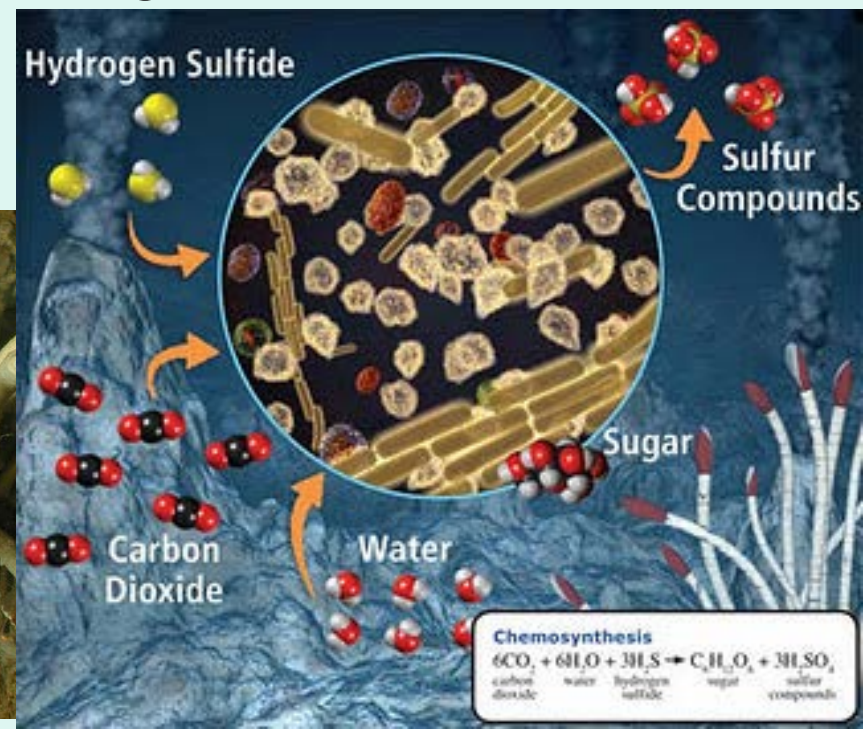
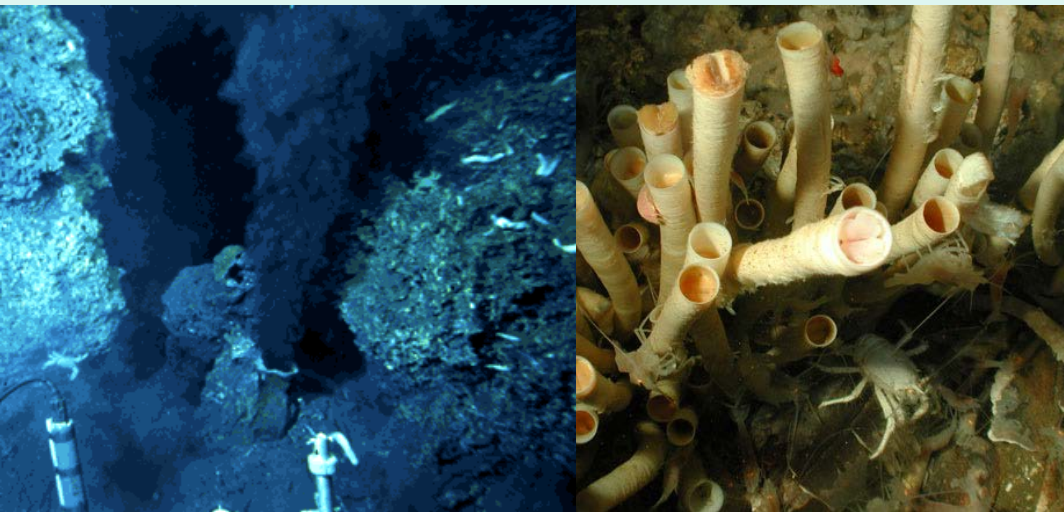


Energy Flow

Chapter 3.2

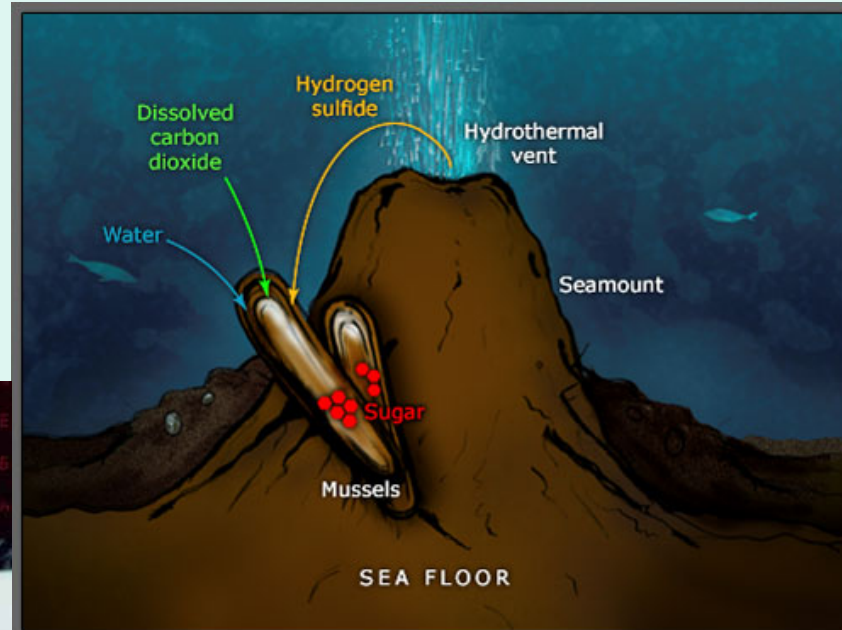
What is the primary source of energy?

- Sunlight = main source of energy for all life
 - We use only 1% of the sun's energy
- Chemical Energy – some organisms rely on chemical compounds
 - Certain bacteria near hot springs, deep ocean volcanic vents, (rare)
 - chemosynthesis



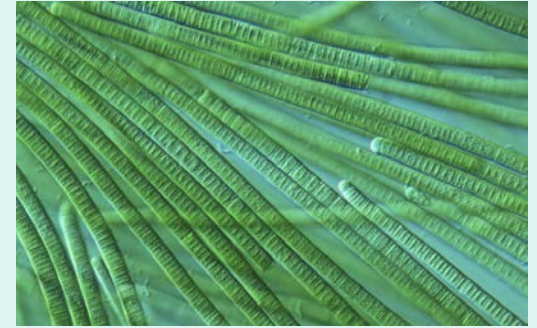
Chemosynthesis

- Use energy in chemical bonds
- Hydrogen Sulfide and methane
- Certain bacteria that live freely or inside other animals like tube worms and mussels
- Deep sea Volcanic vents
- Hot springs
- marshes



Autotrophs

- Capture energy from sun (or chemicals) to produce food.
 - Producers
- Photosynthesis
 - Carbon dioxide + water \rightarrow carbohydrates + oxygen
 - Plants, algae, cyanobacteria



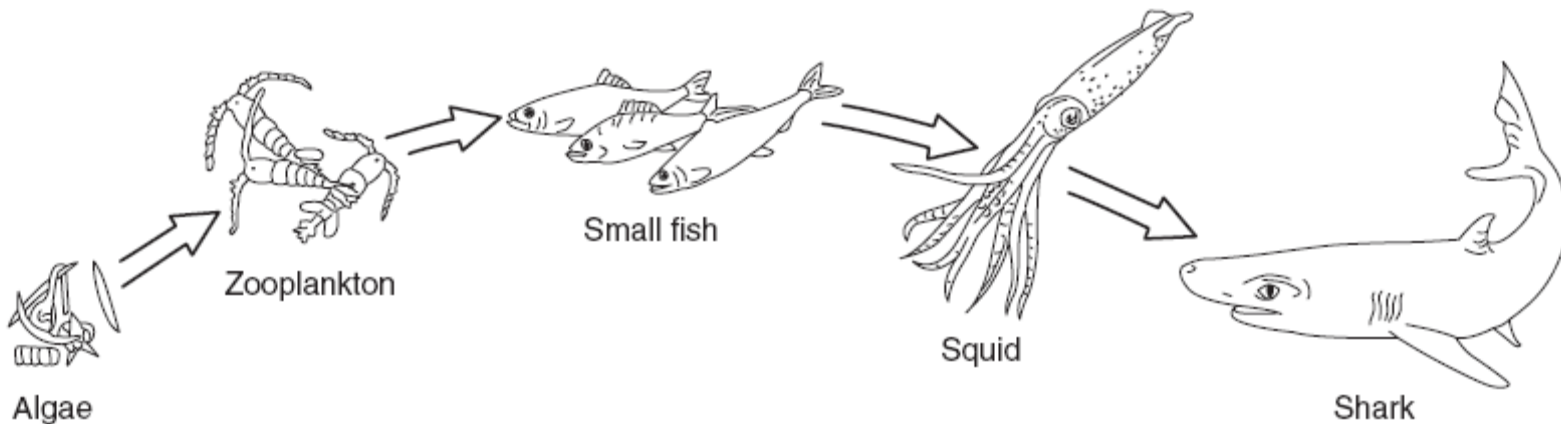
Heterotrophs

- Rely on other organisms for food/energy
- Consumers
- Animals, fungi, bacteria
- Herbivores – eat plants (cow)
- Carnivores – eat meat (lion)
- Omnivores – eat plants and meat (bear)
- Detritivores (scavengers)– eat plant and animal remains (worms, crabs)
- Decomposers – break down organic matter (fungi, bacteria)



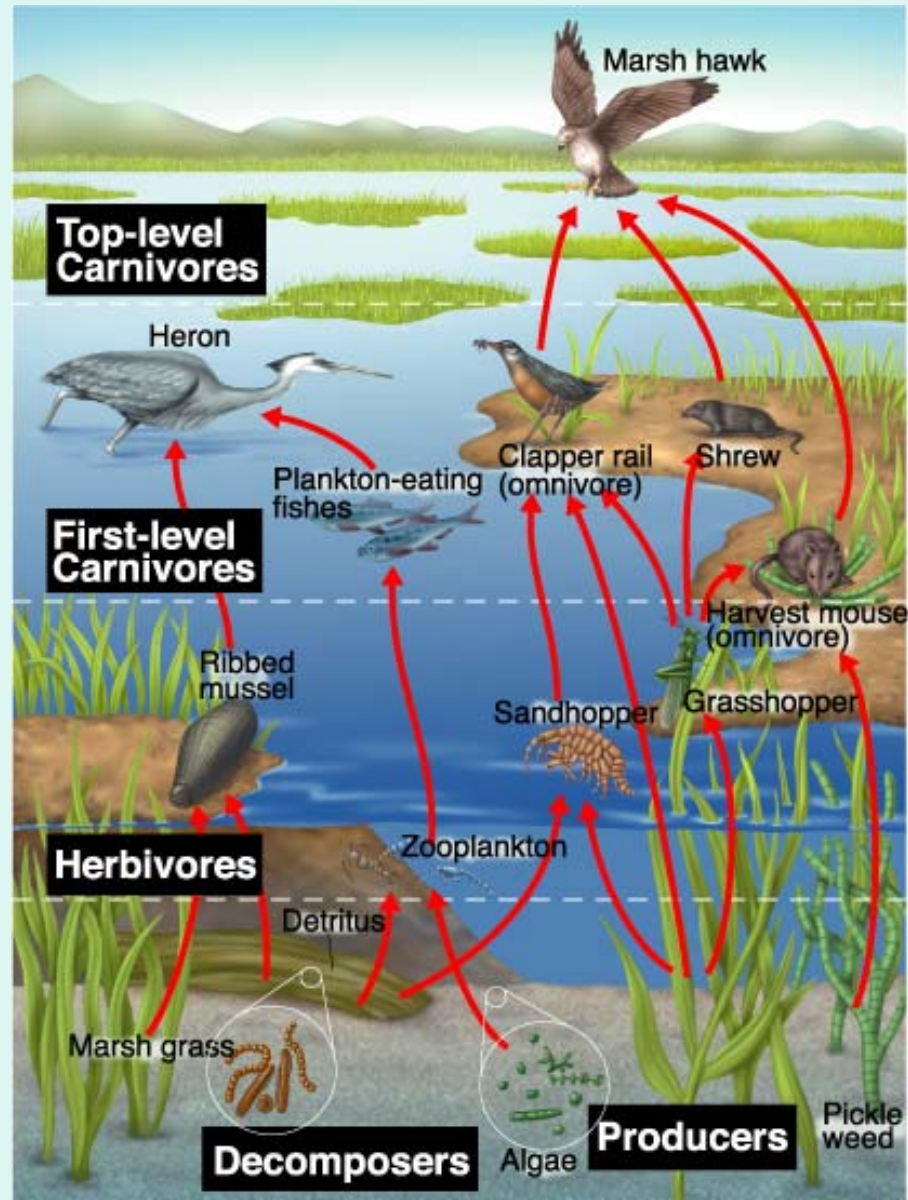
Energy Flow

- Sun or chemicals → producers → consumers
- Food chains – energy stored by producer can be passed along to consumers in one direction



Food Web

- Links all chains within an ecosystem

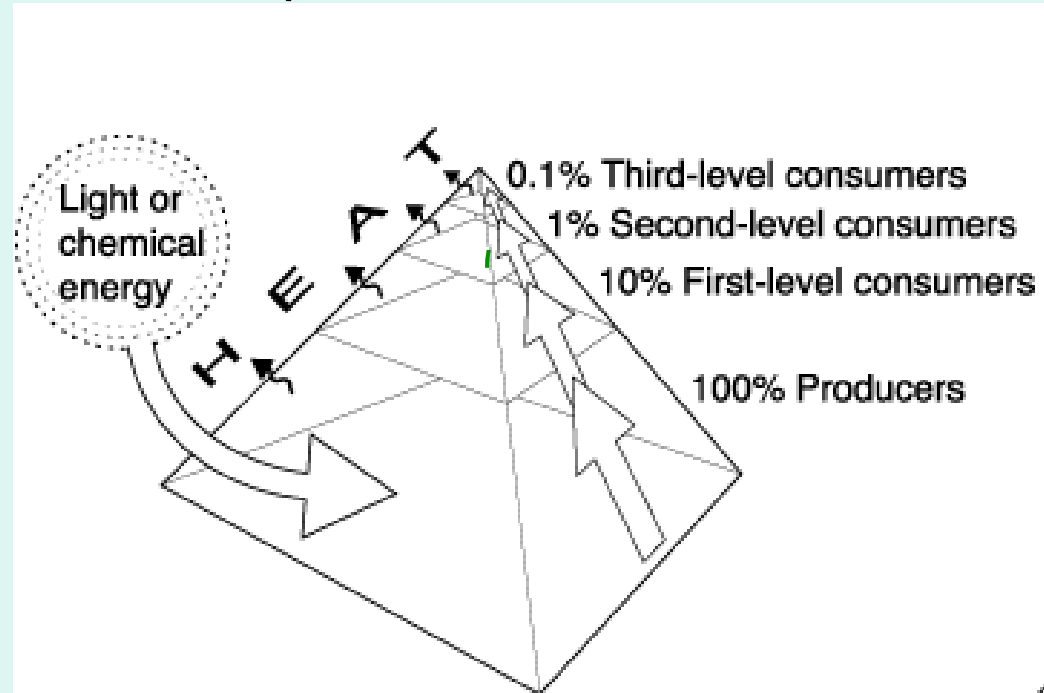


Trophic Levels

- Each new step in the food chain/web
- Consumers depend on trophic level below for food/energy
- 10% of energy is passed on to next level
- Rest is used (life processes) or lost as heat

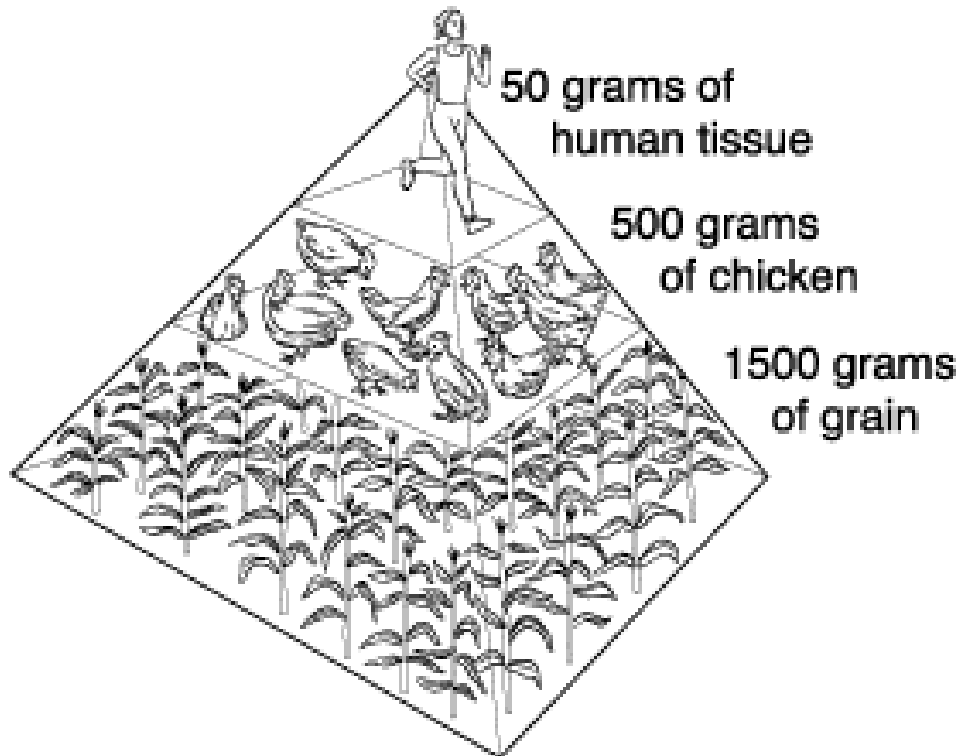
Energy Pyramid

Shows the relative amount of energy available at each trophic level.



Biomass Pyramid

Represents the amount of living organic matter at each trophic level. Typically, the greatest biomass is at the base of the pyramid.



Pyramid of Numbers

Shows the relative number of individual organisms at each trophic level.

