

Financial Accounting

Module 9: Property, Plant, and Equipment



Module Learning Outcomes

Describe the accounting and reporting of property, plant, and equipment

9.1: Identify property, plant, and equipment

9.2: Compute depreciation expense on plant assets

9.3: Journalize entries for disposal of assets

9.4: Recognize proper financial presentation of property, plant, and equipment

Plant Assets

Learning Outcomes: Plant Assets

9.1: Identify property, plant, and equipment

9.1.1: Define capital expenditures and differentiate from revenue expenditures

9.1.2: Apply cost principles to different categories of plant assets

9.1.3: Journalize purchase of plant assets

Define Capital Expenditures and Differentiate from Revenue Expenditures

Capital expenditures differ from revenue expenditures in the following ways:

- **Timing.** Capital expenditures are charged to expense gradually via depreciation and over a long period of time. Revenue expenditures are charged to expense in the current period or shortly thereafter.
- **Consumption.** A capital expenditure is assumed to be consumed over the useful life of the related fixed asset. A revenue expenditure is assumed to be consumed within a very short period of time.
- **Size.** A more questionable difference is that capital expenditures tend to involve larger monetary amounts than revenue expenditures because an expenditure is only classified as a capital expenditure if it exceeds a certain threshold value; if not, it is automatically designated as a revenue expenditure. Certain quite large expenditures can still be classified as revenue expenditures, as long they are directly associated with revenue transactions or are period costs.

Apply Cost Principles to Different Categories of Plant Assets

When a company acquires a plant asset, accountants record the asset at the cost of acquisition (historical cost).

The acquisition cost of a plant asset is the amount of cost incurred to acquire and place the asset in operating condition at its proper location. Cost includes all normal, reasonable, and necessary expenditures to obtain the asset and get it ready for use. Acquisition cost also includes the repair and reconditioning costs for used or damaged assets as long as the item was not damaged after purchase.



Apply Cost Principles to Different Categories of Plant Assets

The cost of land includes its purchase price and other many other costs, including:

- real estate commissions
- title search and title transfer fees
- title insurance premiums
- existing mortgage note or unpaid taxes (back taxes) assumed by the purchaser
- costs of surveying, clearing, and grading
- local assessments for sidewalks, streets, sewers, and water mains
- sometimes land purchased as a building site contains an unusable building that must be removed

Similarly, when a business buys a building, its cost includes:

- the purchase price
- repair and remodeling costs
- unpaid taxes assumed by the purchaser
- legal costs
- real estate commissions paid

Apply Cost Principles to Different Categories of Plant Assets

Often companies purchase machinery or other equipment, such as delivery or office equipment. Its cost includes:

- the seller's net invoice price (whether the discount is taken or not)
- transportation charges incurred
- insurance in transit
- cost of installation
- costs of accessories
- testing costs
- any other costs needed to put the machine or equipment in operating condition in its intended location



Journalize Purchase of Plant Assets

Journal				
Date	Description	Post. Ref.	Debit	Credit
20--				
Oct 1	Land		120,000.00	
Oct 1	Building		60,000.00	
Oct 1	Machinery		220,000.00	
Oct 1	Checking Account			100,000.00
Oct 1	Notes Payable			300,000.00
Oct 1	To record purchase of new equipment			

Depreciation Expense

Learning Outcomes: Depreciation Expense

9.2: Compute depreciation expense on plant assets

9.2.1: Define accounting depreciation and differentiate from economic definition

9.2.2: Compute depreciation using straight line method

9.2.3: Compute depreciation under accelerated methods

9.2.4: Compute depreciation using units-of-production method

9.2.5: Journalize adjusting entries for the recording of depreciation

9.2.6: Understand the relationship between accumulated depreciation and depreciation

Define Accounting Depreciation and Differentiate from Economic Depreciation

To compute the amount of depreciation expense, accountants consider four major factors:

1. Cost of the asset (covered in the prior section).
2. Proposed method of depreciation.
3. Estimated useful life of the asset.
4. Estimated salvage value of the asset. Salvage value (or scrap value or residual value) is the amount of money the company expects to recover, minus disposal costs, on the date a plant asset is scrapped, sold, or traded in.

Land won't be depreciated because in theory it has an unlimited useful life, but all the other fixed assets will depreciate.

Define Accounting Depreciation and Differentiate from Economic Depreciation

- In economics, the term **depreciation represents a loss in value**, usually due to either wear and tear or obsolescence (in contrast, the term *appreciation* refers to an increase in value). Usually, this decrease (or increase) is measured by fair market value, which is the price that a willing buyer would pay to a willing seller if both parties are aware of all the relevant facts and circumstances and neither party is under any undue influence.
- **Accounting depreciation** is a systematic and rational method of allocating the cost of an asset to the revenues it indirectly generates. In other words, accounting depreciation is based on the matching principle and is not directly related to a loss in value.

Compute Depreciation Using the Straight-Line Method

Straight-line method. A firm spreads the cost of the asset out across the asset's useful life at a steady rate.

Depreciation formula for calculating under the straight-line method is:

$$\text{Depreciation Expense} = \frac{(\text{Cost} - \text{Salvage})}{\text{Useful Life}}$$



Compute Depreciation Under Accelerated Methods

Double-declining-balance method (DDB).

As the name implies, depreciation is calculated by doubling the straight-line rate and then applying that rate to the declining "value" of the asset.

Accelerated depreciation records a larger amount of depreciation in the early years, thus accelerating the allocation of cost to the periods. This method may make more sense if you look at it theoretically graphed against the repair and maintenance costs of the vehicle, which would be very small in the first years and larger in later years.

The image shows a handwritten depreciation schedule for a Pizza Oven. The asset has a useful life of 5 years, a cost of \$50,000, and a salvage value of \$4,000. The straight-line rate is calculated as 20% (10,000/50,000), and the double-declining-balance rate is 40%. The schedule shows the beginning book value, the depreciation expense for each year, the accumulated depreciation, and the ending book value. The ending book value at the end of year 5 is \$4,000.

Ex	Pizza Oven	Year	Beg. BV	Rate	Dep. Exp.	Accum. Dep.	End BV
Useful Life	5 years	1	50,000	40%	20,000		
Cost	\$50,000	2					
Salvage Value	\$4,000	3					
		4					
		5					4,000

Handwritten calculations for the straight-line rate:

$$\frac{50,000}{5} = 10,000$$
$$\frac{10,000}{50,000} = 20\%$$
$$20\% \times 2 = 40\%$$

Compute Depreciation Using Units-of-Production Method

Units-of-production depreciation method assigns an equal amount of depreciation to each unit of product manufactured or service rendered by an asset.

- Based on physical output and applied in situations where usage rather than obsolescence leads to the demise of the asset.
- Compute the depreciation charge per unit of output. Then, multiply this figure by the number of units of goods or services produced during the accounting period to find the period's depreciation expense.

The units of production method **requires a two-step process:**

- **Step 1:** Calculate Depreciation per Unit:

Depreciation per unit = (Cost – Salvage) / expected number of units over lifetime

- **Step 2:** Calculate Depreciation Expense:

Depreciation Expense = Number of units produced this period x Depreciation per unit.

Journalize Adjusting Entries for the Recording of Depreciation

Journal				
Date	Description	Post. Ref.	Debit	Credit
20X1				
Dec 31	Depreciation Expense – Buildings		9,513.00	
Dec 31	Depreciation Expense – Machinery		35,019.00	
Dec 31	Accumulated Depreciation – Buildings			9,513.00
Dec 31	Accumulated Depreciation – Machinery			35,019.00
Dec 31	To record depreciation expense for 20X1			

Understand the Relationship Between Accumulated Depreciation and Depreciation Expense

- Accumulated depreciation tracks depreciation (cost allocated to the income statement) to date.
- The current year depreciation is added to the prior year's accumulated depreciation to give us the current amount of accumulated depreciation.

Fixed Assets						
						As of 12/31/20X2
Spivey Company						
Asset	Description	Date Purchased	Cost	Depreciation	PY Acc. Dep.	CY Acc. Dep.
1	Land	2/1/20X1	262,800			
4	Land	10/1/20X1	120,000			
Total Land			382,800	-	-	-
2	Building	7/1/20X1	490,000	11,025	5,513	16,538
5	Building	10/1/20X1	600,000	13,500	4,000	17,500
Total Buildings			1,090,000	24,525	9,513	34,038
3	Machine	7/1/20X1	162,000	35,438	20,250	55,688
6	Delivery Van	10/1/20X1	45,000	16,200	4,500	20,700
7	Machine	10/1/20X1	99,500	23,320	6,219	29,539
8	Office Furniture	10/1/20X1	70,000	13,300	3,500	16,800
9	Computer	10/1/20X1	5,500	1,980	550	2,530
Total Machinery and Equipment			382,000	90,238	35,019	125,257
Total PP&E			1,854,800	114,763	44,532	159,295

Practice Question 1

SpashPad, Inc. purchase a large piece of equipment on May 15 this year for \$75,000, depreciating it using the straight-line depreciation method over 5 years, and taking a full month's depreciation in the first month. The equipments residual value is \$15,000. What is the depreciation expense for the first year?

- A. \$1,000
- B. \$15,000
- C. \$666.64
- D. \$5,000

Journalizing Asset Disposal

Learning Outcomes: Journalizing Asset Disposal

9.3: Journalize entries for disposal of assets

9.3.1: Journalize entries for discarding of plant assets

9.3.2: Journalize entries for sale of assets

9.3.3: Journalize entries for exchanging plant assets

Journalize Entries for Discarding of Plant Assets

When retiring a plant asset from service, a company removes the asset's cost and accumulated depreciation from its plant asset accounts.

How To Record On The Books

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
Asset, at Cost	\$ 132,000	\$ 132,000	\$ 132,000
LESS:			
Accumulated Depreciation	<u>\$ 20,000</u>	<u>\$ 40,000</u>	<u>\$ 60,000</u>
Book Value (carrying value)	\$112,000	\$ 92,000	\$ 72,000

BRAIN MASS

Journalize Entries for the Sale of Assets

- Companies frequently dispose of plant assets by selling them. By comparing an asset's book value (cost less accumulated depreciation) with its selling price (or net amount realized if there are selling expenses), the company may show either a gain or loss. If the sales price is greater than the asset's book value, the company shows a gain. If the sales price is less than the asset's book value, the company shows a loss. Of course, when the sales price equals the asset's book value, no gain or loss occurs.
- When selling or otherwise disposing of a plant asset, a firm must record the depreciation up to the date of sale or disposal. For example, if the firm sold an asset on April 1 and last recorded depreciation on December 31, the company should record depreciation for three months (January 1–April 1). When depreciation is not recorded for the three months, operating expenses for that period are understated, and the gain on the sale of the asset is understated or the loss overstated.

Journalize Entries for Exchanging Plant Assets

Book value (old machine)	9,400	
Gain on disposal:		
Fair value (old machine)	\$10,400	
Book value (old machine)	<u>(9,400)</u>	
Total Gain on disposal	\$1,000	← B
Cost of new machine:		
Cash paid	\$20,000	
Fair value (old machine)	<u>10,400</u>	
Cost of new machine	\$30,400	← A
Journal Entry:		
New machine	\$30,400	← A
Accum. Deprec (old)	16,000	
Gain on disposal	1,000	← B
Old machine	25,400	
Cash paid	20,000	

Exc

Gain is greater

Reporting PP&E

Learning Outcomes: Reporting PP&E

9.4: Recognize proper financial presentation of property, plant, and equipment

9.4.1: Identify proper financial statement presentation of plant assets

9.4.2: Recognize disclosures related to plant assets

Identify Proper Financial Statement Presentation of Plant Assets

Balance sheets produced by publicly traded companies contain a lot of information and are almost always in the report form. Like the multi-step income statement, they follow a certain format that includes subtotals. The classified balance sheet groupings and subtotals make the balance sheet easier for investors to read and analyze. The classified balance sheet still proves the accounting equation but it separates assets and liabilities into the following subgroups:

- **Current Assets:** Can be converted to cash within a year or within the operating cycle, whichever is longer. Current assets include cash, accounts receivable, interest receivable, supplies, inventory, and other prepaid expenses.
- **Long-Term Investments:** Investments that are not due for more than a year are reported in this section. Long-term investments would include notes receivable or investments in bonds or stocks.
- **Plant Assets:** Plant assets (also called PP&E or fixed assets) refer to property that is tangible (can be seen and touched) and is used in the business to generate revenue. Plant assets include depreciable assets and land used in the business. The plant asset is recorded with its accumulated depreciation (if any) subtracted below it to get the asset's book value.
- **Intangible Assets:** Intangible assets are items that have a financial value but do not have a physical form. These would be things like trademarks, patents, and copyrights.
- **Current Liabilities:** Like current assets, these are liabilities whose payment are due within a year or within the operating cycle, whichever is longer. Current liabilities include accounts payable, salaries payable, taxes payable, unearned revenue, etc.
- **Long-Term Liabilities:** Liabilities due more than a year from now would be reported here, including notes payable, mortgage payable, bonds payable, etc.

Identify Proper Financial Statement Presentation of Plant Assets

EXXON MOBIL CORPORATION		
CONDENSED CONSOLIDATED BALANCE SHEET		
<i>(millions of dollars)</i>		
	<u>Sept. 30,</u> 2018	<u>Dec. 31,</u> 2017
Assets		
Current assets		
Cash and cash equivalents	5,669	3,177
Notes and accounts receivable – net	27,880	25,597
Inventories		
Crude oil, products and merchandise	14,617	12,871
Materials and supplies	4,144	4,121
Other current assets	1,665	1,368
Total current assets	<u>53,975</u>	<u>47,134</u>
Investments, advances and long-term receivables	40,427	39,160
Property, plant and equipment – net	249,153	252,630
Other assets, including intangibles – net	11,073	9,767
Total assets	<u>354,628</u>	<u>348,691</u>
Liabilities		
Current liabilities		
Notes and loans payable	19,413	17,930
Accounts payable and accrued liabilities	41,714	36,796
Income taxes payable	4,161	3,045
Total current liabilities	<u>65,288</u>	<u>57,771</u>
Long-term debt	20,624	24,406
Postretirement benefits reserves	21,448	21,132
Deferred income tax liabilities	27,084	26,893
Long-term obligations to equity companies	4,625	4,774
Other long-term obligations	18,728	19,215
Total liabilities	<u>157,797</u>	<u>154,191</u>

Recognize Disclosures Related to Plant Assets

1. For each major category of PP&E, has the entity disclosed:
 - a. cost?
 - b. the depreciation method used, including the depreciation period or rate? [14.21]
2. Has the entity disclosed the carrying amount of an item of PP&E not being depreciated because it is under construction or development or has been removed from service for an extended period of time? [14.22]
3. Has the entity disclosed the amount of depreciation of PP&E charged to income for the period? [14.23]
4. Has the entity disclosed the total accumulated depreciation? [14.23]

Recognize Disclosures Related to Plant Assets (cont'd)

5. Has the entity disclosed the following information in the period in which the carrying value of a long-lived asset is reduced (other than for depreciation) due to the cessation of the asset's use or written down in the carrying value of the asset:
 - A description of the long-lived asset?
 - A description of the facts and circumstances leading to the reduction in carrying value?
 - If not separately presented on the face of the statement of operations, the amount of the reduction in carrying value, and the caption in the statement of operations that includes that amount?
[14.25]
6. When the entity's accounting policy is to capitalize interest costs, has disclosure been made of interest costs capitalized? [14.26]

Practice Question 2

You now have your accounting degree and are consulting with a company about the necessary disclosures to include on its financial statements concerning PP&E. Which one of the following choices is a PP&E disclosure requirement?

- A. A description of its long lived asset value because of reduced usage.
- B. A list of all the company's fixed assets.
- C. Detailed notes on the losses and gains of the company.
- D. The reconciliation of the beginning and ending accumulated depreciation amounts.

Quick Review

- What is the definition of capital expenditures and how is it different from revenue expenditures?
- How are cost principles applied to different categories of plant assets?
- How are the purchase of plant assets journalized?
- What is accounting depreciation and how is it different from the economic definition?
- How is depreciation calculated using the straight line method?
- How is depreciation under accelerated methods calculated?
- How is depreciation using units-of-production method calculated?

Quick Review

- How are adjusting entries journalized for recording depreciation?
- What is the relationship between accumulated depreciation and depreciation?
- How are entries for discarding of plant assets journalized?
- How are entries for sale of assets journalized?
- How are entries for exchanging plant assets journalized?
- What is the proper financial statement presentation of plant assets?
- How are disclosures related to plant assets recognized?