



مجموعة جامعة  
الجميع الذكية  
للتعليم القابضة

MIDOCEAN  
UNIVERSITY  
BY EVERYONE'S SMART UNIVERSITY

# Principles of Accounting

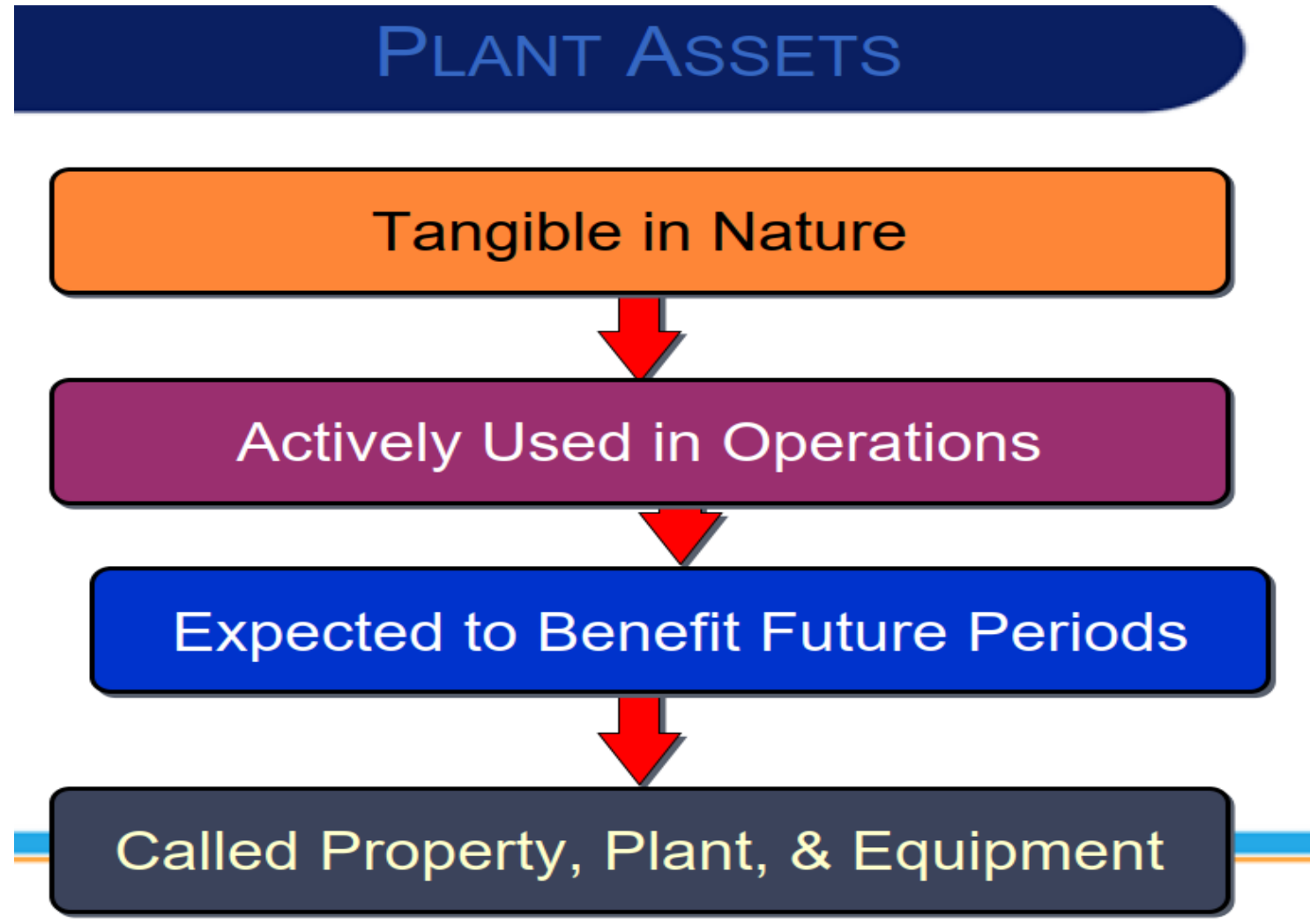
## Lecture 6

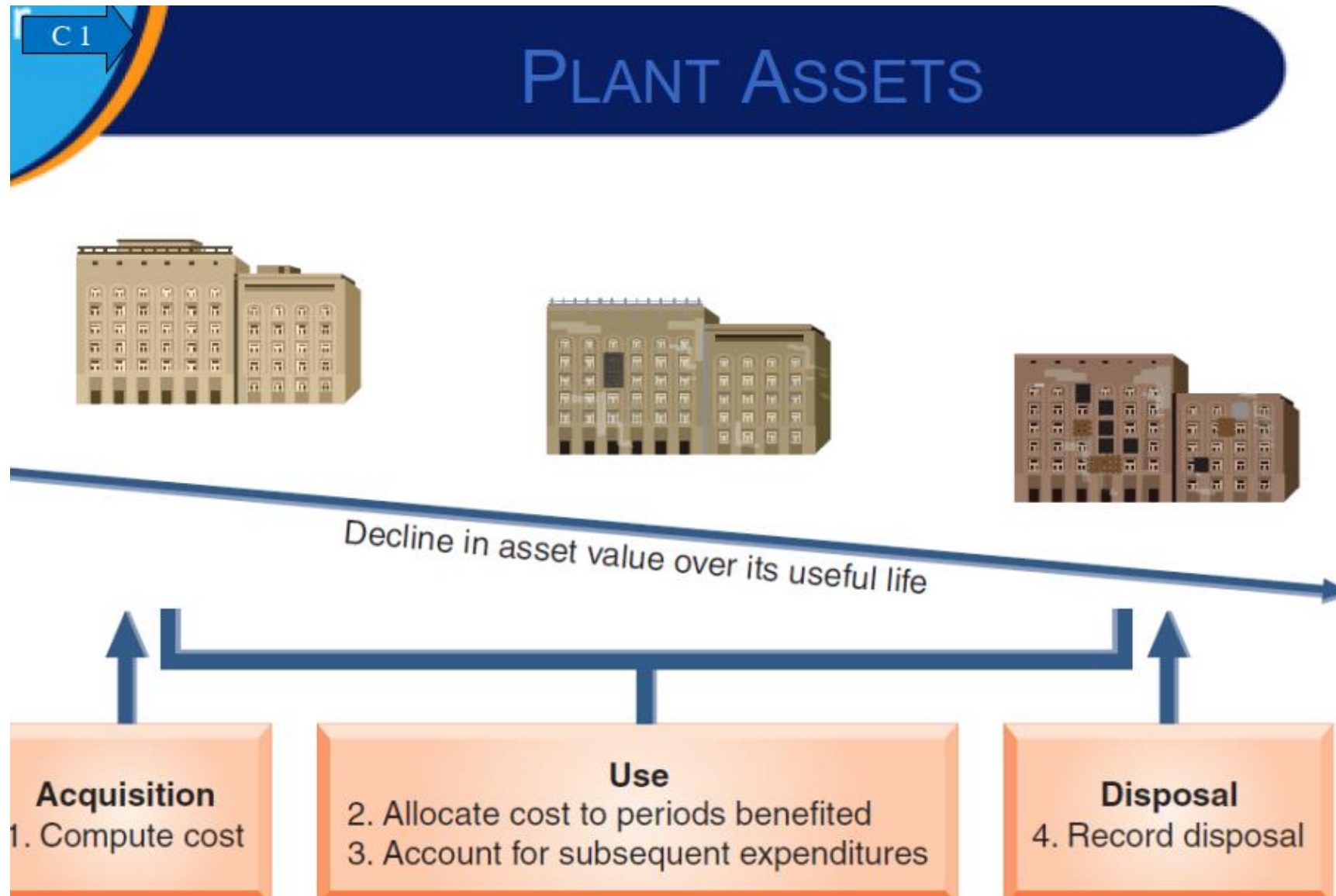
MGM 227

Prepared by  
**Dr. Hoda Metwally**

[www.midocean.ae](http://www.midocean.ae)

# PLANT ASSETS, NATURAL RESOURCES, AND INTANGIBLES





## COST DETERMINATION

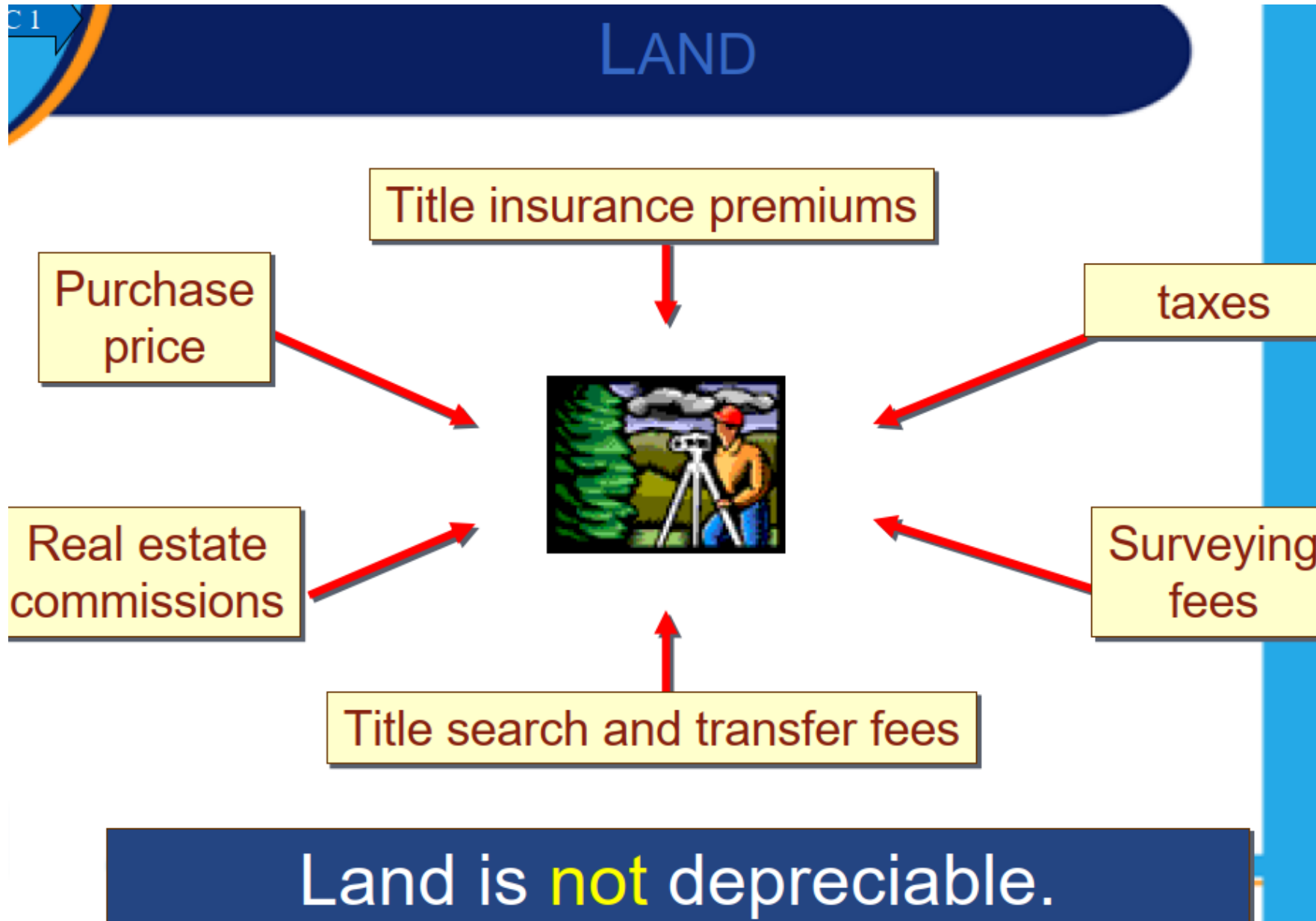
Purchase  
price

All expenditures  
needed to  
prepare the  
asset for its  
intended use

Acquisition  
Cost

Acquisition cost *excludes*  
financing charges and  
cash discounts



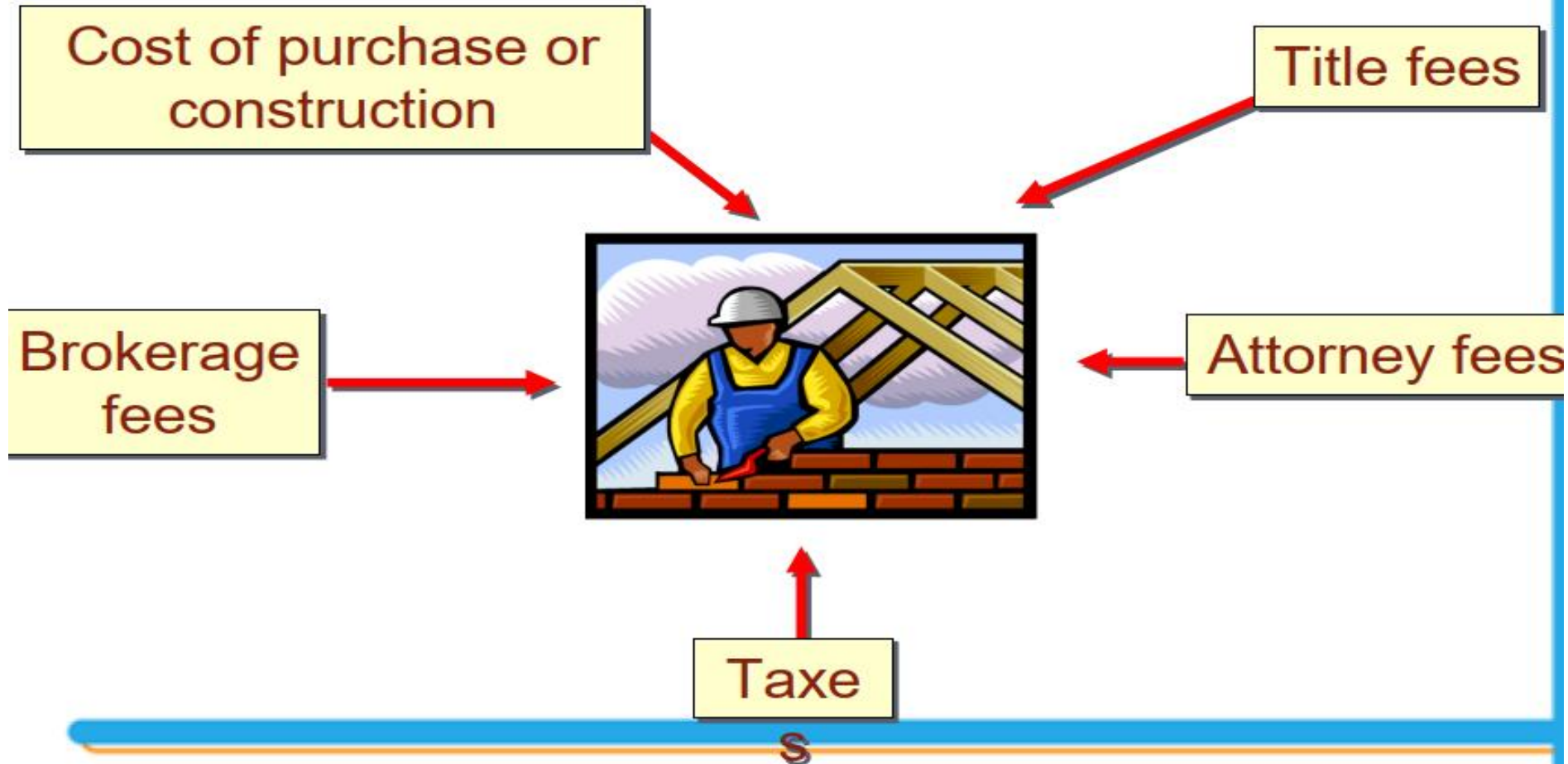


## LAND IMPROVEMENTS

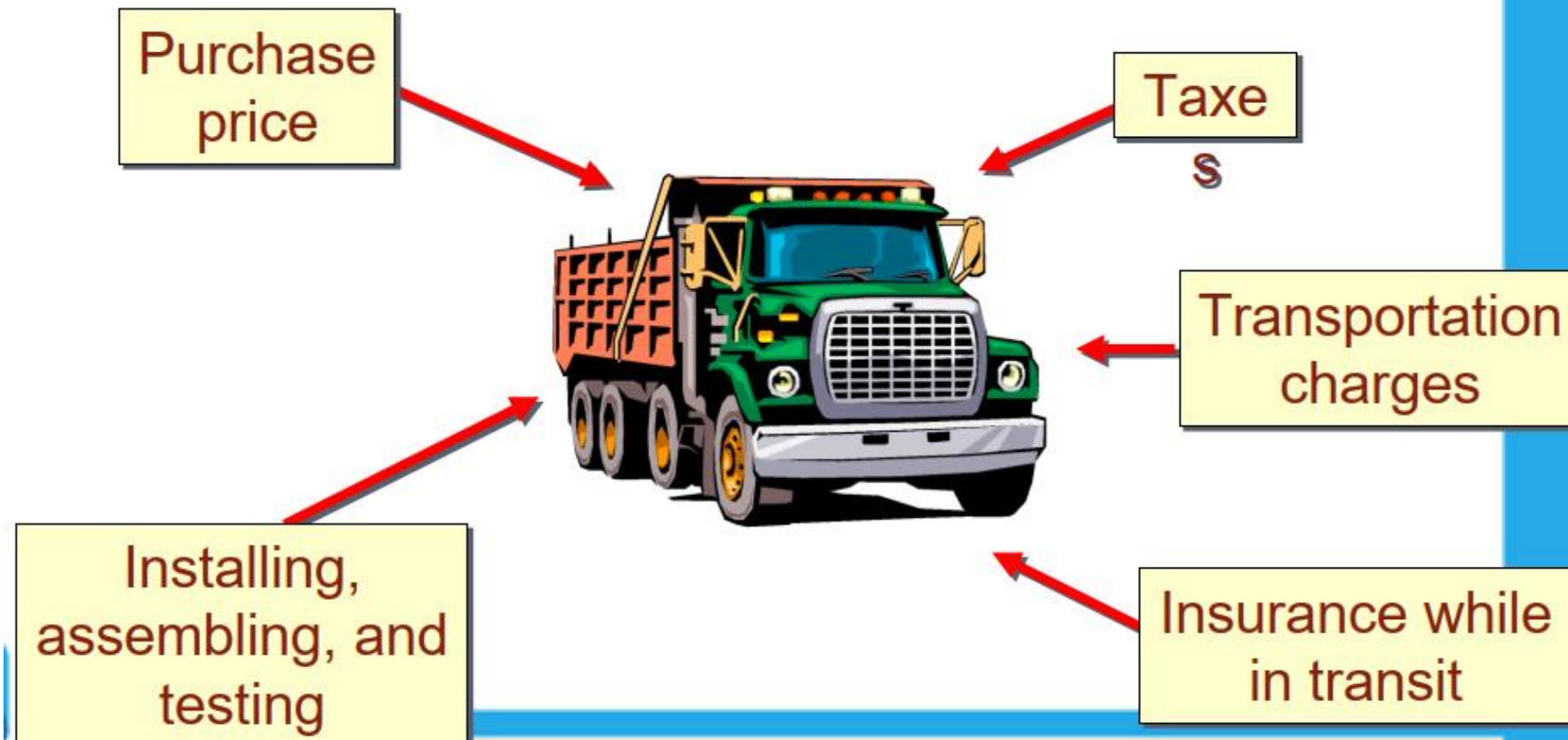
Parking lots, driveways, fences, walks, shrubs,  
and lighting systems.

Depreciate  
over useful life of  
improvements.

# BUILDINGS



# MACHINERY AND EQUIPMENT



# LUMP-SUM ASSET PURCHASE

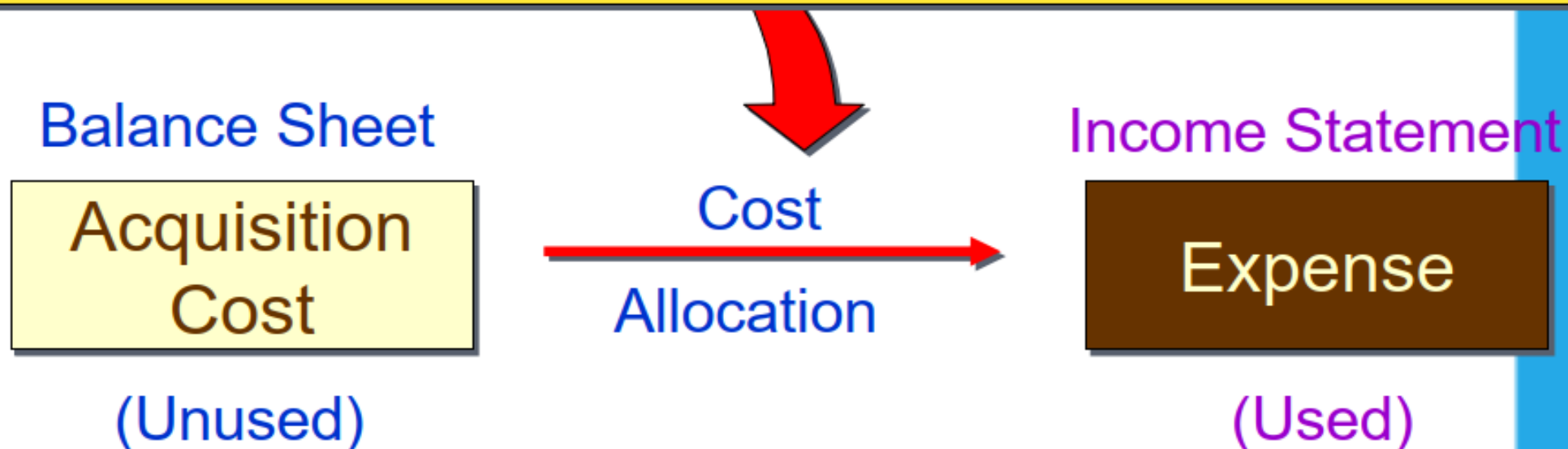
The total cost of a combined purchase of land and building is separated on the basis of their **relative fair market values**.

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                      |
|-------------------------|------------------|--------------------------------|---------------------------------------|
| Land .....              | \$ 30,000        | 30% (\$30,000/\$100,000)       | <b>\$27,000</b> (\$90,000 × 30%)      |
| Land improvements ..... | 10,000           | 10 (\$10,000/\$100,000)        | <b>9,000</b> (\$90,000 × 10%)         |
| Building .....          | <u>60,000</u>    | <u>60</u> (\$60,000/\$100,000) | <u><b>54,000</b></u> (\$90,000 × 60%) |
| Totals .....            | <u>\$100,000</u> | <u>100%</u>                    | <u><b>\$ 90,000</b></u>               |

# DEPRECIATION

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



**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

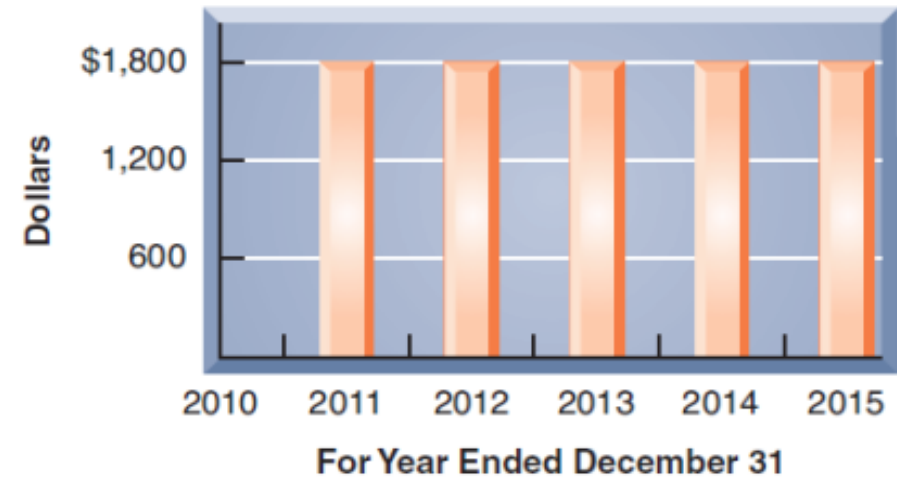
|                          |              |
|--------------------------|--------------|
| Cost .....               | \$10,000     |
| Salvage value .....      | <u>1,000</u> |
| Depreciable cost .....   | \$ 9,000     |
| Useful life              |              |
| Accounting periods ..... | 5 years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

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

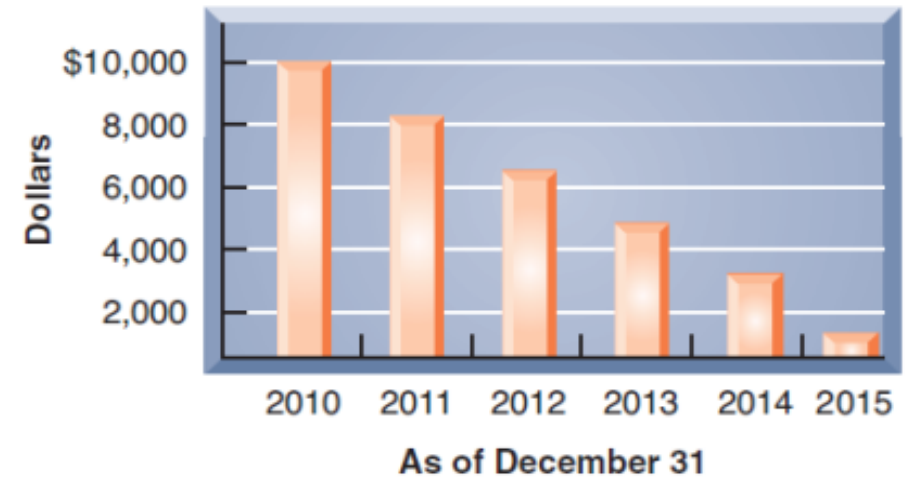
|         |                                          |       |       |
|---------|------------------------------------------|-------|-------|
| Dec. 31 | Depreciation Expense .....               | 1,800 |       |
|         | Accumulated Depreciation—Machinery ..... |       | 1,800 |
|         | <i>To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

# STRAIGHT-LINE METHOD

**Depreciation Expense**  
(on Income Statement)



**Asset Book Value**  
(on Balance Sheet)



## 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† |
| 2010          | —                           | —                 | —                    | —                        | \$10,000    |
| 2011          | \$9,000                     | 20%               | \$1,800              | \$1,800                  | 8,200       |
| 2012          | 9,000                       | 20                | 1,800                | 3,600                    | 6,400       |
| 2013          | 9,000                       | 20                | 1,800                | 5,400                    | 4,600       |
| 2014          | 9,000                       | 20                | 1,800                | 7,200                    | 2,800       |
| 2015          | 9,000                       | 20                | 1,800                | 9,000                    | 1,000       |

\* \$10,000 – \$1,000.

† Book value is total cost minus accumulated depreciation.

# UNITS-OF-PRODUCTION METHOD

Step 1:

Depreciation  
Per Unit

=

$$\frac{\text{Cost} - \text{Salvage Value}}{\text{Total Units of Production}}$$

Step 2:

Depreciation  
Expense

=

Depreciation  
Per Unit

×

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 2011. 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 |
| 2010          | —                           | —                     | —                    | —                        | \$10,000   |
| 2011          | 7,000                       | \$0.25                | \$1,750              | \$1,750                  | 8,250      |
| 2012          | 8,000                       | 0.25                  | 2,000                | 3,750                    | 6,250      |
| 2013          | 9,000                       | 0.25                  | 2,250                | 6,000                    | 4,000      |
| 2014          | 7,000                       | 0.25                  | 1,750                | 7,750                    | 2,250      |
| 2015          | 5,000                       | 0.25                  | 1,250                | 9,000                    | 1,000      |

Units produced and sold during the period.

# DOUBLE-DECLINING-BALANCE METHOD

## 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  
 $40\% \times \$10,000 = \$4,000$

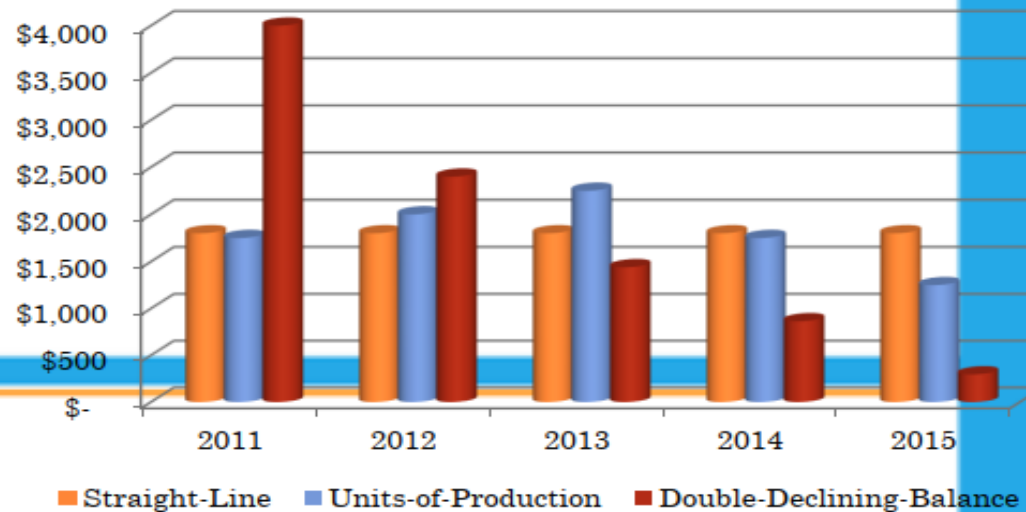
# DOUBLE-DECLINING-BALANCE METHOD

| Annual Period | Depreciation for the Period    |                   |                      | End of Period            |            |
|---------------|--------------------------------|-------------------|----------------------|--------------------------|------------|
|               | Beginning of Period Book Value | Depreciation Rate | Depreciation Expense | Accumulated Depreciation | Book Value |
| 2010          | —                              | —                 | —                    | —                        | \$10,000   |
| 2011          | \$10,000                       | 40%               | \$4,000              | \$4,000                  | 6,000      |
| 2012          | 6,000                          | 40                | 2,400                | 6,400                    | 3,600      |
| 2013          | 3,600                          | 40                | 1,440                | 7,840                    | 2,160      |
| 2014          | 2,160                          | 40                | 864                  | 8,704                    | 1,296      |
| 2015          | 1,296                          | 40                | 296*                 | 9,000                    | 1,000      |

\* Year 2015 depreciation is  $\$1,296 - \$1,000 = \$296$  (never depreciate book value below salvage value).

# COMPARING DEPRECIATION METHODS

| Period | Straight-Line | Units of Production | Double-Declining-Balance |
|--------|---------------|---------------------|--------------------------|
| 2011   | \$ 1,800      | \$ 1,750            | \$ 4,000                 |
| 2012   | 1,800         | 2,000               | 2,400                    |
| 2013   | 1,800         | 2,250               | 1,440                    |
| 2014   | 1,800         | 1,750               | 864                      |
| 2015   | 1,800         | 1,250               | 296                      |
| Totals | \$ 9,000      | \$ 9,000            | \$ 9,000                 |



# 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.**



# PARTIAL-YEAR DEPRECIATION

When a plant asset is acquired 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, 2010. Let's calculate depreciation expense for 2010, assuming we use straight-line depreciation.**

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

## CHANGE IN ESTIMATES FOR DEPRECIATION

Predicted  
salvage  
value

Predicted  
useful life

Depreciation  
is an estimate

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

## CHANGE 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.

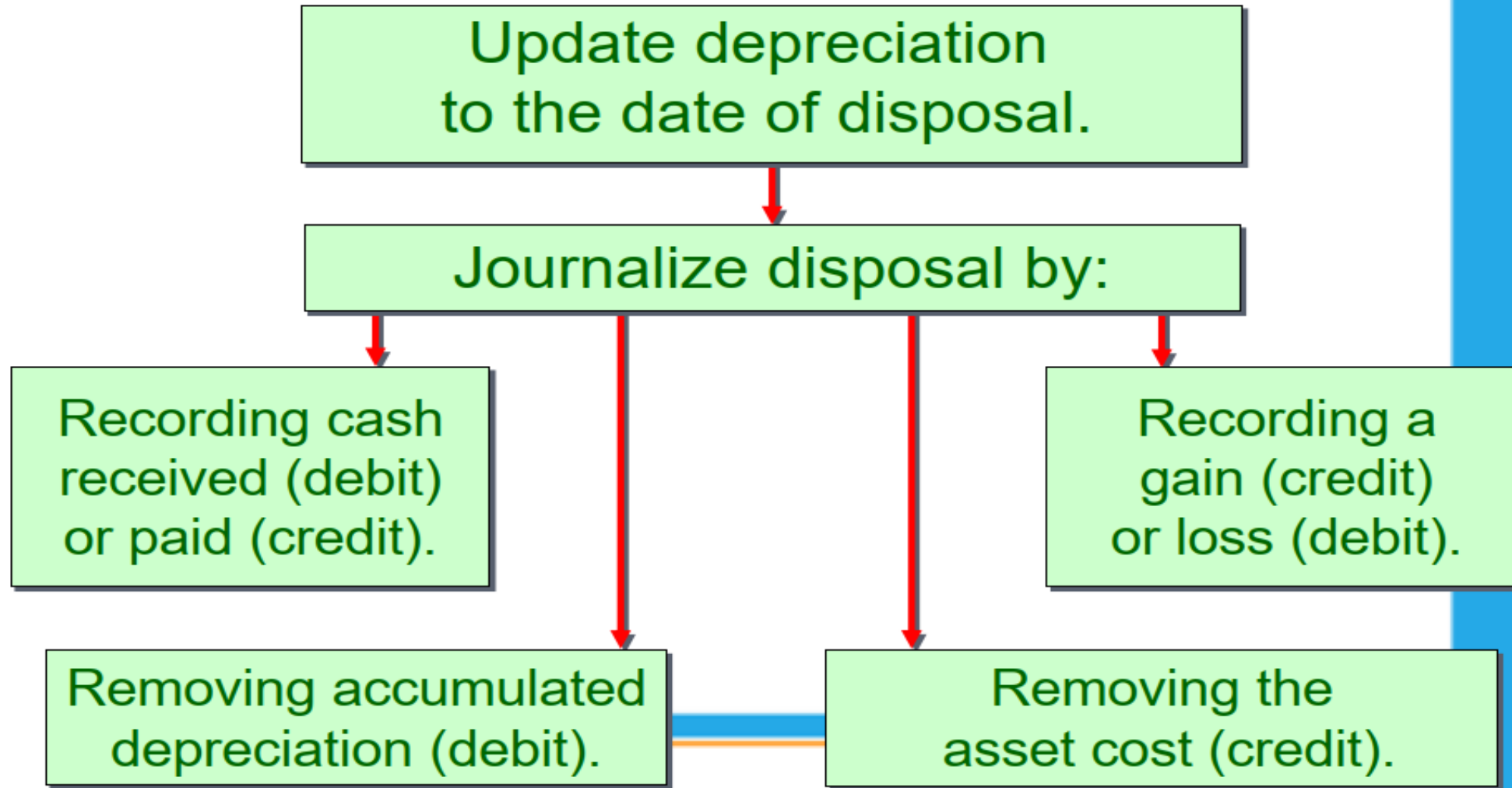
$$\frac{\text{Book value} - \text{Revised salvage value}}{\text{Revised remaining useful life}} = \frac{\$6,400 - \$400}{4 \text{ years}} = \$1,500 \text{ per year}$$

## Dale Jarrett Racing Adventure

|                                |                   |
|--------------------------------|-------------------|
| Office furniture and equipment | \$ 54,593         |
| Shop and track equipment       | 202,973           |
| Race vehicles and other        | 975,084           |
| Property and equipment, gross  | 1,232,650         |
| Less: accumulated depreciation | 628,355           |
| Property and equipment, net    | <u>\$ 604,295</u> |

| Type of Expenditure                   | Capital or Revenue | Identifying Characteristics                                                                                                                                                                   |
|---------------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ordinary Repairs                      | Rev. Exp.          | <ul style="list-style-type: none"><li>1. Maintains normal operating condition.</li><li>2. Does not increase productivity.</li><li>3. Does not extend life beyond original estimate.</li></ul> |
| Betterments and Extraordinary Repairs | Capital            | <ul style="list-style-type: none"><li>1. Major overhauls or partial replacements.</li><li>2. Extends life beyond original estimate.</li></ul>                                                 |

# 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<sup>st</sup> of the previous year was discarded on June 5<sup>th</sup> 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 31<sup>st</sup> of the previous year was discarded on July 1<sup>st</sup> 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

On March 31<sup>st</sup>, BTO sells equipment that originally cost \$16,000 and has accumulated depreciation of \$12,000 at December 31<sup>st</sup> 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 31<sup>st</sup>.

|          |                                                           |       |       |
|----------|-----------------------------------------------------------|-------|-------|
| 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

On March 31<sup>st</sup>, BTO sells equipment that originally cost \$16,000 and has accumulated depreciation of \$12,000 at December 31<sup>st</sup> 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 31<sup>st</sup>.**

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

**Step 2: Record sale of asset at a loss (Book value \$3,000 - \$2,500 cash received).**

|          |                                                      |        |        |
|----------|------------------------------------------------------|--------|--------|
| 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> |        |        |



# NATURAL RESOURCES

Total cost,  
including  
exploration and  
development,  
is charged to  
depletion  
expense  
over periods  
benefited

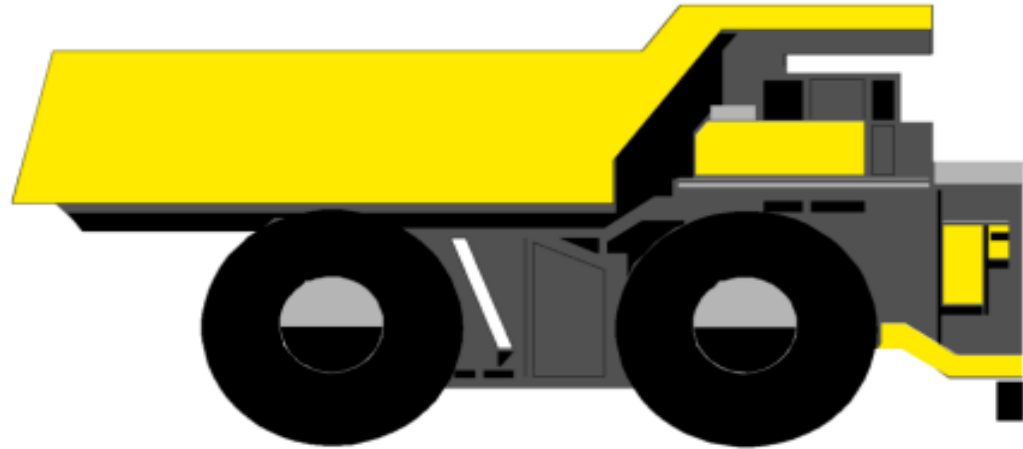


Extracted from  
the natural  
environment  
and reported  
at cost less  
accumulated  
**depletion.**

Examples: oil, coal, gold

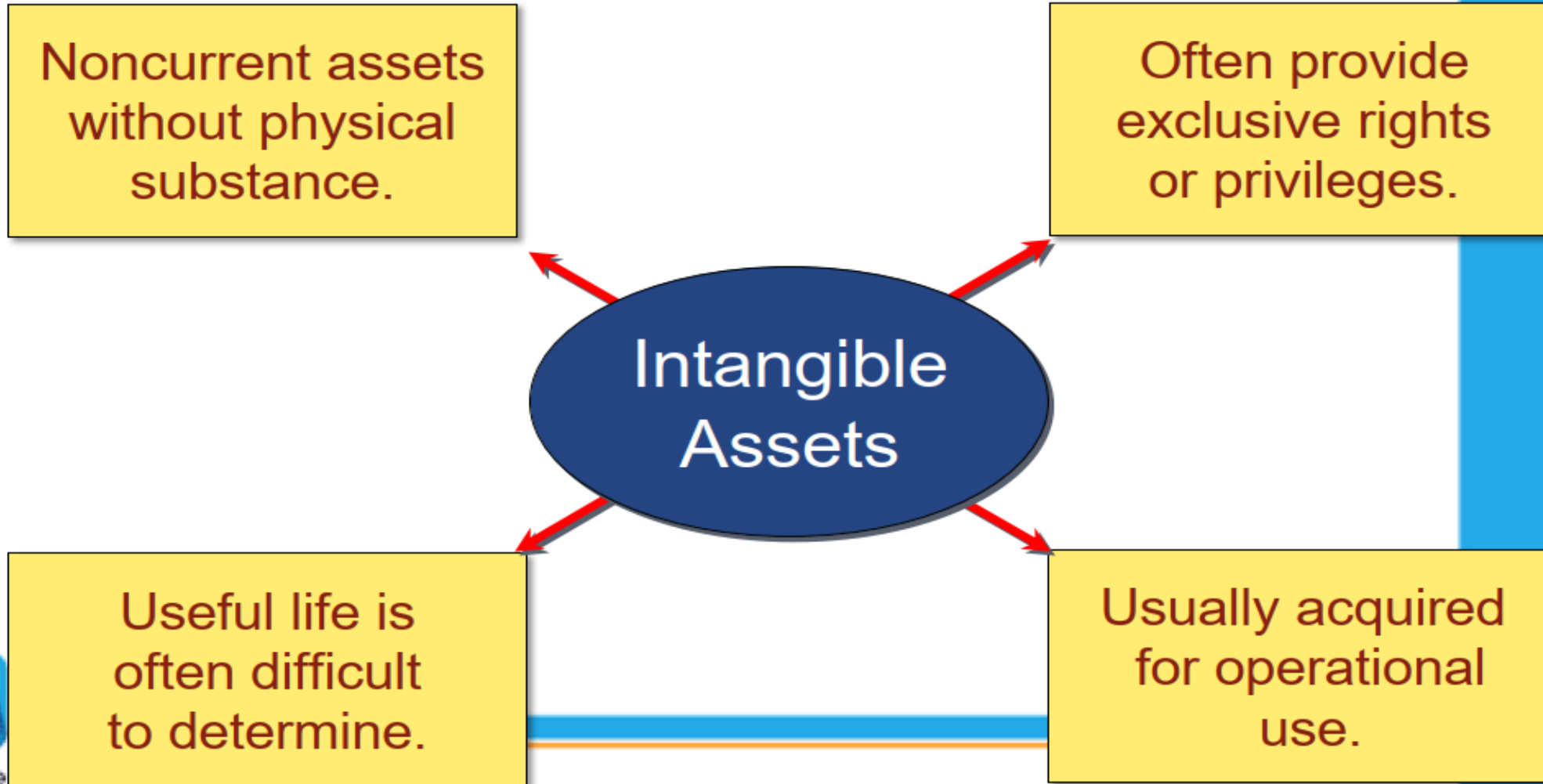


## PLANT ASSETS USED IN EXTRACTING



- ❓ Specialized plant assets may be required to extract the natural resource.
- ❓ These assets are recorded in a separate account and depreciated.

# INTANGIBLE ASSETS



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



- Patents
- Copyrights
- Leaseholds
- Leasehold Improvements
- Franchises and Licenses
- Goodwill
- Trademarks and Trade Names
- Other Intangibles



There is one area where notable differences exist, and that is in accounting for changes in the value of plant assets (between the time they are acquired and disposed of). Namely, how does IFRS and U.S. GAAP treat decreases and increases in the value of plant assets subsequent to acquisition?

**Decreases in the Value of Plant Assets**  
Both U.S. GAAP and IFRS require that an impairment in value be recognized.

**Increases in the Value of Plant Assets**  
U.S. GAAP prohibits recording increase in value of plant assets. IFRS permits upward asset revaluation.

# Thank You