

## CHAPTER 9

### Reporting and Analyzing Long-Lived Assets

#### Study Objectives

- Describe how the cost principle applies to plant assets.
- Explain the concept of depreciation.
- Compute periodic depreciation using the straight-line method, and contrast its expense pattern with those of other methods.
- Describe the procedure for revising periodic depreciation.
- Explain how to account for the disposal of plant assets.
- Describe methods for evaluating the use of plant assets.
- Identify the basic issues related to reporting intangible assets.
- Indicate how long-lived assets are reported on the balance sheet.

#### Chapter Outline

##### Study Objective 1 - Describe how the Cost Principle Applies to Plant Assets

1. Long-Lived assets are those assets that will benefit the business in excess of one year. There are several common categories of long-lived assets:
  - a. **Plant assets** are resources that
    - i. have physical substance (a definite size and shape),
    - ii. are used in the operations of a business, and
    - iii. are not intended for sale to customers.
      1. The **cost principle** requires that all assets be recorded at **full cost**.
        - a. **Full Cost** consists of all expenditures that are both normal and necessary to
          - i. acquire an asset and
          - ii. make it ready for its intended use.
  - b. Costs not included in a plant asset account must be expensed immediately.
    - i. Such costs are referred to as **revenue expenditures**.
    - ii. Costs that are not expensed immediately, but are instead included in a plant asset account are referred to as **capital expenditures**.
  - c. Cost is measured by the cash paid in a cash transaction or by the **cash equivalent price** paid when non-cash assets are used in payment.
    - i. The **cash equivalent price** is equal to the fair market value of the asset given up or the fair market value of the asset received, whichever is more clearly determinable.
    - ii. Once cost is established, it becomes the basis of accounting for the plant asset over its useful life.

2. **Land** - Land is a unique asset in that it has unlimited life and is not subject to depreciation (like all other assets)
- a. The full cost of land includes:
    - i. The cash purchase price
    - ii. Closing costs such as title and attorney's fees
    - iii. Real estate brokers' commissions
    - iv. Accrued property taxes and other liens on the land assumed by the purchaser

▪ In other words, all necessary costs both normal and necessary to make the land **ready for its intended use** increase (debit) the Land account.

3. **Land improvements** -

- a. Land improvements are structural additions made to land such as driveways, parking lots, fences, and underground sprinklers.
  - i. The cost of land improvements includes all expenditures necessary to make the improvements ready for their intended use.
  - ii. The cost of a new company parking lot includes the amount paid for paving, fencing, and lighting.
  - iii. The total of all these costs would be debited to Land Improvements.
  - iv. What makes land improvements different from land is that they have a limited life and therefore are subject to depreciation (like other assets) over their useful (service lives).
4. **Buildings** - Buildings are facilities used in operations, such as stores, offices, factories, warehouses, and airplane hangers.
  - a. Buildings are recorded at the full cost that is normal and necessary to get the building ready for use.
    - i. All necessary expenditures relating to the purchase or construction of a building are charged to the building account.
      1. When a building is **purchased**, such costs include
        - a. the purchase price,
        - b. closing costs (attorney's fees, title insurance, etc.), and
        - c. real estate broker's commissions.
    - b. When a new building is **constructed**, its cost consists of
      - i. the contract price plus
      - ii. payments made by the owner for architect's fees, building permits, and excavation costs.
        1. Note that the cost of preparing the land for use as a construction site for the building is part of the cost of the building and not part of the cost of the land unless the land is purchased specifically for a building site.
        2. The inclusion of interest costs in the cost of a constructed building is **limited to the construction period**.
5. **Equipment** - Equipment includes assets used in operations, such as store check-out counters, office furniture, factory machinery, delivery trucks, and airplanes.
  - a. The cost of equipment consists of the
    - i. cash purchase price,
    - ii. sales tax,
    - iii. freight charges,
    - iv. insurance during transit paid by the purchaser,
    - v. other expenditures required in assembling, installing and testing the unit.
      1. Exceptions (instances where equipment costs are expensed (charged to expense in the current period) as opposed to being capitalized (added to the cost of the equipment):
        - a. If the cost a recurring item (like maintenance) it is charged to expense

- b. If the benefit period of the cost is less than one year it is expensed.

To illustrate these cost concepts, assume that Lenard Company purchases a delivery truck at a cash price of \$22,000. Related expenditures are for 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 motor vehicle license is treated as an expense, and the cost of an insurance policy is considered a prepaid asset. Thus the entry to record the purchase of the truck and related expenditures is as follows:

Delivery Truck	23,820	
State Registration Expense	80	
Prepaid Insurance	1,600	
Cash		25,500

6. **Leasing** - An alternative to purchasing an asset is leasing. There are two broad categories of leases
- a. **Operating lease**
    - i. In an operating lease, a party that owns an asset (the lessor) agrees to allow another party (the lessee) to use the asset for an agreed period of time at an agreed price.
      1. There is no intention to transfer ownership of the leased asset to the lessee.
        - a. An example of an operating lease is a rental lease for office space
    - ii. Some advantages of leasing an asset versus purchasing it are:
      1. reduced risk of obsolescence
      2. little or no down payment
      3. shared tax advantages
      4. assets and liabilities are not reported in **operating leases**.
  - b. **Capital leases**
    - i. Leases that transfer ownership to the lessee are known as **capital leases**,
      1. In a capital lease both the asset and the liability are shown on the balance sheet.
      2. For the lessee, long-term capital lease agreements are accounted for in a way that is very similar to purchases.

### Study Objective 2 - Explain the Concept of Depreciation

1. **Depreciation** is the process of allocating to expense the cost of a plant asset over its useful (service) life in a rational and systemic manner.
  - a. Such cost allocation is designed to properly match expenses with revenues.
  - b. Depreciation **applies to all assets that have limited lives**
  - c. Depreciation is unique in that it is a non-cash expense.
    - i. Depreciation reduces revenue but does not affect cash flow.
    - ii. **Recognizing depreciation for an asset does not result in the accumulation of cash for replacement of the asset.**
      1. The balance in the Accumulated Depreciation account represents the total amount of the asset's cost that has been charged to expense to date; **it is not a cash fund.**
  - d. Depreciation affects both the and the income statement
    - i. The balance sheet is affected through accumulated depreciation, which is reported as a deduction from plant assets.
    - ii. The income statement is affected through depreciation expense.

◆ It is essential to note that Depreciation is a **process of cost allocation**, not a process of asset valuation.

2. **Book value of an Asset** is the cost less accumulated depreciation
  - a. Book value of non-current assets (such as plant assets) usually differ significantly from their market value.
    - i. **Market value** is what a willing buyer will pay a willing seller without duress.
3. The rationale for depreciation:
  - a. Assets have limited lives and their cost must be allocated to the periods they serve in order to properly match revenues with expenses.
  - b. If the assets productivity is constant over its' entire life, straight-line depreciation is appropriate
    - i. Straight-line depreciation charges the same amount to depreciation expense each year over the service life of the asset.
  - c. If the assets revenue-producing ability declines during its useful life because of wear and tear or obsolescence, then an accelerated method of depreciation may be appropriate.
    - i. Accelerated depreciation methods create more depreciation expense in the early years of an assets life when the asset is most productive
4. Factors Considered in Computing Depreciation Expense:
  - a. Depreciation is based upon three factors:
    - i. **Full Cost of the asset**
    - ii. **Useful life**
      1. an estimate of the expected productive life, also called service life, of the asset.
    - iii. **Salvage value**
      1. an estimate of the asset's value at the end of its useful life.

**Study Objective 3 - Compute Periodic Depreciation Using the Straight-line Method, and Contrast its Expense Pattern with those of Other Methods**

1. Methods of Computing Depreciation expense: There are three general methods of computing depreciation
  - a. Straight-line

$$\text{Straight-Line} = \frac{\text{Full Cost} - \text{Salvage Value}}{\text{Life}}$$

- b. Declining-balance
  - i. Double declining balance
    1. Declining balance methods do not consider salvage value
    2. Depreciation expense is more in the first years of an assets life
  - ii. Sum-of-Years-Digits
    1. Salvage value is used
    2. A fraction is developed by taking the years in inverse order divided by the sum of the years of life (n!)
      - a. For example an asset with a five year life would be depreciated as follows:
        - i. Year 1: 5/15 (full cost)
        - ii. Year 2: 4/15 (full cost)
        - iii. Year 3: 3/15 (full cost)
        - iv. Year 4: 2/15 (full cost)
        - v. Year 5: 1/15 (full cost)

The sum of the years digits can be computed by taking  $n(n+1)/2=15$   
 Therefore for an asset with a five year life, the sum of years digits would be:  $5(5+1)=30$   
 The years in inverse order for an asset with a five year life are simple 5,4,3,2,1

c. Units-of-activity

- i. The life of an asset is expressed in terms of the total units of production or the use expected from the asset.
  1. suited to factory machinery and such items as delivery equipment and airplanes.
  2. Generally not suitable for such assets as buildings or furniture because activity levels are difficult to measure.
  3. The amount of depreciation is proportional to the activity that took place during that period.

2. General concepts of applying depreciation methods:

- a. Each of these depreciation methods is GAAP.
- b. Once a method is chosen, it should be applied consistently over the useful life of the asset.
  - i. A change in depreciation is a change in GAAP and requires special accounting disclosure
- c. Straight-line depreciation is the most widely used method of depreciation.
  - i. Under the straight-line method, an equal amount of depreciation expense is recorded each year of the asset's useful life.
  - ii. The **depreciable cost** of an asset represents the total amount subject to depreciation and is normally calculated as the cost of the asset less its salvage value
    1. Declining Balance methods are an exception and do not consider salvage value except as a limiting factor, that is to say that the asset cannot be depreciated below the stated salvage value.
      - a. The reason declining balance methods do not consider salvage value is that they can never fully depreciate an asset because they are always taking a percentage of a declining value and can never reach zero.
  - iii. If an asset is purchased during the year rather than on January 1, the annual depreciation is prorated for the proportion of a year it is used.

### Straight-line Depreciation Illustrated

Bill's Pizzas purchased two trucks on January 1, 2004:

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

Computation of straight-line depreciation:  $(\$13,000 - \$1,000) \div 5 \text{ years} = \$2,400 \text{ per year}$

Depreciation Schedule Assuming Straight-Line Depreciation

Depreciable Year	Depreciable Cost	Depreciation Rate	Annual Depreciation Expense	Accumulated Depreciation	Book Value
2004	\$ 12,000	20%	\$ 2,400	\$ 2,400	\$ 10,600
2005	12,000	20%	2,400	4,800	8,200
2006	12,000	20%	2,400	7,200	5,800
2007	12,000	20%	2,400	9,600	3,400
2008	12,000	20%	2,400	12,000	1,000
Total			<u>\$12,000</u>		

Note:  
 1. Equal depreciation each year  
 2. Book value is reduced to salvage at the end of service life

### Double Declining Balance Method Illustrated

Depreciable Year	Declining Balance Depreciable Cost	Depreciation Rate	Annual Depreciation Expense	Accumulated Depreciation	Book Value
2004	\$ 13,000	40%	\$ 5,200	\$ 5,200	\$ 7,800
2005	7,800	40%	3,120	8,320	4,680
2006	4,680	40%	1,872	10,192	2,808
2007	2,808	40%	1,123	11,315	1,685
2008	1,123	40%	685*	12,000	1,000
<b>Total</b>			<b>\$12,000</b>		

Note:

1. Unequal depreciation; declines each year as the depreciation base declines.
2. Book value is reduced to salvage at the end of service life
3. \* Note that salvage value is not used for computations but is a limiting factor (depreciation base cannot be reduced below salvage)

### Sum-of-Years Digits Method Illustrated

Depreciable Year	Declining Balance Depreciable Cost	Depreciation Rate	Annual Depreciation Expense	Accumulated Depreciation	Book Value
2004	\$ 12,000	5/15	\$ 4,000	\$ 4,000	\$ 9,000
2005	12,000	4/15	3,200	7,200	5,800
2006	12,000	3/15	2,400	9,600	2,808
2007	12,000	2/15	1,600	11,200	1,685
2008	12,000	1/15	800	12,000	1,000
<b>Total</b>			<b>\$12,000</b>		

Note:

1. Unequal depreciation; declines each year as the depreciation base declines.
2. Book value is reduced to salvage at the end of service life

### Units of Activity Depreciation Method Illustrated

Computing depreciation under units-of-activity is the much the same as straight line. The only difference is that the life is expressed in terms of activity rather than years. Activity may be measured in units produced, miles driven, or hours flown, depending on the asset. Returning to the example of Bill's delivery truck the units-of-activity depreciation would be computed as follows:

$$(\$13,000 - \$1,000) \div 100,000 \text{ miles} = \$0.12 \text{ per mile}$$

#### Depreciation Schedule Assuming Units-of-Activity Depreciation

Year	Units of Activity Miles	End of Year		Book Value
		Depreciation Expense	Accumulated Depreciation	
2004	15,000	\$ 1,800	\$ 1,800	\$ 11,200
2005	30,000	3,600	5,400	7,600
2006	20,000	2,400	7,800	5,200
2007	25,000	3,000	10,800	2,200
2008	10,000	1,200	12,000	1,000
<b>Total</b>	<b>100,000</b>	<b>\$12,000</b>		

Students need to have a good understanding of the effect different methods of depreciation have on the Income Statement and the Balance Sheet.

Comparison of Depreciation Expense With four Methods of Depreciation

Year	Straight-Line Method	Double-Declining Balance Method	Sum-of-Years Digits Method	Units-of-Activity Method
2004	\$ 2,400	\$ 5,200	\$ 4,000	\$ 1,800
2005	2,400	3,120	3,200	3,600
2006	2,400	1,872	2,400	2,400
2007	2,400	1,123	1,600	3,000
2008	2,400	685	800	1,200
	<u>\$ 12,000</u>	<u>\$ 12,000</u>	<u>\$ 12,000</u>	<u>\$ 12,000</u>

Note that total depreciation is the same for all methods for the five-year period.

3. Tax implications of the various depreciation methods.
  - a. The IRS allows corporate taxpayers to deduct depreciation expense when computing taxable income.
    - i. The IRS does not require the taxpayer to use the same depreciation method on the tax return that is used in preparing financial statements.
    - ii. Many large corporations use straight-line depreciation in their financial statements to maximize net income, and at the same time they use a special accelerated-depreciation method on their tax returns to minimize their income taxes.
    - iii. For tax purposes, 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)**.
    - iv. The choice of depreciation method must be disclosed in a company's financial statements. The disclosure is found in the notes that accompany the statements.

**Study Objective 4 - Describe the Procedure for Revising Periodic Depreciation**

1. The computation of annual depreciation expense is based on estimates. Therefore, management should periodically review depreciation.
  - a. When a change in an estimate is required, the change is made in **current and future years but not to prior periods**.
    - i. Thus, when a change is made
      1. there is no correction of previously recorded depreciation expense, and
      2. depreciation expense for current and future years is revised.
        - a. The rationale for this treatment is that continual restatement of prior periods would adversely affect the users' confidence in financial statements.
2. Significant changes in estimates must be disclosed in the financial statements.
  - a. Extending an asset's estimated life reduces depreciation and increases net income for the period.
  - b. During the useful life of a plant asset, a company may incur costs for ordinary repairs, additions, and improvements.
    - i. **Ordinary repairs** - expenditures to maintain the operating efficiency and expected productive life of the asset.
      1. **Ordinary repairs are expensed as incurred.**
      2. Ordinary repairs are usually small in amount and occur frequently throughout the service life.
        - a. Examples of ordinary repairs include motor tune-ups and oil changes, the painting of buildings, and the replacing of worn-out gears on factory machinery.

- b. Ordinary repairs are debited to Repair (or Maintenance) Expense and are immediately charged against revenues. These costs are **revenue expenditures (charged as an expense in the current period)**.
- 3. **Additions and improvements** - incurred expenses that increase the life of the asset or make it more efficient are capitalized (added to the cost of the asset).
  - a. **These cost are normally material** in amount and occur infrequently during the period of ownership.
    - i. **Capitalized costs are added to the cost of the asset and amortized over the assets remaining life**
  - b. Expenditures of this nature (Additions and improvements) are **capital expenditures (added to the cost of the asset and depreciated over the remaining life of the asset)**.
- 4. **Impairments** - a **permanent decline** in the market value of an asset.
  - a. When an asset suffers a decline in value that is clearly not temporary, it is impaired.
    - i. Impaired assets are written down to the new market value during the year in which the decline in value occurs in order to avoid the assets being overstated (conservatism).
    - ii. In the past some companies delayed recording losses on impairments until a year when the impact on the company's reported results was minimized.
      - 1. The practice of timing the recognition of gains and losses to achieve certain income results is known as **earnings management**.
      - 2. A recent FASB statement requires immediate recognition of these write-downs.

### Study Objective 5 - Explain how to Account for the Disposal of Plant Assets

- 1. Disposal of Plant Assets
  - a. Whether a plant asset is sold, exchanged, or retired, the company must determine the book value of the plant asset at the time of disposal.
  - b. Book value is the difference between the cost of the plant asset and the accumulated depreciation to date.
    - i. If disposal occurs at any time during the year, the depreciation for the fraction of the year to the date of disposal must be recorded.
    - ii. Book value is eliminated by reducing (debiting) Accumulated Depreciation for the total depreciation associated with that asset and reducing (crediting) the asset account for the cost of the asset.
    - iii. Gain or loss is recognized on the sale of assets by comparing proceeds from the sale with the book value.
      - 1. If the proceeds exceed the book value a **gain on disposal** occurs.
        - a. The gain is reported in the "Other revenues and gains" section of the income statement.
        - b. Conversely, if proceeds from the sale are less than the book value a **loss on disposal** occurs.
          - i. The loss is reported in the "Other expenses and losses" section of the income statement.



ii.

▪ To illustrate a gain on sale of plant assets, assume that on July 1, 2004, Wright Company sells office furniture for \$16,000 cash. The office furniture originally cost \$60,000 and as of January 1, 2004, had accumulated depreciation of \$41,000. Depreciation for the first six months of 2004 is \$8,000. Then entries to record depreciation expense and update accumulated depreciation to July 1 and to record the sale and the gain on sale is are as follows:

July 1	Depreciation Expense	8,000	
	Accumulated Depreciation—Office Furniture		8,000
	(To record depreciation expense for the first six months of 2004)		
July 1	Cash	16,000	
	Accumulated Depreciation—Office Furniture	49,000	
	Office Furniture		60,000
	Gain on Disposal		5,000
	(To record sale of office furniture at a gain)		

2. The retirement of an asset is recorded by decreasing Accumulated Depreciation for the full amount of depreciation taken over the life of the asset.
  - a. The asset account is reduced for the original cost of the asset. The loss is equal to the asset's book value at the time of retirement.

#### Study Objective 6 - Describe Methods for Evaluating the Use of Plant Assets

1. Two measures by which plant assets are evaluated are:
  - a. **Return on assets** - an overall measure of profitability.
    - i. This ratio is computed by dividing net income by average assets.
    - ii. The return on assets ratio indicates the amount of net income generated by each dollar invested in assets.
    - iii. The higher the return on assets, the more profitable the company.
  - b. **Asset turnover ratio** - indicates how efficiently a company uses its assets—that is how many dollars of sales are generated by each dollar invested in assets.
    - i. This ratio is computed by dividing net sales by average total assets.
    - ii. When comparing two companies in the same industry, the one with the higher asset turnover ratio is operating more efficiently; it is generating more sales per dollar invested in assets.
  - c. **Profit margin ratio** - revisited from Chapter 5.
    - i. This ratio is calculated by dividing net income by net sales.
    - ii. It tells how effective a company is in turning its sales into income—that is, how much income is provided by each dollar of sales.
- The return on assets ratio can be computed from the profit margin ratio and the asset turnover ratio.  
$$\text{Profit Margin} \times \text{Asset Turnover} = \text{Return on Assets}$$
- Where:  
$$\text{Profit Margin} = \text{Net Income} \div \text{Net Sales}$$
$$\text{Asset Turnover} = \text{Net Sales} \div \text{Average Total Assets}$$
$$\text{Return on Assets} = \text{Net Income} \div \text{Average Total Assets}$$

## Study Objective 7 - Identify the Basic Issues Related to Reporting Intangible Assets

1. **Intangible assets** are rights, privileges, and competitive advantages that result from ownership of long-lived assets that do not possess physical substance.
  - a. Well known intangibles are the patents of Polaroid, the franchises of McDonald's, the trade name Macintosh, and Nike's trademark "swoosh."
  - b. **Intangible assets are recorded at Full Cost.**
    - i. Under a new accounting standard, intangibles are now categorized as having either a limited life or an indefinite life.
      1. If an intangible has a **limited life**, its cost should be allocated over its useful life using a process similar to depreciation.
        - a. The process of allocating the cost of intangibles to the periods they benefit is referred to as **amortization**.
      2. The cost of intangible assets with **indefinite lives should not be amortized**.
  - c. To record amortization of an intangible asset, Amortization Expense is increased (debited), and the specific intangible asset is decreased (credited).
    - i. (Unlike depreciation, no contra account, such as Accumulated Amortization, is usually used.)
    - ii. Intangible assets are typically amortized on a straight-line basis. For example, the legal life of a patent is 20 years. Its cost should be amortized over its 20-year life or useful life whichever is shorter.
    - iii. In determining useful life, a company should consider obsolescence, inadequacy, and other factors that may cause a patent or other intangible to become economically ineffective before the end of its legal life.
  - d. **Types of intangible assets:**
    - i. **Patent** - an exclusive right issued by the United States 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.
      1. **The initial cost of a patent is the cash or cash equivalent price paid to acquire the patent.** Legal costs of protecting a patent in an infringement suit are **added to the Patent account and amortized over the remaining life of the patent.**
    - ii. **Research and development costs** are expenditures that may lead to patents, copyrights, new processes, and new products. There are uncertainties in identifying the extent and timing of the future benefit of these expenditures. As a result, research and development costs are **usually recorded as an expense when incurred**.
    - iii. **Copyrights** are granted by the federal government giving the owner the exclusive right to reproduce and sell an artistic or published work. Copyrights extend for the life of the creator plus 50 years. The cost of a copyright consists of the **cost of acquiring and defending it**. The useful life of a copyright generally is significantly shorter than its legal life.
    - iv. A **Trademark or trade name** is a word, phrase, jingle, or symbol that distinguishes or identifies a particular enterprise or product. Trade names like Wheaties, Trivial Pursuit, Sunkist, Kleenex, Coca-Cola, Big Mac, and Jeep create immediate product identification and 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. The registration provides 20 years' protection and may be renewed indefinitely. Because trademarks and trade names have indefinite lives, they are not amortized.

- v. **Franchises and Licenses** - A **franchise** is a contractual agreement under which the franchiser grants the franchisee the right to sell certain products, to render specific services, or to use certain trademarks or trade names, usually within a designated geographic area. Another type of franchise, granted by a government body permits the enterprise to use public property in performing its service (i.e. the use of airwaves for radio or TV broadcasting). Such operating rights are referred to as **licenses**.
  - 1. When costs can be identified with the acquisition of the franchise or license, an intangible asset should be recognized. Annual payments made under a franchise agreement should be recorded as **operating expenses** in the period in which they are incurred.
    - a. In the case of a limited life, the cost of a franchise (or license) should be amortized as an operating expense over its useful life.
    - b. If the life is indefinite or perpetual, the cost is not amortized.
- vi. **Goodwill** represents the value of all favorable attributes that relate to a business enterprise, including exceptional management, desirable location, good customer relations, skilled employees, etc.
  - 1. Goodwill is unusual: Unlike other assets such as investments, plant assets and even other intangibles, which can be sold individually in the marketplace, goodwill can be identified only with the business as a whole.
    - a. Goodwill is only recognized when it can be demonstrated by an excess purchase price
      - i. **Goodwill is recorded only when there is an exchange transaction that involves the purchase of an entire business.**
      - ii. **When an entire business is purchased, goodwill is the excess of cost over the fair market value of the net assets (assets less liabilities) acquired.**
      - iii. Goodwill is not amortized because it is considered to have an indefinite life. However, it must be written down if its value is determined to have permanently declined.

### **Study Objective 8 - Indicate how Long-lived Assets are Reported on the Balance Sheet**

- 1. Presentation of Long-lived assets on the Balance Sheet
  - a. Plant assets are shown in the financial statements under "Property, Plant, and Equipment" and intangibles are shown separately under "Intangible Assets."
  - b. Intangibles do not usually use a contra asset account like the contra asset account Accumulated Depreciation used for plant assets. Instead, amortization of these accounts is recorded as a direct decrease (credit) to the asset account.
  - c. Totals for the major classes of assets should be presented either within the balance sheet or in the notes to the financial statements.
    - i. (i.e. land buildings, equipment) and accumulated depreciation by major classes or in total.
  - d. In addition, the depreciation and amortization methods used should be described and the amount of depreciation and amortization expense for the period disclosed.
  - e. It is also interesting to examine the statement of cash flows to determine the amount of property, plant, and equipment purchased and the cash received from property, plant, and equipment sold in a given year. The cash flows from purchases and dispositions of property, plant, and equipment are shown in the investing activities section of the statement of cash flows.

## Chapter 9 Review

- ✓ Why are plant assets listed at cost? What costs are included in the cost of plant assets?
  
- ✓ What is depreciation?
  
- ✓ Compute periodic depreciation using the straight-line method assuming a cost of \$10,000, zero salvage value, and a 5-year useful life. Contrast its expense pattern with that of an accelerated method.
  
- ✓ When and how do you revise depreciation?
  
- ✓ What are the ways in which plant assets can be disposed? Explain how to account for the disposal of plant assets.
  
- ✓ Describe methods for analyzing a company's use of plant assets.
  
- ✓ What are intangible assets and how are they reported?
  
- ✓ How are long-lived assets reported on the balance sheet?

**Chapter 9**

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The cost of land includes (1) the cash \_\_\_\_\_, (2) \_\_\_\_\_ such as title and attorney's fees, (3) real estate brokers' \_\_\_\_\_, and (4) accrued \_\_\_\_\_ and other liens on the land 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 \_\_\_\_\_.

All necessary costs incurred in making the land ready for its \_\_\_\_\_ increase the \_\_\_\_\_ account. When vacant land is acquired, its cost includes expenditures for \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_. If the land has a building on it that must be removed to make the site suitable for construction of a new building, all \_\_\_\_\_ and \_\_\_\_\_, less any proceeds from \_\_\_\_\_, are chargeable to the \_\_\_\_\_ account.

To illustrate, assume that Hayes Manufacturing Company acquires real estate at a cash cost of \$100,000. The property contains an old warehouse that is razed at a net cost of \_\_\_\_\_ (\$7,500 in cost less \$1,500 proceeds from salvaged materials). Additional expenditures are for the attorney's fee \$1,000 and the real estate broker's commissions \$8,000. Given these factors, the cost of the land is \_\_\_\_\_.

## Solutions - Reading Comprehension Check I

### Chapter 9

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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 on the land 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.

All necessary costs incurred in making the land ready for its intended use increase the Land account. When vacant land is acquired, its cost includes expenditures for clearing, draining, filling, and grading. If the land has a building on it that must be removed to make the site suitable for construction of a new building, all demolition and removal costs, less any proceeds from salvaged materials, are chargeable to the Land account.

To illustrate, assume that Hayes Manufacturing Company acquires real estate at a cash cost of \$100,000. The property contains an old warehouse that is razed at a net cost of \$6,000 (\$7,500 in cost less \$1,500 proceeds from salvaged materials). Additional expenditures are for the attorney's fee \$1,000 and the real estate broker's commission \$8,000. Given these factors, the cost of the land is \$115,000.

**Chapter 9**

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\_\_\_\_\_ is the process of allocating to expense the cost of a plant asset over its useful (service) life in a \_\_\_\_\_ and \_\_\_\_\_ manner. Such cost allocation is designed to properly \_\_\_\_\_ expenses with revenues.

It is important to understand that depreciation is a process of \_\_\_\_\_, not a process of \_\_\_\_\_. No attempt is made to measure the change in an asset's \_\_\_\_\_ during ownership because plant assets are not held for resale. Thus, the \_\_\_\_\_--cost less accumulated depreciation--of a plant asset may differ significantly from its \_\_\_\_\_. In fact, if an asset is fully depreciated, it can have a \_\_\_\_\_ book value but still have a significant \_\_\_\_\_.

## Solutions - Reading Comprehension Check II

### Chapter 9

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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. Such cost allocation is designed to properly match expenses with revenues.

It is important to understand that depreciation is a process of cost allocation, not a process of asset valuation. No attempt is made to measure the change in an asset's market value during ownership because plant assets are not held for resale. Thus, the book value --cost less accumulated depreciation--of a plant asset may differ significantly from its market value. In fact, if an asset is fully depreciated, it can have a zero book value but still have a significant market value.



Chapter 9

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- \_\_\_\_\_ 1. A depreciation method in which useful life is expressed in terms of the total units of production or the use expected from the asset.
- \_\_\_\_\_ 2. The process of allocating to expense the cost of a plant asset over its useful (service) life in a rational and systematic manner.
- \_\_\_\_\_ 3. Expenditures to maintain the operating efficiency and expected productive life of the asset.
- \_\_\_\_\_ 4. The value of all favorable attributes that relate to a business enterprise.
- \_\_\_\_\_ 5. A method in which an equal amount of depreciation is expensed each year of the asset's useful life.
- \_\_\_\_\_ 6. A word, phrase, jingle, or symbol that distinguishes or identifies a particular enterprise or product.
- \_\_\_\_\_ 7. Rights, privileges, and competitive advantages that result from ownership of long-lived assets that do not possess physical substance.
- \_\_\_\_\_ 8. The cost of a plant asset less its salvage value.
- \_\_\_\_\_ 9. Resources that have physical substance, are used in the operations of the business, and are not intended for sale to customers.
- \_\_\_\_\_ 10. Costs that are immediately charged against revenue as an expense.

## Solutions to Vocabulary Quiz

### Chapter 9

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1. Units-of-activity method
2. Depreciation
3. Ordinary repairs
4. Goodwill
5. Straight-line method
6. Trademark (trade name)
7. Intangible assets
8. Depreciable cost
9. Plant assets
10. Revenue expenditures

**Chapter 9**

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1. The cost of an asset less its salvage value is referred to as:
  - a. book value.
  - b. market value.
  - c. depreciable cost.
  - d. historical cost.
  
2. 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 is a:
  - a. trademark.
  - b. license.
  - c. goodwill.
  - d. patent.
  
3. The most widely used method of depreciation is the:
  - a. straight-line method.
  - b. declining-balance method.
  - c. units-of-activity method.
  - d. sum-of-the-years-digits method.

Use the following information to answer questions 4, 5, and 6:

The Blooming Miracles Flower shop bought a delivery van on January 1, 2004. The van cost \$18,000 and had an expected salvage value of \$3,000. The life of the van was estimated to be 5 years or 150,000 miles.

4. The depreciable cost of the van is:
  - a. \$18,000.
  - b. \$15,000.
  - c. \$ 5,000.
  - d. \$ 3,000.
  
5. The depreciation expense for 2004 using the straight-line method of depreciation is:
  - a. \$5,000.
  - b. \$3,600.
  - c. \$3,000.
  - d. none of the above.
  
6. Using the straight-line method of depreciation, the book value of the van at the beginning of the third year would be:
  - a. \$18,000.
  - b. \$15,000.
  - c. \$12,000.
  - d. \$ 6,000.

7. The following method(s) is (are) accelerated method(s) of depreciation:
  - a. straight-line.
  - b. declining-balance method.
  - c. MACRS.
  - d. both b and c above.
  
8. Depreciation is dependent on a number of estimates. When a change in an estimate is required, the change is made:
  - a. in the current year.
  - b. in the future years.
  - c. to prior periods.
  - d. both a and b above.
  
9. All of the following are intangible assets **except**:
  - a. goodwill.
  - b. trademarks.
  - c. coal reserves.
  - d. patents.
  
10. An exclusive right to reproduce and sell artistic or published work is a:
  - a. patent.
  - b. copyright.
  - c. license.
  - d. franchise.

## Solutions to Multiple Choice Quiz

### Chapter 9

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1. c

2. d

3. a

4. b

5. c

6. c

7. d

8. d

9. c

10. b

## Exercise 1 - Reporting Plant Asset Activity

### Chapter 9

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Briars Hunting Supply Company incurred the following expenditures during the period:

- 1 Paint and labor costs for painting store interior.
- 2 Purchase of display racks.
- 3 Purchase of land for new parking lot.
- 4 Cost of removing shed from land prior to installing parking lot.
- 5 Addition of parking spaces (cost to pave and light area).

Indicate whether each of the above items would be classified as land (L), land improvements (LI), equipment (E), or revenue expenditures (RE).

#### Solutions:

1. RE (Repair and maintenance)
2. E
3. L
4. L
5. LI

## Exercise 2 - World Wide Web Research and Financial Statement Presentation Activity

### Chapter 9

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Southwest Airlines started in 1971 with three planes serving three Texas cities. Today, it has over 300 planes and flies more than 64 million passengers a year to 58 great cities (59 airports) all over the Southwest and beyond. Southwest Airlines has become the fourth largest major airline in America. Obtain an annual report for Southwest Airlines from your school library or visit Southwest Airlines at [www.iflyswa.com](http://www.iflyswa.com). Find the sections on Property and Equipment and Leases in the Notes to Financial Statements and look at the assets listed on the Balance Sheet. Also look at the Statement of Cash Flows.

1. Look at the Property and Equipment section of the Balance Sheet. What are the amounts listed for each of these categories? Are you surprised at the breakdown of Property and Equipment? Why or why not?
2. What items do you find on the Statement of Cash Flows relating to property and equipment?
3. What method of depreciation does Southwest use? Would you expect Southwest Airlines to use a different method of depreciation for tax purposes? Why or why not?
4. What is the life over which Southwest depreciates Fixed Assets?
5. What are the amounts and types of leases disclosed in the Notes to Financial Statements? What other information regarding leases do you find useful to financial statement users?

**Solutions:** Information available on Wiley student website.

**Note:** The Wiley student website is constantly being updated. Please check to see that the information requested in this exercise is available.

## Exercise 3 - World Wide Web Research and Financial Statement Presentation Activity

### Chapter 9

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An **impairment** of an asset is a permanent decline in its market value. Although assets are supposed to be written down to the new market value during the year in which the decline in value occurred, some companies have adopted the practice of timing the recognition of gains and losses to achieve certain income results. This practice is known as earnings management. In order to reduce the practice of earnings management, a recent FASB standard requires immediate recognition of these write-downs. Obtain the annual report for AirTran Airways from your school library or go to [www.airtran.com](http://www.airtran.com). Also, visit FASB at [www.fasb.org](http://www.fasb.org) to find information to answer the following questions:

1. Identify and summarize the FASB standard requiring immediate write-downs of asset impairments.
2. How does AirTran account for asset impairment in its financial statements? What effect does AirTran expect new accounting treatment to have on its financial results?
3. Identify and summarize the FASB standard governing the accounting treatment for intangibles with indefinite lives.
4. AirTran's Balance Sheet shows several intangible assets. A recent FASB standard changes the requirements for accounting for intangible assets with indefinite useful lives. How has this new standard affected the accounting treatment of AirTran's intangible assets?

**Solutions:** Information available on Wiley student website.

**Note:** The Wiley student website is constantly being updated. Please check to see that the information requested in this exercise is available.



## Exercise 4 - World Wide Web Research and Intangible Assets Activity

### Chapter 9

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Some people confuse patents, copyrights, and trademarks. Although there may be some similarities among these kinds of intellectual property protection, they are different and serve different purposes. Learn more about patents, trademarks and copyrights at [www.uspto.gov](http://www.uspto.gov).

1. What is a patent? How long is the term of a new patent?
2. What can be patented?
3. What is a trademark or servicemark?
4. What is a copyright?

**Solutions:** Information available on Wiley student website.

**Note:** The Wiley student website is constantly being updated. Please check to see that the information requested in this exercise is available.

## Exercise 5 - Communication Activity

### Chapter 9

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Your roommate just returned from accounting class in a very bad mood and announced, "I do not need to take accounting. What will I ever need to know about reporting and analyzing long-lived assets? I am a management major." Write a memo to your roommate in response to the comment. Remember the criteria for good business writing-- coherence, clarity and conciseness.

**Solution:**

**DATE:** 5/1/0X

**TO:** My Roommate

**FROM:** Management Student

**SUBJECT:** Accounting Class

In the accounting text we learn that accounting information has external and internal users. The external users include creditors, stockholders, and potential stockholders. In addition there are a number of regulatory agencies that require accounting information (i.e. Securities Exchange Commission and the Internal Revenue Service). Internal users of financial information include managers.

The internal users are, for the most part, managers at different levels of the organization. Decision-making is one of the major functions of a manager. And, many of the decisions managers make depend on accounting information. For example, if a manager is trying to decide whether to increase inventory, give employees a bonus, or buy a delivery van, he or she will need to know whether the firm is earning a profit. A good manager should understand the financial presentation of fixed assets and intangible assets. A manager, when purchasing a new asset, must consider the method of depreciation to be used, the estimated useful life, and the salvage value.

With this in mind roommate, I hope you will give it the old college try. In order to be a successful manager, you must know accounting!

## Exercise 6 - Plant Assets Ethics Activity

### Chapter 9

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You have just landed an accounting position with a national telecommunications company. Because this is your first job you are eager to please your co-workers and your supervisor who works closely with the controller. However, your supervisor has just paid you a visit. She told you that the controller is concerned that profits for the last fiscal year are much less than profits in the preceding five years. The controller has asked that depreciation on a machine purchased at the beginning of last year be recalculated. The machine has a five-year useful life and is depreciated using the straight-line method. The controller has asked that the machine be depreciated over a ten-year useful life. Your supervisor contends that the "depreciation thing" really doesn't matter because the machine has already been paid for. In addition, your supervisor gives you an adjusting journal entry to correct what she calls "expense transfers". This entry transfers items originally recorded as repairs and maintenance to capital assets.

1. Do you agree with the supervisor regarding the change in the estimated useful life of the machine? Why or why not?
2. Are you going to recalculate the depreciation and change the entry? Why or why not?
3. What is the proper accounting treatment for: (1) repairs and maintenance and (2) plant assets?
4. What is your supervisor trying to accomplish with the suggested "expense transfers" entry? What would be your course of action regarding the suggested entry?

#### Solution:

The supervisor is wrong. Accrual accounting demands that the matching principle be used. The matching principle dictates that expenses should be matched against the revenues they help to produce. The machine is expected to generate revenue for only five years and to depreciate it over ten years would be incorrect. Depreciating the machine over ten years rather than five years would decrease expenses and therefore increase net income. Hopefully the student will refuse to recalculate the depreciation and change the entry.

It appears that the supervisor is trying to use a gimmick to boost profit. By reclassifying revenue expenditures as capital assets, the company's operating expenses will be understated and net income overstated. Hopefully the student will refuse to make the adjusting entry. In addition, the student should consider reporting the incident to the internal auditing supervisor or to the chief financial officer.

## Exercise 7 - Accounting for Intangible Assets Activity

### Chapter 9

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Chunky River Real Estate Company has the following transactions related to intangible assets during the year:

- Jan. 7 Purchases a 10-year franchise with a national real estate company.
- Feb. 1 Paid company personnel prize money for creating best advertising jingle for TV ad campaign.
- Apr 9 Purchases the trademark (company logo) from another local real estate company.
- Aug. 3 Receives a copyright on company advertising "jingle" created by company personnel.
- Sep. 8 Made first annual payment to national real estate company for franchise fee.

How are each of the above items accounted for in the financial statements?

#### **Solution:**

The 10-year franchise is classified as an intangible asset with a definite life of 10 years. The asset should be amortized or 10 years (or its useful life if less than 10 years) using the straight-line method.

The prize money is an operating expense recorded in the current period.

The cost of the trademark is classified as an intangible asset. If it has an indefinite life it should not be amortized.

The cost of the copyright is classified as an intangible asset. If it has a definite life, it should be amortized using the straight-line method.

The annual franchise fee is an operating expense recorded in the current period.

