

Botany



Department of Environment

The first stage

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Learning Objectives



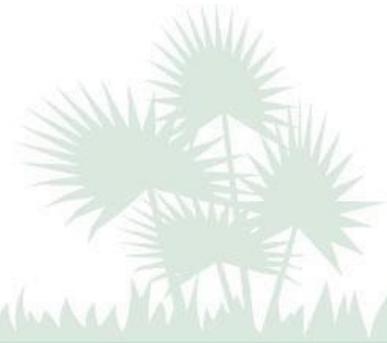
- Explain basic plant processes that affect plant growth.
- Understand the classification system of botanical nomenclature.
- Distinguish between monocot and true dicots/eudicots.
- Recognize the basic parts of a plant, their functions, and specialized terms.
- Understand how plant morphology helps us classify and identify plants.

What is Botany?

- The **scientific study of plants**...
 - classification
 - evolution
 - structure
 - internal structure = anatomy
 - external structure = **morphology**
 - physiology
 - ecology
 - uses
- Also known as plant science or plant biology



What is a Science?



- A study of something...
- Must distinguish between the different parts
- Must try to understand all the part's functions
- Need to understand the roles or influences the parts have on each other
- Have the ability to manipulate the parts to change the whole
- Horticulturist: *a manipulator of nature.*

What is a Plant?

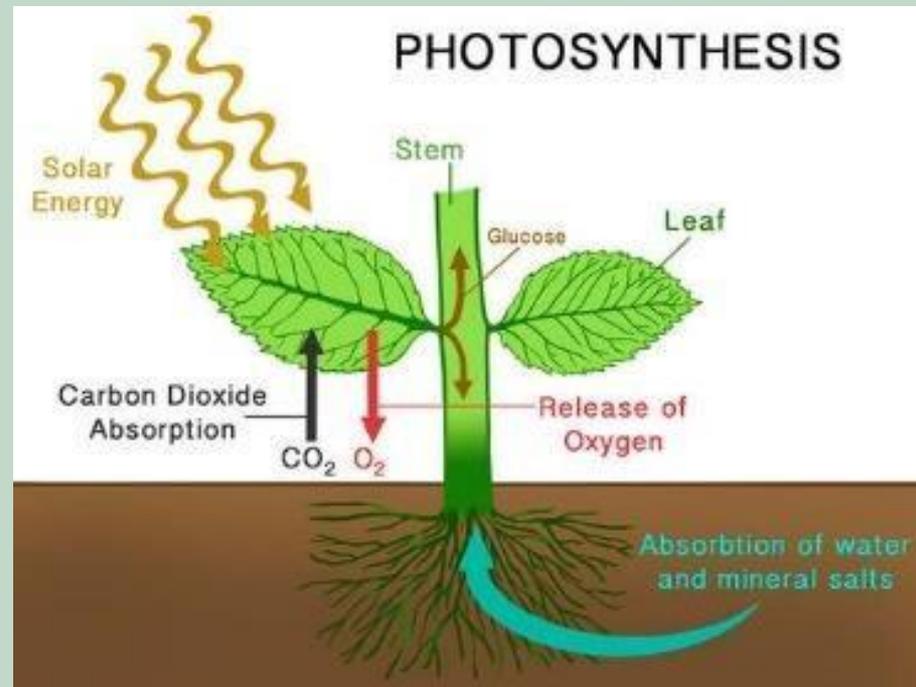
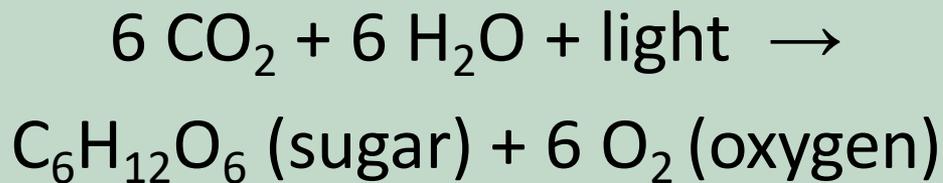


- A photosynthetic, multicellular organism...
 - Containing photosynthetic pigments called **chlorophylls**
 - Capable of **making** its own food (**sugar**)...
 - ...and **storing** it, usually in the form of starch

Plant Processes

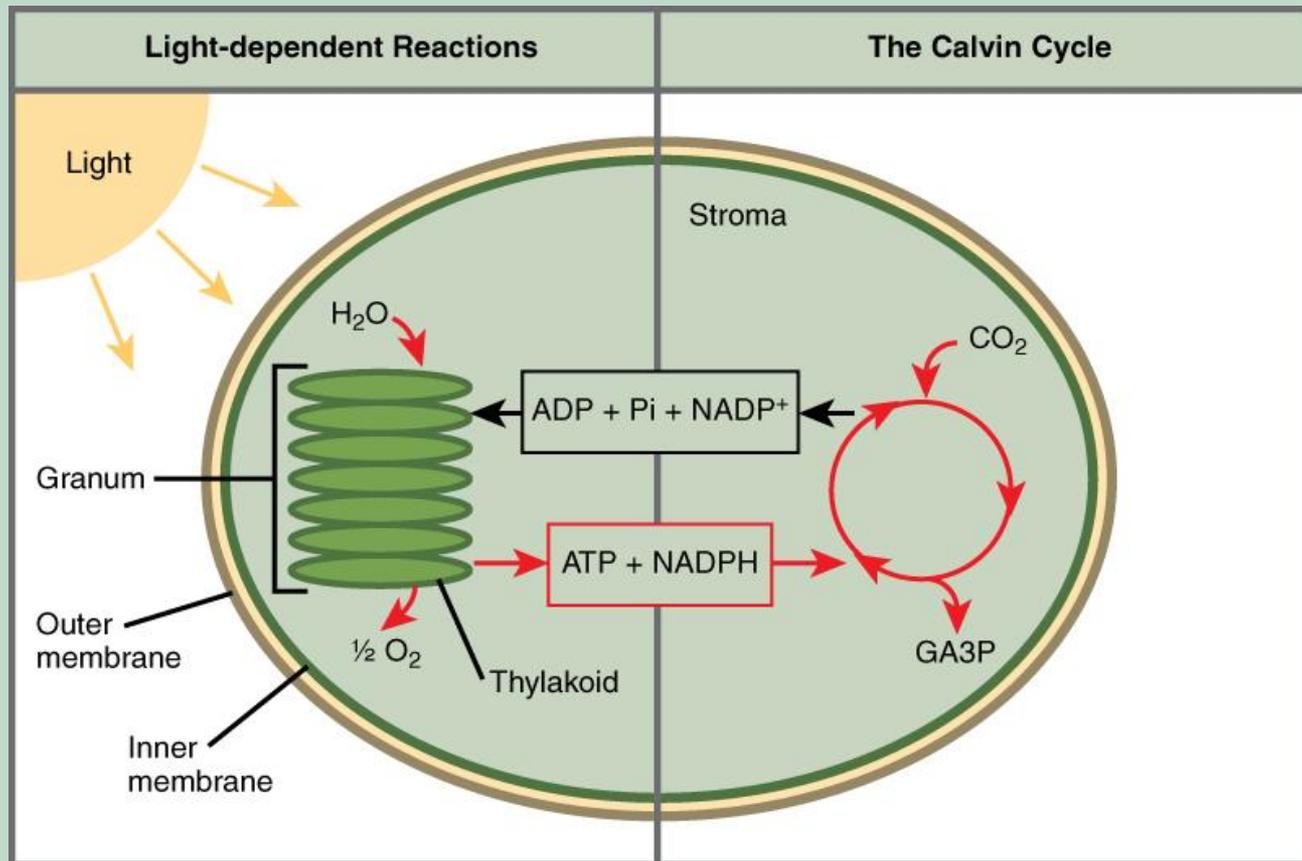
- **Photosynthesis**

- The process of turning light energy into carbohydrates that can be transported and stored by the plant



Plant Processes

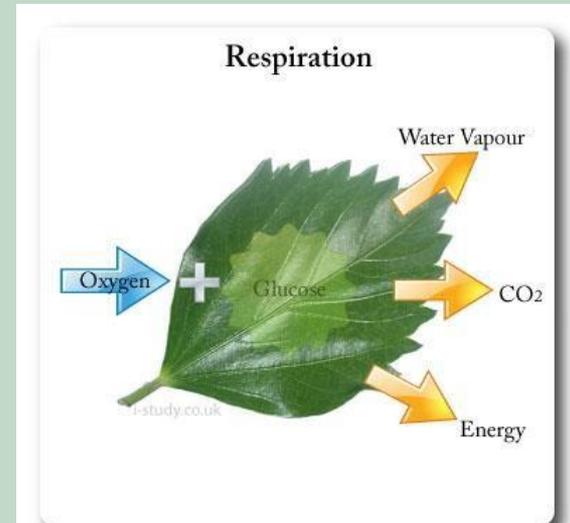
- **Photosynthesis**



Plant Processes

- **Respiration**

– The process where carbohydrates are broken down into energy the plant can use



Plant Growth – A Balance



- **Photosynthesis**

- Produces food
- Energy is stored
- Occurs in cells with chlorophyll
- Oxygen is released
- CO₂ is used
- **Occurs in light**

- **Respiration**

- Uses food for energy
- Energy is released
- Occurs in all cells
- Oxygen is used
- CO₂ is produced
- **Occurs in dark or light**

Plant Processes

- **Transpiration**

- The process by which moisture is carried through plants from roots to small leaf pores (stomates) where it is released as vapor into the atmosphere.

Factors that increase transpiration:

- Warm temperature
- Bright sunlight
- Low relative humidity
- Wind
- Moist soil

