



# Photosynthesis

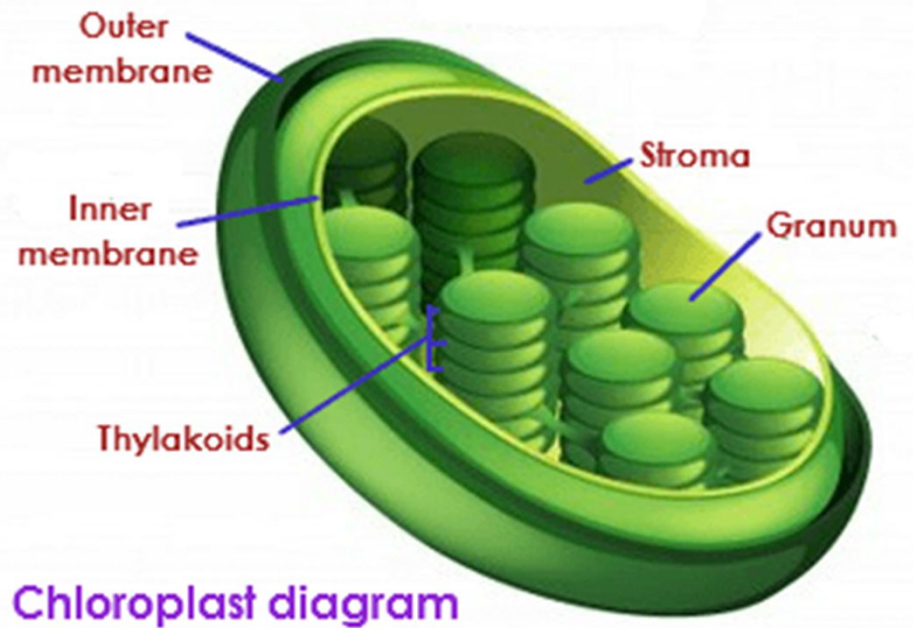
Section 8.2

# Photosynthesis

- Autotrophs produce organic compounds by photosynthesis
  - Remember organic means “carbon”
- Converts light energy into chemical energy
- **Overall equation:**
  - **$6 \text{ CO}_2 + 6 \text{ H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6 \text{ O}_2$**

# Photosynthesis

- Occurs in two phases:
  - Phase 1 – Light Reaction
  - Phase 2 – Calvin Cycle
- Occurs within the chloroplast of plants
  - Remember a chloroplast is the “green” part



# Phase One: Light Reactions

- **Main part: absorption of light**
- Takes place within the thylakoids of the chloroplast
  - Where chlorophyll is located
- Light energy excites electrons in the thylakoids
- Exciting causes water to split - releases an  $e^-$ , a  $H^+$  and oxygen ( $O_2$ )

# Phase One: Light Reactions

- Excited e- move through the thylakoid
- Accepted by a molecule and form NADPH
  - NADPH – energy storing molecule
- As e- flow to do this, ATP is produced as well
- **Made through Phase One:**
  - **O<sub>2</sub> (final product of photosynthesis)**
  - **NADPH (energy storing)**
  - **ATP (energy storing)**

# Phase One: Light Reactions

