Photosynthesis is the process by which plants use sunlight (light energy) to produce glucose from carbon dioxide and water, with oxygen as a byproduct. This process occurs in the chloroplasts in a plant cell and has two stages—the light-dependent reactions and the light-independent reactions:

1. **Light-dependent reactions**
   - The light activation of the photocentres
   - Electron transport
   - Photolysis
   - Reduction of NADP
   - Synthesis of ATP

2. **Light-independent reactions**
   - Carbon fixation
   - Reduction
   - Regeneration of RuBP

### Key to Symbols
- **Carbon atom:** ●
- **Electron transport:** H
- **Symlol:** ●
- **H2O:** ●
- **O2:** ●
- **CO2:** ●

### Glossary
- **ATP synthase:** An enzyme in the thylakoid membrane that acts as an electron carrier.
- **Chloroplasts:** A family of green organelles found in plant cells. Chloroplasts function in photosynthesis and contain the organelles necessary for the process.
- **Chlorophyll:** A green molecule that absorbs light energy and is essential for photosynthesis.
- **NADP (nicotinamide adenine dinucleotide phosphate):** A molecule that is reduced in photosynthesis and oxidized in respiration.
- **Primerases:** A molecule that is reduced in photosynthesis and oxidized in respiration.
- **Photosynthesis:** The process by which plants use sunlight (light energy) to produce glucose from carbon dioxide and water, with oxygen as a byproduct.

---

**Big Picture** is a free online resource for teachers and students that explores issues around biology and medicine. To see all of our Plants resources, go to bigpictureeducation.com/plants