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Accounting Principles

Thirteenth Edition

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Chapter 10

Plant Assets, Natural Resources, and Intangible Assets

Chapter Outline

Learning Objectives

L O 1 Explain the accounting for plant asset expenditures.

L O 2 Apply depreciation methods to plant assets.

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

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

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

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**.

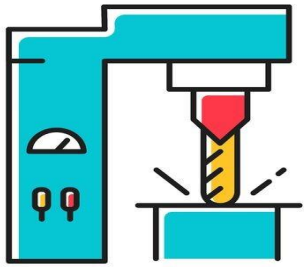
Determining the Cost of Plant Assets

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

Purchased in 2010 @ **$1,000000**

Market Price in 2020 $3,000000

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



Purchase Price
$ 10,000

Freight cost
$ 500

Installation Cost
$ 300

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 land assumed by purchaser.

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**. Determine the amount to be reported as the cost of the land.

Determining the Cost of Plant Assets

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

	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**

Hayes makes the following entry:

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

Determining the Cost of Plant Assets

Land Improvements

Structural additions with limited life 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) cost of land improvements over their useful lives

Determining the Cost of Plant Assets

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Buildings

Includes all necessary expenditures 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.

Determining the Cost of Plant Assets

Buildings

Includes all necessary expenditures related directly to purchase or construction.

Construction costs:

- Contract price
- Payments for architects' fees
- Building permits
- Excavation costs
- Interest costs incurred during the construction period.

Determining the Cost of Plant Assets

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Equipment

Includes 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 purchaser
- Assembling, installing, and testing

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.

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

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
(To record purchase of delivery truck and related expenditures)		

Determining the Cost of Plant Assets

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

- Debit to Maintenance and Repairs 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 plant asset affected
- Referred to as **capital expenditures**

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 expenditures necessary to make the truck ready for its intended use and, therefore, are included in the **cost of the truck ($16,600).**
- The payments for **insurance** and the **license** are operating costs incurred annually and therefore are **expensed.**

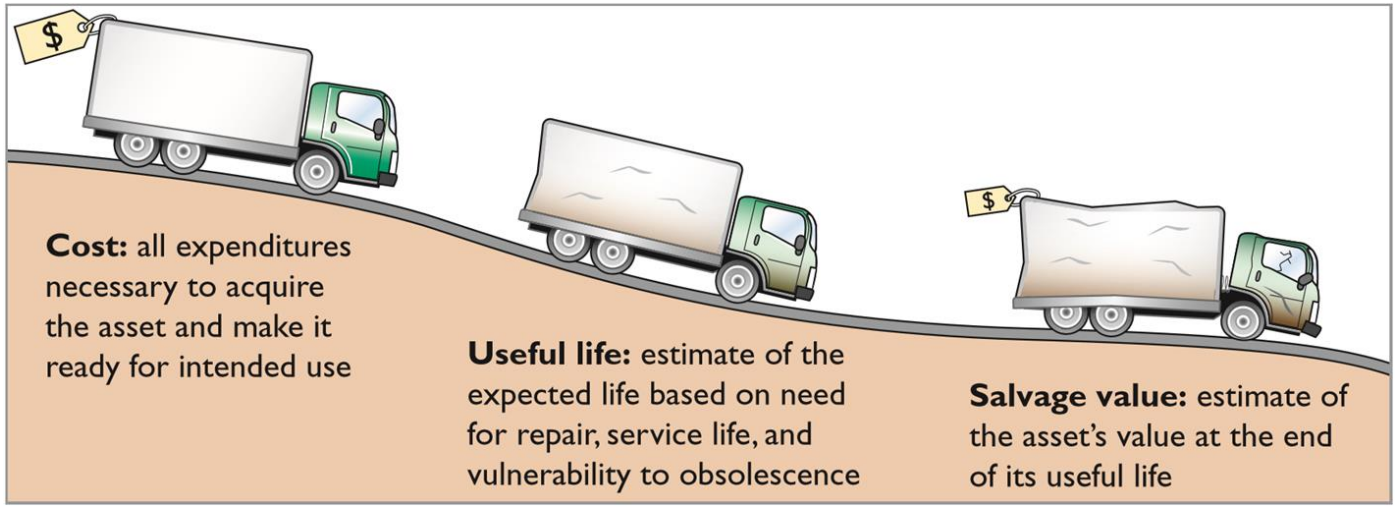
Depreciation Methods

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



Alternative Terminology

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

Helpful Hint

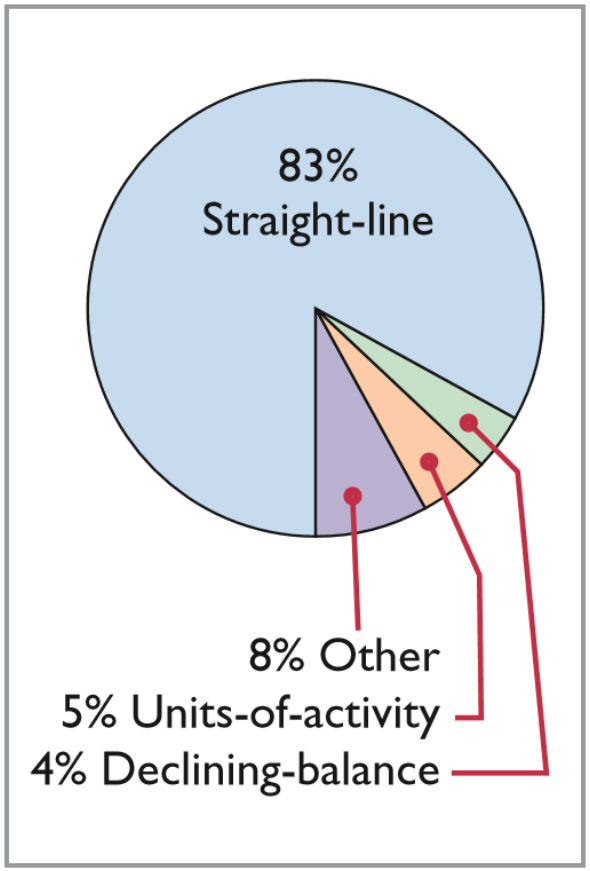
Depreciation expense is reported on the income statement. Accumulated depreciation is reported on the balance sheet as a deduction from plant assets.

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



Depreciation Methods

Illustration: Barb's Florists purchased a small delivery truck on January 1, 2020.

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

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

Depreciation Rate = $\frac{100\%}{5}$ **=20%**

Straight-Line Method

Barb's Florist

	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

2020 Journal Entry

Depreciation Expense	**2,400**	
Accumulated Depreciation		**2,400**

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?

Solution

($50,000 – $2,000) ÷ 10 = $4,800

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

Depreciation Methods

Illustration: Barb's Florists purchased a small delivery truck on January 1, 2020.

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

Straight-Line Method

Partial Year

Assume the delivery truck was **purchased on April 1, 2020**.

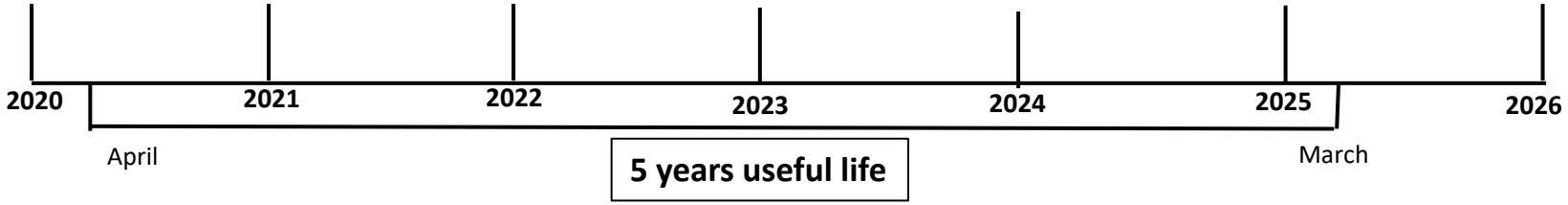
Cost	-	Salvage Value	=	Depreciable Cost
$13,000	-	$1,000	=	$12,000

Depreciation Rate = $\frac{100\%}{5}$ **=20%**

Straight-Line Method

Partial Year

Assume the delivery truck was **purchased on April 1, 2020**.



Calculation of depreciation for 2020

Number of months remaining in 2020 = (12-3) months = 9 months

Depreciation expense for 2020 = $12000 x 20% = 2400 x (9/12) = $1,800

Calculation of depreciation for 2025

Number of months remaining in 2025 = 3 months

Depreciation expense for 2025 = $12000 x 20% = 2400 x (3/12) = $ 600

Straight-Line Method

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Partial Year

Assume the delivery truck was **purchased on April 1, 2020**.

Year	Depreciable Cost	×	Rate	=	Annual Depreciation Expense	×	Partial Year	=	Current Year Expense	Accumulated Depreciation
2020	$12,000	×	20%	=	$2,400	×	$\frac{9}{12}$	=	$ 1,800	$ 1,800
2021	12,000		20		2,400				2,400	4,200
2022	12,000		20		2,400				2,400	6,600
2023	12,000		20		2,400				2,400	9,000
2024	12,000		20		2,400				2,400	11,400
2025	12,000	×	20	=	2,400	×	$\frac{3}{12}$	=	600	12,000
									$12,000	

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
- Often referred to as units-of-production method

Depreciation Methods

Illustration: Barb's Florists purchased a small delivery truck on January 1, 2020.

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

Units-of-Activity Method

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

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

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

Units-of-Activity Method

Barb's Florists

Year	Computation: Units of Activity	× Depreciation Cost/Unit	= Annual Depreciation Expense	End of Year: Accumulated Depreciation	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**

*Book value = Cost – Accumulated Depreciation

Declining-Balance Method

- Accelerated method
- Decreasing annual depreciation expense over asset's useful life
- Twice straight-line rate with Double-Declining-Balance
- Applied to declining book value
- Depreciation rate remains constant from year to year

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

Declining-Balance Method

Barb's Florists

Year	Computation: Book Value Beg. 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.

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End of Discussion