cHAPTER 9

Long-Lived Tangible and Intangible assets

# Student Learning Objectives and Related Assignment Materials

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| **Student Learning Objectives** | **Mini-Exercises** | **Exercises** | **Coached Problems** | **Problems (Groups  A & B)** | **Compre-hensive Problem** | **Skills Develop-ment Cases** | **Continuing Case** |
| LO 9-1 Define, classify, and explain the nature of long-lived assets. | 1 | 1 |  | A4^, B4^ |  | 3 |  |
| LO 9- 2 – Apply the cost principle to the acquisition of long-lived assets. | 2, 3 | 2, 3, 4, 5 | 1, 3 | A1, A3, A4^, B1, B3, B4^ | 1^**+** | 1, 2, 4 |  |
| LO 9-3 – Apply various depreciation methods as economic benefits are used up over time. | 1, 4\*, 5\*, 6\*, 7 | 2, 3, 4, 5, 6\*, 7\*, 8, 15 | 1, 3 | A1, A3, A4^, B1, B3, B4^ | 1^**+** | 1, 2, 3, 5, 6, 7 | 1†, 2^£ |
| LO 9-4 Explain the effect of asset impairment on the financial statements. | 8 |  |  | A4^, B4^ |  |  | 2^£ |
| LO 9-5 Analyze the disposal of long-lived tangible assets. | 8, 9, 10 | 9\* | 2 | A2, A4^, B2, B4^ |  | 6 | 1† |
| LO 9-6 Analyze the acquisition, use, and disposal of long-lived intangible assets. | 1, 2, 3, 11, 12 | 10, 11, 12, 13 | 3 | A3, A4^, B3, B4^ |  | 1, 2, 3 |  |
| LO 9-7 Interpret the fixed asset turnover ratio. | 13 | 1, 14, 15 |  |  |  | 1, 2, 3, 4 |  |
| LO 9-8 Describe factors to consider when comparing companies’ long-lived assets. |  |  |  |  |  | 2, 6 |  |

*(Table continued on next page.)*

# Student Learning Objectives and Related Assignment Materials, continued

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| --- | --- | --- | --- | --- | --- | --- | --- |
| LO 9-S1 Analyze and report depletion of natural resources. | 14 | 16 |  |  |  |  |  |
| LO 9-S2 Calculate changes in depreciation arising from changes in estimates or capitalized cost. | 15 | 17 |  |  |  |  |  |

\* Animated solution included in the PowerPoint Slides.

^ Particularly challenging; requires students to combine multiple concepts in order to advance to the next level of accounting knowledge.

+ Comprehensive Problem 9-1 also covers LO 3-3, LO 4-2, and LO 8-2.

† Continuing Case 9-1 builds on the story of Nicole’s Getaway Spa, introduced in earlier chapters. This case focuses on completing a depreciation schedule for each of the depreciation methods, analyzing and preparing the journal entry to account for the disposal of the asset under the three different methods, and creating income statements for each of the different depreciation methods (with consideration of the loss or gain on disposal for each method). This case will be extended in future chapters.

£ Continuing Case 9-2 builds on the story of Wiki Art Gallery (WAG), an instructional case in Connect. This case focuses on the methods to record bad debts, the adequacy of the allowance for bad debts, determining write-offs given information set forth in the financial statements, and calculation and interpretation of the number of days to collect. The case will be extended in future chapters.

# Overview

An amusement park is the perfect setting for demonstrating the importance of long-lived tangible and intangible assets, which account for more than 97 percent of its total assets.

Students learn accounting principles and practices applied when these assets are acquired, used, and disposed, and how these accounting decisions can affect performance evaluations.

Chapter supplements explain accounting for natural resources (A) and changes in estimates (B).

# Synopsis of Chapter Revisions

* Updated focus company illustrations
* Updated Spotlight on the World to include component allocation of golf course bunkers at Clublink Enterprises
* Eliminated discussion of cash-only tangible asset purchase
* Revised depreciation formula presentations to highlight depreciation rates
* New illustration to explain calculation and journalizing of gain/loss on disposal
* Changed Spotlight on Business Decisions to a Spotlight on Financial Reporting to introduce new option for private companies to amortize goodwill over 10 years or less
* Revised amortization presentation to show Accumulated Amortization rather than directly reducing asset
* Updated fixed asset turnover analysis in Exhibit 9.5, involving Cedar Fair, Six Flags, and Facebook
* New illustration in Homework Helper to show common causes of changes in account balances
* Reviewed, updated, and introduced new end-of-chapter material, including new problem format that automatically posts journal entries to T-accounts and prepares a trial balance

# PowerPoint Slides

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| **Student Learning Objective** | **PowerPoint® Slides** |
| LO 9-1 Define, classify, and explain the nature of long-lived assets. | 9-2 through 9-3 |
| LO 9-2 Apply the cost principle to the acquisition of long-lived assets. | 9-4 through 9-13 |
| LO 9-3 Apply various depreciation methods as economic benefits are used up over time. | 9-14 through 9-23 |
| LO 9-4 Explain the effect of asset impairment on the financial statements. | 9-24 through 9-25 |
| LO 9-5 Analyze the disposal of long-lived tangible assets. | 9-26 through 9-32 |
| LO 9-6 Analyze the acquisition, use, and disposal of long-lived intangible assets. | 9-33 through 9-42 |
| LO 9-7 Interpret the fixed asset turnover ratio. | 9-43 through 9-45 |
| LO 9-8 Describe factors to consider when comparing companies’ long-lived assets. | 9-46 through 9-47 |
| LO 9-S1 Analyze and report depletion of natural resources. | 9-48 through 9-50 |
| LO 9-S2 Calculate changes in depreciation arising from changes in estimates or capitalized cost. | 9-51 through 9-55 |

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| **Animated Builds and Animated Solutions** | **PowerPoint® Slides** |
| Mini-Exercise 9-4 | 9-57 |
| Mini-Exercise 9-5 | 9-58 through 9-59 |
| Mini-Exercise 9-6 | 9-60 through 9-61 |
| Exercise 9-6 | 9-62 through 9-64 |
| Exercise 9-7 | 9-65 through 9-70 |
| Exercise 9-9 | 9-71 through 9-76 |

**Summary of Related Video Program**

**Spotlight Video Series   
Chapter 9 – The Biggest and Simplest Accounting Fraud (approximately 4:00)**

This video describes how the simple act of capitalizing expenses enabled WorldCom to mislead financial statement users. Students are invited to consider the judgment inherent in many seemingly simple accounting decisions.

# Chapter Summary

**LO 9-1 Define, classify, and explain the nature of long-lived assets.**

* Long-lived assets are those that a business retains for long periods of time for use in the course of normal operations rather than for sale. They may be divided into tangible assets (land, buildings, equipment) and intangible assets (including goodwill, patents, and franchises).

**LO 9-2 Apply the cost principle to the acquisition of long-lived assets.**

* The acquisition cost of property, plant, and equipment is the cash-equivalent purchase price plus all reasonable and necessary expenditures made to acquire and prepare the asset for its intended use. Expenditures made after the asset is in use are either expensed or capitalized as a cost of the asset:

a. Expenditures are expensed if they recur frequently, involve relatively small amounts, and do not directly lengthen the asset’s useful life. These are considered ordinary repairs and maintenance expense.

b. Expenditures are capitalized as a cost of the asset if they provide benefits for one or more accounting periods beyond the current period. This category includes extraordinary repairs, replacements, and additions.

**LO 9-3 Apply various depreciation methods as economic benefits are used up over time.**

* In conformity with the matching principle, the cost of long-lived tangible assets (less any estimated residual value) is allocated to depreciation expense over each period benefited by the assets.
* Because of depreciation, the book value of an asset declines over time and net income is reduced by the amount of the expense.
* Common depreciation methods include straight-line (a constant amount over time), units-of-production (a variable amount over time), and double-declining-balance (a decreasing amount over time).

**LO 9-4 Explain the effect of asset impairment on the financial statements.**

* When events or changes in circumstances reduce the estimated future cash flows of a long-lived asset below its book value, the book value of the asset should be written down, with the amount of the write-down reported as an impairment loss.

**LO 9-5 Analyze the disposal of long-lived tangible assets.**

When assets are disposed of through sale or abandonment,

* Record additional depreciation arising since the last adjustment was made.
* Remove the cost of the old asset and its related accumulated depreciation.
* Recognize the cash proceeds (if any).
* Recognize any gains or losses when the asset’s book value is not equal to the cash received.

# Chapter Summary, continued

**LO 9-6 Analyze the acquisition, use, and disposal of long-lived intangible assets.**

* Intangible assets are recorded at cost, but only when purchased. The costs of most internally developed intangible assets are expensed as research and development when incurred.
* Intangibles are reported at book value on the balance sheet.
* Amortization is calculated for intangibles with limited useful lives, using the straight-line method.
* Intangibles with unlimited useful lives, including most goodwill, are not amortized, but are reviewed for impairment.

**LO 9-7 Interpret the fixed asset turnover ratio.**

* The fixed asset turnover ratio measures the company’s efficiency at using its investment in property, plant, and equipment to generate sales. Higher turnover ratios imply greater efficiency.

**LO 9-8 Describe factors to consider when comparing companies’ long-lived assets.**

* Companies in different industries require different levels of investment in long-lived assets. Beyond that, you should consider whether differences exist in depreciation methods, estimated useful lives, and estimated residual values, which can affect the book value of long-lived assets as well as ratios calculated using these book values and any gains or losses reported at the time of asset disposal.

***Accounting Decision Tool***

**Fixed Assets Turnover Ratio = Net Sales Revenue ÷ Average Fixed Assets**

* It tells you dollars of sales generated for each dollar invested in (tangible) fixed assets.
* A higher ratio implies greater efficiency.

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| Chapter Outline | Teaching Notes |
| I. Understand the Business |  |
| ***LO 9-1 Define, classify, and explain the nature of long-lived assets.*** | |
| A Definition and Classification |  |
| 1. **Long-lived assets**––Resources owned by a business that enable it to produce the goods on services that are sold to customers. Long-lived assets include the following: |  |
| a. Tangible assets––Long-lived assets that have physical substance, which simply means that you can see, touch, or kick them. |  |
| i. Examples include are land, buildings, machinery, vehicles, office equipment, and furniture and fixtures; typically grouped into a single line item on the balance sheet called Property, Plant, and Equipment. | Cedar Fair’s fixed assets are illustrated in Exhibit 9.1 |
| ii. They are also known as fixed assets because they are often fixed in place. |  |
| b. Intangible assets––Long-lived assets that have special rights but no physical substance; the existence of most intangible assets is indicated only by legal documents that describe certain legal rights. |  |
| c. Natural resources––Long-lived assets that are depleted over time, like an oil well or gold mine. | *Chapter Supplement 9A addresses natural resources.* |
| II. Study the Accounting Methods |  |
| ***LO 9-2 Apply the cost principle to the acquisition of long-lived assets.*** | |
| A. Acquisition of Tangible Assets |  |
| 1. General rule under the cost principle is that all reasonable and necessary costs of acquiring and preparing an asset for use should be recorded as a cost of the asset. | * Video Spotlight Series - Chapter 9   The “Spotlight on Ethics” |
| 2. **Capitalize**––To record a cost as an asset (rather than an expense). | feature addresses improper capitalization of expenses. |
| 3. Costs that are capitalized upon acquisition include: |  |
| a. Land   1. Purchase cost 2. Legal fees 3. Survey fees 4. Title search fees | *Stress that the capitalized costs are not just the amounts paid to purchase or construct the assets.* |
| b. Buildings   1. Purchase/construction cost 2. Legal fees 3. Appraisal fees 4. Architect fees |  |

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| Chapter Outline | Teaching Notes |
| c. Equipment   1. Purchase/construction cost 2. Sales taxes 3. Transportation costs 4. Installation costs |  |
| d. Demolition, renovation, or repair costs incurred before the long-lived tangible asset can be used are capitalized because they are needed to prepare the asset for use. |  |
| 4. When a “basket purchase” occurs, the total cost is split between each asset in proportion to the market value of the assets as a whole. | The “Spotlight on the World” feature addresses treatment of basket purchase by IFRS. |
| 5. The list price for equipment was $26 million but company received a $1 million discount. The company paid $125,000 to have the equipment delivered and another $625,000 to have it assembled and prepared for use. |  |
| a. List price of $26,000,000 – Discount of $1,000,000 + Transportation costs paid by company of $125,000 + Installation costs paid by company of $625,000 = Total cost of $25,750,000. |  |
| b. Analyze: Assets = Liabilities + Stockholders’ Equity Cash (A) –750,000; Equipment (A) +25,750,000; Note Payable (L) +25,000,000 |  |
| c. Record: |  |
| |  |  |  | | --- | --- | --- | | Equipment | 25,750,000 |  | | Cash |  | 750,000 | | Note Payable |  | 25,000,000 | |  |
| 6. The cost of some fixed assets is such a small amount that it’s not worth the trouble of recording them as fixed assets; instead, they are expensed; such immaterial amounts will not affect users’ decisions. |  |
| B. Use of Tangible Assets |  |
| 1. Most tangible assets require substantial expenditures over the course of their lives to maintain or enhance their ability to operate. |  |
| a. **Ordinary repairs and maintenance**––Expenditures for routine operating upkeep of long-lived, expensed. | *Also called “revenue expenditures” because these* |
| i. Recurring, relatively small expenditures that do not directly increase an asset’s usefulness. | *expenses are matched to revenues on the income* |
| ii. Occur frequently to maintain the asset’s productive capacity for a short time, | *statement* |
| b. **Extraordinary repairs**––Expenditures that extend the useful life of a tangible asset or improve its output in the future; recorded as increases in asset accounts. | *Also called “capital expenditures” because these costs are capitalized in an* |
| i. These costs increase the usefulness of tangible assets beyond their original condition. | *asset account* |
| ii. Include additions, major overhauls, complete reconditioning, and major replacements and improvements. |  |

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| Chapter Outline | Teaching Notes |
| ***LO 9-3 Apply various depreciation methods as economic benefits are used up over time.*** | |
| 2. Depreciation Expense |  |
| a. The cost of a long-lived tangible asset is essentially a prepaid cost representing future economic benefits. These benefits are used up when the asset is used, so following the matching principle, a portion of the asset’s cost is moved from the balance sheet to the income statement as an expense in the period the asset is used to generate revenue. | Reporting depreciation on the balance sheet and income statement is illustrated in Exhibit 9.2 |
| i. **Depreciation**––The allocation of the cost of long-lived tangible assets over their productive lives using a systematic and rational method. | * Supplemental Enrichment Activity (Activity) #1 |
| ii. Depreciation expense––The amount of depreciation recorded during each period is reported on the income statement. |  |
| iii. Accumulated Depreciation––A contra-account that accumulates the amount of depreciation since the acquisition date; reported on the balance sheet and deducted from the related asset’s cost. |  |
| iv. **Book (or carrying) value**––Acquisition cost less the accumulated depreciation from acquisition date to the balance sheet date. | * Activity #2 |
| b. Assume that depreciation of $130,000 is recorded. |  |
| i. Analyze *(rounded to nearest thousand):* Assets = Liabilities + Stockholders’ Equity Accumulated Depreciation (xA) –130; Depreciation Expense (E) –130 |  |
| ii. Record: |  |
| |  |  |  | | --- | --- | --- | | Depreciation Expense | 130 |  | | Accumulated Depreciation |  | 130 | |  |
| c. To calculate depreciation expense, you need three amounts: |  |
| i. Asset cost––All the costs capitalized for the asset. |  |
| ii. **Useful life**––Expected service life of an asset to the present owner. |  |
| * Life may be expressed in terms of years or units of asset capacity. * Land is the only tangible asset that’s assumed to have an unlimited (indefinite) useful life. Because of this, land is not depreciated. |  |
| iii. **Residual (or salvage) value**––An estimate of the amount to be recovered at the end of the company’s estimated useful life of an asset. |  |

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| Chapter Outline | Teaching Notes |
| d. **Depreciable cost**––The portion of the asset’s cost that will be used in generating revenue; calculated as asset cost minus residual value. |  |
| e. Companies own different assets and use them differently, so they are allowed to choose from several alternative depreciation methods. |  |
| i. These alternative methods produce different depreciation amounts recorded each year. |  |
| ii. The depreciation method chosen for each asset should reflect the pattern in which those asset’s economic benefits are used up. |  |
| 3. Straight-Line Method |  |
| a. **Straight-line depreciation method**––Method that allocates the cost of an asset in equal periodic amounts over its useful life. |  |
| b. Formula: (Cost – Residual Value) × (1 divided by the Useful Life). |  |
| i. (Cost – Residual Value), also known as depreciable cost, is the total amount to be depreciated (the depreciable cost).  ii. The straight-line depreciation rate equals (1 divided by the Useful Life). | Information for examples in text listed in Exhibit 9.3 |
| c. As the name straight-line suggests: |  |
| i. Depreciation expense is a constant amount each year.  ii. Accumulated depreciation increases by an equal amount each year.  iii. Book value decreases by the same equal amount each year. |  |
| d. At the end of the asset’s life, accumulated depreciation equals the asset’s depreciable cost and book value equals residual value. |  |
| 4. Units-of-Production Method |  |
| a. **Units-of-production depreciation method**––Method that allocates the cost of an asset over its useful life based on the relationship of its periodic output to its total estimated output. |  |
| 1. Formula: (Cost – Residual Value) × (Actual Production this Period divided by Estimated Total Production). |  |
| 1. Depreciation expense, accumulated depreciation, and book value vary from period to period, depending on the number of units produced. |  |

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| Chapter Outline | Teaching Notes |
| 5. Declining Balance Method |  |
| a. **Declining-balance depreciation method**––Method that assigns more depreciation to early years of an asset’s life and less depreciation to later years. |  |
| b. Based on applying a depreciation rate to the book value of the asset at the beginning of the period. |  |
| c. Rate used in the formula is double the straight-line rate and, therefore, this particular version of declining-balance depreciation is called the double-declining-balance method. |  |
| d. Formula: (Cost – Accumulated Depreciation) × (2 divided by the Useful Life). |  |
| i. Formula uses the accumulated depreciation balance at the beginning of each year.  ii. In the first year of an asset’s life, the beginning balance in accumulated depreciation will be zero.  iii. As depreciation is recorded each year, the accumulated depreciation balance will increase, which causes the amount of depreciation to decline over time. | *Stress that book value (cost − accumulated depreciation) is used rather than depreciable cost (cost – residual value).* |
| e. Residual value is not included in the formula for computing depreciation expense under the declining-balance method; however: |  |
| i. The asset’s book value cannot be depreciated below its residual value.  ii. If the normal depreciation calculated for the year reduces book value below residual value, a lower amount of depreciation must be recorded, so that book value equals residual value. |  |
| 6. Summary of Depreciation Methods |  |
| a. The amount of depreciation expense in each year of an asset’s life depends on the method used, which also means that the amount of net income reported can vary depending on the depreciation method used. | Differences summarized in Exhibit 9.4 |
| b. Different depreciation methods can be used for different classes of assets provided they are used consistently over time so that financial statement users can compare results across periods. |  |
| c. At the end of an asset’s life, after it has been fully depreciated, the total amount of depreciation will equal the asset’s depreciable cost, regardless of the depreciation method used. |  |

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| Chapter Outline | Teaching Notes |
| 7. Partial-Year Depreciation Calculations |  |
| a. Purchases of long-lived assets seldom occur on the first or last day of the period; depreciation must sometimes be calculated for periods shorter than a year. |  |
| b. Under the straight-line and declining-balance methods, the annual depreciation is multiplied by the fraction of the year for which depreciation is being calculated. |  |
| c. These partial-year modifications are not required in the units-of-production method. |  |
| 8. Tax Depreciation |  |
| a. Most public companies use one method of depreciation for reporting to stockholders and a different method for determining income taxes. |  |
| i. The IRS allows companies to deduct larger amounts of tax depreciation allowed by GAAP; the deduction reduces the company’s income taxes significantly in the years immediately following the purchase of a long-lived asset. |  |
| ii. The IRS doesn’t allow a company to depreciate more than an asset’s depreciable cost over its life; so, the tax savings enjoyed in the early years of an asset’s life will eventually be paid back in later years of the asset’s life. |  |
| iii. The amount of tax put off (deferred) as a result of taking large tax depreciation deductions is reported as a long-term liability called Deferred Income Tax. |  |
| b. Least and latest rule––All taxpayers want to pay the least tax that is legally permitted and at the latest possible date. |  |
| ***LO 9-4 Explain the effect of asset impairment on the financial statements.*** | |
| C. Asset Impairment Losses––An asset’s book value could exceed its current value |  |
| 1. **Impairment**––Occurs when the cash to be generated by an asset is estimated to be less than the carrying value of that asset. |  |
| 2. Events or changed circumstances can interfere with a company’s ability to recover the value of an asset through future operations. |  |
| 3. If this occurs, the book value should be written down to what the asset is worth (called fair value); the amount of the write-down is reported as an impairment loss. |  |
| 4. Impairment losses are classified as an operating expense on the income statement and reported above the Income from Operations subtotal. |  |

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| Chapter Outline | Teaching Notes |
| ***LO 9-5 Analyze the disposal of long-lived tangible assets.*** | |
| D. Disposal of Tangible Assets |  |
| 1. In some cases, a business may voluntarily decide not to hold a long-term asset for its entire life. |  |
| 2. The disposal of a depreciable asset usually requires two accounting adjustments: |  |
| a. Update the Depreciation Expense and Accumulated Depreciation accounts; if asset is disposed of during the year, must first record depreciation through the date of disposal. |  |
| b. Record the disposal. |  |
| i. All disposals of long-lived assets require accounting for (1) the book value of the items given up, (2) the value of the items received, and (3) any difference between the two amounts, which reflects a gain or loss on the disposal. |  |
| ii. Any gain or loss on disposal is included on the income statement when calculating Income from Operations. |  |
| 3. At the end of the year, the company sold equipment for $50,000 cash. The original cost was $100,000 and the related accumulated depreciation is $60,000. |  |
| a. Analyze *(rounded to nearest thousand):*  Assets = Liabilities + Stockholders’ Equity Equipment (–A) –100; Accumulated Depreciation  (–xA) +60; Cash (A) +50; Gain on Disposal (+R) +10 |  |
| b. Record: |  |
| |  |  |  | | --- | --- | --- | | Cash | 50 |  | | Accumulated Depreciation | 60 |  | | Equipment |  | 100 | | Gain on Disposal |  | 10 | |  |
| ***LO 9-6 Analyze the acquisition, use, and disposal of long-lived intangible assets.*** | |
| E. Intangible Assets |  |
| 1. **Intangible assets**––Long-lived assets that lack physical substance. Examples: |  |
| a. **Trademark**––A special name, image, or slogan identified with a product or company. |  |
| b. **Copyright**––A form of protection provided to the original authors of literary, musical, artistic, dramatic, and other works of authorship. |  |
| c. **Patent**––A right to exclude others from making, using, selling, or importing an invention. |  |
| d. **Technology assets**––Acquired computer software and development costs. |  |
| e. **Licensing rights**––The limited permissions to use property according to specific terms and conditions set out in a contract. |  |

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| Chapter Outline | Teaching Notes |
| f. **Franchise**––A contractual right to sell certain products or services, use certain trademarks, or perform activities in a certain geographical region. |  |
| g. **Goodwill**––The premium a company pays to obtain the favorable reputation associated with another company. |  |
| 2. Acquisition, Use, and Disposal |  |
| a. The costs of intangible assets are recorded as assets only if they have been purchased. |  |
| i. **Research and development**––Expenditures that may someday lead to patents, copyrights, or other intangible assets; the uncertainty about their future benefits requires they be expensed. |  |
| ii. The primary reason that the cost of self-developed intangibles is reported as an expense rather than an asset is that it’s easy for people to claim that they’ve developed a valuable (but invisible) intangible asset. |  |
| iii. Evidence of what it is actually worth only happens when someone gives up their hard-earned cash to buy it; at that time, the purchaser records the intangible asset at its acquisition cost. |  |
| iv. This general rule applies to trademarks, copyrights, patents, licensing rights, franchises, and goodwill. |  |
| v. Goodwill is the difference between the purchase price of a company as a whole and the fair market value of the net assets of the business. | The “Spotlight on Business Decisions” feature addresses valuing goodwill. |
| b. Use of intangible assets, after they have been purchased––Rules depend on whether the intangible asset has a limited or unlimited life. |  |
| i. Intangibles with limited useful lives––Cost is spread on a straight-line basis over each period of useful life. |  |
| * **Amortization**––Process of allocating the cost of intangible assets over their limited useful lives; similar to depreciation. |  |
| * Most companies do not estimate a residual value because intangible assets usually have no value at the end of their useful lives. * Amortization is reported as an expense each period on the income statement. * Amortization is accumulated on the balance sheet in the contra asset account, Accumulated Amortization. |  |

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| Chapter Outline | Teaching Notes |
| ii. Assume that amortization of $40,000 is recorded. |  |
| * Analyze *(rounded to nearest thousand)*:  Assets = Liabilities + Stockholders’ Equity Accumulated Amortization (xA) –40; Amortization Expense (E) –40 |  |
| * Record: |  |
| |  |  |  | | --- | --- | --- | | Amortization Expense | 40 |  | | Accumulated Amortization |  | 40 | |  |
| iii. Intangibles with unlimited or indefinite lives (trademarks and most goodwill)––Cost is not amortized. | The “Spotlight on the World” feature addresses differences between GAAP and IFRS. |
| c. Disposal of intangible assets––Results in gains (or losses) if the amounts received on disposal are greater than (less than) their book values. |  |
| III. Evaluate the Results |  |
| ***LO 9-7 Interpret the fixed asset turnover ratio.*** | |
| A. Turnover Analysis |  |
| 1. The fixed asset turnover ratio measures the sales dollars generated by each dollar invested in (tangible) fixed assets. |  |
| 2. Fixed Asset Turnover Ratio = Net Sales Revenue ÷ Average Net Fixed Assets. |  |
| 3. Average net fixed assets equals sum of beginning and ending balances (net of accumulated depreciation) divided by 2. |  |
| 4. A higher fixed asset turnover ratio implies greater efficiency. |  |
| ***LO 9-8 Describe factors to consider when comparing companies’ long-lived assets.*** | |
| B. The Impact of Depreciation Differences |  |
| 1. Depreciation can vary from one company to the next. | Illustrated in Exhibit 9.6 |
| a. Even if the two companies are otherwise the same, the reported net income will differ each year if the two companies use different (but equally acceptable) methods of depreciation. |  |
| i. These differences in depreciation affect more than just depreciation expense; a different gain/loss on disposal may also be reported on the income statement. | Illustrated in Exhibit 9.7 |
| ii. Any gain or loss on disposal that is reported on the income statement tells you as much about the method used to depreciate the asset as about management’s apparent ability to successfully negotiate the sale of long-lived assets. |  |

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| Chapter Outline | Teaching Notes |
| b. The same effects can exist between two companies that use the same depreciation methods but estimate different useful lives or different residual values for their long-lived assets. Useful lives can vary for several reasons including differences in the: |  |
| i. Type of equipment each company used. |  |
| ii. Frequency of repairs and maintenance. |  |
| iii. Frequency and duration of use. |  |
| iv. Degree of conservatism in estimates. |  |
| 2. Some analysts try to sidestep possible differences in depreciation calculations by focusing on financial measures that exclude the effects of depreciation. |  |
| a. **EBITDA**––An abbreviation for “earnings before interest, taxes, depreciation, and amortization,” which is a measure of operating performance that some managers and analysts use in place of net income. |  |
| b. The idea is that this measure allows analysts to conduct financial analyses without having to deal with possible differences in depreciation and amortization. |  |
| IV. Natural Resources |  |
| ***LO 9-S1 Analyze and report depletion of natural resources.*** | |
| A. Acquisition––When a company first acquires or develops a natural resource, the cost of the natural resource is recorded in conformity with the cost principle. |  |
| B. Use––As the natural resource is used up, its acquisition cost must be split among the periods in which revenues are earned in conformity with the expense recognition principle. |  |
| 1. **Depletion**––Process of allocating a natural resource’s cost over the period of its extraction or harvesting. |  |
| 2. When a natural resource is depleted, the company obtains inventory. |  |
| 3. Because depletion is necessary to obtain the inventory, the depletion computed during a period is added to the cost of the inventory, not expensed in the period. |  |
| 4. A timber tract costing $530,000 is depleted over its estimated cutting period based on a “cutting” rate of approximately 20 percent per year, it would be depleted by $106,000 each year. |  |
| a. Analyze *(rounded to nearest thousand):*   Assets = Liabilities + Stockholders’ Equity Accumulated Depletion (xA) –106; Depletion Expense (E) –106. |  |
| b. Record: |  |
| |  |  |  | | --- | --- | --- | | Depletion Expense | 106 |  | | Accumulated Depletion |  | 106 | |  |

|  |  |
| --- | --- |
| Chapter Outline | Teaching Notes |
| V. Changes in Depreciation Estimates |  |
| ***LO 9-S2 Calculate changes in depreciation arising from changes in estimates or capitalized cost.*** | |
| A. Depreciation is based on two estimates, useful life and residual value. |  |
| 1. One or both of these initial estimates may need to be revised; in addition, extraordinary repairs and additions may be added to the original acquisition cost at some time during the asset’s use. |  |
| 2. If either estimate is revised or if the asset’s cost has changed, the undepreciated asset balance (less any residual value estimated at that date) should be assigned to each of the remaining years of estimated life using a new amount of depreciation. |  |
| 3. To compute the new depreciation expense due to the changes described above, substitute the book value for the original acquisition cost, the new residual value for the original residual value, and the estimated remaining life for the original useful life. |  |
| B. Companies may also change depreciation methods (for example, from declining-balance to straight-line). | *Covered more fully in intermediate accounting* |
| 1. Change requires significantly more disclosure. | *textbooks.* |
| 2. Under GAAP, changes in accounting estimates and depreciation methods should be made only when a new estimate or accounting method “better measures” the periodic income of the business. |  |

# Supplemental Enrichment Activities

Note: These activities would be suitable for individual or group activities and class discussion.

1. Handout 9–1

Use Handout 9–1 for an in-class activity designed to review acquisition cost, depreciation computations using all four methods, and the calculation of a gain/loss on sale. The solution follows the handout master.

1. Handout 9–2

If you used Handout 9–1, use Handout 9–2 for an in-class discussion of the results of the calculations performed in Handout 9–1.

# HANDOUT 9–1

# DEPRECIATION METHODS AND GAIN (LOSS) ON SALE

Joel Harvey Florists acquired a truck on January 1, 2016. The company paid $11,000 for the truck, $500 for destination charges, and $250 to paint the company name on the side of the truck. The company’s accounting manager estimates the truck to have a five-year useful life and a residual value of $1,750. The truck is expected to be driven 100,000 miles in five years. It is actually driven 15,000 miles in 2016, 25,000 miles in 2017, 30,000 miles in 2018, 25,000 miles in 2019, and 5,000 miles in 2020.

Part 1

On January 1, 2016, how much should Joel Harvey Florists capitalize for the cost of the truck?

Part 2

How much depreciation expenses would be recorded for the years 2016 through 2020 using each of the following methods?

a. Straight-line

b. Unit-of-production

c. Declining-balance

Part 3

On December 31, 2020, at the end of its useful life, Joel Harvey sold the truck for $3,000 cash. Compute the gain or loss on sale.

# HANDOUT 9–1 SOLUTION

# DEPRECIATION METHODS AND GAIN (LOSS) ON SALE

Joel Harvey Florists acquired a truck on January 1, 2016. The company paid $11,000 for the truck, $500 for destination charges, and $250 to paint the company name on the side of the truck. The company’s accounting manager estimates the truck to have a five-year useful life and a residual value of $1,750. The truck is expected to be driven 100,000 miles in five years. It is actually driven 15,000 miles in 2016, 25,000 miles in 2017, 30,000 miles in 2018, 25,000 miles in 2019, and 5,000 miles in 2020.

Part 1

On January 1, 2016, how much should Joel Harvey Florists capitalize for the cost of the truck?

11,000 + 500 + 250 = $11,750.

Part 2

How much depreciation expenses would be recorded for the years 2016 through 2020 using each of the following methods?

a. Straight-line

(11,750 – 1,750) ÷ 5 = $2,000 per year

b. Unit-of-production

(11,750 – 1,750) ÷ 100,000 = 10 cents/mile

2016: 15,000 × 0.10 = $1,500;

2017: 25,000 × 0.10 = $2,500;

2018: 30,000 × 0.10 = $3,000;

2019: 25,000 × 0.10 = $2,500;

2020: 5,000 × 0.10 = $500.

c. Declining-balance

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year | Computation | Depreciation Expense | Accumulated  Depreciation | Net Book Value |
| Acquisition |  |  |  | 11,750 |
| 2016 | 11,750 × 2/5 | $4,700 | $4,700 | 7,050 |
| 2017 | 7,050 × 2/5 | 2,820 | 7,520 | 4,230 |
| 2018 | 4,230 × 2/5 | 1,692 | 9,212 | 2,538 |
| 2019 | ~~2,538 × 2/5~~ 2,538 – 1,750 | 788 ~~1,015~~ | 10,000 ~~10,227~~ | 1,750 ~~1,448~~ |
| 2020 | ~~1,448 × 2/5~~ | 0 ~~579~~ | 0 ~~10,806~~ | 1,750 ~~944~~ |

Part 3

On December 31, 2020, at the end of its useful life, Joel Harvey sold the truck for $3,000 cash. Compute the gain or loss on sale.

Cost of $3,000 – Accumulated depreciation of $1,750 = Gain of $1,250

# HANDOUT 9–2

# COMPARISON OF DEPRECIATION EXPENSE AND NET BOOK VALUE