Financial Accounting

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Sixth Edition

Chapter 08

Reporting and Analyzing Long-Term Assets

Conceptual Learning Objectives

C1: Explain the cost principle for computing the cost of plant assets.

C2: Distinguish between revenue and capital expenditures, and account for them.

C3: Explain depreciation for partial years and changes in estimates.

Analytical Learning Objectives

A1: Compute total asset turnover and apply it to analyze a company's use of assets.

Procedural Learning Objectives

P1: Compute and record depreciation using the straight-line, units-of-production, and declining-balance methods.

P2: Account for asset disposal through discarding or selling an asset.

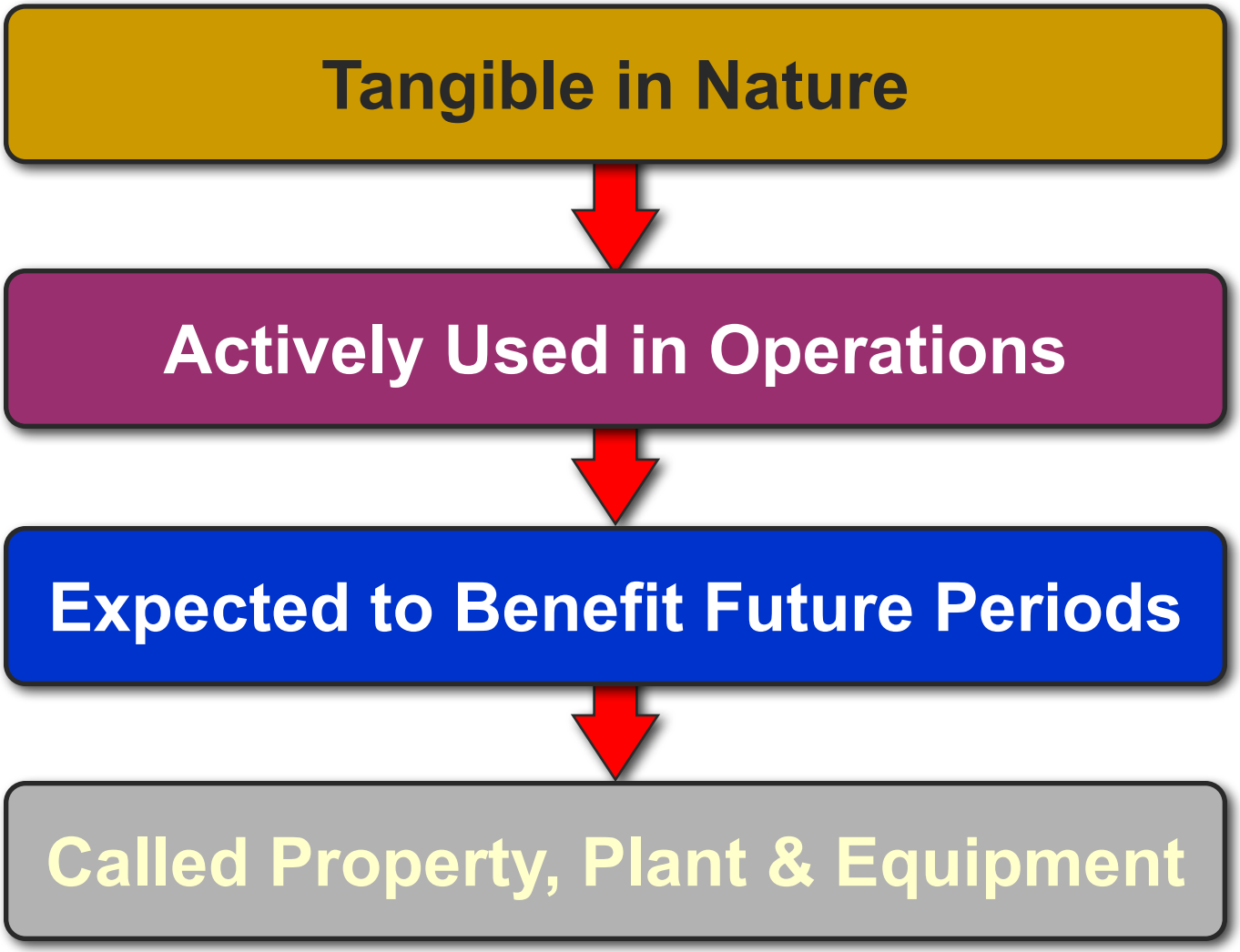
P3: Account for natural resource assets and their depletion.

P4: Account for intangible assets.

P5: Appendix 8A – Account for asset exchanges (see text for details).

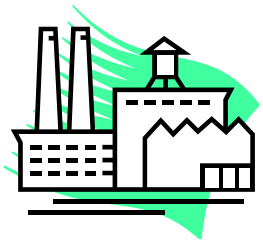
C 1

Plant Assets

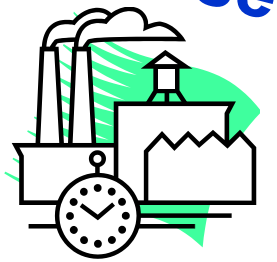


C 1

Plant Assets



Decline in asset value over its useful life



Acquisition
1. Compute cost

Use
2. Allocate cost to periods benefited
3. Account for subsequent expenditures

Disposal
4. Record disposal

C1

Land and Buildings

Land is not a depreciable asset, but land improvements are.

The cost of buildings include many costs; the purchase price plus the following:

- Cost of purchase or construction
- Brokerage fees
- Taxes
- Title fees
- Attorney fees

C1

Machinery and Equipment

Purchase price

Taxes

Transportation charges

Installing, assembling, and testing

Insurance while in transit

C1

Lump-Sum Asset Purchase

The total cost of a combined purchase of land and building is separated on the basis of their relative market values.

On January 1, Matrix, Inc. purchased land and building for $200,000 cash. The appraised values are building, $162,500, and land, $87,500.

How much of the $200,000 purchase price will be charged to the building and land accounts?

C1

Lump-Sum Asset Purchase

Asset	Appraised Value	% of Value		Purchase Price		Apportioned Cost
	a	b*		c		b × c
Land	$ 87,500	35%	×	$ 200,000	=	$ 70,000
Building	162,500	65%	×	200,000	=	130,000
Total	$ 250,000	100%				$ 200,000

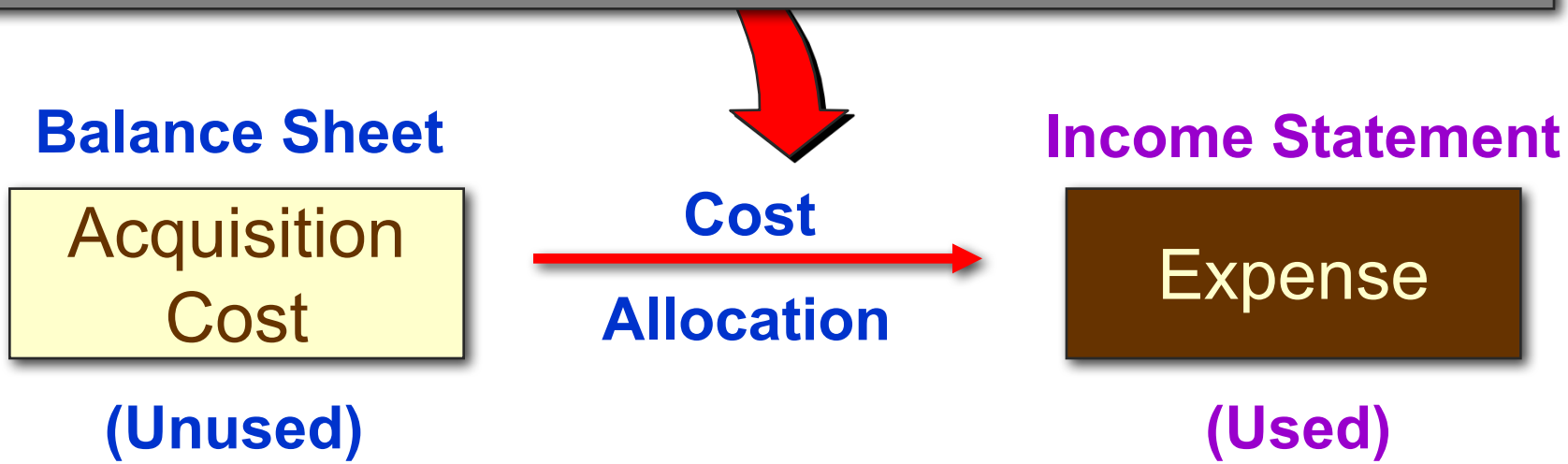
* $87,500 ÷ $250,000 = 35%

$162,500 ÷ $250,000 = 65%

P1

Depreciation

Depreciation is the process of allocating the cost of a plant asset to expense in the accounting periods benefiting from its use.

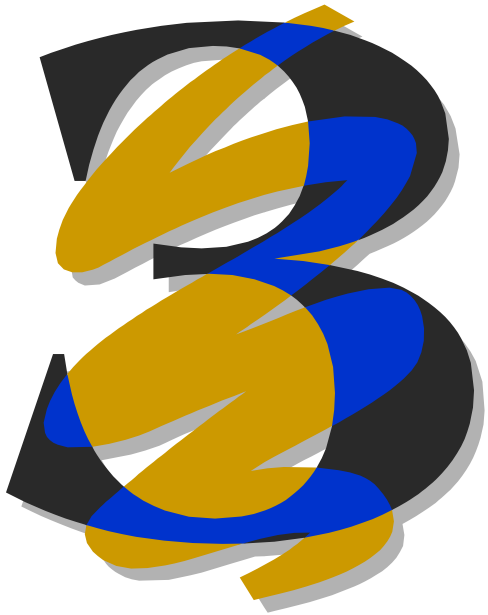


P1

Factors in Computing Depreciation

The calculation of depreciation requires three amounts for each asset:

1. **Cost**
2. **Salvage value**
3. **Useful life**



P1

Depreciation Methods

1. **Straight-line**
2. **Units-of-production**
3. **Declining-balance**

P1

Straight-Line Method

$$\text{Depreciation expense for period} = \frac{\text{Cost} - \text{Salvage value}}{\text{Useful life}}$$

$$\text{Depreciation expense per year} = \frac{\$50{,}000 - \$5{,}000}{5 \text{ years}} = \$9{,}000$$

	Dr.	Cr.
Depreciation Expense	9,000	
Accumulated Depreciation - Equipment		9,000
To record annual depreciation		

P1

Straight-Line Method

Year	Depreciation Expense (debit)	Accumulated Depreciation (credit)	Accumulated Depreciation	Book Value
				$ 50,000
2011	$ 9,000	$ 9,000	$ 9,000	41,000
2012	9,000	9,000	18,000	32,000
2013	9,000	9,000	27,000	23,000
2014	9,000	9,000	36,000	14,000
2015	9,000	9,000	45,000	5,000
	$ 45,000	$ 45,000		

Salvage Value

Depreciation Rate = (100% ÷ 5 years) = 20% per year

P1

Units-of-Production Method

Step 1:

$$\text{Depreciation per unit} = \frac{\text{Cost} - \text{Salvage value}}{\text{Total units of production}}$$

Step 2:

$$\text{Depreciation expense} = \text{Depreciation per unit} \times \text{Number of units produced in the period}$$

P1

Units-of-Production Method

On December 31, 2011, equipment was purchased for $50,000 cash. The equipment is expected to produce 100,000 units during its useful life and has an estimated salvage value of $5,000.

If 22,000 units were produced in 2011, what is the amount of depreciation expense?

P1

Units-of-Production Method

Step 1:

$$\text{Depreciation per unit} = \frac{\$50{,}000 - \$5{,}000}{100{,}000 \text{ units}} = \$.45 \text{ per unit}$$

Step 2:

$$\text{Depreciation expense} = \$.45 \text{ per unit} \times 22{,}000 \text{ units} = \$9{,}900$$

P1

Units-of-Production Method

Year	Units	Depreciation Expense	Accumulated Depreciation	Book Value
				$ 50,000
2011	22,000	$ 9,900	$ 9,900	40,100
2012	28,000	12,600	22,500	27,500
2013	-	-	22,500	27,500
2014	32,000	14,400	36,900	13,100
2015	18,000	8,100	45,000	5,000
	100,000	$ 45,000		

No depreciation expense if the equipment is idle

P1

Declining Balance Method

	Depreciation Expense	Repair Expense
Early Years	High	Low
Later Years	Low	High

Early years' total expense approximates later years' total expense.

P1

Double-Declining-Balance Method

Step 1:

Straight-line rate = 100 % ÷ Useful life = 100% ÷ 5 = 20%

Step 2:

Double-declining-balance rate = 2 × Straight-line rate = 2 × 20% = 40%

Step 3:

Depreciation expense = **Double-declining-balance rate** × **Beginning period book value**

40% × $50,000 = **$20,000** for 2011

P1

Double-Declining-Balance Method

2011 Depreciation:

40% × $50,000 = $20,000

2012 Depreciation:

40% × ($50,000 − $20,000) = $12,000

P1

Double-Declining-Balance Method

Year	Depreciation Expense	Accumulated Depreciation	Book Value
			$ 50,000
2011	$ 20,000	$ 20,000	30,000
2012	12,000	32,000	18,000
2013	7,200	39,200	10,800
2014	4,320	43,520	6,480
2015	2,592	46,112	3,888
	$ 46,112		

Below salvage value

P1

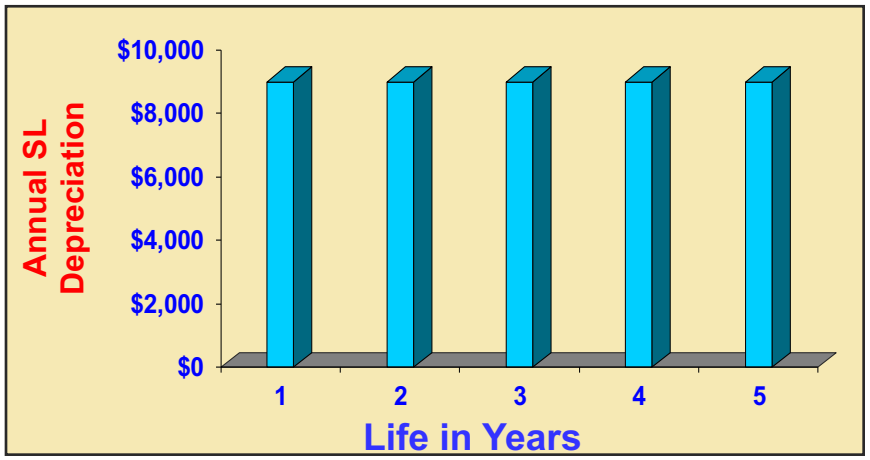
Double-Declining-Balance Method

Year	Depreciation Expense	Accumulated Depreciation	Book Value
			$ 50,000
2011	$ 20,000	$ 20,000	30,000
2012	12,000	32,000	18,000
2013	7,200	39,200	10,800
2014	4,320	43,520	6,480
2015	1,480	45,000	5,000
	$ 45,000		

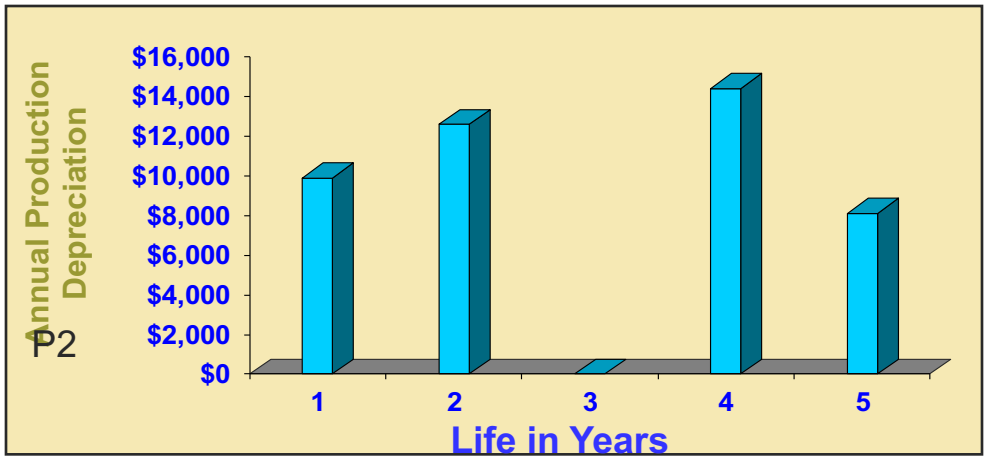
We usually must force depreciation expense in the last year so that book value equals salvage value.

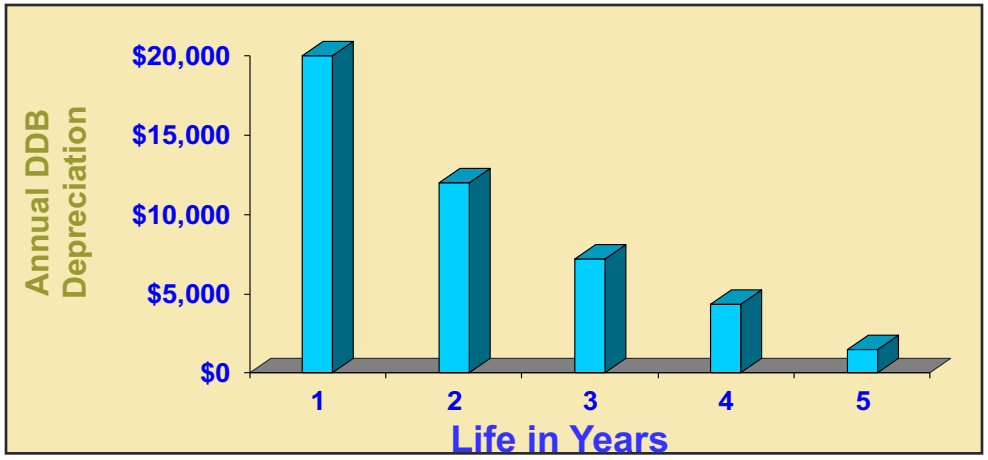
P1

Comparing Depreciation Methods



P2



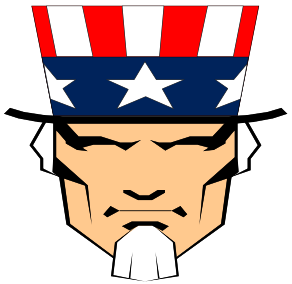


P1

Depreciation for Tax Reporting

Most corporations use the Modified Accelerated Cost Recovery System (MACRS) for tax purposes.

MACRS depreciation provides for rapid write-off of an asset's cost in order to stimulate new investment.



C 3

Partial-Year Depreciation

Calculate the straight-line depreciation on December 31, 2011, for equipment purchased on June 30, 2011. The equipment cost $75,000, has a useful life of 10 years and an estimated salvage value of $5,000.

Depreciation = ($75,000 - $5,000) ÷ 10

= $7,000 for all 2011

Depreciation = $7,000 × $^{6}/_{12}$ = $3,500 for 6 months

C 3

Change in Estimates for Depreciation

On January 1, 2011, equipment was purchased that cost $30,000, has a useful life of 10 years, and no salvage value. During 2014, the useful life was revised to eight years total (five years remaining).

Calculate depreciation expense for the year ended December 31, 2011, using the straight-line method.

$$\frac{\text{Book value at date of change} - \text{Salvage value at date of change}}{\text{Remaining useful life at date of change}}$$

C 3

Change in Estimates for Depreciation

Asset cost	$ 30,000
Accumulated depreciation, 12/31/2013 ($3,000 per year × 3 years)	9,000
Remaining book value	$ 21,000
Divide by remaining life	÷ 5
Revised annual depreciation	$ 4,200

		Dr.	Cr.
Dec. 31	Depreciation Expense	4,200	
	Accumulated Depreciation - Equipment		4,200
	To record depreciation for 2014		

P1

Reporting Depreciation

Property, plant, and equipment:	
Land and buildings	**$ 150,000**
Machinery and equipment	**200,000**
Office furniture and equipment	**175,000**
Land improvements	**50,000**
Total	**$ 575,000**
Less Accumulated depreciation	**(122,000)**
Net property, plant, and equipment	**$ 453,000**

C2

Additional Expenditures

Treatment	Financial Statement Effect			
	Statement	Expense	Current Income	Current Taxes
Capital Expenditure	Balance sheet account debited	Deferred	Higher	Higher
Revenue Expenditure	Income statement account debited	Currently recognized	Lower	Lower

If the amounts involved are not material, most companies expense the item.

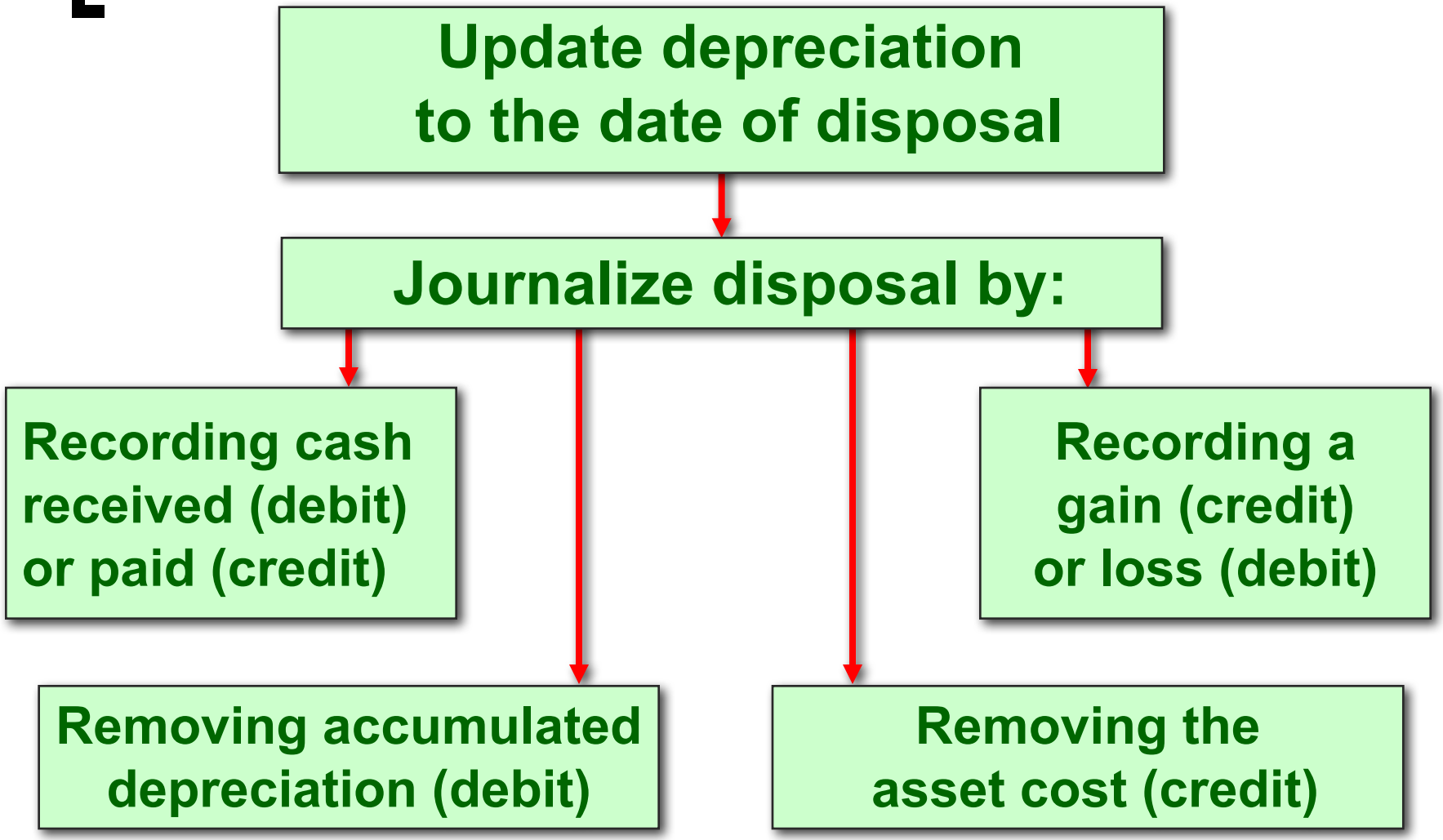
C2

Revenue and Capital Expenditures

Type of Expenditure	Capital or Revenue	Identifying Characteristics
Ordinary Repairs	Revenue	1. Maintains normal operating condition. 2. Does not increase productivity. 3. Does not extend life beyond original estimate.
Betterments and Extraordinary Repairs	Capital	1. Major overhauls or partial replacements. 2. Extends life beyond original estimate.

P2

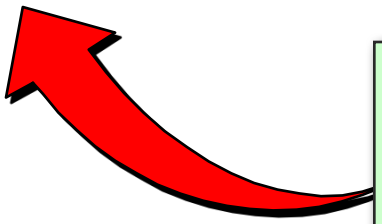
Disposals of Plant Assets



P2

Discarding Plant Assets

If Cash > BV, record a gain (credit)
If Cash < BV, record a loss (debit)
If Cash = BV, no gain or loss



Recording cash received (debit) or paid (credit)

Recording a gain (credit) or loss (debit)

Removing accumulated depreciation (debit)

Removing the asset cost (credit)

P2

Disposal of Assets

On September 30, 2011, Evans Company sells a machine that originally cost $100,000 for $60,000 cash. The machine was placed in service on January 1, 2009. It was depreciated using the straight-line method with an estimated salvage value of $20,000 and a useful life of 10 years.

Annual depreciation ($100,000 - $20,000) ÷ 10 Yrs. = $8,000

Depreciation to September 30, 2011:9/12 × $8,000 = $6,000

		Dr.	Cr.
Sep. 30	Depreciation Expense	6,000	
	Accumulated Depreciation - Machine		6,000
	To update depreciation to date of disposal		

P2

Determine Book Value of Asset

Cost	$ 100,000
Accumulated depreciation:	
(3 yrs. × $8,000) + $6,000 =	30,000
Book value	$ 70,000

P2

Determine Gain or Loss on Disposal

If Cash > BV, record a gain (credit)

If Cash < BV, record a loss (debit)

If Cash = BV, no gain or loss

Cost	$ 100,000
Accumulated depreciation	30,000
Book value	70,000
Cash received	60,000
Loss on disposal	$ (10,000)

P2

Record the Disposal in the Journal

		Dr.	Cr.
Sep. 30	Cash	60,000	
	Accumulated Depreciation - Machine	30,000	
	Loss on Disposal of Asset	10,000	
	Machine		100,000
	To record disposal of equipment		

P3

Natural Resources: Cost Determination and Depletion

Step 1:

$$\text{Depletion per unit} = \frac{\text{Cost} - \text{Salvage value}}{\text{Total units of capacity}}$$

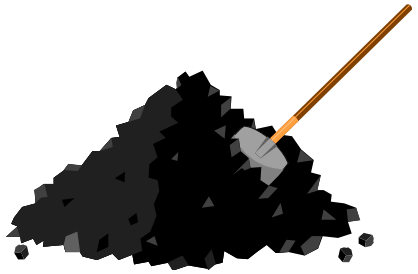
Step 2:

$$\text{Depletion expense} = \text{Depletion per unit} \times \text{Units extracted and sold in period}$$

P3

Depletion of Natural Resources

Apex Mining acquired a tract of land containing ore deposits. Total costs of acquisition and development were $1,000,000 and Apex estimates the land contained 40,000 tons of ore. During the first year of operations Apex extracted and sold 13,000 tons of ore.



P3

Depletion Expense

Step 1:

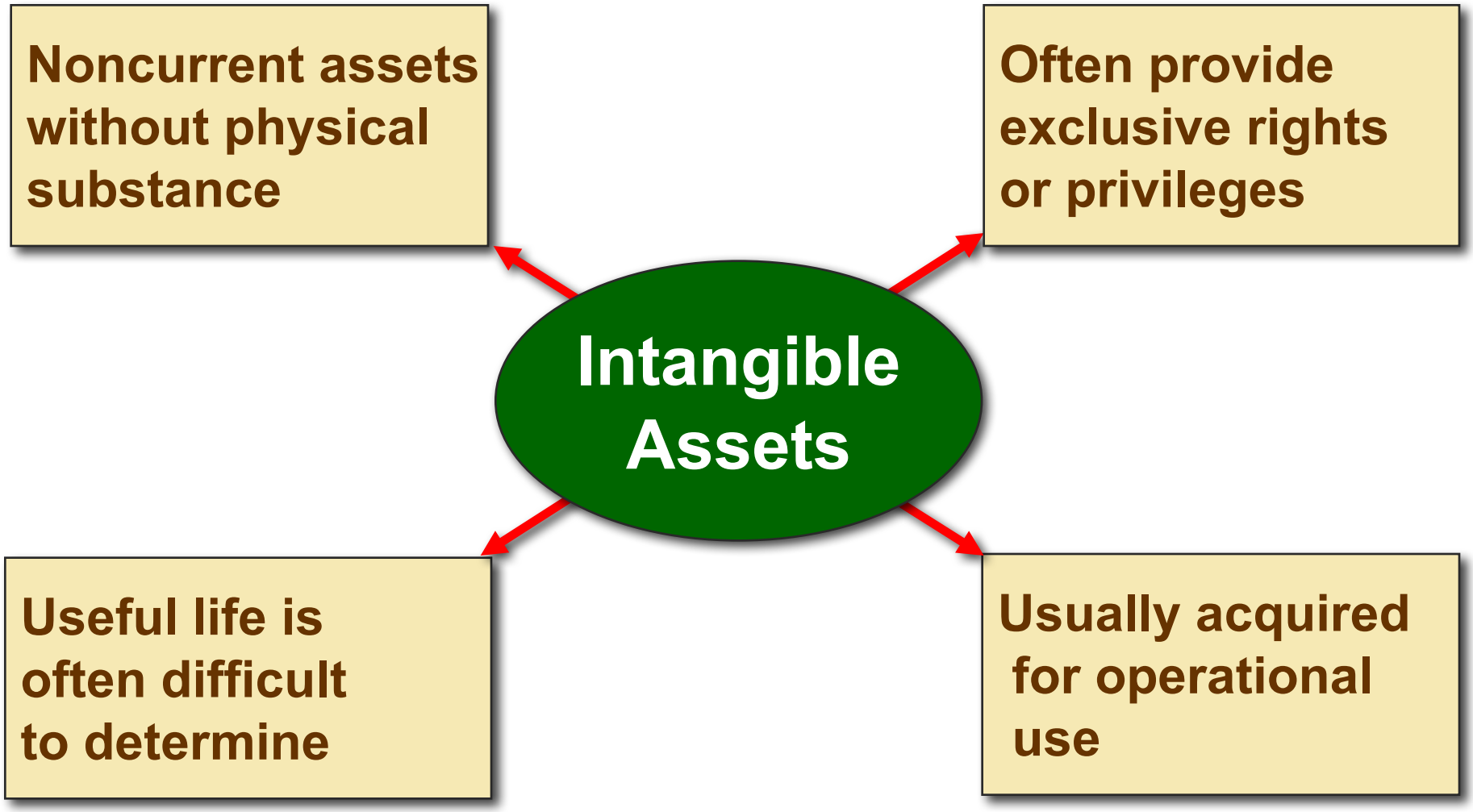
$$\text{Depletion per unit} = \frac{\$1{,}000{,}000 - \$0}{40{,}000 \text{ tons}} = \$25 \text{ per ton}$$

Step 2:

$$\text{Depletion expense} = \$25 \text{ per ton} \times 13{,}000 \text{ units} = \$325{,}000$$

P4

Intangible Assets



P4

Cost Determination and Amortization

Record at current cash equivalent cost, including purchase price, legal fees, and filing fees

- **Patents**
- **Copyrights**
- **Leaseholds**
- **Leasehold improvements**
- **Franchises & licenses**
- **Goodwill**
- **Trademarks & trade names**

P4

Types of Intangibles

Patents

The exclusive right granted to its owner to manufacture and sell a patented item or use a process for 20 years. A patent is generally amortized, using the straight-line method, over its useful life, not to exceed 20 years.

Matrix, Inc. purchased a patent for $10,000. The patent is expected to have a useful life of 10 years.

	Dr.	Cr.
Amortization Expense - Patents	**1,000**	
Accumulated Amortization - Patents		**1,000**
To amortize patent costs		

P4

Types of Intangibles

Copyrights

The exclusive right to publish and sell a musical, literary, or artistic work during the life of the creator plus 70 years.

Leaseholds

The rights the lessor grants to the lessee under the terms of a lease. Most leases have a determinable life.

P4

Types of Intangibles

Leasehold Improvements

A lessee may pay for alterations or improvements to the leased property such as partitions, painting, and storefronts. These costs are usually amortized over the term of the lease.

Franchises and Licenses

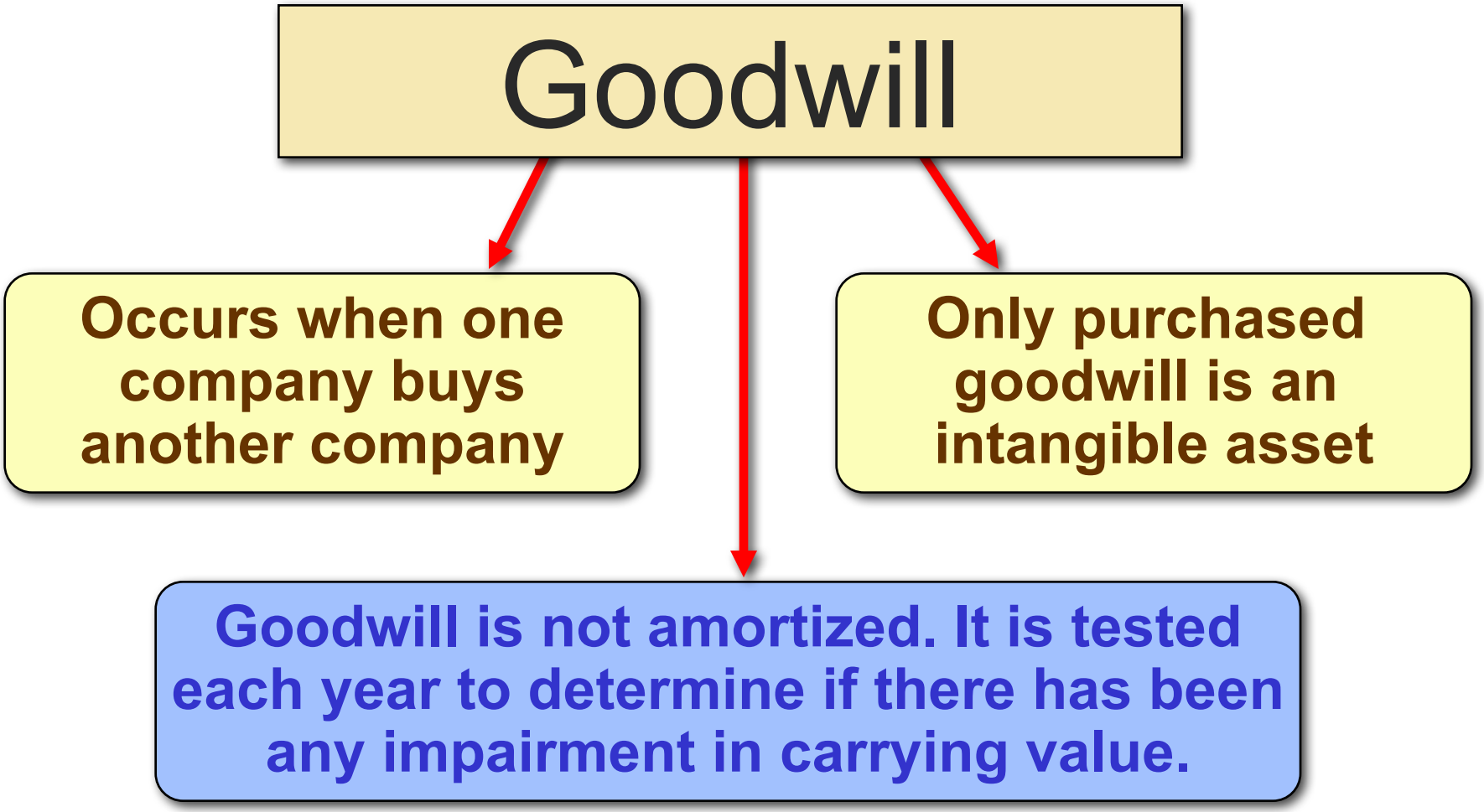
The right granted by a company or the government to deliver a product or service under specified conditions.

Trademarks and Trade Names

A symbol, name, phrase, or jingle identified with a company, product, or service.

P4

Goodwill


Goodwill
Occurs when one company buys another company
Only purchased goodwill is an intangible asset
Goodwill is not amortized. It is tested each year to determine if there has been any impairment in carrying value.

A1

Total Asset Turnover

$$\text{Total asset turnover} = \frac{\text{Net sales}}{\text{Average total assets}}$$

Provides information about a company's efficiency in using its assets

End of Chapter 08