

Financial Accounting

Prepared by Dr. Sara Ahmed

MGM 611

Lecture 7





مجموعة جامعة
الجميع الذكية
للتعليم القابضة

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Plant Assets

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TOPIC
07

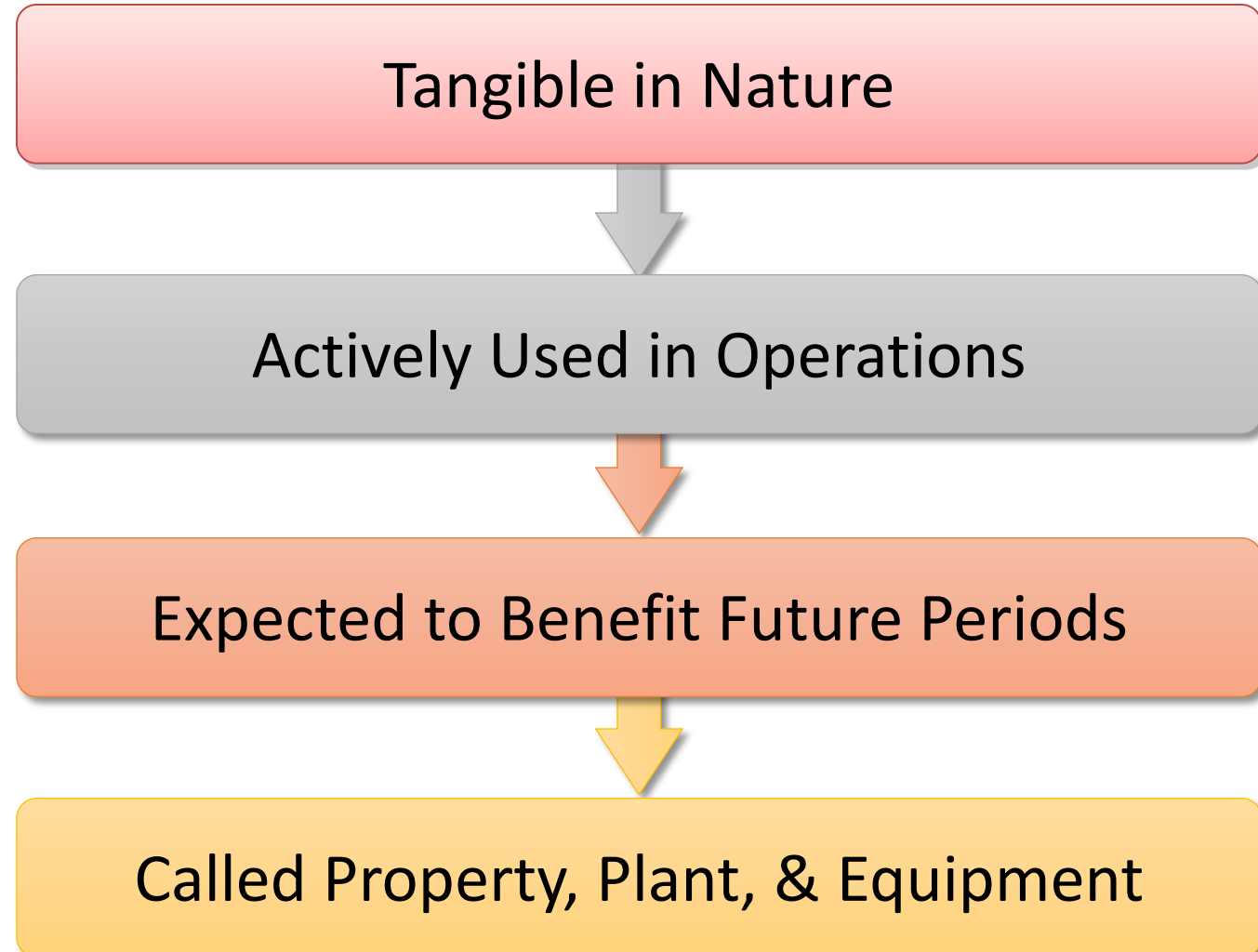
LEARNING AND OBJECTIVES

- Explain the cost principle for computing the cost of plant assets.
- Explain depreciation for partial years and changes in estimates.
- Distinguish between revenue and capital expenditures, and account for them.
- Compute total asset turnover and apply it to analyze a company's use of assets.
- Compute and record depreciation using the straight-line, units-of-production, and declining-balance methods.
- Account for asset disposal through discarding or selling an asset.

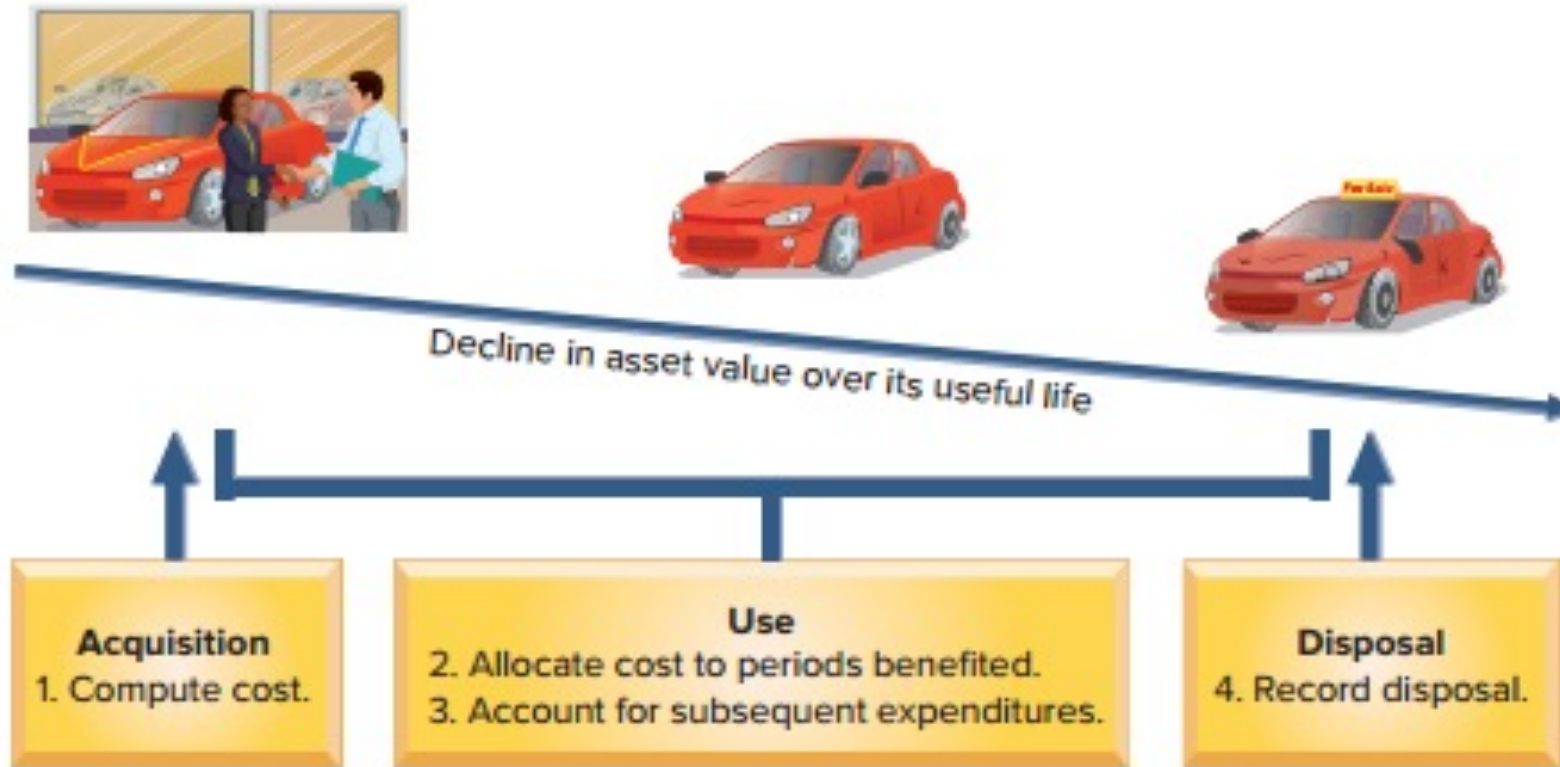
Learning Objective

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

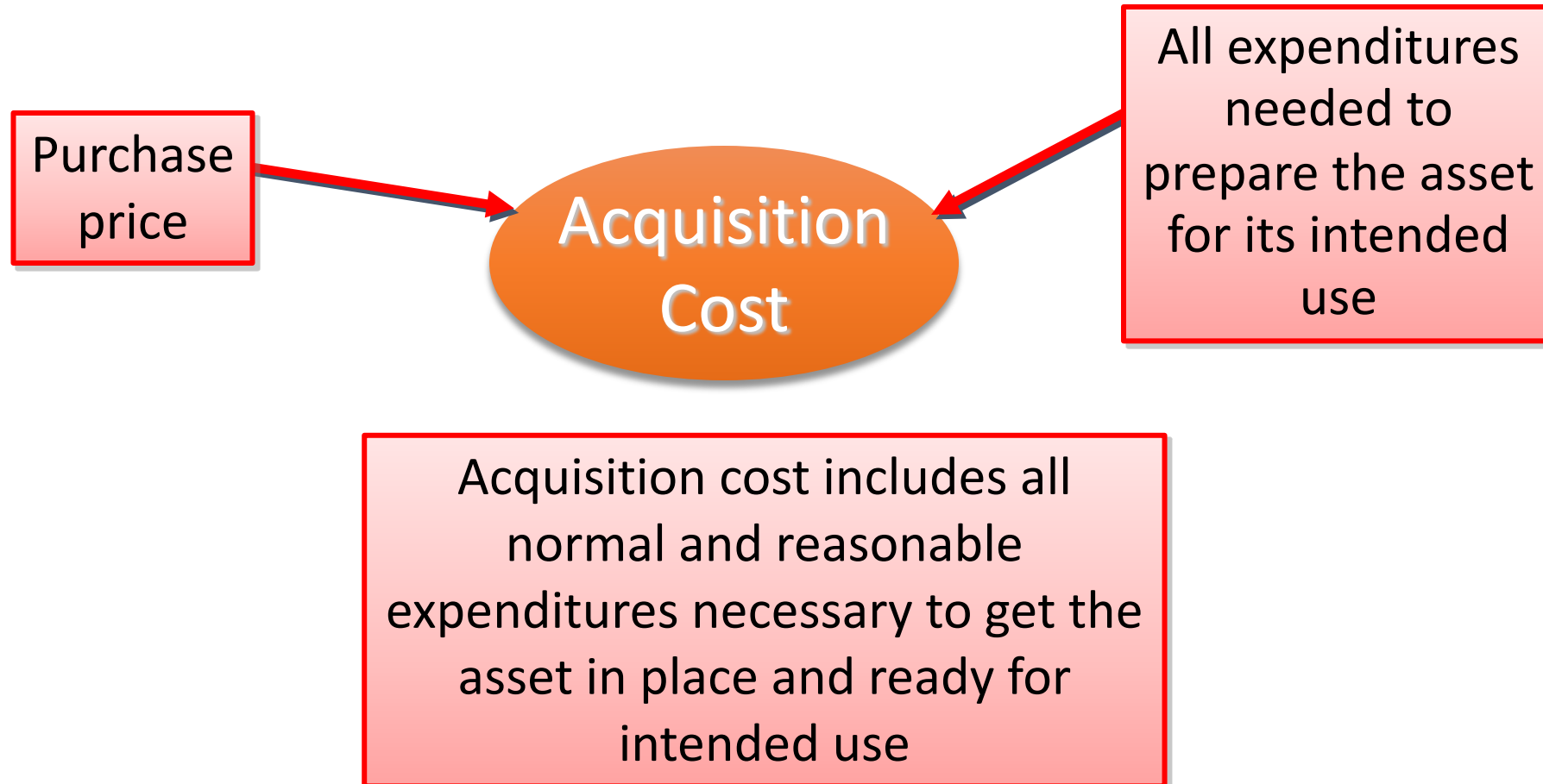
Plant Assets



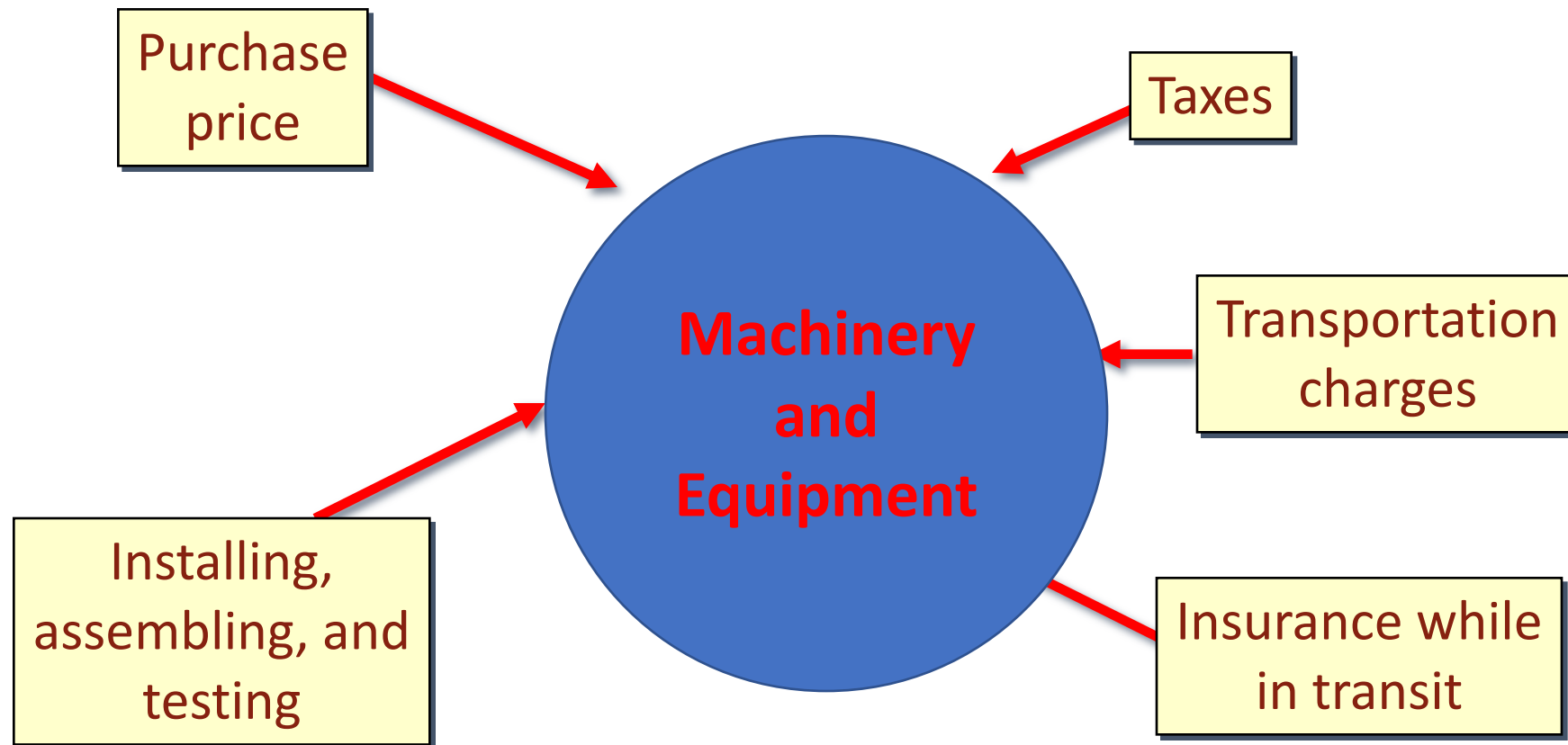
PLANT ASSETS



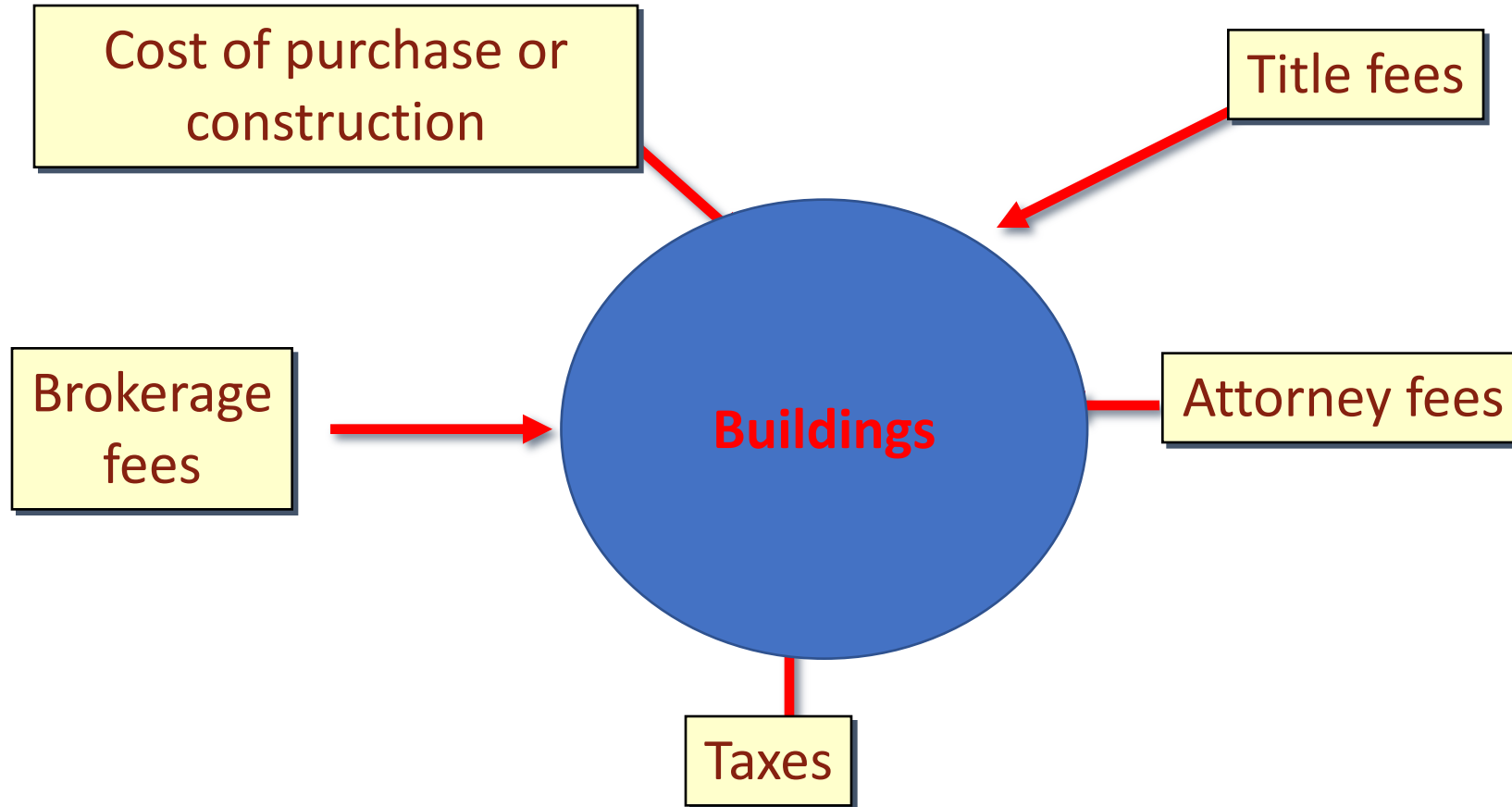
Cost Determination



Machinery and Equipment



Buildings

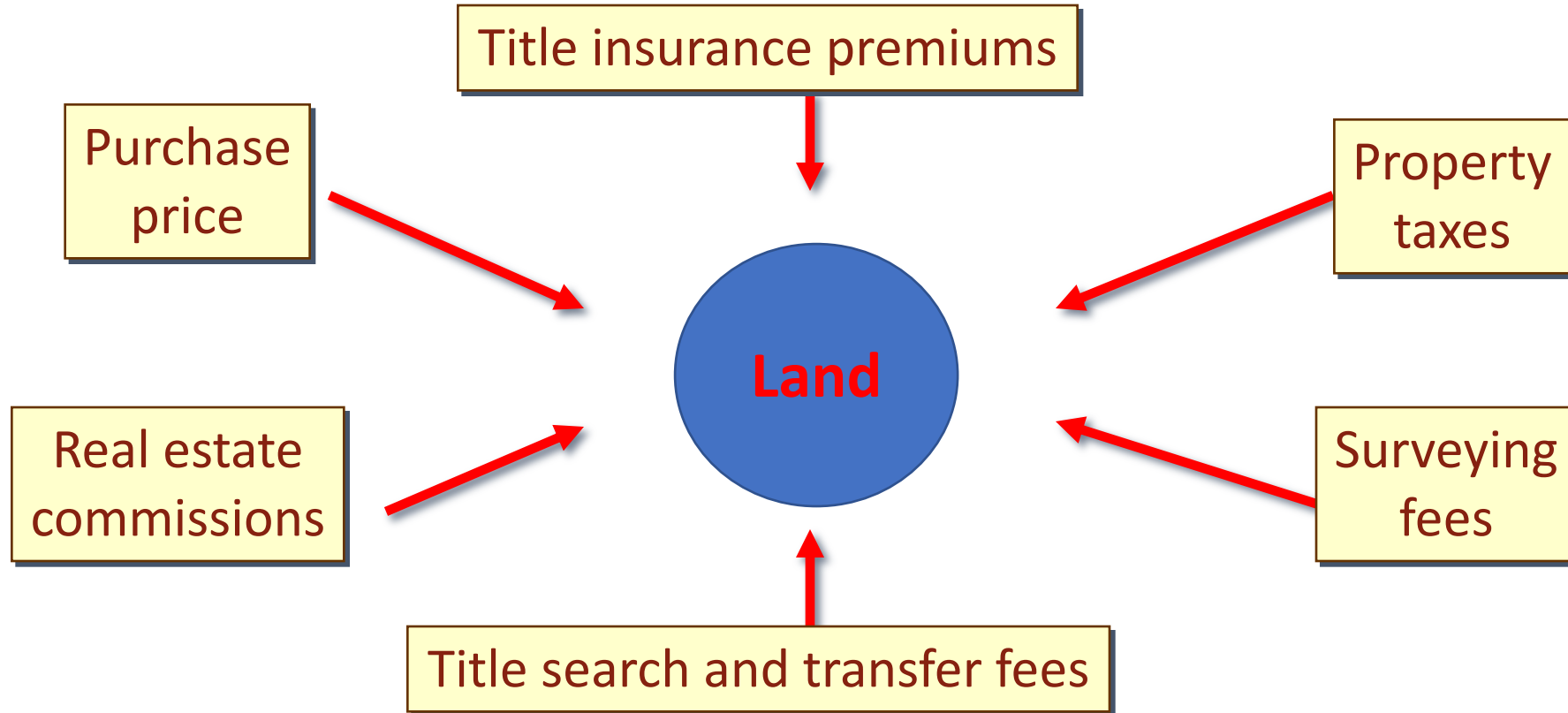


Land Improvements

Parking lots, driveways, fences, walks, shrubs,
and lighting systems.

Depreciate
over useful life of
improvements.

Land



Land is **not** depreciable.

Lump-Sum Purchase

The total cost of a combined purchase of land and building is allocated based of their **relative fair market values**.

CarMax paid \$90,000 cash to acquire a group of items consisting of land appraised at \$30,000, land improvements appraised at \$10,000, and a building appraised at \$60,000. The \$90,000 cost will be allocated on the basis of appraised values as shown:

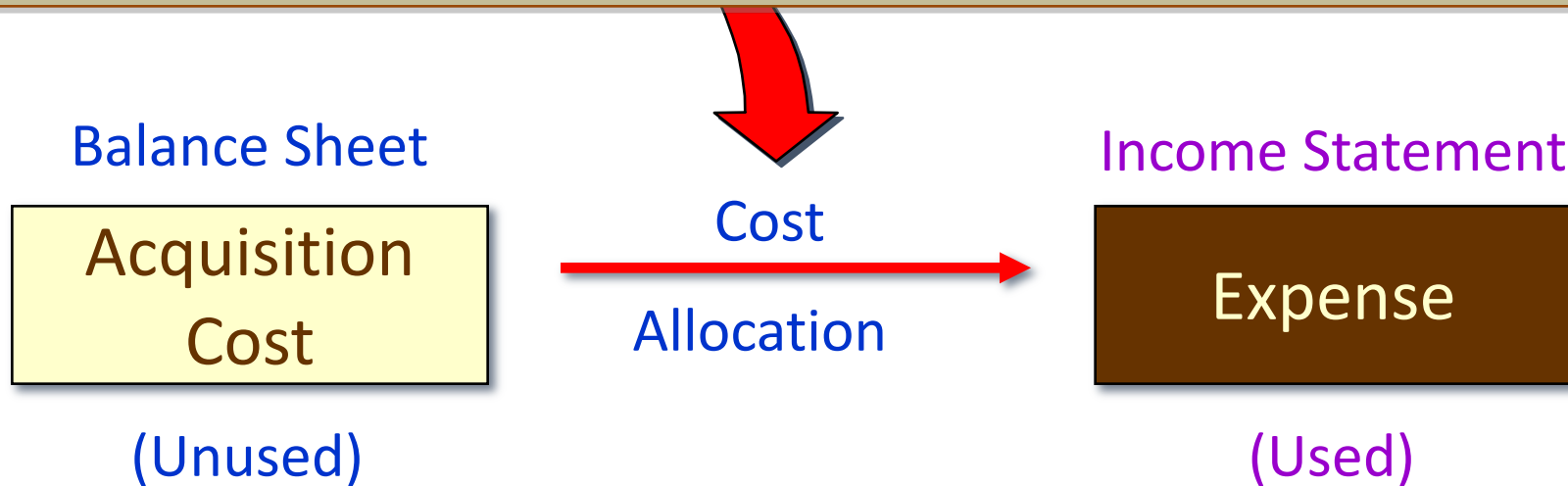
	Appraised Value	Percent of Total	Apportioned Cost
Building	\$ 60,000	60% (\$60,000/\$100,000)	\$54,000 (\$90,000 × 60%)
Land	<u>40,000</u>	<u>40</u> (\$40,000/\$100,000)	<u>36,000</u> (\$90,000 × 40%)
Totals	<u><u>\$100,000</u></u>	<u><u>100%</u></u>	<u><u>\$ 90,000</u></u>

Learning Objective

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

Depreciation

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



Factors in Computing Depreciation

The calculation of depreciation requires three amounts for each asset:

- 1. Cost**
- 2. Salvage Value**
- 3. Useful Life**



Depreciation Methods

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

Asset we will depreciate in future screens

Cost	\$10,000
Salvage value	<u>1,000</u>
Depreciable cost	\$ 9,000
Useful life	
Accounting periods	5 years
Units inspected	36,000 shoes

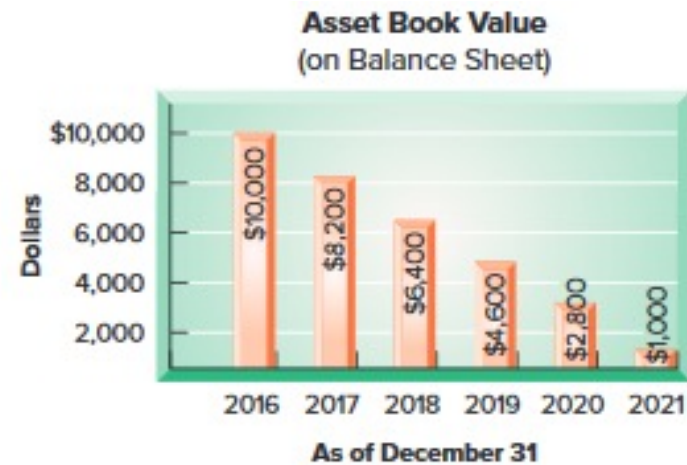
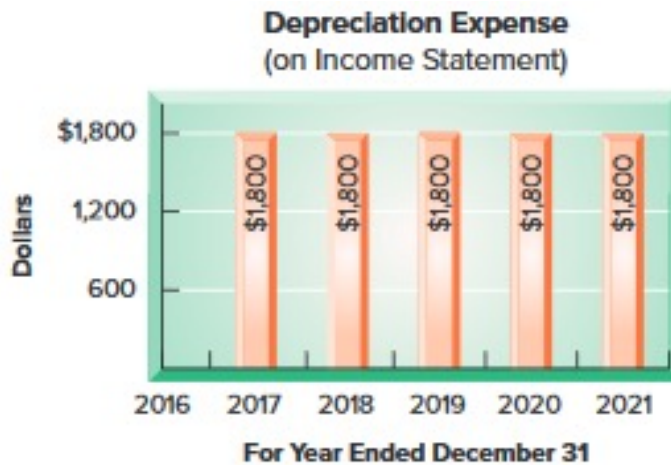
Straight-Line Method

Cost	\$10,000
Salvage value	<u>1,000</u>
Depreciable cost	\$ 9,000
Useful life	
Accounting periods	5 years
Units inspected	36,000 shoes

$$\frac{\text{Cost} - \text{Salvage value}}{\text{Useful life in periods}} = \frac{\$10,000 - \$1,000}{5 \text{ years}} = \$1,800 \text{ per year}$$

Dec. 31	Depreciation Expense	1,800	
	Accumulated Depreciation—Machinery		1,800
	<i>To record annual depreciation.</i>		

Straight-Line Method



Balance Sheet Presentation

Machinery	\$ 10,000	
Less: accumulated depreciation	<u>3,600</u>	\$ 6,400

Straight-Line Depreciation Schedule

Annual Period	Depreciation for the Period			End of Period	
	Depreciable Cost*	Depreciation Rate	Depreciation Expense	Accumulated Depreciation	Book Value†
2016	—	—	—	—	\$10,000
2017	\$9,000	20%	\$1,800	\$1,800	8,200
2018	9,000	20	1,800	3,600	6,400
2019	9,000	20	1,800	5,400	4,600
2020	9,000	20	1,800	7,200	2,800
2021	9,000	20	1,800	9,000	1,000 ←
			\$9,000 ←		

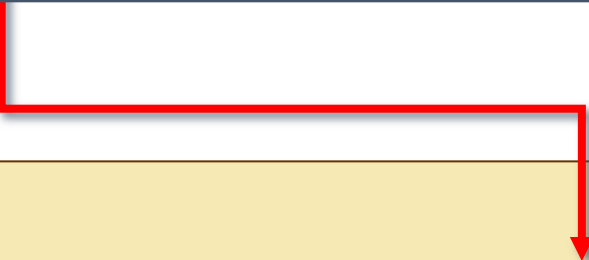
* \$10,000 – \$1,000. † Book value is total cost minus accumulated depreciation.

Units-of-Production Method

Step 1:

$$\text{Depreciation Per Unit} = \frac{\text{Cost} - \text{Salvage Value}}{\text{Total Units of Production}}$$

Step 2:


$$\text{Depreciation Expense} = \text{Depreciation Per Unit} \times \text{Number of Units Produced in the Period}$$

Units-of-Production Method

Cost	\$10,000
Salvage value	<u>1,000</u>
Depreciable cost	\$ 9,000
Useful life	
Accounting periods	5 years
Units inspected	36,000 shoes

Assume that 7,000 units were inspected during the first year. Depreciation would be calculated as follows:

Step 1:

$$\text{Depreciation Per Unit} = \frac{\text{Cost} - \text{Salvage Value}}{\text{Total Units of Production}} = \frac{\$9,000}{36,000} = \$0.25/\text{unit}$$

Step 2:

$$\text{Depreciation Expense} = \text{Depreciation Per Unit} \times \text{Number of Units Produced in the Period} = \$0.25 \times 7,000 = \$1,750$$

Units-of-Production Depreciation Schedule

Annual Period	Depreciation for the Period			End of Period	
	Number of Units	Depreciation per Unit	Depreciation Expense	Accumulated Depreciation	Book Value
2016	—	—	—	—	\$10,000
2017	7,000	\$0.25	\$1,750	\$1,750	8,250
2018	8,000	0.25	2,000	3,750	6,250
2019	9,000	0.25	2,250	6,000	4,000
2020	7,000	0.25	1,750	7,750	2,250
2021	<u>5,000</u>	0.25	<u>1,250</u>	9,000	1,000
	36,000 units		\$9,000		

Units produced and sold during the period.

Double-Declining-Balance Method (Accelerated)

Cost	\$10,000
Salvage value	<u>1,000</u>
Depreciable cost	\$ 9,000
Useful life	
Accounting periods	5 years
Units inspected	36,000 shoes

Step 1

Straight-line rate = $100\% \div \text{Useful life} = 100\% \div 5 \text{ years} = 20\%$

Step 2

Double-declining-balance rate = $2 \times \text{Straight-line rate} = 2 \times 20\% = 40\%$

Step 3

Depreciation expense = Double-declining-balance rate $\times$ Beginning-period book value
 $40\% \times \$10,000 = \$4,000$

Double-Declining-Balance Method

Annual Period	Depreciation for the Period			End of Period	
	Beginning of Period Book Value	Depreciation Rate	Depreciation Expense	Accumulated Depreciation	Book Value
2016	—	—	—	—	\$10,000
2017	\$10,000	40%	\$4,000	\$4,000	6,000
2018	6,000	40	2,400	6,400	3,600
2019	3,600	40	1,440	7,840	2,160
2020	2,160	40	864	8,704	1,296
2021	1,296	40	296*	9,000	1,000
			\$9,000		

Salvage value is not depreciated.

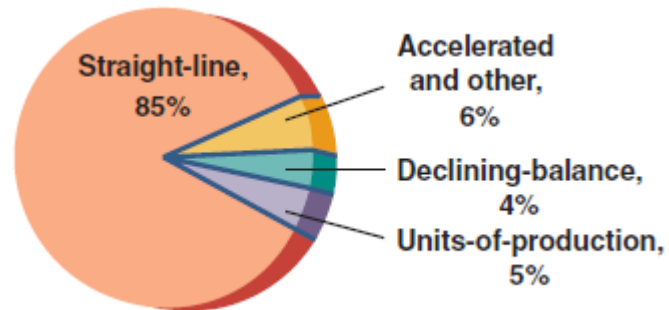
\$10,000 cost = \$1,000 salvage

* Year 2021 depreciation is $\$1,296 - \$1,000 = \$296$ (never depreciate book value below salvage value).

Comparing Depreciation Methods

	A	B	C	D
1	Period	Straight-Line	Units-of-Production	Double-Declining-Balance
2	2017	\$1,800	\$1,750	\$4,000
3	2018	1,800	2,000	2,400
4	2019	1,800	2,250	1,440
5	2020	1,800	1,750	864
6	2021	1,800	1,250	296
7	Totals	\$9,000	\$9,000	\$9,000

Methods Used by Companies



Learning Objective

Explain depreciation for partial years and changes in estimates.

Partial-Year Depreciation

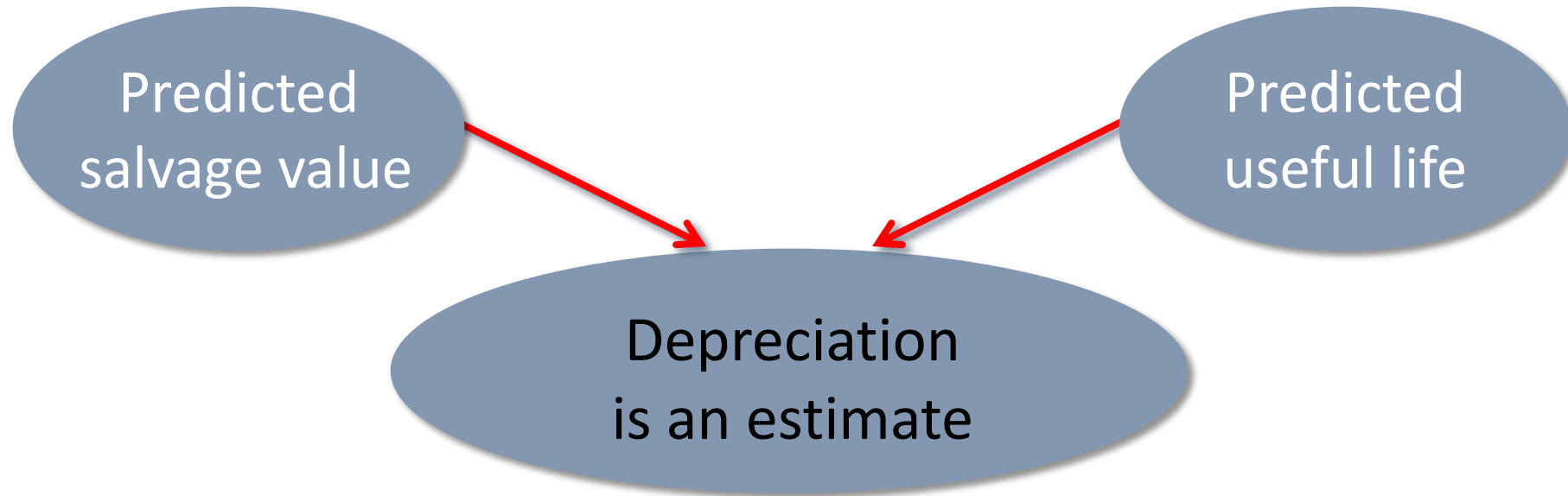
When a plant asset is purchased (or sold) during the year, depreciation is calculated for the fraction of the year the asset is owned.

Cost	\$	10,000
Salvage value		1,000
Depreciable cost	\$	9,000
Useful life		
Accounting periods		5 years
Units inspected		36,000 units

Assume our machinery was purchased on October 8, 2016. Let's calculate depreciation expense for 2016 assuming we use straight-line depreciation.

$$\frac{\$10,000 - \$1,000}{5 \text{ years}} \times \frac{3}{12} = \$450$$

Changes in Estimates for Depreciation



Over the life of an asset, new information may come to light that indicates the original estimates were inaccurate.

Changes in Estimates for Depreciation

Let's look at our machinery from the previous examples and assume that at the beginning of the asset's third year, its book value is \$6,400 (\$10,000 cost less \$3,600 accumulated depreciation using straight-line depreciation). At that time, it is determined that the machinery will have a remaining useful life of 4 years, and the estimated salvage value will be revised downward from \$1,000 to \$400.

$$\frac{\text{Book value} - \text{Revised salvage value}}{\text{Revised remaining useful life}} = \frac{\$6,400 - \$400}{4 \text{ years}} = \$1,500 \text{ per year}$$

Reporting Depreciation

Race vehicles and other.	\$ 778,704
Furniture, software, DJ Graphics, and equipment	105,032
Shop and track equipment.	<u>173,739</u>
Property and equipment, gross.	1,057,475
Less accumulated depreciation.	<u>884,772</u>
Property and equipment, net	<u><u>\$ 172,703</u></u>

Learning Objective

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

Additional Expenditures

	Financial Statement Effect	
	Accounting	Expense Timing
Revenue expenditure	Income stmt. account debited	Expensed currently
Capital expenditure	Balance sheet account debited	Expensed in future

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

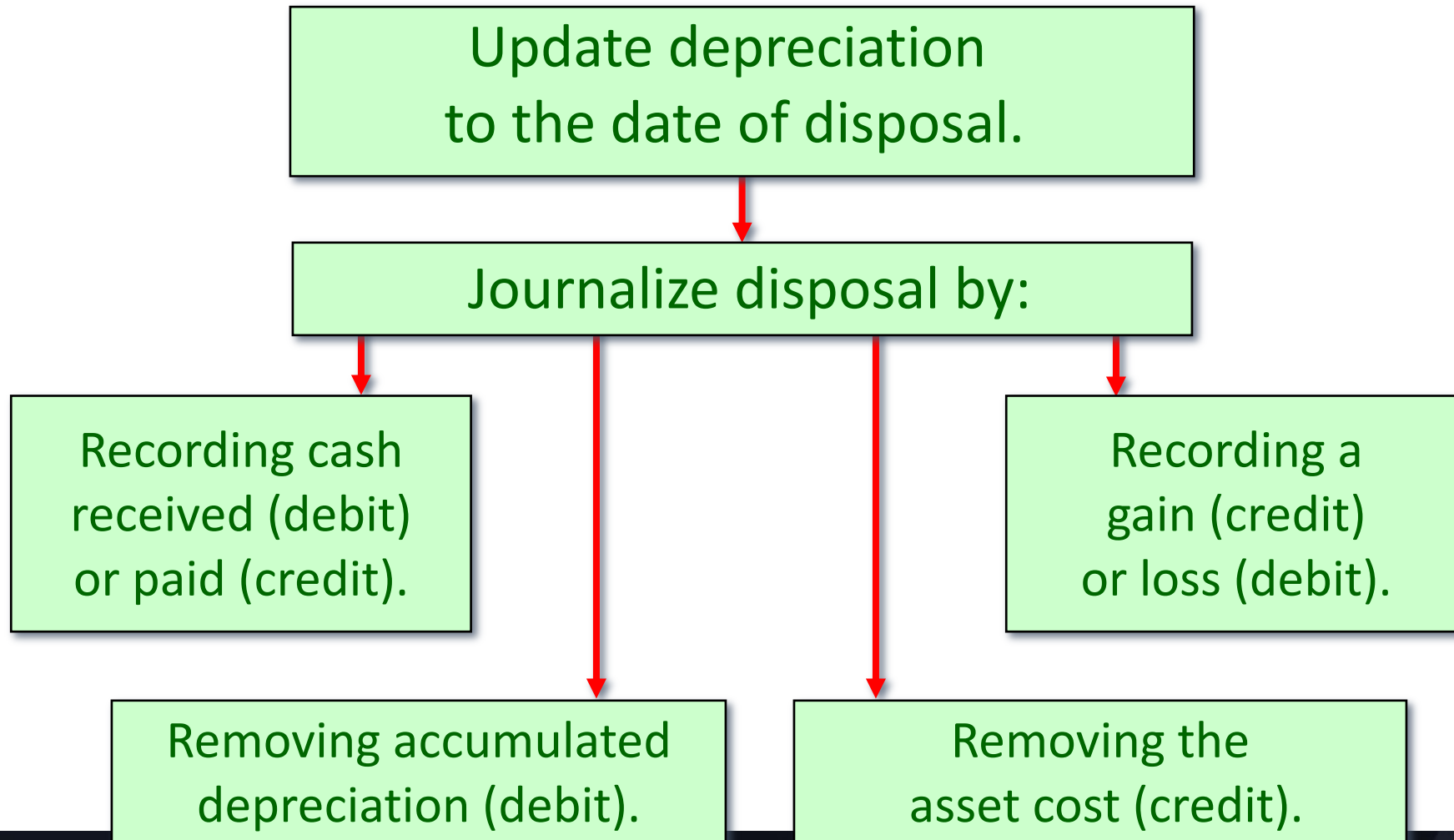
Revenue and Capital Expenditures

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.

Learning Objective

Account for asset disposal through discarding or selling an asset.

Disposals of Plant Assets



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).

Discarding Plant Assets

A machine costing \$9,000, with accumulated depreciation of \$9,000 on December 31 of the previous year was discarded on June 5th of the current year. The company is depreciating the equipment using the straight-line method over eight years with zero salvage value.

June 5	Accumulated Depreciation—Machinery	9,000	
	Machinery		9,000
	<i>To discard fully depreciated machinery.</i>		

Discarding Plant Assets

Equipment costing \$8,000, with accumulated depreciation of \$6,000 on December 31st of the previous year was discarded on July 1st of the current year. The company is depreciating the equipment using the straight-line method over eight years with zero salvage value.

Step 1: Bring the depreciation up-to-date.

July 1	Depreciation Expense	500	
	Accumulated Depreciation—Equipment		500
	<i>To record 6 months' depreciation (\$1,000 × 6/12).</i>		

Step 2: Record discarding of asset.

July 1	Accumulated Depreciation—Equipment	6,500	
	Loss on Disposal of Equipment	1,500	
	Equipment		8,000
	<i>To discard equipment with a \$1,500 book value.</i>		

Selling Plant Assets – At Book Value

On March 31st, BTO sells equipment that originally cost \$16,000 and has accumulated depreciation of \$12,000 at December 31st of the prior calendar year-end. Annual depreciation on this equipment is \$4,000 using straight-line depreciation. The equipment is sold for \$3,000 cash.

Step 1: Update depreciation to March 31st.

March 31	Depreciation Expense	1,000	
	Accumulated Depreciation—Equipment		1,000
	<i>To record 3 months' depreciation (\$4,000 × 3/12).</i>		

Step 2: Record sale of asset at book value (\$16,000 - \$13,000 = \$3,000).

March 31	Cash	3,000	
	Accumulated Depreciation—Equipment	13,000	
	Equipment		16,000
	<i>To record sale of equipment for no gain or loss.</i>		

Selling Plant Assets – Above Book Value

On March 31st, BTO sells equipment that originally cost \$16,000 and has accumulated depreciation of \$12,000 at December 31st of the prior calendar year-end. Annual depreciation on this equipment is \$4,000 using straight-line depreciation. The equipment is sold for \$7,000 cash.

Step 1: Update depreciation to March 31st.

March 31	Depreciation Expense	1,000	
	Accumulated Depreciation—Equipment		1,000
	<i>Record 3 months' depreciation (\$4,000 × 3/12).</i>		

Step 2: Record sale of asset at a gain. (\$7,000 - \$3,000 = \$4,000 gain).

March 31	Cash	7,000	
	Accumulated Depreciation—Equipment	13,000	
	Gain on Disposal of Equipment		4,000
	Equipment		16,000
	<i>Record sale of equipment for a \$4,000 gain.</i>		

Selling Plant Assets – Below Book Value

On March 31st, BTO sells equipment that originally cost \$16,000 and has accumulated depreciation of \$12,000 at December 31st of the prior calendar year-end. Annual depreciation on this equipment is \$4,000 using straight-line depreciation. The equipment is sold for \$2,500 cash.

Step 1: Update depreciation to March 31st.

March 31	Depreciation Expense	1,000	
	Accumulated Depreciation—Equipment		1,000
	<i>To record 3 months' depreciation (\$4,000 × 3/12).</i>		

Step 2: Record sale of asset at a loss. (\$3,000 - \$2,500 = \$500 loss).

March 31	Cash	2,500	
	Loss on Disposal of Equipment	500	
	Accumulated Depreciation—Equipment	13,000	
	Equipment		16,000
	<i>To record sale of equipment for a \$500 loss.</i>		

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.

Company	Figure (\$ millions)	2015	2014	2013	2012	2011
Molson Coors	Net sales	\$ 3,567.5	\$ 4,146.3	\$ 4,206.1	\$ 3,916.5	\$ 3,515.7
	Average total assets	\$13,128.2	\$14,780.1	\$15,896.2	\$14,318.0	\$12,560.7
	Total asset turnover	0.27	0.28	0.26	0.27	0.28
Boston Beer	Net sales	\$ 959.9	\$ 903.0	\$ 739.1	\$ 580.2	\$ 513.0
	Average total assets	\$ 625.3	\$ 524.6	\$ 401.8	\$ 316.0	\$ 265.5
	Total asset turnover	1.54	1.72	1.84	1.84	1.93



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Thank You

