Presentation

Real World

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

Property, plant, and equipment			
Timberlands, at cost, less accumulated depletion		$ 95.4	
Buildings and equipment, at cost	$2,207.1		
Less: Accumulated depreciation	1,229.0	978.1	
Total property, plant, and equipment			$1,073.5
Intangibles			
Patents			410.0
Total			$1,483.5

Illustration 10-23
Owens-Illinois' presentation of property, plant, and equipment, and intangible assets

LO 5

Analysis

Illustration: P&G's net sales for 2013 were $84,167 million. Its total ending assets were $139,263 million, and beginning assets were $132,244 million.

Illustration 10-24
Asset turnover formula and computation

Net Sales	÷	Average Total Assets	=	Asset Turnover
$84,167	÷	$\frac{\$132,244 + \$139,263}{2}$	=	.62 times

Each dollar invested in assets produced $0.62 in sales. If a company is using its assets efficiently, each dollar of assets will create a high amount of sales.

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, 2017, and total assets on December 31, 2017, of $540,000 billion. Determine Paramour's asset turnover for 2017.

Solution

The asset turnover for Paramour Company is computed as follows.

Net Sales	÷	Average Total Assets	=	Asset Turnover
$420,000	÷	$\frac{\$460,000 + \$540,000}{2}$	=	.84

LEARNING OBJECTIVE 6

APPENDIX 10A: Explain how to account for the exchange of plant assets.

- Ordinarily, companies record a gain or loss on the exchange of plant assets.
- Most exchanges have **commercial substance**.
- **Commercial substance** if the future cash flows change as a result of the exchange.

Loss Treatment

Illustration: Roland Company exchanged used trucks (cost $64,000 less $22,000 accumulated depreciation) plus cash of $17,000 for a new semi-truck. The used trucks had a fair market value of $26,000.

Illustration 10A-1 & 10A-2

Cost of used trucks	$64,000
Less: Accumulated depreciation	22,000
Book value	42,000
Fair market value of used trucks	26,000
Loss on disposal of plant assets	**$16,000**
Fair market value of used trucks	$26,000
Cash paid	17,000
Cost of new truck	$43,000

LO 6

Loss Treatment

Illustration: Roland Co. exchanged old trucks (cost $64,000 less $22,000 accumulated depreciation) plus cash of $17,000 for a new semi-truck. The old trucks had a fair market value of $26,000.

Prepare the entry to record the exchange of assets by Roland Co.

Equipment (new)	43,000	
Accumulated Depreciation (old)	22,000	
Loss on Disposal of Plant Assets	16,000	
Equipment (old)		64,000
Cash		17,000

Gain Treatment

Illustration: Mark Express Delivery trades its old delivery equipment (cost $40,000 less $28,000 accumulated depreciation) for new delivery equipment. The old equipment had a fair market value of $19,000. Mark also paid $3,000.

Cost of old equipment	$40,000
Less: Accumulated depreciation	28,000
Book value	12,000
Fair market value of old equipment	19,000
Gain on disposal of plant assets	**$ 7,000**
Fair market value of old equipment	$19,000
Cash paid	3,000
Cost of new equipment	$22,000

Illustration
10A-3 & 10A-4

LO 6

Gain Treatment

Illustration: Mark Express Delivery trades its old delivery equipment (cost $40,000 less $28,000 accumulated depreciation) for new delivery equipment. The old equipment had a fair market value of $19,000. Mark also paid $3,000.

Prepare the entry to record the exchange of assets by Mark Express.

Equipment (new)	22,000	
Accumulated Depreciation (old)	28,000	
Equipment (old)		40,000
Gain on Disposal of Plant Assets		7,000
Cash		3,000

LO 6

A Look at IFRS

LEARNING OBJECTIVE 7

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

Key Points

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.

A Look at IFRS

Key Points

Similarities

- 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.

A Look at IFRS

Key Points

Similarities

- 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 essentially the same under IFRS and GAAP.
- The definition of intangible assets is essentially the same under IFRS and GAAP.

A Look at IFRS

Key Points

Similarities

- 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.

A Look at IFRS

Key Points

Differences

- 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.

A Look at IFRS

Key Points

Differences

- 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.

A Look at IFRS

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.

A Look at IFRS

IFRS Self-Test Questions

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.

LO 7

A Look at IFRS

IFRS Self-Test Questions

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.

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