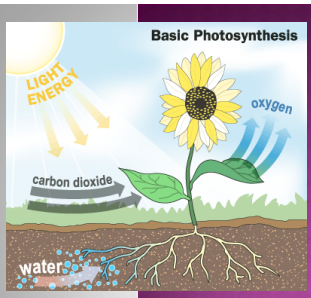


PHOTOSYNTHESIS

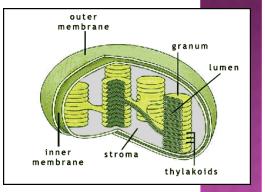
How do plants make their own food?

PHOTOSYNTHESIS

- *The ultimate source of energy for most life on earth is the sun*
- Plants take in energy from the sun and carbon dioxide to make food and release oxygen
- Sunlight + H_2O + CO_2 -> food + O_2
- video

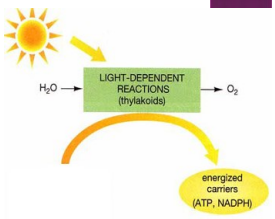
PHOTOSYNTHESIS

- Photosynthesis occurs the chloroplasts in two stages
- 1st: Light-dependent reactions require sunlight
- 2nd: Light-independent reactions do not require sunlight



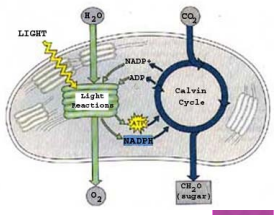
LIGHT-DEPENDENT

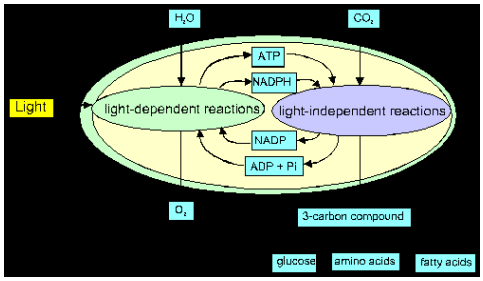
- Produce 2 energy storing molecules:
  - ATP and NADH
- When sunlight splits water molecules in this step, oxygen is let off as waste
- Sunlight + water -> ATP + NADH + O_2



LIGHT-INDEPENDENT (CALVIN CYCLE)

- CO_2 and energy from ATP and NADH (produced in light-dependent) used to make sugars like glucose
  - Glucose is then used for energy or turned into things the plant might need (proteins, carbs, fats/lipids, or cellulose)
- CO_2 + ATP +NADH -> glucose





Overall:

$6CO_2 + 6H_20$ + solar energy -> $C_6H_{12}O_6 + 6O_2$