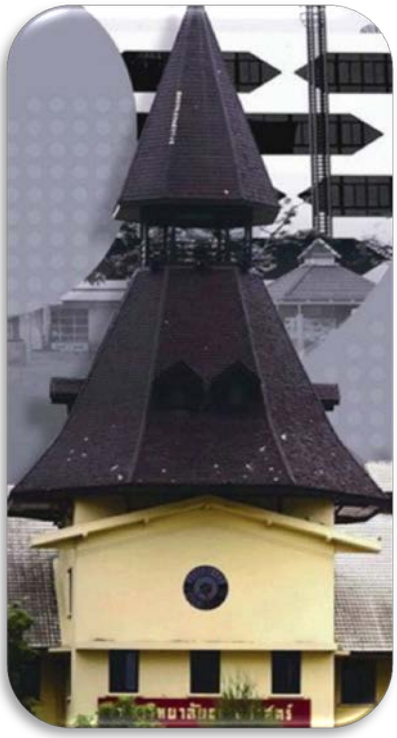
Thammasat University
Faculty of Economics
Bachelor of Economics (International Program)

AC201
Fundamental Accounting

Semester 2/2012



Course Materials

Topic:

Chapter 8 Reporting and Interpreting Property, Plant, and Equipment; Natural Resources; Intangibles

Session:

Session #8

Instructor:

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Chapter 8: Reporting and Interpreting Property, Plant, and Equipment; Natural Resources; and Intangibles

CHAPTER SUMMARY

This chapter discusses accounting for long-lived productive assets. These are the noncurrent assets that a business retains for long periods for use in the course of normal operations rather than being held for sale. They include tangible assets and intangible assets. At acquisition, an asset is recorded at cost. Cost includes the cash equivalent purchase price plus all reasonable and necessary expenditures made to acquire and prepare the asset for its intended use.

Expenditures related to long-lived assets are classified in two groups. Capital expenditures are those expenditures that provide benefits for one or more accounting periods beyond the current period; therefore, they are debited to appropriate asset accounts and depreciated, depleted, or amortized over their useful lives. Revenue expenditures are those expenditures that provide benefits during the current accounting period only; therefore, they are debited to appropriate expense accounts when incurred.

A long-lived productive asset represents a bundle of future services and benefits that have been purchased in advance. As this asset is used, this bundle of services is gradually used to earn revenue. In conformity with the matching principle, cost (less any estimated residual value) is allocated to expense over the periods benefited. In this way, the expense associated with the use of operational assets is matched with the revenues earned. This allocation process is called depreciation in the case of property, plant, and equipment; depletion in the case of natural resources; and amortization in the case of intangibles. Three of the most widely used methods of depreciation are straight-line, units-of-production, and declining-balance.

The disposal of long-lived assets is recorded by removing the cost of the asset and the related accumulated depreciation account. A gain or loss on the disposal will result when the disposal price is different from the book value of the asset. When an asset's ability to provide benefits in the future is impaired, the asset is written down.

CHAPTER OBJECTIVES

LO1 Define, classify, and explain the nature of long-lived productive assets and interpret the fixed asset turnover ratio.
LO2 Apply the cost principle to measure the acquisition and maintenance of property, plant, and equipment.
LO3 Apply various cost allocation methods as assets are held and used over time.
LO4 Explain the effect of asset impairment on the financial statements.
LO5 Analyze the disposal of property, plant, and equipment.
LO6 Apply measurement and reporting concepts for natural resources and intangible assets.
LO7 Explain the impact on cash flows of acquiring, using, and disposing of long-lived assets.

UNDERSTNANDING BUSINESS

I. BUSINESS BACKGROUND

1. Management faces the challenges of forecasting long-term productive capacity (amount of plant and equipment). Managers devote considerable time to planning optimal level of productive capacity.
   - **a.** Underestimates by managers may reduce sales due to the lack of capacity to meet demand.
   - **b.** Overestimates may reduce profits since the excess costs of maintaining the additional assets reduce profitability.
   - **c.** In either event, net income is reduced when forecasting productive capacity is in error.
2. Service companies also suffer due to poor forecasting of long-term assets. Forecasting hours of labor and facilities needed to provide services is essential to operating efficiently.
   - **a.** Service companies cannot inventory hours or space for future sales.
     - Examples include airlines, hotels, CPA firms, and law firms.
   - **b.** If a manufacturer or merchandiser forecasts capacity incorrectly, future sales may still be enjoyed if obsolescence or spoilage do not deplete inventoriable goods.
3. Decisions regarding the acquisition of long-lived productive assets are crucial in long-term planning. Issues related to property, plant, equipment, intangibles, and natural resources have a great impact in terms of strategy, pricing decisions, and profitability for a business.
4. Financial analysts closely review financial statements to determine the impact of management decisions.

II. LO1 DEFINE, CLASSIFY, AND EXPLAIN THE NATURE OF LONG-LIVED PRODUCTIVE ASSETS AND INTERPRET THE FIXED ASSET TURNOVER RATIO.

A. Classifying Long-Lived Assets

Long-Lived Assets are resources that determine a company's productive capacity.

1. Tangible assets have physical substance. They are usually classified as property, plant, and equipment (fixed assets). They include:
   - **a.** Land used in operations.
   - **b.** Buildings, fixtures, and equipment used in operations.
   - **c.** Natural resources used in operations.
2. Intangible assets have no physical substance. These assets confer rights on the owner. They are evidenced by legal documents.
   - **a.** Examples include patents, copyrights, franchises, licenses, and trademarks.
3. Fixed Asset Turnover
   - **a.** How effectively is management using fixed assets to generate revenue?
   - **b.** For each dollar of fixed assets, how many dollars of sales revenue are generated?

$$\text{Fixed Asset Turnover} = \frac{\text{Net Sales (or Operating Revenues)}}{\text{Average Net Fixed Assets}}$$

$$\text{Average Net Fixed Assets} = \frac{\text{Beginning Net Fixed Assets - Ending Net Fixed Assets}}{2}$$

III. LO2 APPLY THE COST PRINCIPLE TO MEASURE THE ACQUISITION AND MAINTENANCE OF PROPERTY, PLANT, AND EQUIPMENT.

A. Measuring and Recording Acquisition Cost

1. Under the cost principle, all reasonable and necessary costs incurred to acquire and prepare an asset for use should be capitalized, i.e., assigned (recorded) to the asset account.

a. Acquisition costs: the net cash equivalent paid or to be paid for long-lived assets. Examples:

1. Costs to buy the asset include the invoice price (less early payment discounts), sales taxes, legal fees, and transportation costs.
2. Setup costs, including special wiring, platforms (such as a concrete foundations), and other installation costs.
3. Costs to place the asset in service (to ready it for use) include expenditures for testing, adjusting, renovating, and complying with safety requirements.

b. Generally, financing charges associated with the asset are treated as interest expense (not capitalized).

2. Various means of acquiring long-lived assets include:

a. For cash: cash is paid at the time of acquisition.

b. For debt: a note is negotiated with the seller or the bank to finance the purchase.

c. For equity or noncash consideration: when stock or other noncash consideration is included as part of the purchase price.

1. The cash-equivalent cost is measured by the current market value of the stock or non-cash consideration.
2. If the value of what is given up is not determinable, the current market value of what is received should be used for measurement purposes.

d. By construction: self-constructed assets should include all necessary costs associated with construction such as labor and materials.

- Interest incurred during the construction process (capitalized interest) is normally included even when funds are not borrowed to directly support the construction. In such cases, capitalized interest is based on the funds invested in the project.

B. Repairs, Maintenance, and Additions

1. Most productive assets require expenditures during their useful lives for ordinary repairs and maintenance, major repairs, replacements, and additions.

a. Depending on the nature of the cost, these expenditures must be recorded either to expense accounts or to asset accounts.

2. Revenue expenditures: recorded as expenses since they provide benefits only during the current accounting period.

a. These are for ordinary repairs and maintenance. They are expenditures for the normal operating upkeep of assets to keep them in working condition.

b. They are relatively small, recurring amounts that <u>do not effectively lengthen the useful life</u> of the asset.

c. These revenue expenditures are reported as expenses in the current period.

3. Capital expenditures: recorded as increases in asset accounts since they provide benefits for one or more accounting periods beyond the current period.

a. These costs are then depreciated over their useful lives.

b. Included in this category are <u>extraordinary</u> repairs; i.e., major, high-cost, long-term repairs that increase the economic usefulness of the asset in terms of greater efficiency or longer life.

c. Examples:

- Major overhauls, complete reconditioning, and major replacements and improvements. They are additions, extensions to, or enlargements of, existing assets. These are considered capital expenditures and are therefore shown as an increase to an asset account.

4. Management experience and professional judgment help to distinguish between the classification of expenditures as either revenue expenditures (expenses) or capital expenditures (assets). This decision can be quite subjective.
   a. Decisions to "expense" items result in lower net income in the current period. Decisions to "capitalize" items result in higher net income in the current period.
   b. Auditors and financial analysts pay close attention to management decisions in this area.
   c. The materiality and cost-benefit constraints are important considerations in decisions to "expense" versus "capitalize".

IV. LO3 APPLY VARIOUS COST ALLOCATION METHODS AS ASSETS ARE HELD AND USED OVER TIME.

A. Depreciation Concepts

1. Land is considered to have an unlimited life. In accordance with the cost principle, land remains on a company's books at its cost. With the exception of impairment, no adjustment is made to the cost of land.
2. Other long-lived assets such as buildings and equipment have limited useful lives.
   a. The cost of these assets represents the collective amount of future services and benefits that will help earn future revenues.
   b. The matching principle requires that a portion of the cost be allocated to each period in which revenue is earned by using these assets.
3. Depreciation is the systematic and rational cost allocation of tangible productive assets, other than land, to future periods in which the assets contribute services or benefits to help earn revenues.
   a. No matter which method of determining depreciation expense for the period is used, the accounts involved in the journal entry are the same.

Depreciation Expense	xxx	
Accumulated Depreciation		xxx

   b. Depreciation Expense is presented on the income statement.
   c. Accumulated Depreciation, the total amount of depreciation expense recorded for an asset since its acquisition date, reduces the cost of the productive asset on the balance sheet.

	Asset Cost
-	Accumulated Depreciation
	Net Book Value of Asset

   d. Accumulated Depreciation is a contra-asset account since it reduces the book value (carrying value) of an asset. Note: Since Accumulated Depreciation is a contra asset account, it is not closed during the closing process.
   e. The balance sheet presentation does not represent current market values.
4. The calculation of depreciation expense requires three amounts to be determined, two of which are estimates made by management. Therefore, depreciation expense is an estimate.
   a. Acquisition cost – All cost incurred to purchase and get the asset ready for use.
   b. Useful life is the estimated service life of an asset to the present owner. This life often differs from the total economic life of the asset. The continuity assumption (going concern) underlies the determination of this estimate.
   c. Residual value (salvage value, scrap value, or trade-in value) is the estimated amount to be recovered at the end of the estimated useful life of the asset.

B. Alternative Depreciation Methods

1. Because of differences between companies and the assets they own, different depreciation methods exist.
   a. Each method that is in conformity with GAAP allocates costs in a systematic and rational manner.
   b. The amount of cost allocation in each period varies by method, but the depreciation charges over the entire estimated life will be the same in total for all methods.

2. Three of the most commonly used depreciation methods are as follows:

a. Straight-line depreciation

1. Allocates the depreciable cost in equal amounts over the estimated useful life.
2. The most commonly used method due to its relative simplicity.
3. Based on the estimated time for using the asset.
4. Provides for a constant depreciation expense, equal increases to accumulated depreciation, and equal decreases of book value each year.

$$\text{Depreciation expense} = (\text{Cost} - \text{Residual Value}) \times \frac{1}{\text{Useful life}}$$

b. Units-of-production depreciation

1. Allocates the cost over the useful life based on its productive output (usage) related to its total estimated productive output (usage).
2. Results in depreciation expense, accumulated depreciation, and book values that vary from period to period.
   a. Varies directly with the units produced.
   b. Depreciation under this method is a variable expense.
3. Based on an estimate of the total productive capacity of an asset. This is an "activity" based estimate instead of a time based estimate.

$$\text{Depreciation rate per unit} = \frac{\text{Cost} - \text{Residual value}}{\text{Estimated total production}}$$

$$\text{Depreciation expense} = \text{Depreciation rate} \times \text{Actual production (Units used)}$$

c. Declining-balance depreciation

1. An accelerated depreciation method.
2. It allocates cost over the useful life based on a multiple of the straight line rate.
3. Declining balance ignores residual value in its computation, but, the asset may not be depreciated beyond the residual value.
4. The declining balance rate often used is 200% or 2 times the straight-line rate.

$$\text{Straight Line Rate} = \frac{100\%}{\text{Life in years}}$$

$$\text{Declining Balance Rate} = \text{Straight Line Rate} \times \text{Declining Balance multiple}$$

$$\text{DDB Rate} = \text{Straight Line Rate} \times 2$$

$$\text{Depreciation expense} = \text{Declining Balance Rate} \times \text{Beginning Book Value}$$

5. Declining balance provides for larger expenses in early years and smaller expenses in later years compared to the straight-line method.
   - The last year(s) of depreciation expense must be adjusted from the formula above so that book value does not go below residual value.
6. Declining Balance is commonly used by companies that experience rapid obsolescence in long-lived productive assets.

C. How Managers Choose

1. Managers should choose a depreciation method that best matches the use of long-lived productive assets relative to the revenues it helps to generate.

2. Straight-line depreciation is the most widely used for financial statement purposes due to its simplicity.

3. Accelerated methods of depreciation

a. Assets are more efficient in their early years. Therefore, they help to produce more revenues in those years.

b. Repair costs are lower in early years and higher in later years. When the cost of the asset and the cost of repairs for that asset are considered collectively, accelerated depreciation tends to level out the total cost of using an asset over its useful life.

4. Companies may use one depreciation method for some assets and another depreciation method for other assets. Note, disclosure is required for depreciation methods used and estimated useful lives selected.

5. When a depreciation method is chosen for an asset, it should be consistently applied.

6. Companies generally must maintain two sets of accounting records.

a. One set is for financial statement purposes according to GAAP.

b. The other is for income tax purposes according to Internal Revenue Code.

c. It is legal and necessary to keep “two sets of books" for these purposes since financial reporting and income tax determination have different objectives and rules.

1. Financial reporting is designed to provide economic information about a business so that decision makers can formulate predictions about the future cash flows.
2. Income tax reporting is driven by the government's focus to secure revenues. Taxpayers are driven by "the least and the latest rule." That is, they want to pay the smallest amount of tax at the latest possible date.

d. Depreciation methods for GAAP and income tax purposes are quite different.

1. The acceptable methods for GAAP are discussed above.
2. The method used for federal income tax purposes is the Modified Accelerated Cost Recovery System (MACRS). Tax laws mandate the lives and depreciation rates to be used. These are not the same as for GAAP. Note that a disclosure is needed to explain GAAP and tax depreciation differences.
3. MACRS delays the payment of income taxes, since it allocates more of the depreciable cost in the early years of an asset.
4. Theoretically, this delay will reverse in the later years of an asset; however, as long as a company continues to purchase new assets, the tax will continue to be delayed.
5. Straight-line depreciation will generate a higher net income, which is preferable for financial reporting purposes.

V. LO4 EXPLAIN THE EFFECT OF ASSET IMPAIRMENT ON THE FINANCIAL STATEMENTS.

A. Measuring Asset Impairment

1. It is important for management to review long-lived tangible and intangible assets for possible impairment.

2. Impairment occurs when events or circumstances cause the book value of an asset to be higher than estimates of future cash flows (future benefits).

a. If the estimated future cash flows are less than the book value of the asset, the asset should be “written down.”

b. The carrying value is reduced to the fair value and an impairment loss is recognized.

$$\text{Impairment Loss} = \text{Net Book Value} - \text{Fair Value}$$

VI. LO5 ANALYZE THE DISPOSAL OF PROPERTY, PLANT, AND EQUIPMENT.

A. Disposal of PP&E

1. Voluntary disposals of assets include sales, trade-ins, and retirements.

2. Involuntary disposals of assets result from casualties such as fires, storms, and accidents.

B. Recording Disposals

1. Two journal entries are usually required to record the disposal of depreciable assets.

a. Disposals seldom occur on the last day of the accounting period, so the depreciation expense and accumulated depreciation accounts must be updated at the time of disposal.

b. The cost of the asset and any accumulated depreciation must be removed from the accounts.

1. If the cash or other consideration received for the asset is greater than its book value, a gain on disposal is recognized.
2. If cash or other consideration received is less than book value, a loss is recognized.
3. Discarded assets
   i. If a fully depreciated asset (when salvage value is zero) is discarded, no gain or loss results.
   ii. If it is not fully depreciated, a loss is recognized.

VII. LO6 APPLY MEASUREMENT AND REPORTING CONCEPTS FOR NATURAL RESOURCES AND INTANGIBLE ASSETS.

A. Acquisition and Depletion of Natural Resources

1. Natural resources: assets that occur in nature.

a. Often referred to as wasting assets since they are depleted or used up when they are extracted for use in products.

b. Examples: gold, coal, iron ore, oil, and timber.

2. Environmental considerations are particularly important for companies owning natural resources.

3. Acquisition

a. Recorded in conformity with the cost principle when acquired.

4. Depletion

a. The action of allocating the cost over the period of its exploitation. [Example: When coal is mined, the mine value is reduced (depleted) and the asset account for coal inventory is increased. The coal is expensed when the coal is sold..]

b. The process of periodic cost allocation of the natural resource over the economic life in conformity with the matching principle.

c. Computation is similar to the units-of-production depreciation method. It is a systematic and rational allocation of the natural resource's cost.

$$\text{Depletion rate} = \frac{\text{Cost - Residual value}}{\text{Life in units}}$$

$$\text{Depletion} = \text{Depletion rate} \times \text{Units extracted}$$

d. Residual value is rarely used for natural resources.

e. An Accumulated Depletion account may be used; however, usually the natural resource asset itself is reduced directly.

f. Depletion is not expensed. It is added to the company's inventory as the natural resource is extracted or harvested. When inventory is sold, cost of goods sold is matched to sales revenue.

B. Acquisition and Amortization of Intangible Assets

1. Intangible assets: assets that have no physical substance. Their value results from certain rights and privileges conferred by law on the owner of the asset. Intangible assets can either have definite lives or indefinite lives.

2. Acquisition

a. Recorded in conformity with the cost principle *only* if purchased.

b. If they are developed by a company, the development costs are usually recorded as expenses when incurred.

3. Amortization

a. If the intangible assets have definite lives, the process of periodic cost allocation of intangible assets over their estimated useful lives in conformity with the matching principle.

b. Similar to depreciation for plant assets.

c. Computation is a systematic and rational allocation, similar to the straight-line depreciation method when intangible assets have definite lives.

$$\text{Amortization} = \frac{\text{Cost - Residual value *}}{\text{Life in years}}$$

*Residual value usually is zero

d. An Accumulated Amortization account may be used. However, usually the intangible asset itself is reduced directly.

e. If intangible assets have indefinite lives, they are not amortized.

1. Such assets are tested annually for impairment.
2. Impairment occurs when the book value exceeds future cash flows.
3. As with tangible assets, the impairment loss recognized is the excess of book value over fair value.

4. Examples of Intangible Assets

a. Goodwill

1. Includes aspects of a business such as good reputation, good location, customer loyalty, and quality goods or services.
2. The only time goodwill is recorded is when one business buys another business.
   a. It is recorded at its cost.
   b. The cost of goodwill is the amount paid for the whole business minus the market value of its identifiable net assets.
   c. Often reported as "cost in excess of net assets acquired."
   d. Goodwill has an indefinite life and must be reviewed at least annually for possible impairment.
3. Goodwill that is internally generated is not recorded.

b. Trademark

1. A special name, image, logo, or slogan that is identified with a product or a company.
2. Among the most valuable assets a company can own.
3. Since trademarks are normally created internally by a company, they are not recorded. The costs of developing trademarks internally are recorded as expenses.
4. If a trademark is purchased, it follows the rules for other purchased intangibles.

c. Copyright
1. The exclusive right to publish, use, and sell a literary, musical, or artistic work for a period generally not to exceed 70 years after the author's death.
2. Should be recorded at cost and amortized over the shorter of their useful life or remaining legal life.

d. Patent
1. An exclusive right granted by the federal government for a period of 20 years.
2. Enables its owner to use, manufacture, and sell the subject of the patent.
3. Patents encourage the development of new products.
4. If a patent is purchased, it should be recorded at cost and amortized over the shorter of its useful life or remaining legal life.
5. If a patent is internally developed, only the costs associated with registration would be capitalized and amortized.

e. Technology
1. Includes costs for computer software and Web development.
2. Amortization follows the impairment rules due to the indefinite life of technology.

f. Franchises
1. May be granted by a government or a business for a specified period and purpose.
2. The life of is usually included in a contract, and the cost is amortized over the appropriate life.

g. Licenses and operating rights (Examples include radio and television rights)
1. Obtained through agreements with governmental agencies.
2. They permit owners to use public property to provide services.

h. Research and development costs
1. Generally expensed as incurred.
2. R&D is usually <u>not</u> an intangible asset because of the insufficient probability of measurable future cash flows.

VIII. LO7 EXPLAIN THE IMPACT ON CASH FLOWS OF ACQUIRING, USING, AND DISPOSING OF LONG-LIVED ASSETS.

A. Purchase (or sale) of an intangible asset is an outflow (inflow) of cash in the <u>I</u>nvesting section of the Statement of Cash Flows.

B. Operating Section adjustments (indirect method):
1. Depreciation and amortization expense is added back.
2. Gain on sale of a plant asset or an intangible asset is deducted.
3. Loss on sale of a plant asset an intangible asset is added back.
4. Loss due to asset impairment write-down is added back.

IX. CHAPTER SUPPLEMENT A: CHANGES IN DEPRECIATION ESTIMATES

1. The computation of depreciation expense uses two estimates -- useful life and residual value.
- Since these are estimates, their initial determination may need to be revised as experience with the asset accumulates.

2. When management believes it is appropriate to change estimates regarding a depreciable asset, the book value (undepreciated value) less the revised residual value becomes the remaining depreciable amount for the asset. This value should be apportioned over the remaining estimated life of the asset.

3. Changes in estimates result because of better measures of the asset's usefulness.
a. This is a prospective change that does not involve restatement of prior period statements.
b. Note, a disclosure should explain such changes since comparability of financial statements is important to financial analysts and other statement users.

4. Changes in depreciation methods require special treatment on the income statement (see Chapter 5) since the consistency principle is violated.

CHAPTER 8: REPORTING PROPERTY, PLANT, AND EQUIPMENT; NATURAL RESOURCES; AND INTANGIBLES

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มาตรฐานการบัญชี ฉบับที่ 16 (ปรับปรุง 2552)

เรื่อง

ที่ดิน อาคารและอุปกรณ์

คำแถลงการณ์

มาตรฐานการบัญชีฉบับนี้ได้ปรับปรุงให้เป็นไปตามเกณฑ์ที่กำหนดขึ้นโดยมาตรฐานการบัญชีระหว่างประเทศ ฉบับที่ 16 เรื่อง ที่ดิน อาคารและอุปกรณ์ ซึ่งเป็นการแก้ไขของคณะกรรมการมาตรฐานการบัญชีระหว่างประเทศที่สิ้นสุดในวันที่ 31 ธันวาคม 2551 (IAS 16: Property, Plant and Equipment (Bound volume 2009))

TAS16 Property, Plant, and Equipment

Federation of Accounting Professions

Definition

- **The following terms are used in this Standard with the meanings specified:**
  - ***Carrying amount*** is the amount at which an asset is recognized after deducting any accumulated depreciation and accumulated impairment losses.
  - ***Cost*** is the amount of cash or cash equivalents paid or the fair value of the other consideration given to acquire an asset at the time of its acquisition or construction.
  - ***Depreciable amount*** is the cost of an asset, or other amount substituted for cost, less its residual value.
  - ***Depreciation*** is the systematic allocation of the depreciable amount of an asset over its useful life.
  - ***Fair value*** is the amount for which an asset could be exchanged between knowledgeable, willing parties in an arm's length transaction.
  - An ***impairment loss*** is the amount by which the carrying amount of an asset exceeds its recoverable amount.

Definition

- ***Property, plant and equipment*** are tangible items that:
  - (a) are held for use in the production or supply of goods or services, for rental to others, or for administrative purposes; and
  - (b) are expected to be used during more than one period.
- ***Recoverable amount*** is the higher of an asset's fair value less costs to sell and its value in use.
- The ***residual value*** of an asset is the estimated amount that an entity would currently obtain from disposal of the asset, after deducting the estimated costs of disposal, if the asset were already of the age and in the condition expected at the end of its useful life.
- ***Useful life*** is:
  - (a) the period over which an asset is expected to be available for use by an entity; or
  - (b) the number of production or similar units expected to be obtained from the asset by an entity.

Recognition

- ***Recognition***
  - Items of property, plant, and equipment should be recognized as assets when it is probable that: [TAS 16.7]
    - it is probable that the future economic benefits associated with the asset will flow to the entity, and
    - the cost of the asset can be measured reliably.
  - This recognition principle is applied to all property, plant, and equipment costs at the time they are incurred. These costs include costs incurred initially to acquire or construct an item of property, plant and equipment and costs incurred subsequently to add to, replace part of, or service it.
  - TAS 16 does not prescribe the unit of measure for recognition – what constitutes an item of property, plant, and equipment. [TAS 16.9] Note, however, that if the cost model is used (see below) each part of an item of property, plant, and equipment with a cost that is significant in relation to the total cost of the item must be depreciated separately. [TAS 16.43]

Initial Measurement

- **Initial Measurement**
  - An item of property, plant and equipment should initially be recorded at cost. [TAS 16.15]
    - Cost includes all costs necessary to bring the asset to working condition for its intended use.
    - This would include not only its original purchase price but also costs of site preparation, delivery and handling, installation, related professional fees for architects and engineers, and the estimated cost of dismantling and removing the asset and restoring the site. [TAS 16.16-17]



Measurement Subsequent to Initial Recognition

- ***Measurement Subsequent to Initial Recognition***
  - TAS 16 permits two accounting models:
    - Cost Model. The asset is carried at cost less accumulated depreciation and impairment. [TAS 16.30]
    - Revaluation Model. The asset is carried at a revalued amount, being its fair value at the date of revaluation less subsequent depreciation and impairment, provided that fair value can be measured reliably. [TAS 16.31]



Depreciation

- **Depreciation (Cost and Revaluation Models)**
  - For all depreciable assets:
    - The depreciable amount (cost less residual value) should be allocated on a systematic basis over the asset's useful life [TAS 16.50].
    - The residual value and the useful life of an asset should be reviewed at least at each financial year-end and, if expectations differ from previous estimates, any change is accounted for prospectively as a change in estimate. [TAS 16.51]
    - The depreciation method used should reflect the pattern in which the asset's economic benefits are consumed by the entity [TAS 16.60];
    - The depreciation method should be reviewed at least annually and, if the pattern of consumption of benefits has changed, the depreciation method should be changed prospectively as a change in estimate. [TAS 16.61]
    - Depreciation should be charged to the Statement of Comprehensive Income, unless it is included in the carrying amount of another asset [TAS 16.48].
    - Depreciation begins when the asset is available for use and continues until the asset is derecognised, even if it is idle. [TAS 16.55]

Derecognition

- **Derecogniton (Retirements and Disposals)**
  - An asset should be removed from the statement of financial position on disposal or when it is withdrawn from use and no future economic benefits are expected from its disposal. The gain or loss on disposal is the difference between the proceeds and the carrying amount and should be recognized in profit or loss. [TAS 16.67-71]

Disclosure

- **Disclosure**
  - For each class of property, plant, and equipment, disclose: [TAS 16.73]
    - basis for measuring carrying amount
    - depreciation method(s) used
    - useful lives or depreciation rates
    - gross carrying amount and accumulated depreciation and impairment losses
    - reconciliation of the carrying amount at the beginning and the end of the period, showing:
      - additions
      - disposals
      - acquisitions through business combinations
      - revaluation increases or decreases
      - impairment losses
      - reversals of impairment losses
      - depreciation
      - net foreign exchange differences on translation
      - other movements

Classifying Long-Lived Assets

- **The resources that determine a company's productive capacity are often called long-lived assets.**
  - These assets that are listed as noncurrent assets on the Statement of Financial Position may be either tangible or intangible, and have the following characteristics.

Tangible assets

- They have physical substance; that is they can be touched. This classification is called ***property, plant, and equipment*** or fixed assets.
  - Land
  - Building, fixtures, and equipment

Intangible assets

- They are long-lived assets without physical substance that confer specific rights on their owner.
  - Examples are patents, copyrights, franchises, licenses, and trademarks.

Property, Plant, and Equipment

- **Property, plant, and equipment include land, building structures (offices, factories, warehouses), and equipment (machinery, furniture, tools).**
  - Major characteristics of property, plant, and equipment are as follows:
    - They are acquired for use in operations and not for resale.
    - They are long-term in nature and usually depreciated.
    - They possess physical substance.

Asset Cost

- **Most companies use historical cost as the basis for valuing property, plant, and equipment.**
  - Historical cost measures the cash or cash equivalent price of obtaining the asset and bringing it to the location and condition necessary for its intended use.
- **Under the cost principle, all reasonable and necessary expenditures made in acquiring and preparing an asset for use should be recorded as the cost of the asset.**
  - Acquisition cost:
    - The net cash equivalent amount paid or to be paid for the asset.
  - The expenditures are capitalized when they are recorded as part of the cost of an asset instead of as expenses in the current period.

Measuring and Recording Asset Cost

- **Example:**
  - On Jan. 1, 2001, Company A purchased new equipment for a list price of 5,200,000 Baht. Company A received a discount of 200,000 Baht.
  - In addition, Company A paid for transportation and installation cost of 100,000 Baht

Invoice price	5,200,000
Less: Discount	(200,000)
Net cash invoice price	5,000,000
Add: Transportation and installation cost	100,000
Asset cost	**5,100,000**

Acquired Asset for Cash

- **Assuming that Company A paid for the equipment and related costs, the transaction is recorded as follows:**

GENERAL JOURNAL

Date		Account Titles and Explanation	Debit	Credit
Jan.	1	Dr. Equipment	5,100,000	
20XX		Cr. Cash		5,100,000
		To record purchase equipment for cash		

Date		Account Titles and Explanation	Debit	Credit
Jan.	1	Dr. Equipment	5,100,000	
20XX		Cr. Cash		100,000
		Note payable		5,000,000
		Purchase equipment for debt and cash		

Date		Account Titles and Explanation	Debit	Credit
Jan.	1	Dr. Equipment	5,100,000	
		Cr. Cash		300,000
		Capital Stock		4,800,000
		Purchase equipment for equity and cash		

AC201 Fundamental Accounting

Basket (Lump-sum) Purchase

- **Basket (Lump-sum) Purchase**
  - The purchase of two or more assets acquired together at a single price.
    - Relative Fair Market Value Method is used
      - A way of allocating a basket purchase price to the individual assets acquired based on their respective market values.
- **Illustration:**
  - Frank's Fruit Farm purchased land and a new sorting facility at a total cost of 3,600,000 Baht.

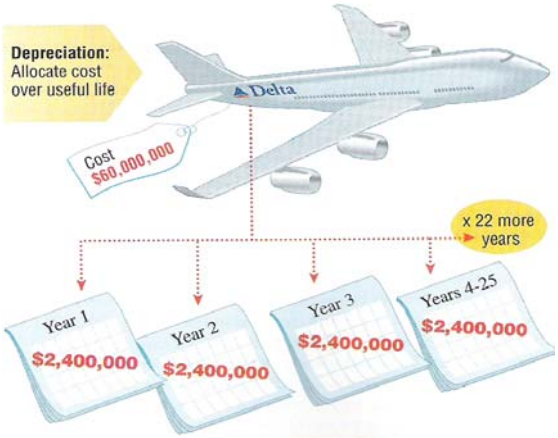
Asset	Fair Value	% of Total Value	Calculation	Cost Allocation
Land	1,000,000	25%	25% x 3,600,000 =	900,000
Building	3,000,000	75%	75% x 3,600,000 =	2,700,000
Total	**4,000,000**			**3,600,000**

Depreciation

Depreciation: Process of allocating the asset cost over their productive lives using a systematic and rational method.

Estimated useful life: The expected service life of an asset to the present owner.

Residual value: The estimated amount to be recovered at the end of the company's estimated useful life of an asset.



Using the asset→depreciation expense each year

Depreciation

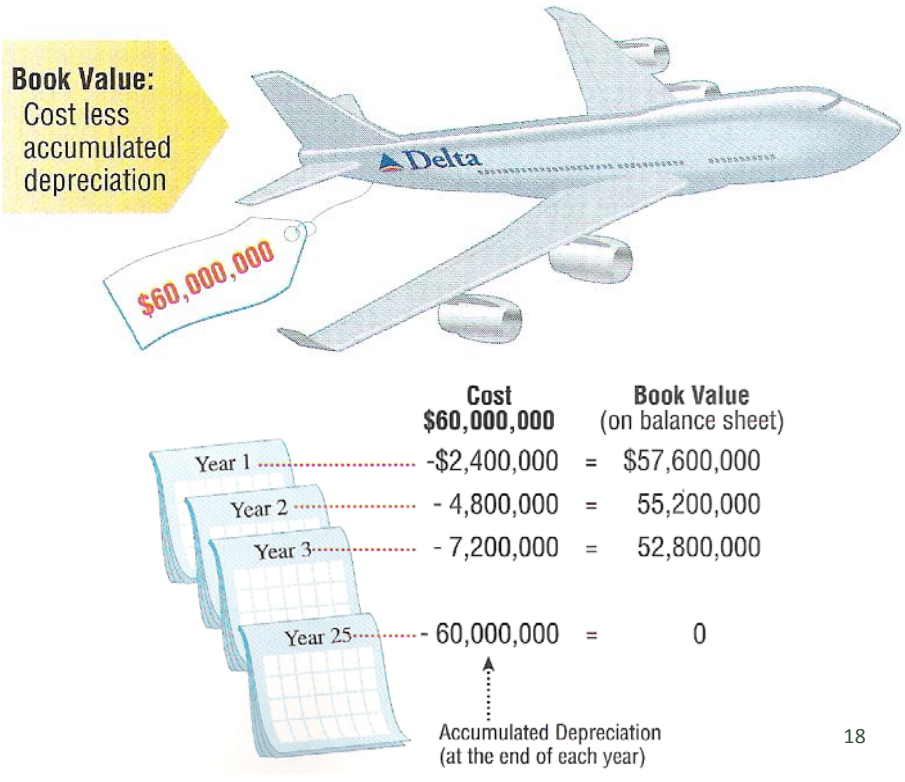
It is the accounting process of allocating the cost of tangible assets to expense in a systematic and rational manner to those periods expected to benefit from the use of the asset.

When companies write off the cost of long-lived assets over a number of periods, they typically use the term depreciation.

Book Value

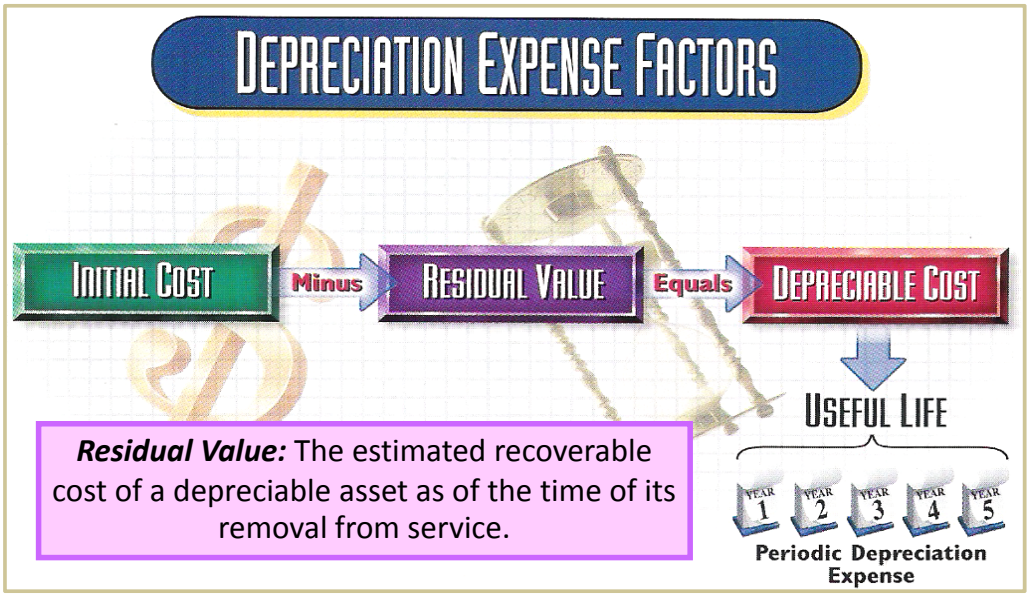
Book value: Difference between the balance of an asset and its related accumulated depreciation.

Accumulated depreciation: The contra asset account used to accumulate the depreciation recognized to date on plant assets.



Factors Involved in the Depreciation Process

- **Depreciable base for the asset**
  - Depreciation base = Asset cost – Salvage value
  - Salvage value is the estimated amount that a company will receive when it sells the assets or removes it from service.
- **Estimation of service lives**
- **Methods of depreciation**
  - Activity method or units-of-production approach
    - This method assumes that depreciation is a function of use or productivity, instead of the passage of time.
  - Straight-line method
    - This method considers a function of time rather than a function of usage.
  - Decreasing-charge methods
    - These methods provide for a higher depreciation cost in the earlier years and lower charges in later periods.
      - Sum-of-the-years'-digits
      - Declining-balance method



GENERAL JOURNAL

Date		Account Titles and Explanation	Debit	Credit
Dec.	31	Dr. Depreciation expense	XXX	
20XX		Cr. Accumulated depreciation		XXX
		To record depreciation expense		

A	=	L	+	E
Accumulated depreciation xx [XA+, A-]				Depreciation expense xx [EXP+, R/E-, E-]

Depreciation

- **Depreciation**
  - The allocation of the cost of a plant asset to expense in the periods in which services are received from the assets.

Statement of Financial Position

- **Assets:**
- Plant and equipment
- Less: Accumulated depreciation

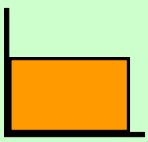
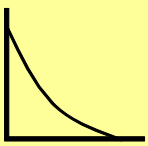
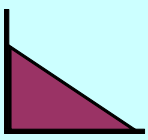
Cost of plant assets

Statement of Comprehensive Income

- **Expenses:**
- Depreciation expense

As the services are received

Depreciation Methods

Method	Pattern	Computation	Remarks
Straight-line		**(Asset cost - Residual value) / Useful life**	Or **Depreciable cost x Straight-line rate** **Straight-line rate** = 100% / Useful life
Double declining balance		**(Asset cost - Accumulated depreciation) X Accelerated rate**	Or **Book value x Accelerated rate** **Accelerated rate** = 200% / Useful life = 2 X Straight-line rate
Sum of the years' digits		**(Asset cost - Residual value) X Fraction**	**Fraction** = Remaining useful life / Sum of the years' digits **Sum of the years' digits** = n(n+1) / 2
Units of production		**Units produced X Rate per unit**	**Rate per unit** = (Asset cost - Residual value) / Estimated capacity

Depreciation Calculations

- **To illustrate the depreciation calculation, we assumed that Company A purchased equipment on January 1, 20X1.**
  - The following facts apply:
    - Acquisition cost: 24,000 Baht
    - Estimated residual value: 2,000 Baht
    - Estimated useful life:
      - In years: 5 years
      - In capacity: 60,000 units

Straight-line Method

Annual depreciation expense

= (Asset cost – Residual value) / Useful life (years)

= (24,000 – 2,000) / 5

= 4,400 Baht per year

	Computation	Annual Depreciation Expense	Accumulated Depreciation	Book Value
Acquisition date				24,000
End of year 1	(24,000 - 2,000) / 5	4,400	4,400	19,600
End of year 2	(24,000 - 2,000) / 5	4,400	8,800	15,200
End of year 3	(24,000 - 2,000) / 5	4,400	13,200	10,800
End of year 4	(24,000 - 2,000) / 5	4,400	17,600	6,400
End of year 5	(24,000 - 2,000) / 5	4,400	22,000	***2,000***
		22,000		

Double Declining Balance Method

Straight-line rate
= 100% / Useful life (years)
= 100% / 5
= 20%

Accelerated rate
= 2 X Straight-line rate
= 2 X 20%
= 40%

Annual depreciation expense
= (Asset cost – Accumulated depreciation) X Accelerated rate

	Computation	Annual Depreciation Expense	Accumulated Depreciation	Book Value
Acquisition date				24,000
End of year 1	24,000 X 40%	9,600	9,600	14,400
End of year 2	14,400 X 40%	5,760	15,360	8,640
End of year 3	8,640 X 40%	3,456	18,816	5,184
End of year 4	5,184 X 40%	2,074	20,890	3,110
End of year 5	*(22,000 - 20,890)	1,110	22,000	***2,000***
		22,000		

Units of Production Method

Units produced:
Year 1: 12,000 units
Year 2: 18,000 units
Year 3: 11,000 units
Year 4: 9,000 units
Year 5: 10,000 units

Depreciation rate per unit
= (Asset cost – Residual value) /
Estimated capacity
= (24,000 – 2,000) / 60,000 = 0.37 Baht per unit

Annual depreciation expense
= Actual units produced X Depreciation rate per unit

	Computation	Annual Depreciation Expense	Accumulated Depreciation	Book Value
Acquisition date				24,000
End of year 1	12,000 X 0.37	4,400	4,400	19,600
End of year 2	18,000 X 0.37	6,600	11,000	13,000
End of year 3	11,000 X 0.37	4,033	15,033	8,967
End of year 4	9,000 X 0.37	3,300	18,333	5,667
End of year 5	10,000 X 0.37	3,667	22,000	***2,000***
		22,000		

Sum-of-the-years-digits Method

Remaining useful life

Sum-of-the-years'-digits
[n (n+1)] / 2

Sum-of-the-years'-digits
= [N(N+1)] / 2
= (5 X 6) / 2 → Useful life = 5 years
= 15

Annual depreciation expense
= (Asset cost – Residual value) X Fraction

	Computation	Annual Depreciation Expense	Accumulated Depreciation	Book Value
Acquisition date				24,000
End of year 1	(24,000 - 2,000) X 5/15	7,333	7,333	16,667
End of year 2	(24,000 - 2,000) X 4/15	5,867	13,200	10,800
End of year 3	(24,000 - 2,000) X 3/15	4,400	17,600	6,400
End of year 4	(24,000 - 2,000) X 2/15	2,933	20,533	3,467
End of year 5	(24,000 - 2,000) X 1/15	1,467	22,000	***2,000***
		22,000		

AC201 Fundamental Accounting

Other Issues

- **Estimates of Useful Life and Residual Value**
  - May differ from company to company.
  - The reasonableness of management's estimates is evaluated by external auditors.
- **Principle of Consistency**
  - Companies should avoid switching depreciation methods from period to period.

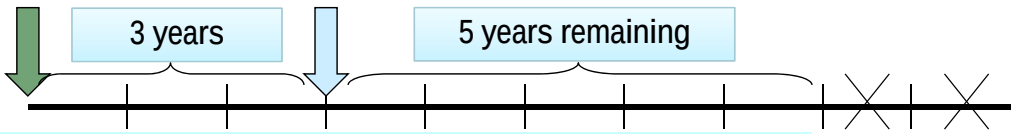
The total amount of depreciation recorded over the useful life of an asset is the same regardless of the method used. Depreciation expense recorded in any one period will vary according to method used.

Change in Accounting Estimates

- **Over the life of an asset, new information may come to light that indicates the original estimates need to be revised.**
  - Residual value
  - Useful life
- **Illustration**
  - On January 1, 20X1, equipment was purchased at a cost of 300,000 Baht. The equipment has a useful life of 10 years and no salvage value.
  - On January 1, 20X4, the useful life was revised to 8 years total (5 years remaining).
    - Calculate depreciation expense for the year ended December 31, 20X4, using the straight-line method.

On Jan.1, 20X1, Co. purchased equipment for 300,000 Baht

On Jan.1, 20X4, Co. revised useful life to be 8 years total



❶ **Straight-line depreciation (Original estimates)**
= (Asset cost - Residual value) / Useful life
= (300,000 - 0) / 10
= 30,000 per year

Original estimates:
Residual value = 0
Useful life = 10 years

❷ **Accumulated depreciation at the date of change**
= 30,000 Dep. per year X 3 years
= 90,000

❸ **Book value at the date of change**
= Asset cost - Acc. Dep.
= 300,000 - 90,000
= 210,000

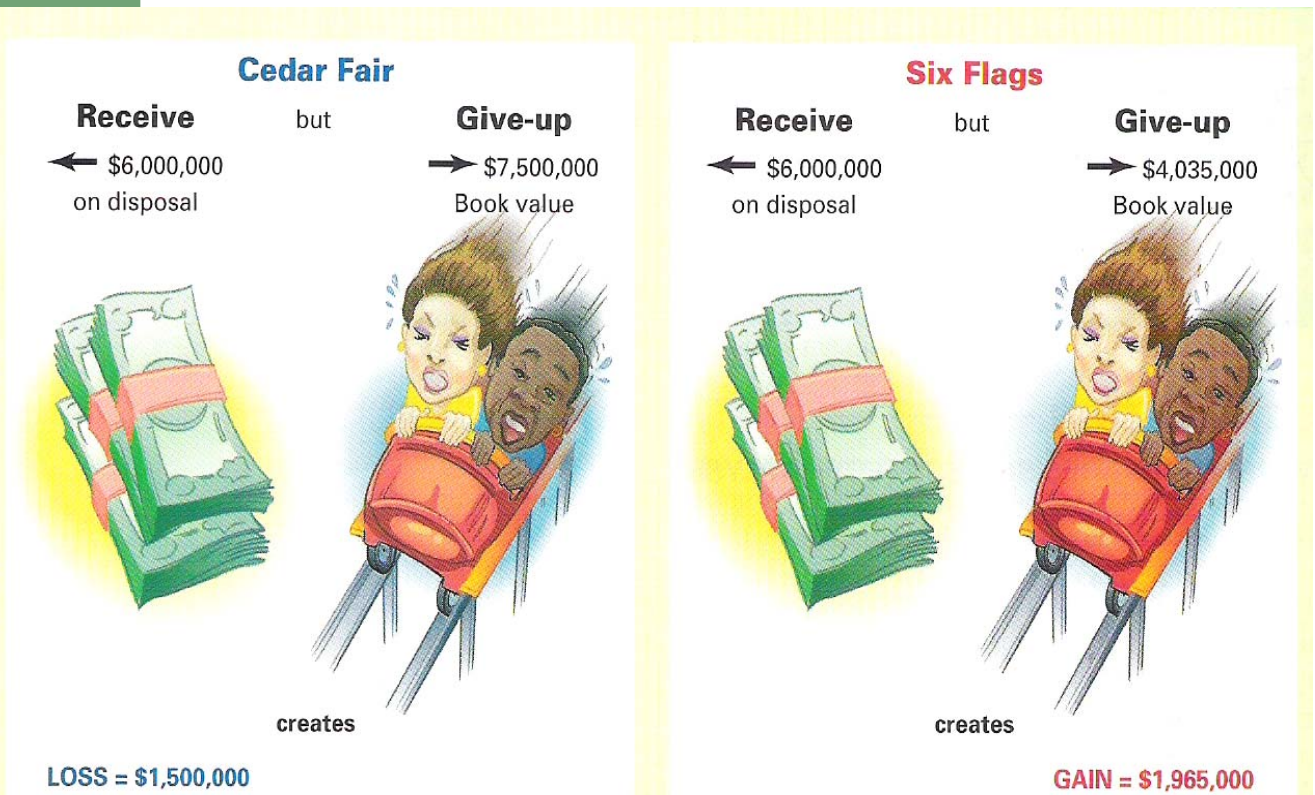
❹ **Revised depreciation per year**
= (Book value at the date of change - Revised residual value) / Remaining useful life
= (210,000 - 0) / 5
= 42,000

Revised estimates:
Residual value = 0
Useful life = 8 years

Disposition of Property, plant, and Equipment

- **The disposal of a depreciable asset usually requires two journal entries:**
  - An adjusting entry to update the depreciation expense and accumulated depreciation account.
  - An entry to record the disposal.

Disposal of Property, plant, and Equipment



Disposal of Property, Plant, and Equipment (Cont.)

- **Illustration:**
  - On Sept. 30, 20X6, Company A sold machine that originally cost 1,000,000 Baht for 600,000 Baht cash.
    - The machine was placed in service on Jan. 1, 20X1.
      - It was depreciated using the straight-line method with an estimated salvage value of 200,000 Baht and a useful life of 10 years.



On Jan.1, 20X1, Co. purchased equipment for 1,000,000 Baht

On Sept. 30, 20X6, Co. sold equipment for 600,000 Baht

5 years and 9 months

❶ Straight-line depreciation per year
= (Asset cost - Residual value) / Useful life
= (1,000,000 - 200,000) / 10
= 80,000

Residual value = 200,000

Useful life = 10 years

❷ Accumulated depreciation at the date of sale
= (80,000 X 5 yrs) + (80,000 X (9/12))
= 460,000

❸ Book value at the date of sale
= Asset cost - Acc. Dep.
= 1,000,000 - 460,000
= 540,000

Cash > BV ➔ Gain (↑E)
Cash < BV ➔ Loss (↓E)

❹ Compare the book value at the date of sale with the cash received:

Cash received from sale		**600,000**
Book value at the date of sale		
Asset cost	**1,000,000**	
Less: Accumulated depreciation	**(460,000)**	**(540,000)**
Gain (loss) on sale		**60,000**

Disposal of Property, Plant, and Equipment (Cont.)

- **Prepare the journal entry to record Evans' sale of the machine on September 30, 20X6.**

GENERAL JOURNAL

Date		Account Titles and Explanation	Debit	Credit
Sept.	30	Dr. Depreciation expense	60,000	
20X6		Cr. Accumulated depreciation		60,000
		To record depreciation expense during 20X6		
Sept.	30	Dr. Cash	600,000	
20X6		Accumulated depreciation	460,000	
		Cr. Equipment		1,000,000
		Gain on sale of equipment		60,000
		To record the sale of equipment		

A		=	L	+	E	
Accumulated depreciation [XA+, A-]	-60,000				Depreciation expense [EXP+, R/E-, E-]	-60,000
Cash [A+]	+600,000				Gain on sale of equipment [REV+, R/E+, E+]	+60,000
Equipment [A-]	-1,000,000					
Accumulated depreciation [XA-, A+]	+460,000					

STATEMENTS OF FINANCIAL POSITION

Example of Financial Statement Presentation & Disclosure: Property, Plant, & Equipment
[Source: www.farmhouse.co.th]

PRESIDENT BAKERY PUBLIC COMPANY LIMITED
As at 31 December 2011 and 2010

(Unit: Baht)

	NOTE	SEPARATE FINANCIAL STATEMENTS 2011	2010
Non-current assets			
Investment in joint venture	12	5,850,000	5,850,000
Other long-term investment	13	15,000,000	-
Property, plant and equipment	14	2,786,147,285	2,660,925,587
Advance payments for purchase of assets		29,022,722	15,347,413
Intangible assets	15	805,771	1,294,434
Leasehold rights	16	1,996,354	2,323,734
Other non-current assets		6,356,402	6,541,253
Total non-current assets		2,845,178,534	2,692,282,421
Total assets		4,312,142,658	3,762,471,123

6.6 Property, plant and equipment and depreciation

Land is stated at cost. Plant and equipment are stated at cost less accumulated depreciation. Depreciation of plant and equipment is calculated by reference to their costs on a straight-line basis over the estimated useful lives of assets, except for computer equipment acquired since 1 January 2002 calculated by double declining balance basis, as follows:

Buildings	-	10 - 20 years
Machinery and equipment	-	5 - 20 years
Computer equipment	-	3 - 5 years
Furniture and office equipment	-	5 years
Motor vehicles	-	5 years

No depreciation is provided on land, construction in progress and assets under installation.

Depreciation is included in determining income.

An item of plant and equipment is derecognised upon disposal or when no future economic benefits are expected from its use or disposal. Any gain or loss arising on disposal of an asset is included in profit or loss when the asset is derecognised.

14. PROPERTY, PLANT AND EQUIPMENT

(Unit: Thousand Baht)

	Land	Building	Machinery and equipment	Furniture and office equipment	Motor vehicles	Construction in progress and assets under installation	Total
Cost							
1 January 2010	158,205	1,027,916	2,067,173	601,718	472,991	33,931	4,361,934
Additions	9,033	-	-	61,443	18,027	475,883	564,386
Transfers in (out)	121	2,582	58,288	19,491	89,223	(170,255)	(550)
Disposals	-	-	(35,840)	(911)	(11,369)	-	(48,120)
31 December 2010	167,359	1,030,498	2,089,621	681,741	568,872	339,559	4,877,650
Additions	-	-	16,359	50,403	3,006	466,523	536,291
Transfers in (out)	-	9,397	636,179	44,718	87,246	(777,540)	-
Disposals	-	-	-	(22,562)	(11,745)	-	(34,307)
31 December 2011	167,359	1,039,895	2,742,159	754,300	647,379	28,542	5,379,634
Accumulated depreciation							
1 January 2010	-	155,049	962,076	423,118	347,966	-	1,888,209
Depreciation for the year	-	51,417	183,692	78,179	61,112	-	374,400
Depreciation - disposals	-	-	(33,605)	(910)	(11,369)	-	(45,884)
31 December 2010	-	206,466	1,112,163	500,387	397,709	-	2,216,725
Depreciation for the year	-	49,761	211,549	86,626	62,193	-	410,129
Depreciation - disposals	-	-	-	(21,976)	(11,391)	-	(33,367)
31 December 2011	-	256,227	1,323,712	565,037	448,511	-	2,593,487
Net book value							
31 December 2010	167,359	824,032	977,458	181,354	171,163	339,559	2,660,925
31 December 2011	167,359	783,668	1,418,447	189,263	198,868	28,542	2,786,147
Depreciation for the year							
2010 (Baht 281 million included in manufacturing cost, and the balance included in selling and administrative expenses)							374,400
2011 (Baht 311 million included in manufacturing cost, and the balance included in selling and administrative expenses)							410,129

As at 31 December 2011, the Company has equipment acquired under finance lease agreements, with net book value amounting to Baht 191 million (2010: Baht 162 million).

As at 31 December 2011, certain equipment items have been fully depreciated but are still in use. The gross carrying amount before deducting accumulated depreciation of those assets amounted to approximately Baht 1,153 million (2010: Baht 975 million).

มาตรฐานการบัญชี ฉบับที่ 38 (ปรับปรุง 2552)
เรื่อง
สินทรัพย์ไม่มีตัวตน

คำแถลงการณ์

มาตรฐานการบัญชีฉบับนี้เป็นไปตามเกณฑ์ที่กำหนดขึ้นโดยมาตรฐานการบัญชีระหว่างประเทศ ฉบับที่ 38 เรื่อง สินทรัพย์ไม่มีตัวตน พ.ศ. 2552 ซึ่งเป็นการแก้ไขของคณะกรรมการมาตรฐานการบัญชีระหว่างประเทศที่สิ้นสุดในวันที่ 31 ธันวาคม พ.ศ. 2551 (IAS 38: Intangible Assets (Bound volumn 2009))

TAS38 Intangible Assets

Federation of Accounting Professions

Intangible Assets

- **Intangible assets:**
  - Assets that have special rights but not physical substance.
    - Characteristics
      - They lack physical existence.
      - They are not financial instruments
  - Intangible assets are recorded at historical cost only if they have been purchased. If these assets are developed internally by the company, they are expensed when incurred.
    - Upon acquisition of intangible assets, managers determine whether the separate intangibles have definite or indefinite lives.

Definite VS. Indefinite Life

Definite Life

- The cost of an intangible with a definite life is allocated on ***a straight-line basis*** each period over its useful life in a process called ***amortization*** that is similar to depreciation and depletion.
- Most companies do not estimate a residual value for their intangible assets.
- Amortization expense is included on the Statement of Comprehensive Income each period and the intangible asses are reported at ***cost less accumulated amortization*** on the Statement of Financial Position.

Indefinite Life

- Intangible assets with indefinite lives are not amortized.
- These assets are to be tested at least annually for possible ***impairment***, and the asset's book value is written down (decreased) to its fair value if impaired.

Intangible Assets

- **Valuation**
  - Purchased intangibles
    - Intangibles purchased from another party are recorded at cost. Cost includes all costs of acquisition and expenditures necessary to make the intangible asset ready for its intended use. Typical costs include purchase price, legal fees, and other incidental expenses.
  - Internally created intangibles
    - Cost incurred internally to create intangibles are generally expensed. Thus, even though a company may incur substantial research and development costs to create an intangible, it expenses these costs.
- **Amortization of intangibles**
  - The allocation of the cost of intangible assets in a systematic way is called amortization.

A		=	L	+	E	
Intangible assets [A+]	xx		Purchase of Intangible Assets for cash			
Cash [A-]	xx					
Accumulated amortization [XA+, A-]	xx		To record amortization expense		Amortization expense [EXP+, R/E-, E-]	xx

Types of Intangible Assets

- **Marketing-related intangible assets**
- **Customer-related intangible assets**
- **Artistic-related intangible assets**
- **Contract-related intangible assets**
- **Technology-related intangible assets**
- **Goodwill**

Types of Intangible Assets

- **Marketing-related intangible assets**
  - Companies primarily use marketing-related intangible assets in the marketing or promotion of products or services.
    - Examples – trademarks, trade names, internet domain names, etc.
      - A trademark or trade name is a word, phrase, or symbol that distinguishes or identifies a particular company or product.
- **Customer-related intangible assets**
  - Customer-related intangible assets result from interactions with outside parties.
    - Examples – customer lists
- **Artistic-related intangible assets**
  - Artistic-related intangible assets involve ownership rights to plays, literary works, musical works, pictures, photographs, and video and audiovisual material.
    - Copyrights protect these ownership rights.

Types of Intangible Assets

- **Contract-related intangible assets**
  - Contract-related intangible assets represent the value of rights that arise from contractual arrangements.
    - Examples – franchise and licensing agreements, broadcast rights, and service or supply contracts.
      - A franchise is a contractual arrangement under which the franchisor grants the franchisee the right to sell certain products or services, to use certain trademarks or trade names, or to perform certain functions, usually within a designated geographical area.
- **Technology-related intangible assets**
  - Technology-related intangible assets relate to innovations or technological advances.
    - Examples – patented technology, trade secrets
      - A patent gives the holder exclusive right to use, manufacture, and sell a product or process without interference or infringement by others.
- **Goodwill**
  - In a business combination, a company assigns the cost (purchase price), where possible, to identifiable tangible and intangible net assets. It records the remainder in an intangible asset account called "Goodwill". Goodwill is not amortized.

STATEMENTS OF FINANCIAL POSITION

Example of Financial Statement Presentation & Disclosure: Intangible Assets
[Source: www.farmhouse.co.th]

PRESIDENT BAKERY PUBLIC COMPANY LIMITED
As at 31 December 2011 and 2010

(Unit: Baht)

	NOTE	SEPARATE FINANCIAL STATEMENTS 2011	2010
Non-current assets			
Investment in joint venture	12	5,850,000	5,850,000
Other long-term investment	13	15,000,000	-
Property, plant and equipment	14	2,786,147,285	2,660,925,587
Advance payments for purchase of assets		29,022,722	15,347,413
Intangible assets	15	805,771	1,294,434
Leasehold rights	16	1,996,354	2,323,734
Other non-current assets		6,356,402	6,541,253
Total non-current assets		2,845,178,534	2,692,282,421
Total assets		4,312,142,658	3,762,471,123

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6.7 Intangible assets

Intangible assets are measured at cost on the date of acquisition. Following initial recognition, intangible assets are carried at cost less any accumulated amortisation and any accumulated impairment losses.

Intangible assets with finite lives are amortised on a systematic basis over the economic useful life, except for computer software acquired since 1 January 2002 calculated by double declining balance basis, and tested for impairment whenever there is an indication that the intangible asset may be impaired. The amortisation period and the amortisation method of such intangible assets are reviewed at least at each financial year end. The amortisation expense is charged to profit or loss.

A summary of the intangible assets with finite useful lives is as follows:

	USEFUL LIVES
Computer software	5 years

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15. INTANGIBLE ASSETS

Details of intangible assets, which are computer software, are as follows:

(Unit: Thousand Baht)

	2011	2010
Cost		
Balance - beginning of year	11,507	10,687
Additions	126	270
Transfer in	-	550
Balance - ending of year	11,633	11,507
Less: Accumulated amortisation	(10,827)	(10,213)
Net book value	806	1,294
Amortisation expenses included in the statements of comprehensive income for the year	614	966

Available with McGraw-Hill's Homework Manager

EXERCISES

Preparing a Classified Balance Sheet

E8-1
LO1
Hasbro, Inc.

The following is a list of account titles and amounts (dollars in millions) reported by Hasbro, Inc., a leading manufacturer of games, toys, and interactive entertainment software for children and families:

Buildings and improvements	$206	Goodwill	$ 464
Prepaid expenses and other current assets	212	Machinery and equipment	304
Allowance for doubtful accounts	39	Accumulated depreciation	358
Other noncurrent assets	280	Inventories	169
Accumulated amortization (other intangibles)	435	Other intangibles	1,146
Cash and cash equivalents	521	Land and improvements	18
		Accounts receivable	646
		Tools, dies, and molds	30

Required:
Prepare the asset section of the balance sheet for Hasbro, Inc., classifying the assets into Current Assets, Property, Plant, and Equipment (net), and Other Assets.

Computing and Interpreting the Fixed Asset Turnover Ratio from a Financial Analyst's Perspective

E8-2
LO1
Apple Inc.

The following data were included in a recent Apple Inc. annual report ($ in millions):

In millions	2007	2006	2005	2004
Net sales	$24,006	19,315	13,931	8,279
Net property, plant, and equipment	$ 1,832	1,281	817	707

Required:

1. Compute Apple's fixed asset turnover ratio for 2005, 2006, and 2007.
2. How might a financial analyst interpret the results?

E8-3 Computing and Recording Cost and Depreciation of Assets (Straight-Line Depreciation)
LO2, 3

KD Company bought a building for $71,000 cash and the land on which it is located for $107,000 cash. The company paid transfer costs of $3,000 ($1,000 for the building and $2,000 for the land). Renovation costs on the building were $23,000.

Required:

1. Give the journal entry to record the purchase of the property, including all expenditures. Assume that all transactions were for cash and that all purchases occurred at the start of the year.
2. Compute straight-line depreciation at the end of one year, assuming an estimated 10-year useful life and a $15,000 estimated residual value.
3. What would be the net book value of the property (land and building) at the end of year 2?

E8-4 Determining Financial Statement Effects of an Asset Acquisition and Depreciation (Straight-Line Depreciation)
LO2, 3

Kalriess Company ordered a machine on January 1, 2011, at an invoice price of $21,000. On date of delivery, January 2, 2011, the company paid $8,000 on the machine, and the balance was on credit at 10 percent interest. On January 3, 2011, it paid $1,000 for freight on the machine. On January 5, Kalreiss paid installation costs relating to the machine amounting to $1,500. On July 1, 2011, the company paid the balance due on the machine plus the interest. On December 31, 2011 (the end of the accounting period), Kalriess recorded depreciation on the machine using the straight-line method with an estimated useful life of 10 years and an estimated residual value of $3,500.

Required (round all amounts to the nearest dollar):

1. Indicate the effects (accounts, amounts, and + or −) of each transaction (on January 1, 2, 3, 5, and July 1) on the accounting equation. Use the following schedule:

Date	Assets	=	Liabilities	+	Stockholders' Equity

2. Compute the acquisition cost of the machine.
3. Compute the depreciation expense to be reported for 2011.
4. What is the impact on the cost of the machine of the interest paid on the 10 percent note? Under what circumstances can interest expense be included in acquisition cost?
5. What would be the net book value of the machine at the end of 2012?

E8-5 Recording Depreciation and Repairs (Straight-Line Depreciation)
LO2, 3

Stacey Company operates a small manufacturing facility as a supplement to its regular service activities. At the beginning of 2010, an asset account for the company showed the following balances:

Manufacturing equipment	$100,000
Accumulated depreciation through 2009	66,000

During 2010, the following expenditures were incurred for the equipment:

Routine maintenance and repairs on the equipment	$ 1,000
Major overhaul of the equipment that improved efficiency	12,000

The equipment is being depreciated on a straight-line basis over an estimated life of 15 years with a $10,000 estimated residual value. The annual accounting period ends on December 31.

Required:

1. Give the adjusting entry that was made at the end of 2009 for depreciation on the manufacturing equipment.
2. Starting at the beginning of 2010, what is the remaining estimated life?
3. Give the journal entries to record the two expenditures during 2010.

Determining Financial Statement Effects of Depreciation and Repairs (Straight-Line Depreciation) E8-6 LO2, 3

Refer to the information in E8–5.

Required:

Indicate the effects (accounts, amounts, and + or −) of the following on the accounting equation.

Date	Assets	=	Liabilities	+	Stockholders' Equity

1. The adjustment for depreciation at the end of 2009.
2. The two expenditures during 2010.

Computing Depreciation under Alternative Methods E8-7 LO3

Rita's Pita Company bought a new dough machine at the beginning of the year at a cost of $6,000. The estimated useful life was four years, and the residual value was $1,000. Assume that the estimated productive life of the machine was 9,000 hours. Actual annual usage was 3,600 hours in year 1; 2,700 hours in year 2; 1,800 hours in year 3; and 900 hours in year 4.

Required:

1. Complete a separate depreciation schedule for each of the alternative methods. Round your answers to the nearest dollar.
   a. Straight-line.
   b. Units-of-production (use four decimal places for the per unit output factor).
   c. Double-declining-balance.

Method: _____

Year	Computation	Depreciation Expense	Accumulated Depreciation	Net Book Value
At acquisition				
1				
2				
etc.				

2. Assuming that the machine was used directly in the production of one of the products that the company manufactures and sells, what factors might management consider in selecting a preferable depreciation method in conformity with the matching principle?

Computing Depreciation under Alternative Methods E8-8 LO3

Alexa Plastics Company purchased a new stamping machine at the beginning of the year at a cost of $280,000. The estimated residual value was $30,000. Assume that the estimated useful life was five years, and the estimated productive life of the machine was 250,000 units. Actual annual production was as follows:

Year	Units
1	73,000
2	62,000
3	30,000
4	43,000
5	42,000

Required:

1. Complete a separate depreciation schedule for each of the alternative methods. Round your answers to the nearest dollar.
   a. Straight-line.
   b. Units-of-production.
   c. Double-declining-balance.

Method: _____

Year	Computation	Depreciation Expense	Accumulated Depreciation	Net Book Value
At acquisition				
1				
2				
etc.				

2. Assuming that the machine was used directly in the production of one of the products that the company manufactures and sells, what factors might management consider in selecting a preferable depreciation method in conformity with the matching principle?

E8-9 Explaining Depreciation Policy

LO3

Ford Motor Company

A recent annual report for Ford Motor Company contained the following note:

> **Significant Accounting Policies**
>
> ***Depreciation and Amortization of Property, Plant, and Equipment***
>
> Property and equipment are stated at cost and depreciated primarily using the straight-line method over the estimated useful life of the asset. Special tools placed in service before January 1, 1999 are amortized using an accelerated method over the estimated life of those tools. Special tools placed in service beginning in 1999 are amortized using the units-of-production method. Maintenance, repairs, and rearrangement costs are expensed as incurred.

Required:

Why do you think the company changed its depreciation method for special tools acquired in 1999 and subsequent years?

E8-10 Interpreting Management's Choice of Different Depreciation Methods for Tax and Financial Reporting

LO3

FedEx

A recent annual report for Federal Express Corporation includes the following information:

> For financial reporting purposes, depreciation and amortization of property and equipment is provided on a straight-line basis over the asset's service life. For income tax purposes, depreciation is generally computed using accelerated methods.

Required:

Explain why Federal Express uses different methods of depreciation for financial reporting and tax purposes.

E8-11 Computing Depreciation and Book Value for Two Years Using Alternative Depreciation Methods and Interpreting the Impact on Cash Flows

LO3, 7

Daisey Company bought a machine for $66,000 cash. The estimated useful life was four years, and the estimated residual value was $6,000. Assume that the estimated useful life in productive units is 120,000. Units actually produced were 43,000 in year 1 and 45,000 in year 2.

Required:

1. Determine the appropriate amounts to complete the following schedule. Show computations, and round to the nearest dollar.

	Depreciation Expense for		Net Book Value at the End of	
Method of Depreciation	Year 1	Year 2	Year 1	Year 2
Straight-line				
Units-of-production				
Double-declining-balance				

2. Which method would result in the lowest EPS for year 1? For year 2?

3. Which method would result in the highest amount of cash outflows in year 1? Why?
4. Indicate the effects of (*a*) acquiring the machine and (*b*) recording annual depreciation on the operating and investing activities sections of the statement of cash flows (indirect method) for year 1 (assume the straight-line method).

Inferring Asset Impairment and Recording Disposal of an Asset

E8-12
LO4, 5
United Parcel Service Inc.

United Parcel Service states in a recent 10-K report, "We are the world's largest package delivery company and a leading global provider of specialized transportation and logistics services." The following note and data were reported:

> **Note 1—Summary of Accounting Policies**
>
> ***Impairment of Long-Lived Assets***
>
> We review long-lived assets for impairment when circumstances indicate the carrying amount of an asset may not be recoverable based on the undiscounted future cash flows of the asset. . . . In December (of a recent year), we permanently removed from service a number of Boeing 727 and DC-8 aircraft. As a result, we conducted an impairment evaluation, which resulted in. . . .

	Dollars in Millions
Cost of property and equipment (beginning of year)	$25,361
Cost of property and equipment (end of year)	26,915
Capital expenditures during the year	1,947
Accumulated depreciation (beginning of year)	11,749
Accumulated depreciation (end of year)	13,007
Depreciation expense during the year	1,549
Cost of property and equipment sold during the year	318
Accumulated depreciation on property sold	291
Cash received on property sold	118

Required:

1. Reconstruct the journal entry for the disposal of property and equipment during the year.
2. Compute the amount of property and equipment that United Parcel wrote off as impaired during the year. (**Hint:** Set up T-accounts.)

Recording the Disposal of an Asset at Three Different Sale Prices

E8-13
LO5
FedEx

Federal Express is the world's leading express-distribution company. In addition to the world's largest fleet of all-cargo aircraft, the company has more than 669 aircraft and 53,000 vehicles and trailers that pick up and deliver packages. Assume that Federal Express sold a small delivery truck that had been used in the business for three years. The records of the company reflected the following:

Delivery truck cost	$28,000
Accumulated depreciation	23,000

Required:

1. Give the journal entry for the disposal of the truck, assuming that the truck sold for
   a. $5,000 cash
   b. $5,600 cash
   c. $4,600 cash
2. Based on the three preceding situations, explain the effects of the disposal of an asset.

Recording the Disposal of an Asset at Three Different Sale Prices

E8-14
LO5

Trump Entertainment Resorts owns and manages three casino hotel properties, Trump Plaza Hotel and Casino, Trump Taj Mahal Casino Resort, and Trump Marina Hotel Casino, totaling over $1.5 billion in property and equipment. Assume that Trump replaced furniture in one of the hotels that had been used in the business for five years. The records of the company reflected the following regarding the sale of the existing furniture:

Furniture (cost)	$8,000,000
Accumulated depreciation	6,500,000

Required:

1. Give the journal entry for the disposal of the furniture, assuming that it was sold for
   a. $1,500,000 cash.
   b. $2,600,000 cash.
   c. $900,000 cash.
2. Based on the three preceding situations, explain the effects of the disposal of an asset.

E8-15 LO5 Inferring Asset Age and Recording Accidental Loss on a Long-Lived Asset (Straight-Line Depreciation)

On January 1, 2010, the records of Pastuf Corporation showed the following regarding a truck:

Equipment (estimated residual value, $4,000)	$18,000
Accumulated depreciation (straight-line, three years)	6,000

On December 31, 2010, the delivery truck was a total loss as the result of an accident.

Required:

1. Based on the data given, compute the estimated useful life of the truck.
2. Give all journal entries with respect to the truck on December 31, 2010. Show computations.

E8-16 LO6 Freeport-McMoRan Copper & Gold Inc. Computing the Acquisition and Depletion of a Natural Resource

Freeport-McMoRan Copper & Gold Inc. is one of the world's largest copper and gold mining and production companies with the majority of its natural resources in Indonesia. Annual revenues exceed $16 billion. Assume that in February 2011, Freeport-McMoRan paid $700,000 for a mineral deposit in Bali. During March, it spent $65,000 in preparing the deposit for exploitation. It was estimated that 900,000 total cubic yards could be extracted economically. During 2011, 60,000 cubic yards were extracted. During January 2012, the company spent another $6,000 for additional developmental work that increased the estimated productive capacity of the mineral deposit.

Required:

1. Compute the acquisition cost of the deposit in 2011.
2. Compute depletion for 2011.
3. Compute the net book value of the deposit after payment of the January 2012 developmental costs.

E8-17 LO6 Computing and Reporting the Acquisition and Amortization of Three Different Intangible Assets

Katie Company had three intangible assets at the end of 2010 (end of the accounting year):

a. A patent purchased from J. Miller on January 1, 2010, for a cash cost of $6,000. Miller had registered the patent with the U.S. Patent Office five years ago.
b. An internally developed trademark registered with the federal government for $12,000 on November 1, 2010. Management decided the trademark has an indefinite life.
c. Computer software and Web development technology purchased on January 1, 2009, for $65,000. The technology is expected to have a four-year useful life to the company.

Required:

1. Compute the acquisition cost of each intangible asset.
2. Compute the amortization of each intangible at December 31, 2010. The company does not use contra-accounts.
3. Show how these assets and any related expenses should be reported on the balance sheet and income statement for 2010.

E8-18 LO6 Computing and Reporting the Acquisition and Amortization of Three Different Intangible Assets

Cambridge Company had three intangible assets at the end of 2012 (end of the accounting year):

a. A copyright purchased on January 1, 2011 for a cash cost of $12,300. The copyright is expected to have a ten-year useful life to Cambridge.
b. Goodwill of $65,000 from the purchase of the Hartford Company on July 1, 2010.

c. A patent purchased on January 1, 2012 for $39,200 from the inventor who had registered the patent with the U.S. Patent Office on January 1, 2006.

Required:

1. Compute the acquisition cost of each intangible asset.
2. Compute the amortization of each intangible at December 31, 2012. The company does not use contra-accounts.
3. Show how these assets and any related expenses should be reported on the balance sheet and income statement for 2012. (Assume there has been no impairment of goodwill.)

Recording Leasehold Improvements and Related Amortization

E8-19
LO6
Starbucks Corporation

Starbucks Corporation is a rapidly expanding retailer of specialty coffee with thousands of stores worldwide. Assume that Starbucks planned to open a new store on Commonwealth Avenue near Boston University and obtained a 20-year lease starting January 1, 2011. The company had to renovate the facility by installing an elevator costing $275,000. Amounts spent to enhance leased property are capitalized as intangible assets called Leasehold Improvements. The elevator will be amortized over the useful life of the lease.

Required:

1. Give the journal entry to record the installation of the new elevator.
2. Give any adjusting entries required at the end of the annual accounting period on December 31, 2011, related to the new elevator. Show computations.

Finding Financial Information as a Potential Investor

E8-20
LO1, 2, 3, 4, 5, 6, 7

You are considering investing the cash gifts you received for graduation in various stocks. You have received several annual reports of major companies.

Required:

For each of the following, indicate where you would locate the information in an annual report. (**Hint:** The information may be in more than one location.)

1. The detail on major classifications of long-lived assets.
2. The accounting method(s) used for financial reporting purposes.
3. Whether the company has had any capital expenditures for the year.
4. Net amount of property, plant, and equipment.
5. Policies on amortizing intangibles.
6. Depreciation expense.
7. Any significant gains or losses on disposals of fixed assets.
8. Prior year's accumulated depreciation.
9. The amount of assets written off as impaired during the year.

(Supplement) Recording a Change in Estimate

E8-21
LO3

Refer to E8-5.

Required:

Give the adjusting entry that should be made at the end of 2010 for depreciation of the manufacturing equipment, assuming no change in the original estimated life or residual value. Show computations.

(Supplement) Recording and Explaining Depreciation, Extraordinary Repairs, and Changes in Estimated Useful Life and Residual Value (Straight-Line Depreciation)

E8-22
LO2, 3

At the end of the annual accounting period, December 31, 2011, Shafer Company's records reflected the following for Machine A:

Cost when acquired	$30,000
Accumulated depreciation	10,200

During January 2012, the machine was renovated at a cost of $14,000. As a result, the estimated life increased from five years to eight years, and the residual value increased from $4,500 to $6,500. The company uses straight-line depreciation.

Required:

1. Give the journal entry to record the renovation.
2. How old was the machine at the end of 2011?
3. Give the adjusting entry at the end of 2012 to record straight-line depreciation for the year.
4. Explain the rationale for your entries in requirements 1 and 3.

E8-23 (Supplement) Computing the Effect of a Change in Useful Life and Residual Value on Financial Statements and Cash Flows (Straight-Line Depreciation)
L03, 7

Todd Company owns the building occupied by its administrative office. The office building was reflected in the accounts at the end of last year as follows:

Cost when acquired	$330,000
Accumulated depreciation (based on straight-line depreciation, an estimated life of 30 years, and a $30,000 residual value)	130,000

During January of this year, on the basis of a careful study, management decided that the total estimated useful life should be changed to 25 years (instead of 30) and the residual value reduced to $23,000 (from $30,000). The depreciation method will not change.

Required:

1. Compute the annual depreciation expense prior to the change in estimates.
2. Compute the annual depreciation expense after the change in estimates.
3. What will be the net effect of changing estimates on the balance sheet, net income, and cash flows for the year?

EXERCISES

E8–1.

Hasbro, Inc.
Excerpts from Balance Sheet
(in millions)

ASSETS	
Current Assets	
Cash and cash equivalents	$ 521
Accounts receivable (net of allowance for doubtful accounts, $39)	607
Inventories	169
Prepaid expenses and other current assets	212
Total current assets	1,509
Property, Plant, and Equipment	
Tools, dies and molds	30
Machinery and equipment	304
Buildings and improvements	206
Land and improvements	18
Property, plant, and equipment (at cost)	558
Less: Accumulated depreciation	358
Total property, plant, and equipment (net)	200
Other Assets	
Goodwill	464
Other intangibles (net of accumulated amortization, $435)	711
Other noncurrent assets	280
Total other assets	1,455
Total Assets	$3,164

E8–2.

Req. 1

Fixed asset turnover ratio: (in millions)
Sales ÷ [(beginning net fixed assets + ending net fixed assets) ÷ 2]

2007	2006	2005
$24,006 ÷ $1,556.5	$19,315 ÷ $1,049	$13,931 ÷ $762
15.42	18.41	18.28

Computation of denominator:

2007	($1,832 + 1,281) ÷ 2	= $1,556.5
2006	($1,281 + 817) ÷ 2	= $1,049
2005	($817 + 707) ÷ 2	= $ 762

Req. 2

Apple's fixed asset turnover ratio rose slightly in 2006, then fell to 15.42 in 2007. This suggests that Apple's management became less efficient at utilizing its long-lived assets over time. The decrease in 2007 was due primarily to a large increase in fixed assets that year. Although the turnover has declined, it is possible that the build-up of fixed assets may lead to increased sales in the future, thus increasing the fixed asset turnover ratio to prior levels. An analyst can use this longitudinal analysis to observe possible trends over time. In addition, the analyst may compare Apple's ratios to those of competitors in the industry.

E8–3

Req. 1

Building (+A)	95,000	
Land (+A)	109,000	
Cash (–A)		204,000

	Building	Land
Cash paid	$71,000	$107,000
+ renovations to prepare for use	23,000	
+ share of transfer costs	1,000	2,000
	$95,000	$109,000

Req. 2

Straight-line depreciation computation:

($95,000 cost - $15,000 residual value) x 1/10 years = $8,000 depreciation expense per year

Note: Land is not depreciated.

Req. 3

Computation of the book value of the property at the end of year 2:

Building	$ 95,000	
Less: Accumulated depreciation ($8,000 x 2 years)	(16,000)	$ 79,000
Land		109,000
		$188,000

E8–4.

Req. 1

Date	Assets		Liabilities		Stockholders' Equity	
January 1	No effect		No effect		No effect	
January 2	Cash Equipment	–8,000 +21,000	Short term note payable	+13,000		
January 3	Cash Equipment	–1,000 +1,000				
January 5	Cash Equipment	–1,500 +1,500				
July 1	Cash	–13,650	Short term note payable	–13,000	Interest expense*	–650

* $13,000 principal x .10 interest rate x 6/12 of a year = $650 interest

Req. 2

Acquisition cost of the machine:

Cash paid	$ 8,000
Note payable with supplier	13,000
Freight costs	1,000
Installation costs	1,500
Acquisition cost	$23,500

Req. 3

Depreciation for 2011: ($23,500 cost - $3,500 residual value) x 1/10 years $ 2,000

Req. 4

On July 1, 2011, $650 ($13,000 x 10% x 6/12) is paid and is recorded as interest expense. The amount is not capitalized (added to the cost of the asset) because interest is capitalized only on constructed assets. This machine was purchased.

Req. 5

Equipment (cost)	$23,500
Less: Accumulated depreciation ($2,000 x 2 years)	4,000
Book value at end of 2012	$19,500

E8–5.

Req. 1

Adjusting entry for 2009:

Depreciation expense (+E, –SE)	6,000	
Accumulated depreciation, equipment (+XA, –A)		6,000

($100,000 – $10,000) x 1/15 years = $6,000

Req. 2 (beginning of 2010)

Remaining life: 15 years – ($66,000 ÷ $6,000 = 11 years used) = 4 years remaining

Req. 3 (during 2010):

Repair and maintenance expense (+E, –SE)	1,000	
Cash (–A)		1,000

(Ordinary repairs incurred.)

Equipment (+A)	12,000	
Cash (–A)		12,000

Extraordinary repairs incurred and capitalized.

E8–6.

Date	Assets	Liabilities	Stockholders' Equity
1. 2009*	Accumulated depreciation –6,000		Depreciation expense –6,000
2a. 2010	Cash –1,000		Repair and maintenance expense –1,000
2b. 2010	Cash –12,000 Equipment +12,000		

* Adjusting entry for 2009:

($100,000 cost – $10,000 residual value) x 1/15 years = $6,000.

E8–7.

Req. 1

a. Straight-line:

Year	Computation	Depreciation Expense	Accumulated Depreciation	Net Book Value
At acquisition				$6,000
1	($6,000 - $1,000) x 1/4	$1,250	$1,250	4,750
2	($6,000 - $1,000) x 1/4	1,250	2,500	3,500
3	($6,000 - $1,000) x 1/4	1,250	3,750	2,250
4	($6,000 - $1,000) x 1/4	1,250	5,000	1,000

b. Units-of-production: ($6,000 – $1,000) ÷ 9,000 = $0.5556 per hour of output

Year	Computation	Depreciation Expense	Accumulated Depreciation	Net Book Value
At acquisition				$6,000
1	$0.5556 x 3,600 hours	$2,000	$2,000	4,000
2	$0.5556 x 2,700 hours	1,500	3,500	2,500
3	$0.5556 x 1,800 hours	1,000	4,500	1,500
4	$0.5556 x 900 hours	500	5,000	1,000

E8–7 (continued)

c. Double-declining-balance:

Year	Computation	Depreciation Expense	Accumulated Depreciation	Net Book Value
At acquisition				$6,000
1	($6,000 - $0) x 2/4	$3,000	$3,000	3,000
2	($6,000 - $3,000) x 2/4	1,500	4,500	1,500
3	($6,000 - $4,500) x 2/4	~~750~~	~~5,250~~	~~750~~
		500	5,000	1,000
4		0	0	0

Too large. Net book value cannot be below residual value.

Req. 2

If the machine is used evenly throughout its life and its efficiency (economic value in use) is expected to decline steadily each period over its life, then straight-line depreciation would be preferable. If the machine is used at a consistent rate but the efficiency is expected to decline faster in the earlier years of its useful life, then an accelerated method would be appropriate [such as, double-declining-balance]. If the machine is used at different rates over its useful life and its efficiency declines with output, then the units-of-production method would be preferable because it would result in a better matching of depreciation expense with revenue earned.

For income tax purposes, accelerated methods may be advantageous, because an earlier tax deduction is preferable to a later tax deduction because of the time value of money. However, the accelerated methods may not satisfy the matching principle.

E8–8.

Req. 1

a. Straight-line:

Year	Computation	Depreciation Expense	Accumulated Depreciation	Net Book Value
At acquisition				$280,000
1	($280,000 - $30,000) x 1/5	$50,000	$50,000	230,000
2	($280,000 - $30,000) x 1/5	50,000	100,000	180,000
3	($280,000 - $30,000) x 1/5	50,000	150,000	130,000
4	($280,000 - $30,000) x 1/5	50,000	200,000	80,000
5	($280,000 - $30,000) x 1/5	50,000	250,000	30,000

b. Units-of-production: ($280,000 – $30,000) ÷ 250,000 = $1.00 per unit of output

Year	Computation	Depreciation Expense	Accumulated Depreciation	Net Book Value
At acquisition				$280,000
1	$1.00 x 73,000 units	$73,000	$73,000	207,000
2	$1.00 x 62,000 units	62,000	135,000	145,000
3	$1.00 x 30,000 units	30,000	165,000	115,000
4	$1.00 x 43,000 units	43,000	208,000	72,000
5	$1.00 x 42,000 units	42,000	250,000	30,000

E8–8. (continued)

c. Double-declining-balance:

Year	Computation	Depreciation Expense	Accumulated Depreciation	Net Book Value
At acquisition				$280,000
1	($280,000 - 0) x 2/5	$112,000	$112,000	168,000
2	($280,000 - 112,000) x 2/5	67,200	179,200	100,800
3	($280,000 - 179,200) x 2/5	40,320	219,520	60,480
4	($280,000 - 219,520) x 2/5	24,192	243,712	36,288
5	($280,000 - 243,712) x 2/5	~~14,515~~	~~258,227~~	~~21,773~~
		6,288	250,000	30,000

Too large. Net book value cannot be below residual value.

Req. 2

If the machine is used evenly throughout its life and its efficiency (economic value in use) is expected to decline steadily each period over its life, then straight-line depreciation would be preferable. If the machine is used at a consistent rate but the efficiency is expected to decline faster in the earlier years of its useful life, then an accelerated method would be appropriate [such as, double-declining-balance]. If the machine is used at different rates over its useful life and its efficiency declines with output, then the units-of-production method would be preferable because it would result in a better matching of depreciation expense with revenue earned.

For income tax purposes, accelerated methods may be advantageous, because an earlier tax deduction is preferable to a later tax deduction because of the time value of money. However, the accelerated methods may not satisfy the matching principle.

E8–9.

Management of Ford Motor Company probably anticipated that the pre-1999 tools would be more productive or efficient in the earlier part of their lives than in the later. Thus, the accelerated method would provide the best matching of expenses with revenues in the same period. In 1999, however, Ford's management may have recognized a change in the technology of the special tools such that a better matching would occur using the units-of-production method in which the amount of the depreciation expense that would be computed varies by actual production levels each period.

E8–10.

Straight-line depreciation (SL) is a simple method to use and understand. Managers often prefer SL because it results in lower depreciation expense and higher net income in the earlier years of an asset's life when compared with the accelerated methods. Because SL depreciation results in higher income, it is not desirable to use it for tax reporting purposes with the objective of lowering tax liabilities. By using SL depreciation instead of an accelerated method in the earlier years for tax purposes, a company would have to pay higher taxes. In any case, the tax code specifies that MACRS, an accelerated method, must be used for most tangible depreciable property placed in service after December 31, 1986. It is important to note, however, that, over the entire useful life of an asset, total depreciation expense is the same regardless of the method.

E8–11.

Req. 1

	Depreciation Expense		*Book Value at End of*	
Method of Depreciation	*Year 1*	*Year 2*	*Year 1*	*Year 2*
Straight-line	$15,000	$15,000	$51,000	$36,000
Units-of-production	21,500	22,500	44,500	22,000
Double-declining-balance	33,000	16,500	33,000	16,500

Computations:

Amount to be depreciated: $66,000 – $6,000 = $60,000:

Straight-line: $60,000 ÷ 4 years = $15,000 per year

Units-of-production: $60,000 ÷ 120,000 units = $.50 per unit

Year 1: 43,000 x $.50 = $21,500

Year 2: 45,000 x $.50 = $22,500

Double-declining-balance (Rate: 2 x the straight line rate of 25% (2/4) = 50%):

Year 1: $66,000 x 50% = $33,000

Year 2: ($66,000 – $33,000) x 50% = $16,500

Req. 2

The double-declining balance method would result in the lowest EPS for Year 1 because it produced the highest depreciation expense and therefore the lowest income (from Requirement 1). In Year 2, the units-of-production method would result in the lowest EPS because it produced the highest depreciation expense and therefore the lowest income in that year.

Req. 3

Depreciation is a noncash expense; that is, no cash is paid when depreciation is recognized. Ignoring income tax implications, all methods have the same impact on cash flows in year 1. Assuming a method is applied for tax determination, the straight-line method will result in the lowest expense, highest net income, highest tax liability, and therefore the highest amount of cash outflows in year 1. Companies will select methods for tax purposes that reduce tax obligations.

Req. 4

The machine acquisition would decrease cash provided by investing activities by the purchase cost of $66,000. As a noncash expense, the annual depreciation should have no overall effect on cash provided by operating activities—however, because it is originally subtracted to arrive at net income, an adjustment needs to be made to reverse this effect for cash flows. Hence, $15,000 (the annual straight-line depreciation) must be added back to net income in the operating section of the statement of cash flows.

E8–12.

Req. 1

Property, Plant, and Equipment

Beg. Bal	25,361	318	Property sold
Capital expenditures	1,947	75	Write-offs
End. Bal.	26,915		

Accumulated Depreciation

Property sold	291	11,749	Beg. bal.
		1,549	Depreciation expense
		13,007	End. bal.

Disposal of property and equipment:

Cash (+A)	118	
Accumulated depreciation (–XA, +A)	291	
Property and equipment (–A)		318
Gain on sale of property and equipment (+Gain, +SE)		91

Req. 2

Amount of property and equipment written off as impaired during the year:

Beginning balance	$25,361
+ Capital expenditures during year	1,947
- Cost of property sold during year	(318)
- Impairment loss during year	(?)
Ending balance	$26,915

Impairment loss = $75

E8–13.

Req. 1a

Cash (+A)	5,000	
Accumulated depreciation (–XA, +A)	23,000	
Delivery truck (–A)		28,000

Sale of an asset at book value; the result is no loss or gain.

Req. 1b

Cash (+A)	5,600	
Accumulated depreciation (–XA, +A)	23,000	
Gain on sale of long-lived asset (+Gain, +SE)		600
Delivery truck (–A)		28,000

Sale of an asset above book value; the result is a gain.

Req. 1c

Cash (+A)	4,600	
Accumulated depreciation (–XA, +A)	23,000	
Loss on sale of long-lived asset (+Loss, –SE)	400	
Delivery truck (–A)		28,000

Sale of an asset below book value; the result is a loss.

Req. 2 Summarization of the effects of the disposal:

1. The loss or gain on disposal of a long-lived asset is the difference between the disposal price and the book value at date of disposal.
2. When the disposal price is the same as the book value there is no loss or gain; when the price is above book value there is a gain; and when the price is below book value, there is a loss on disposal.
3. The book value does not purport to be market value, so a loss or gain on disposal of a long-lived asset normally would occur.

E8–14.

Req. 1a

Cash (+A)	1,500,000	
Accumulated depreciation (–XA, +A)	6,500,000	
Furniture (–A)		8,000,000

Sale of an asset at book value; the result is no loss or gain.

Req. 1b

Cash (+A)	2,600,000	
Accumulated depreciation (–XA, +A)	6,500,000	
Gain on sale of long-lived asset (+Gain, +SE)		1,100,000
Furniture (–A)		8,000,000

Sale of an asset above book value; the result is a gain.

Req. 1c

Cash (+A)	900,000	
Accumulated depreciation (–XA, +A)	6,500,000	
Loss on sale of long-lived asset (+Loss, –SE)	600,000	
Furniture (–A)		8,000,000

Sale of an asset below book value; the result is a loss.

Req. 2 Summarization of the effects of the disposal:

1. The loss or gain on disposal of a long-lived asset is the difference between the disposal price and the book value at date of disposal.
2. When the disposal price is the same as the book value there is no loss or gain; when the price is above book value there is a gain; and when the price is below book value, there is a loss on disposal.
3. The book value does not purport to be market value, so a loss or gain on disposal of a long-lived asset normally would occur.

E8–15.

Req. 1

Depreciation expense per year:

$6,000 accumulated depreciation ÷ 3 years of usage = $2,000 per year

Estimated useful life:

($18,000 – $4,000) x 1/? useful life = $2,000 per year

$14,000 / $2,000 = 7 year useful life

Req. 2

December 31, 2010:

Depreciation expense (+E, –SE)	2,000	
Accumulated depreciation (+XA, –A)		2,000

To bring accumulated depreciation up to the date of the accidental loss ($18,000 – $4,000) x 1/7 years = $2,000.

Accumulated depreciation ($6,000 + $2,000) (–XA, +A)	8,000	
Loss on disposal of truck (+Loss, –SE)	10,000	
Truck (–A)		18,000

To record disposal of wrecked truck.

E8–16.

Req. 1

Computation of acquisition cost of the deposit in 2011:

February 2011:	Purchase of mineral deposit	$ 700,000
March 2011:	Preparation costs	65,000
	Total acquisition cost in 2011	$ 765,000

Req. 2

Computation of depletion for 2011:

$765,000 cost ÷ 900,000 cubic yards = $.85 per cubic yard depletion rate

60,000 cubic yards in 2011 x $.85 = $51,000

Req. 3

Computation of net book value of the deposit after the developmental work:

Total acquisition cost in 2011		$ 765,000
Less: 2011 depletion		(51,000)
January 2012 developmental costs		6,000
	Net book value	$ 720,000

E8–17.

Req. 1

Acquisition cost:

Patent	$ 6,000
Trademark	12,000
Technology	65,000

Req. 2

Amortization on December 31, 2010 (straight-line method with no residual value):

Patent: $6,000 x 1/15 years remaining = $400 amortization expense

Trademark: The trademark is not amortized due to its indefinite life.

Technology: $65,000 x 1/4 years = $16,250 amortization expense

Req. 3

Income statement for 2010:

Operating expenses:

Amortization expense ($400 + $16,250) $16,650

Balance sheet at December 31, 2010:

(*under noncurrent assets*)

Intangibles:

Patent ($6,000 - $400)	$ 5,600	
Trademark	12,000 **	
Technology ($65,000 - $32,500*)	32,500	$50,100

* $16,250 amortization expense x 2 years

** Although trademarks are valuable assets, they are rarely seen on balance sheets.

E8–18.

Req. 1

Acquisition cost:

Copyright	$12,300
Goodwill	65,000
Patent	39,200

Req. 2

Amortization on December 31, 2012 (straight-line method with no residual value):

Copyright: $12,300 x 1/10 years = $1,230 amortization expense
Goodwill: The goodwill is not amortized due to its indefinite life.
Patent: $39,200 x 1/14 years remaining = $2,800 amortization expense

Req. 3

Income statement for 2012:

Operating expenses:

Amortization expense ($1,230 + $2,800)	$4,030

Balance sheet at December 31, 2012:

(*under noncurrent assets*)

Intangibles:

Copyright ($12,300 - $2,460*)	$ 9,840	
Goodwill	65,000	
Patent ($39,200 - $2,800)	36,400	$111,240

* $1,230 amortization expense x 2 years

E8–19.

Req. 1 (January 1, 2011):

Leasehold improvements (+A)	275,000	
Cash (–A)		275,000

Req. 2 (Adjusting entry on December 31, 2011):

Depreciation (or amortization) expense* (+E, –SE)	13,750	
Leasehold improvements (–A)		13,750

($275,000 x 1/20 year lease = $13,750)

* Some accountants prefer to label this Rent Expense or Amortization of Leasehold Improvements. The cost of the improvement should be allocated over the shorter of the life of the improvement or the lease term.

E8–20.

	Item		Location
1.	The detail on major classifications of long-lived assets.	(a) (b)	Balance sheet, or Notes to the financial statements
2.	The accounting method(s) used for financial reporting purposes.		Notes to the financial statements
3.	Whether the company has had any capital expenditures for the year.	(a) (b) (c)	Statement of cash flows Increase in assets on the balance sheet Notes to the financial statements
4.	Net amount of property, plant, and equipment.	(a) (b)	Balance sheet, or Notes to the financial statements
5.	Policies on amortizing intangibles.		Notes to the financial statements
6.	Depreciation expense.	(a) (b) (c)	Income statement, or Statement of cash flows, or Notes to the financial statements
7.	Any significant gains or losses on disposals of fixed assets.	(a) (b) (c)	Income statement, or Statement of cash flows, or Note to the financial statements
8.	Prior year's accumulated depreciation.	(a) (b)	Balance sheet, or Notes to the financial statements
9.	The amount of assets written off as impaired during the year.	(a) (b) (c)	Income statement, or Statement of cash flows, or Notes to the financial statements

E8–21.

December 31, 2010:
Adjusting entry for 2010 depreciation:

Depreciation expense (+E, –SE).....	9,000	
Accumulated depreciation, equipment (+XA, –A)		9,000

Depreciation 2010:
($46,000 net book value - $10,000 residual value) x 1/4 years = $9,000

Net book value computation:

$100,000	original cost
12,000	capitalized overhaul
(66,000)	accumulated depreciation through 2009
$ 46,000	net book value on January 1, 2010

Remaining life computation:

15 years	estimated life
– 11 years	used
4 years	remaining

($66,000 accumulated depreciation ÷ $6,000 expense)

E8–22.
Req. 1

Equipment (+A)	14,000	
Cash (–A)		14,000

Req. 2
Age of Machine A at December 31, 2011:
($30,000 cost – $4,500 residual value) x 1/5 years = $5,100 depreciation per year.
$10,200 accumulated depreciation ÷ $5,100 = 2 years old at December 31, 2011.

Req. 3

Depreciation expense (for 2012) (+E, –SE).....	4,550	
Accumulated depreciation, machinery (+XA, –A).....		4,550

Computations:

Cost when acquired.....	$30,000
Less: Accumulated depreciation (2 years)	10,200
Undepreciated balance.....	19,800
Add: Major renovation cost.....	14,000
Total	$33,800

Annual depreciation:
($33,800 cost - $6,500 new residual value) x 1/6 years of remaining useful life (8 years total useful life – 2 years used) = $4,550

Req. 4
Requirement (1) assumed that the major renovation and improvement cost was a capital expenditure rather than a revenue expenditure. Because capital expenditures benefit future periods, the expenditure is added to the book value of the asset and then is depreciated over the remaining life of the asset.
Requirement (3) recognized an accounting change due to a change in estimate (both estimated life and residual value). A change in estimate is not an error correction; consequently it is treated prospectively. That is, the effect is spread over the current year and the future remaining life of the asset. This approach means that the undepreciated balance at the date of the change in estimate is depreciated over the remaining life using the revised estimates.

E8–23.
Req. 1
Depreciation expense prior to the change in estimates:
($330,000 cost – $30,000 residual value) x 1/30 years = $10,000 annual depreciation

Req. 2
Depreciation expense after the change in estimates:

Step 1 – Age of the asset: $130,000 ÷ $10,000 = 13 years of depreciation to date.
The building has been depreciated over 13 years as of the beginning of the year.

Step 2 – Net book value: $330,000 cost – $130,000 accum. deprec. = $200,000

Step 3 – Computation:
(Net book value – new residual value) x 1/remaining life = Depreciation expense
($200,000 – $23,000) x 1/12 years = $14,750 depreciation expense per year
This was an accounting change due to a change in estimate (both remaining useful life and residual value). A change in estimate is not an error correction; the remaining book value is depreciated over the remaining useful life using the revised estimates.

Req. 3
The depreciation expense increases by $4,750 each year for the next 12 years. Therefore, net income will be lower by $4,750 (ignoring taxes) each year; this in turn will lower Retained Earnings on the balance sheet. Also on the balance sheet, the asset's net book value will be lowered by an additional $4,750 each year for 12 years. However, since depreciation is a noncash expense, there are no cash flow implications (again ignoring income tax considerations).