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FINANCIAL ACCOUNTING 3e

IFRS EDITION

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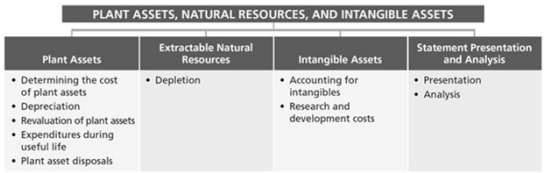
PREVIEW OF CHAPTER 9



CHAPTER **9** Plant Assets, Natural Resources, and Intangible Assets

LEARNING OBJECTIVES

After studying this chapter, you should be able to:

1. Describe how the historical cost principle applies to plant assets.
2. Explain the concept of depreciation and how to compute it.
3. Distinguish between revenue and capital expenditures, and explain the entries for each.
4. Explain how to account for the disposal of a plant asset.
5. Compute periodic depletion of extractable natural resources.
6. Explain the basic issues related to accounting for intangible assets.
7. Indicate how plant assets, natural resources, and intangible assets are reported.

Plant Assets

Learning Objective 1
Describe how the historical cost principle applies to plant assets.

Plant assets are resources that have

- **physical substance** (a definite size and shape),
- are **used in the operations** of a business,
- are **not intended for sale** to customers,
- are expected to **provide service** to the company for a number of years.

Referred to as property, plant, and equipment; plant and equipment; and fixed assets.

LO 1

Plant Assets

Plant assets are critical to a company's success.

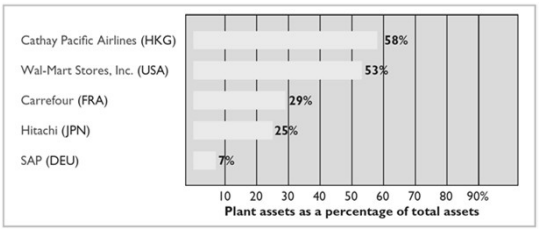


Illustration 9-1
Percentages of plant assets in relation to total assets

LO 1

Determining the Cost of Plant Assets

The **historical cost principle** requires that companies record plant assets at cost.

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

LO 1

Determining the Cost of Plant Assets

LAND

All necessary costs incurred in making land **ready for its intended use** increase **(debit)** the Land account.

Costs typically include:

1) cash purchase price,
2) closing costs such as title and attorney's fees,
3) real estate brokers' commissions,
4) accrued property taxes and other liens assumed by the purchaser, and
5) clearing, leveling, demo of existing structures.

LO 1

Determining the Cost of Plant Assets

Illustration: Lew Company Ltd. acquires real estate at a cash cost of HK$2,000,000. The property contains an old warehouse that is razed at a net cost of HK$60,000 (HK$75,000 in costs less HK$15,000 proceeds from salvaged materials). Additional expenditures are the attorney's fee, HK$10,000, and the real estate broker's commission, HK$80,000.

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

LO 1

Determining the Cost of Plant Assets

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

	Land
Cash price of property (HK$2,000,000)	HK$2,000,000
Net removal cost of warehouse (HK$60,000)	60,000
Attorney's fees (HK$10,000)	10,000
Real estate broker's commission (HK$80,000)	80,000
Cost of Land	**HK$2,150,000**

Entry to record the acquisition of the land:

Land	2,150,000	
Cash		2,150,000

LO 1

Determining the Cost of Plant Assets

LAND IMPROVEMENTS

Includes all expenditures necessary to make the improvements **ready for their intended use**.

- **Examples:** driveways, parking lots, fences, landscaping, and lighting.
- Limited useful lives.
- Expense (depreciate) the cost of land improvements over their useful lives.

LO 1

Determining the Cost of Plant Assets

BUILDINGS

Includes all costs related directly to purchase or construction.

Purchase costs:

- Purchase price, closing costs (attorney's fees, title insurance, etc.) and real estate broker's commission.
- Remodeling and replacing or repairing the roof, floors, electrical wiring, and plumbing.

Construction costs:

- Contract price plus payments for architects' fees, building permits, and excavation costs.

LO 1

Determining the Cost of Plant Assets

EQUIPMENT

Include all costs incurred in acquiring the equipment and **preparing it for use**.

Costs typically include:

- Cash purchase price.
- Sales taxes.
- Freight charges.
- Insurance during transit paid by the purchaser.
- Expenditures required in assembling, installing, and testing the unit.

LO 1

Determining the Cost of Plant Assets

Illustration: Zhang Company purchases factory machinery at a cash price of HK$500,000. Related expenditures are for sales taxes HK$30,000, insurance during shipping HK$5,000, and installation and testing HK$10,000. Compute the cost of the machinery.

	Machinery
Cash price	HK$500,000
Sales taxes	30,000
Insurance during shipping	5,000
Installation and testing	10,000
Cost of Machinery	**HK$545,000**

LO 1

Determining the Cost of Plant Assets

Illustration: Zhang Company purchases factory machinery at a cash price of HK$500,000. Related expenditures are for sales taxes HK$30,000, insurance during shipping HK$5,000, and installation and testing HK$10,000. Prepare the journal entry to record these costs.

Equipment	545,000	
Cash		545,000

LO 1

Determining the Cost of Plant Assets

Illustration: Huang Company purchases a delivery truck at a cash price of HK$420,000. Related expenditures are sales taxes HK$13,200, painting and lettering HK$5,000, motor vehicle license HK$800, and a three-year accident insurance policy HK$16,000. **Compute the cost** of the delivery truck.

	Truck
Cash price	HK$420,000
Sales taxes	13,200
Painting and lettering	5,000
Cost of Delivery Truck	**HK$438,200**

LO 1

Determining the Cost of Plant Assets

Illustration: Huang Company purchases a delivery truck at a cash price of HK$420,000. Related expenditures are sales taxes HK$13,200, painting and lettering HK$5,000, motor vehicle license HK$800, and a three-year accident insurance policy HK$16,000. **Prepare the journal entry** to record these costs.

Equipment	438,200	
License Expense	800	
Prepaid Insurance	16,000	
Cash		455,000

LO 1

ACCOUNTING ACROSS THE ORGANIZATION

Many Firms Use Leases

Leasing is big business. Who does the most leasing? **AWAS** (IRL), **J.P. Morgan Leasing** (USA), and **ICBC** (CHN) are major lessors. Also, many companies have established separate leasing companies, such as **Boeing Capital Corporation** (USA), **Mitsubishi Heavy Industries** (JPN), and **John Deere Capital Corporation** (USA). And, as an excellent example of the magnitude of leasing, leased planes account for a high percentage of commercial airlines. Leasing is also becoming more common in the hotel industry. **Marriott** (USA), **Hilton** (USA), and **InterContinental** (GBR) are increasingly choosing to lease hotels that are owned by someone else.

LO 1

Depreciation

Learning Objective 2
Explain the concept of depreciation and how to compute it.

Process of **allocating to expense** the cost of a plant asset over its useful (service) life in a rational and systematic manner.

- Process of **cost allocation**, **not asset valuation**.
- Applies to land improvements, buildings, and equipment, **not land**.
- Depreciable, because the **revenue-producing ability of asset will decline** over the asset's useful life.

LO 2

Depreciation

Question

Depreciation is a process of:

a. valuation.

b. cash accumulation.

c. cost allocation.

d. appraisal.

LO 2

FACTORS IN COMPUTING DEPRECIATION

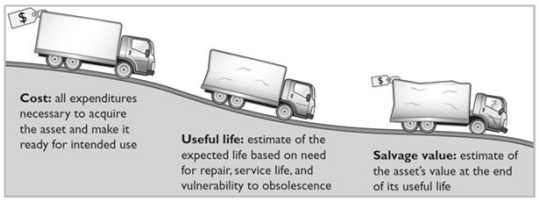


Illustration 9-6
Three factors in computing depreciation

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

LO 2

DEPRECIATION METHODS

Management selects the method it believes best measures an asset's contribution to revenue over its useful life.

Examples include:

(1) Straight-line method

(2) Units-of-activity method

(3) Declining-balance method

LO 2

DEPRECIATION METHODS

Illustration: Bob's Florist purchased a small delivery truck on January 1, 2017.

Cost	€13,000
Expected residual value	€1,000
Estimated useful life in years	5
Estimated useful life in miles	100,000

Required: Compute depreciation using the following.

(a) Straight-Line. (b) Units-of-Activity. (c) Declining-Balance.

LO 2

STRAIGHT-LINE METHOD

- Expense is **same amount** for each year.
- Depreciable cost = Cost less salvage value.

Cost	–	Residual Value	=	Depreciable Cost
€13,000	–	€1,000	=	€12,000

Depreciable Cost	÷	Useful Life (in years)	=	Annual Depreciation Expense
€12,000	÷	5	=	€2,400

ILLUSTRATION 9-8
Formula for straight-line method

LO 2

STRAIGHT-LINE METHOD

Illustration:

Illustration 9-9
Straight-line depreciation schedule

Year	Depreciable Cost	x	Rate	=	Annual Expense	Accum. Deprec.	Book Value
2017	€ 12,000		20%		€ 2,400	€ 2,400	€ 10,600
2018	12,000		20		2,400	4,800	8,200
2019	12,000		20		2,400	7,200	5,800
2020	12,000		20		2,400	9,600	3,400
2021	12,000		20		2,400	12,000	1,000

2017 Journal Entry	Depreciation Expense	2,400	
	Accumulated Depreciation		2,400

LO 2

STRAIGHT-LINE METHOD

Partial Year

Illustration:

Assume the delivery truck was purchased on April 1, 2017.

Year	Depreciable Cost		Rate		Annual Expense		Partial Year		Current Year Expense	Accum. Deprec.
2017	€ 12,000	x	20%	=	€ 2,400	x	9/12	=	€ 1,800	€ 1,800
2018	12,000	x	20%	=	2,400				2,400	4,200
2019	12,000	x	20%	=	2,400				2,400	6,600
2020	12,000	x	20%	=	2,400				2,400	9,000
2021	12,000	x	20%	=	2,400				2,400	11,400
2022	12,000	x	20%	=	2,400	x	3/12	=	600	12,000
									€ 12,000	

Journal entry:

2017	Depreciation Expense	1,800	
	Accumulated Depreciation		1,800

LO 2

UNITS-OF-ACTIVITY METHOD

- Companies estimate total units of activity to calculate depreciation cost per unit.
- Expense varies based on units of activity.
- Depreciable cost is cost less residual value.

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

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

Illustration 9-10
Formula for units-of-activity method

LO 2

UNITS-OF-ACTIVITY METHOD

Illustration:

Illustration 9-11
Units-of-activity depreciation schedule

Year	Units of Activity	x	Cost per Unit	=	Annual Expense	Accum. Deprec.	Book Value
2017	15,000		€ 0.12		€ 1,800	€ 1,800	€ 11,200
2018	30,000		0.12		3,600	5,400	7,600
2019	20,000		0.12		2,400	7,800	5,200
2020	25,000		0.12		3,000	10,800	2,200
2021	10,000		0.12		1,200	12,000	1,000

2017 Journal Entry	Depreciation Expense	1,800	
	Accumulated Depreciation		1,800

LO 2

DECLINING-BALANCE METHOD

- Accelerated method.
- Decreasing annual depreciation expense over the asset's useful life.
- Twice the straight-line rate with Double-Declining-Balance.
- Rate applied to book value.

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

Illustration 9-12
Formula for declining-balance method

LO 2

DECLINING-BALANCE METHOD

Illustration:

Illustration 9-13
Double-declining-balance depreciation schedule

Year	Beginning Book value	x	Declining Balance Rate	=	Annual Expense	Accum. Deprec.	Book Value
2017	€ 13,000		40%		€ 5,200	€ 5,200	€ 7,800
2018	7,800		40		3,120	8,320	4,680
2019	4,680		40		1,872	10,192	2,808
2020	2,808		40		1,123	11,315	1,685
2021	1,685		40		685*	12,000	1,000

2017 Journal Entry

Depreciation Expense	5,200	
Accumulated Depreciation		5,200

* Computation of €674 (€1,685 x 40%) is adjusted to €685.

LO 2

DECLINING-BALANCE METHOD

Partial Year

Illustration:

Year	Beginning Book Value		Declining Balance Rate		Annual Expense	Partial Year		Current Year Expense	Accum. Deprec.
2017	€ 13,000	x	40%	=	€ 5,200	x 9/12	=	€ 3,900	€ 3,900
2018	9,100	x	40%	=	3,640			3,640	7,540
2019	5,460	x	40%	=	2,184			2,184	9,724
2020	3,276	x	40%	=	1,310			1,310	11,034
2021	1,966	x	40%	=	786			786	11,820
2022	1,180	x	40%	=	472	Plug	→	180	12,000
								€ 12,000	

Journal entry:

2017	Depreciation Expense	3,900	
	Accumulated Depreciation		3,900

LO 2

COMPARISON OF METHODS

Year	Straight-Line	Units-of-Activity	Declining-Balance
2017	€ 2,400	€ 1,800	€ 5,200
2018	2,400	3,600	3,120
2019	2,400	2,400	1,872
2020	2,400	3,000	1,123
2021	2,400	1,200	685
	€12,000	€12,000	€12,000

ILLUSTRATION 9-14
Comparison of depreciation methods

Annual depreciation varies considerably among the methods, **but total depreciation expense is the same** (€12,000) for the five-year period.

LO 2

COMPARISON OF METHODS

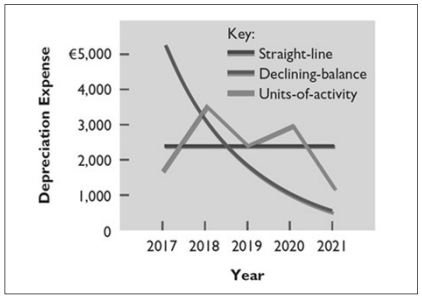


ILLUSTRATION 9-15
Patterns of depreciation

LO 2

Depreciation

COMPONENT DEPRECIATION

- IFRS requires component depreciation for plant assets.
- Requires that any significant parts of a plant asset that have significantly different estimated useful lives should be separately depreciated.

LO 2

COMPONENT DEPRECIATION

Illustration: Lexure Construction builds an office building for HK$4,000,000. The building is estimated to have a 40-year useful life, however HK$320,000 of the cost of the building relates to personal property and HK$600,000 relates to land improvements. Because the personal property has a depreciable life of 5 years and the land improvements have a depreciable life of 10 years, Lexure must use component depreciation. Assuming that Lexure uses straight-line depreciation and no residual value, component depreciation for the first year of the office building is computed as follows.

Building cost adjusted (HK$4,000,000 − HK$320,000 − HK$600,000)	HK$3,080,000
Building cost depreciation per year (HK$3,080,000 ÷ 40)	HK$ 77,000
Personal property depreciation (HK$320,000 ÷ 5)	64,000
Land improvements depreciation (HK$600,000 ÷ 10)	60,000
Total component depreciation in first year	**HK$ 201,000**

Illustration 9-16
Component depreciation computation

LO 2

Depreciation

DEPRECIATION AND INCOME TAXES

Tax laws often do not require corporate taxpayers to use the same depreciation method on the tax return that is used in preparing financial statements.

Many corporations use

- straight-line in their financial statements to maximize net income.
- an accelerated-depreciation method on their tax returns to minimize their income taxes.

LO 2

Depreciation

REVISING PERIODIC DEPRECIATION

- Accounted for in the period of change and future periods (**change in estimate**).
- No restatement of prior years' depreciation expense.

LO 2

REVISING PERIODIC DEPRECIATION

Illustration: Arcadia HS, purchased equipment for €510,000 which was estimated to have a useful life of 10 years with a residual value of €10,000 at the end of that time. Depreciation has been recorded for 7 years on a straight-line basis. In 2020 (year 8), it is determined that the total estimated life should be 15 years with a residual value of €5,000 at the end of that time.

Questions:

- What is the journal entry to correct prior years' depreciation expense?
- Calculate the depreciation expense for 2020.

No Entry Required

LO2

REVISING PERIODIC DEPRECIATION

Equipment cost	€510,000
Residual value	- 10,000
Depreciable base	500,000
Useful life (original)	10 years
Annual depreciation	€ 50,000 x 7 years = **€350,000**

First, establish NBV at date of change in estimate.

Balance Sheet (Dec. 31, 2019)

Property, Plant, and Equipment

Equipment	€510,000
Accumulated depreciation	350,000
Net book value (NBV)	**€160,000**

LO2

REVISING PERIODIC DEPRECIATION

Net book value	**€160,000**
Residual value (new)	5,000
Depreciable base	155,000
Useful life remaining	8 years
Annual depreciation	**€ 19,375**

Depreciation Expense calculation for 2020.

Journal entry for 2020 and future years.

Depreciation Expense	**19,375**	
Accumulated Depreciation		**19,375**

LO2

REVISING PERIODIC DEPRECIATION

Question

When there is a change in estimated depreciation:

a. previous depreciation should be corrected.

b. current and future years' depreciation should be revised.

c. only future years' depreciation should be revised.

d. None of the above.

LO 2

> DO IT!

Chambers plc purchased a piece of equipment for £36,000. It estimated a 6-year life and £6,000 salvage value. Thus, straight-line depreciation was £5,000 per year [(£36,000 − £6,000) ÷ 6]. At the end of year three (before the depreciation adjustment), it estimated the new total life to be 10 years and the new salvage value to be £2,000. Compute the revised depreciation.

Original depreciation expense = [(£36,000 − £6,000) ÷ 6] = £5,000
Accumulated depreciation after 2 years = 2 × £5,000 = £10,000
Book value = £36,000 − £10,000 = £26,000

Book value after 2 years of depreciation	£26,000
Less: New salvage value	2,000
Depreciable cost	£24,000
Remaining useful life	8 years
Revised annual depreciation (£24,000 ÷ 8)	**£ 3,000**

LO 2

Revaluation of Plant Assets

IFRS allows companies to revalue plant assets to fair value at the reporting date.

If revaluation is used,

- it must be applied to all assets in a class of assets.
- assets experiencing rapid price changes must be revalued on an annual basis.

LO 2

Revaluation of Plant Assets

Illustration: Pernice Ltd. applies revaluation to equipment purchased on January 1, 2017, for HK$1,000,000. The equipment has a useful life of 5 years, and no residual value. Pernice makes the following entry to record depreciation for 2017, assuming straight-line depreciation.

Depreciation Expense	200,000	
Accumulated Depreciation—Equipment		200,000

At the end of 2017, independent appraisers determine that the asset has a fair value of HK$850,000. The entry to record the revaluation is as follows.

Accumulated Depreciation—Equipment	200,000	
Equipment		150,000
Revaluation Surplus		50,000

LO2

Revaluation of Plant Assets

Equipment (HK$1,000,000 − HK$150,000)	HK$850,000
Accumulated depreciation—equipment	0
	HK$850,000
Revaluation surplus (equity)	HK$ 50,000

Illustration 9-18
Statement presentation of plant assets (equipment) and revaluation surplus

As indicated,

- HK$850,000 is the new basis of the asset.
- Depreciation expense of HK$200,000 in the income statement.
- HK$50,000 in other comprehensive income.
- Assuming no change in the total useful life, depreciation in year 2 will be HK$212,500 (HK$850,000 ÷ 4).

LO2

Revaluation of Plant Assets

Illustration: Assume again that Pernice's equipment has a carrying amount of HK$800,000 (HK$1,000,000 − HK$200,000). However, at the end of 2017, independent appraisers determine that the asset has a fair value of HK$775,000, which results in an impairment loss of HK$25,000 (HK$800,000 − HK$775,000). To record the equipment at fair value and to record this loss, Pernice makes the following entry.

Accumulated Depreciation—Equipment	200,000	
Impairment Loss	25,000	
Equipment		225,000

The impairment loss of HK$25,000 reduces net income.

LO2

Expenditures During Useful Life

Learning Objective 3
Distinguish between revenue and capital expenditures, and explain the entries for each.

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

- **Debit** – Maintenance and Repairs Expense.
- Referred to as **revenue expenditures**.

Additions and Improvements - costs incurred to **increase** the operating efficiency, productive capacity, or useful life of a plant asset.

- **Debit** - the plant asset affected.
- Referred to as **capital expenditures**.

LO 3

ANATOMY OF A FRAUD

Bernie Ebbers was the founder and CEO of the phone company **WorldCom**. The company engaged in a series of increasingly large, debt-financed acquisitions of other companies. These acquisitions made the company grow quickly, which made the stock price increase dramatically. However, because the acquired companies all had different accounting systems, WorldCom's financial records were a mess. When WorldCom's performance started to flatten out, Bernie coerced WorldCom's accountants to engage in a number of fraudulent activities to make net income look better than it really was and thus prop up the stock price. One of these frauds involved treating $7 billion of line costs as capital expenditures. The line costs, which were rental fees paid to other phone companies to use their phone lines, had always been properly expensed in previous years. Capitalization delayed expense recognition to future periods and thus boosted current-period profits.

Total take: $7 billion

The Missing Controls

(continued)

LO 3

ANATOMY OF A FRAUD

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Total take: $7 billion

The Missing Controls

Independent internal verification. A fraud of this size should have been detected by a routine comparison of the actual physical assets with the list of physical assets shown in the accounting records.

LO 3

Plant Asset Disposals

Companies dispose of plant assets in three ways—Sale, Retirement, or Exchange.

Learning Objective 4
Explain how to account for the disposal of a plant asset.

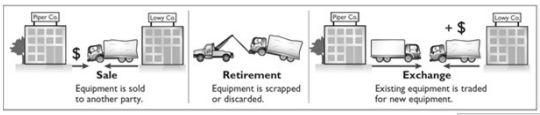

Illustration 9-19
Methods of plant asset disposal

Record depreciation up to the **date of disposal**.

Eliminate asset by (1) debiting Accumulated Depreciation, and (2) crediting the asset account.

LO 4

Plant Asset Disposals

RETIREMENT OF PLANT ASSETS

- **No cash** is received.
- **Decrease (debit) Accumulated Depreciation** for the full amount of depreciation taken over the life of the asset.
- **Decrease (credit)** the **asset account** for the original cost of the asset.
- Record any difference loss on disposal.

LO 4

RETIREMENT OF PLANT ASSETS

Illustration: Hobart ASA retires its computer printers, which cost €32,000. The accumulated depreciation on these printers is €32,000. Prepare the entry to record this retirement.

Accumulated Depreciation—Equipment	32,000	
Equipment		32,000

Question: What happens if a fully depreciated plant asset is still useful to the company?

LO 4

RETIREMENT OF PLANT ASSETS

Illustration: Sunset A/S discards delivery equipment that cost €18,000 and has accumulated depreciation of €14,000. The journal entry is?

Accumulated Depreciation—Equipment	14,000	
Loss on Disposal of Plant Assets	4,000	
Equipment		18,000

Companies report a loss on disposal in the **"Other income and expense"** section of the income statement.

LO4

Plant Asset Disposals

SALE OF PLANT ASSETS

Compare the **book value** of the asset with the **proceeds** received from the sale.

- If proceeds **exceed** the book value, a **gain** on disposal occurs.
- If proceeds **are less than** the book value, a **loss** on disposal occurs.

LO4

SALE OF PLANT ASSETS

GAIN ON SALE

Illustration: On July 1, 2017, Wright Company sells office furniture for €16,000 cash. The office furniture originally cost €60,000. As of January 1, 2017, it had accumulated depreciation of €41,000. Depreciation for the first six months of 2017 is €8,000. Prepare the journal entry to record depreciation expense up to the date of sale (July 1).

Depreciation Expense	8,000	
Accumulated Depreciation—Equipment		8,000

LO4

SALE OF PLANT ASSETS

Illustration 9-20
Computation of gain on disposal

Cost of office furniture	€60,000
Less: Accumulated depreciation (€41,000 + €8,000)	49,000
Book value at date of disposal	11,000
Proceeds from sale	16,000
Gain on disposal of plant asset	**€ 5,000**

Illustration: Wright records the sale on July 1 as follows.

Cash	16,000	
Accumulated Depreciation—Equipment	49,000	
Equipment		60,000
Gain on Disposal of Plant Assets		5,000

LO 4

SALE OF PLANT ASSETS

Illustration: Assume that instead of selling the office furniture for €16,000, Wright sells it for €9,000 on July 1.

Illustration 9-21
Computation of loss on disposal

Cost of office furniture	€60,000
Less: Accumulated depreciation	49,000
Book value at date of disposal	11,000
Proceeds from sale	9,000
Loss on disposal of plant asset	**€ 2,000**

July 1

Cash	9,000	
Accumulated Depreciation—Equipment	49,000	
Loss on Disposal of Plant Assets	2,000	
Equipment		60,000

LO 4

> DO IT!

Overland Trucking has an old truck that cost £30,000 and has accumulated depreciation of £16,000. Assume two different situations:

1. Overland sells the old truck for £17,000 cash.
2. Overland sells the old truck for £10,000 cash.

What entry should Overland use to record **scenario 1**?

Cash	17,000	
Accumulated Depreciation—Equipment	16,000	
Equipment		30,000
Gain on Disposal of Plant Assets		3,000

LO 4

> DO IT!

Overland Trucking has an old truck that cost £30,000 and has accumulated depreciation of £16,000. Assume two different situations:

1. Overland sells the old truck for £17,000 cash.
2. Overland sells the old truck for £10,000 cash.

What entry should Overland use to record **scenario 2**?

Cash	10,000	
Accumulated Depreciation—Equipment	16,000	
Loss on Disposal of Plant Assets	4,000	
Equipment		30,000

LO 4

Extractable Natural Resources

Learning Objective 5
Compute periodic depletion of extractable natural resources.

Natural resources consist of standing timber and resources extracted from the ground, such as oil, gas, and minerals.

IFRS defines **extractive industries** as those businesses involved in finding and removing **natural resources located in or near the earth's crust**.

Standing timber is considered a biological asset under IFRS. In the years before they are harvested, the recorded value of biological assets is adjusted to fair value each period.

LO 5

Extractable Natural Resources

Acquisition cost of an extractable natural resource is the

- price needed to acquire the resource and
- prepare it for its intended use.

Depletion is the allocation of the cost to expense in a rational and systematic manner over the resource's useful life.

- Depletion is to natural resources as depreciation is to plant assets.
- Companies generally use units-of-activity method.
- Depletion generally is a function of the units extracted.

LO 5

Extractable Natural Resources

Illustration: Lane Coal Company invests HK$50 million in a mine estimated to have 10 million tons of coal and no residual value. In the first year, Lane extracts and sells 250,000 tons of coal.
Lane computes the depletion expense as follows:

Total Cost − Residual Value / Total Estimated Units Available	=	Depletion Cost per Unit
HK$50,000,000 / 10,000,000	=	HK$5.00 per ton

Illustration 9-22
Computation of depletion cost per unit

HK$5.00 per ton x 250,000 tons =
HK$1,250,000 annual depletion

LO 5

Extractable Natural Resources

Illustration: Lane Coal Company invests HK$50 million in a mine estimated to have 10 million tons of coal and no residual value. In the first year, Lane extracts and sells 250,000 tons of coal.
Lane records the depletion as follows:

Journal entry:

Inventory (coal)	1,250,000	
Accumulated Depletion		1,250,000

LO 5

Intangible Assets

Learning Objective 6
Explain the basic issues related to accounting for intangible assets.

Intangible assets are rights, privileges, and competitive advantages that result from ownership of long-lived assets that do not possess physical substance.

Limited life or **indefinite life**.

Common types of intangibles:

- Patents
- Copyrights
- Trademarks
- Trade Names
- Goodwill
- Franchises
- Leases

LO 6

Accounting for Intangible Assets

Limited-Life Intangibles:

- **Amortize** to expense.
- Credit asset account.

Indefinite-Life Intangibles:

- No amortization.

Companies classify **Amortization Expense** as an operating expense in the income statement.

Similar to property, plant, and equipment, IFRS permits revaluation of intangible assets to fair value, except for goodwill.

LO 6

Accounting for Intangible Assets

PATENTS

- Exclusive right to manufacture, sell, or otherwise control an invention for a **specified number of years** from the date of the grant.
- **Capitalize costs of purchasing** a patent and amortize over its legal life or its useful life, whichever is shorter.
- **Expense any Research and Development** costs in developing a patent.
- **Legal fees** incurred successfully defending a patent are capitalized to Patents account.

LO 6

PATENTS

Illustration: National Labs purchases a patent at a cost of NT$720,000. National estimates the useful life of the patent to be eight years. National records the annual amortization for the ended December 31 as follows.

Cost	NT$720,000
Useful life	÷ 8 years
Annual expense	NT$ 90,000

Dec. 31

Amortization Expense	90,000	
Patents		90,000

LO 6

Accounting for Intangible Assets

COPYRIGHTS

- Give the owner the exclusive right to reproduce and sell an artistic or published work.
- Granted for the life of the creator plus a specified number of years, commonly 70 years.
- Capitalize costs of acquiring and defending it.
- Amortized to expense over useful life.

LO 6

Accounting for Intangible Assets

TRADEMARKS AND TRADE NAMES

- Word, phrase, jingle, or symbol that identifies a particular enterprise or product.
  - Wheaties, Monopoly, Kleenex, Coca-Cola, Big Mac, and Jetta.
- Legal protection for specified number of years, commonly 20 years. Protection may be renewal indefinitely.
- Capitalize cost of acquisition.
- No amortization.

LO 6

Accounting for Intangible Assets

FRANCHISES AND LICENSES

- Contractual arrangement between a franchisor and a franchisee.
  - **BP** (GBR), **Subway** (USA), and **Europcar** are franchises.
- Franchise (or license) with a limited-life should be amortized to expense over its useful life.
- Franchise (or license) with an indefinite life is not amortized.

LO 6

Accounting for Intangible Assets

GOODWILL

- **Includes** exceptional management, desirable location, good customer relations, skilled employees, high-quality products, etc.
- Only recorded when an **entire business is purchased** .
- Goodwill is recorded as the excess of **cost over the fair value of the net assets** acquired.
- Internally created goodwill should not be capitalized.
- Not amortized.

LO6

Global Insight

Should Companies Write Up Goodwill?

SoftBank Corp. (JPN) at one time was the country's largest Internet company. It boosted the profit margin of its mobile phone unit from 3.2% to 11.2% through what appeared to some as accounting tricks. What did it do? It wrote down the value of its mobile phone-unit assets by half. This would normally result in a huge loss. But rather than take a loss, the company wrote up goodwill by the same amount. How did this move increase earnings? The assets were being depreciated over 10 years, but the company amortizes goodwill over 20 years. (Amortization of goodwill was allowed under the accounting standards it followed at that time.) While the new treatment did not break any rules, the company was criticized by investors for not providing sufficient justification or a detailed explanation for the sudden shift in policy.

Source: Andrew Morse and Yukari Iwatani Kane, "SoftBank's Accounting Shift Raises Eyebrows," *Wall Street Journal* (August 28, 2007), p. C1.

LO6

Research and Development Costs

Expenditures that may lead to

- patents,
- copyrights,
- new processes, and
- new products.

All R & D costs are **expensed when incurred**.

LO6

Research and Development Costs

Illustration: Laser Scanner Ltd. spent NT$1 million on research and NT$2 million on development of new products. Of the NT$2 million in development costs NT$400,000 was incurred prior to technological feasibility and NT$1,600,000 was incurred after technological feasibility had been demonstrated. The company would record these costs as follows.

Research and Development Expense	1,400,000	
Development Costs	1,600,000	
Cash		3,000,000

LO 6

Accounting for Intangible Assets

Question

Which of the following statements is **false**?

a. If an intangible asset has a finite life, it should be amortized.

b. The amortization period of an intangible asset can exceed 20 years.

c. Goodwill is recorded only when a business is purchased.

d. Development costs are always expensed when incurred.

LO 6

> DO IT!

Illustration: Identify the term most directly associated with each statement.

1. The allocation of the cost of an extractable natural resource to expense in a rational and systematic manner. — **Depletion**
2. Rights, privileges, and competitive advantages that result from the ownership of long-lived assets that do not possess physical substance. — **Intangible Assets**
3. An exclusive right granted by a government to reproduce and sell an artistic or published work. — **Copyrights**

LO 6

> DO IT!

Illustration: Identify the term most directly associated with each statement.

4. A right to sell certain products or services or to use certain trademarks or trade names within a designated geographic area. — **Franchises**
5. Costs incurred by a company that often lead to patents or new products. These costs must be expensed as incurred. — **Research Costs**

LO 6

Statement Presentation

Learning Objective 7
Indicate how plant assets, natural resources, and intangible assets are reported.

STANDARD LTD.
Statement of Financial Position (partial)
(in billions)

	June 30	
	2017	2016
Goodwill and intangible assets		
Goodwill	¥59,700	¥56,500
Trademarks and other intangible assets, net	34,300	33,600
Net goodwill and intangible assets	94,000	90,100
Property, plant, and equipment		
Land	900	900
Buildings	7,000	6,300
Machinery and equipment	30,000	27,000
	37,900	34,200
Accumulated depreciation	(18,000)	(15,100)
Net property, plant, and equipment	¥19,900	¥19,100

Illustration 9-23
Presentation of property, plant, and equipment, and intangible assets

LO 7

Statement Analysis

Net Sales	÷	Average Total Assets	=	Asset Turnover
₩58,140	÷	$\frac{₩35,528 + ₩34,766}{2}$	=	1.65 times

Illustration 9-24
Asset turnover formula and computation

Each Korean won invested in assets produced ₩1.65 in sales for LG. If a company is using its assets efficiently, each investment in assets will create a high amount of sales.

LO 7

> DO IT!

Paramour Company reported net income of $180,000, net sales of $420,000, and had total assets of $460,000 on January 1, 2017, and total assets on December 31, 2017, of $540,000. Determine Paramour's asset turnover for 2017.

Solution

The asset turnover is computed as follows.

Net Sales ÷ Average Total Assets = Asset Turnover

$$\frac{\qquad}{\qquad} = \qquad$$

LO 7

APPENDIX 9A Exchange of Plant Assets

Learning Objective 8
Explain how to account for the exchange of plant assets.

- Ordinarily, companies record a gain or loss on the exchange of plant assets.
- Most exchanges have **commercial substance**.
- **Commercial substance** - if the future cash flows change as a result of the exchange.

LO 8

Loss Treatment

Illustration: Roland NV exchanged used trucks (cost €64,000 less €22,000 accumulated depreciation) plus cash of €17,000 for a new semi-truck. The used trucks had a fair market value of €26,000.

Cost of used trucks	€64,000	
Less: Accumulated depreciation	22,000	
Book value	42,000	**Illustration 9A-2** Computation of loss on disposal
Fair market value of used trucks	26,000	
Loss on disposal	**€16,000**	
Fair market value of used trucks	€26,000	**Illustration 9A-1** Cost of semi-truck
Cash paid	17,000	
Cost of semi-truck	€43,000	

LO 8

Loss Treatment

Illustration: Roland NV exchanged used trucks (cost €64,000 less €22,000 accumulated depreciation) plus cash of €17,000 for a new semi-truck. The old trucks had a fair market value of €26,000.

Prepare the entry to record the exchange of assets by Roland NV.

Equipment (new)	43,000	
Accumulated Depreciation—Equipment	22,000	
Loss on Disposal of Plant Assets	16,000	
Equipment (old)		64,000
Cash		17,000

LO 8

Gain Treatment

Illustration: Mark Express trades its old delivery equipment (cost €40,000 less €28,000 accumulated depreciation) for new delivery equipment. The old equipment had a fair market value of €19,000. Mark also paid €3,000.

Cost of old equipment	€40,000	
Less: Accumulated depreciation	28,000	
Book value	12,000	Illustration 9A-4 Computation of gain on disposal
Fair market value of old equipment	19,000	
Gain on disposal	**€ 7,000**	
Fair market value of old equipment	€19,000	Illustration 9A-3 Cost of new delivery equipment
Cash paid	3,000	
Cost of new equipment	€22,000	

LO 8

Gain Treatment

Illustration: Mark Express trades its old delivery equipment (cost €40,000 less €28,000 accumulated depreciation) for new delivery equipment. The old equipment had a fair market value of €19,000. Mark also paid €3,000.

Prepare the entry to record the exchange of assets by Mark Express.

Equipment (new)	22,000	
Accumulated Depreciation—Equipment (old)	28,000	
Equipment (old)		40,000
Gain on Disposal of Plant Assets		7,000
Cash		3,000

LO 8

Exchange of Plant Assets

Question

In exchanges of assets in which the exchange has commercial substance:

a. neither gains nor losses are recognized immediately.

b. gains, but not losses, are recognized immediately.

c. losses, but not gains, are recognized immediately.

d. both gains and losses are recognized immediately.

LO 8

A Look at U.S. GAAP

Learning Objective 9
Compare the accounting for long-lived assets under IFRS and U.S. GAAP.

Key Points

Similarities

- The definition for plant assets for both GAAP and IFRS is essentially the same.
- GAAP, like IFRS, capitalizes all direct costs in self-constructed assets such as raw materials and labor. IFRS does not address the capitalization of fixed overhead although in practice these costs are generally capitalized.
- GAAP also views depreciation as an allocation of cost over an asset's useful life. GAAP permits the same depreciation methods (e.g., straight-line, accelerated, and units-of-activity) as IFRS.
- The accounting for subsequent expenditures, such as ordinary repairs and additions, are essentially the same under GAAP and IFRS.

LO 9

A Look at U.S. GAAP

Key Points

Differences

- Under GAAP, an item of property, plant, and equipment with multiple parts is generally depreciated over the useful life of the total asset. Thus, component depreciation is generally not used. However, GAAP permits companies to use component depreciation.
- GAAP uses the term salvage value, rather than residual value, to refer to an owner's estimate of an asset's value at the end of its useful life for that owner.
- IFRS allows companies to revalue plant assets to fair value at the reporting date.

LO 9

A Look at U.S. GAAP

Key Points

Differences

- As in IFRS, under GAAP the costs associated with research and development are segregated into the two components. Costs in the research phase are always expensed under both GAAP and IFRS. Under IFRS, however, costs in the development phase are capitalized as Development Costs once technological feasibility is achieved. Under GAAP, all development costs are expensed as incurred.
- IFRS permits revaluation of intangible assets (except for goodwill). GAAP prohibits revaluation of intangible assets.

LO 9

A Look at U.S. GAAP

Key Points

Differences

- IFRS requires an impairment test at each reporting date for plant assets and intangibles and records an impairment if the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of the asset's fair value less costs to sell or its value-in-use. Value-in-use is the future cash flows to be derived from the particular asset, discounted to present value. Under GAAP, impairment loss is measured as the excess of the carrying amount over the asset's fair value.
- IFRS allows reversal of impairment losses when there has been a change in economic conditions or in the expected use of the asset. Under GAAP, impairment losses cannot be reversed for assets to be held and used; the impairment loss results in a new cost basis for the asset. IFRS and GAAP are similar in the accounting for impairments of assets held for disposal.

LO 9

A Look at U.S. GAAP

Looking to the Future

With respect to revaluations, as part of the conceptual framework project, the Boards will examine the measurement bases used in accounting. It is too early to say whether a converged conceptual framework will recommend fair value measurement (and revaluation accounting) for plant assets and intangibles. However, this is likely to be one of the more contentious issues, given the longstanding use of historical cost as a measurement basis in GAAP. The IASB and FASB have identified a project that would consider expanded recognition of internally generated intangible assets. IFRS permits more recognition of intangibles compared to GAAP. Thus, it will be challenging to develop converged standards for intangible assets, given the long-standing prohibition on capitalizing internally generated intangible assets and research and development costs in GAAP.

LO 9

A Look at GAAP vs. IFRS

GAAP Self-Test Questions

Which of the following statements is **correct**?

a) Both IFRS and GAAP permit revaluation of property, plant, and equipment and intangible assets (except for goodwill).

⇨ b) IFRS permits revaluation of property, plant, and equipment and intangible assets (except for goodwill).

c) Both IFRS and GAAP permit revaluation of property, plant, and equipment but not intangible assets.

d) GAAP permits revaluation of property, plant, and equipment but not intangible assets.

LO 9

A Look at GAAP vs. IFRS

GAAP Self-Test Questions

Research and development costs are:

⇨ a) expensed under GAAP.

b) expensed under IFRS.

c) expensed under both GAAP and IFRS.

d) None of the above.

LO 9

A Look at GAAP vs. IFRS

GAAP Self-Test Questions

Value-in-use is defined as:

a) net realizable value.

b) fair value.

⇨ c) future cash flows discounted to present value.

d) total future undiscounted cash flows.

LO 9