

How do organisms get
the energy they need to
power life's processes?

Objective: Students will be able to trace the energy flow through living systems.

Autotrophs

- Prefix: Auto Meaning: by itself
- Root: troph Meaning: to feed
- Autotroph = self feeder; doesn't need to eat other organisms

Autotrophs = Primary Producers

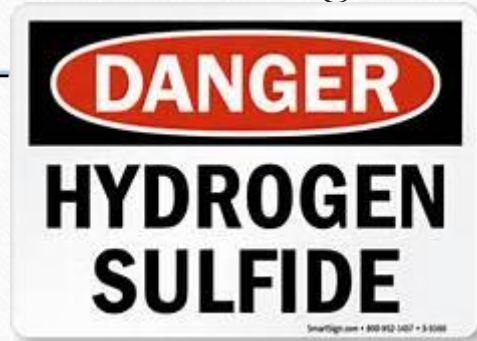
- Autotrophs don't only feed themselves, they store energy that can be used by organisms that eat them!

Primary Producers are the first producers of energy-rich organic compounds that are later used by other organisms.



Photoautotrophs vs. Chemoautotrophs

- **Photosynthesis** : using **solar energy** to power chemical reactions that convert inorganic materials into energy-rich organic carbohydrates (sugar, starch)
 - $\text{CO}_2 + \text{H}_2\text{O} + \text{light energy} \rightarrow \text{O}_2 + \text{carbohydrates}$
- **Chemosynthesis** : using **chemical energy** to produce similar carbohydrates
 - $\text{CO}_2 + \text{HYDROGEN SULFIDE} + \text{O}_2 \rightarrow \text{sulfur compounds} + \text{carbohydrates}$



Consumers (Heterotrophs)

- Must eat other organisms to get their energy and nutrients!
 - Pg. 71: Carnivores – Herbivores – Omnivores – Scavengers – Decomposers - Detritivores