

MATTER AND ENERGY



Energy Flow through a System

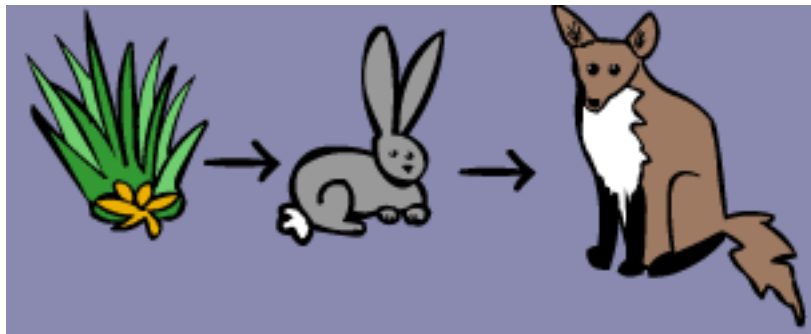
- When one organism eats another organism, some of the energy of the first organism is transferred to the second organism.
- Examples: Fox eating a rabbit; deer eating plants



Food Chains

- A model for showing how energy, in the form of food, passes from one organism to another.
- Arrows indicate the direction of energy transfer.
- Example:

small water plants → insects → bluegill → bass



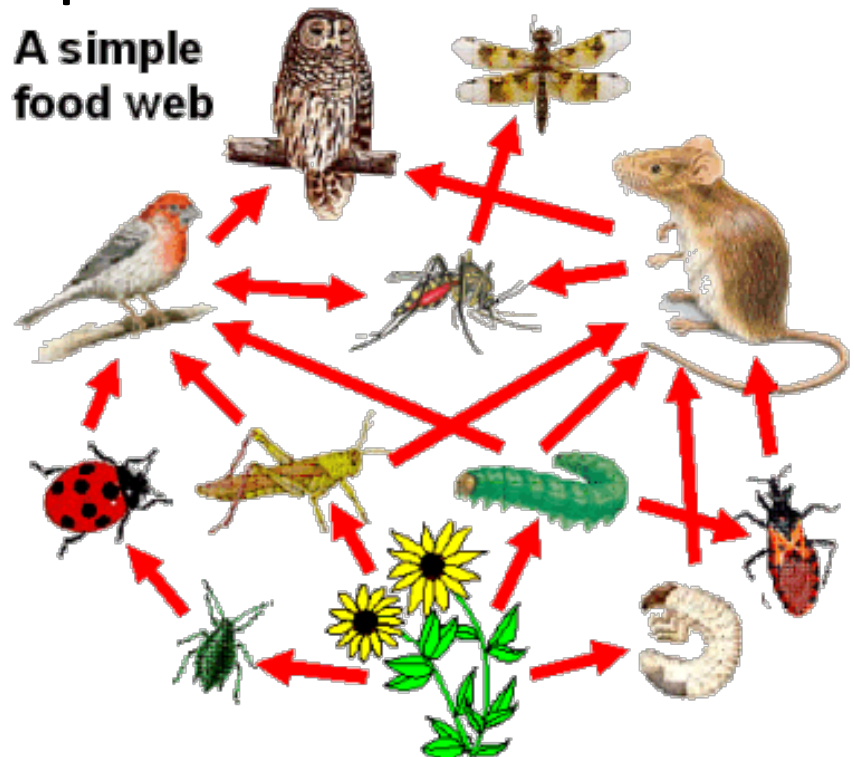
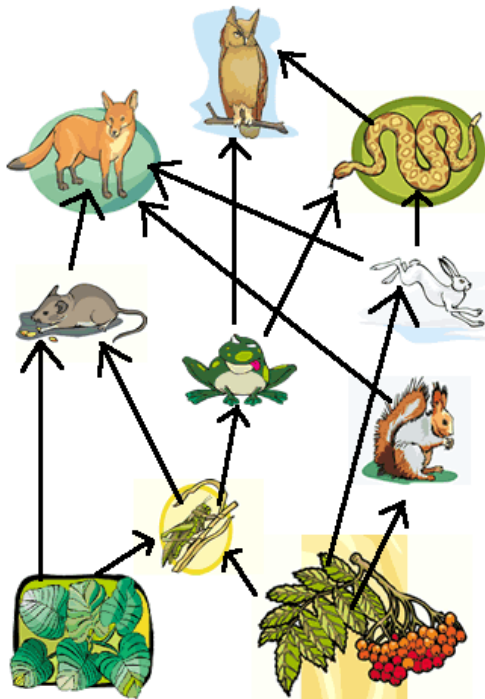
Organisms in a Food Chain

- Producers: Organisms that take energy from the sun.
- Examples: plants, some protists, algae
- Consumers: Organisms that get energy by feeding on producers or other consumers.
- Examples: animals, bacteria, fungi



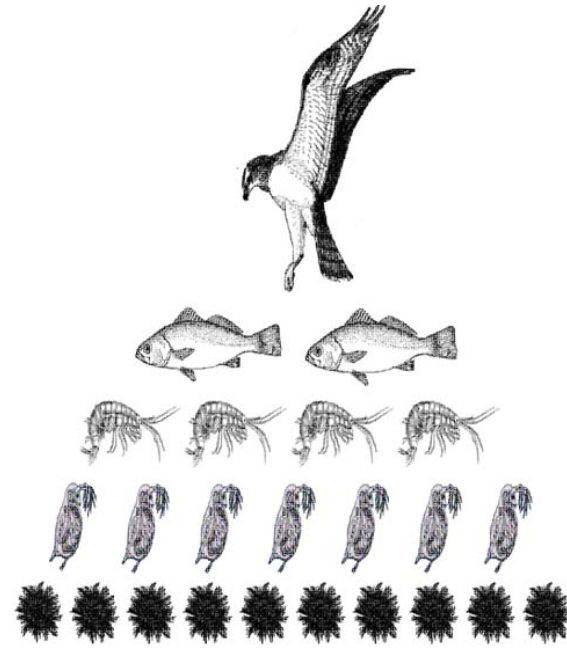
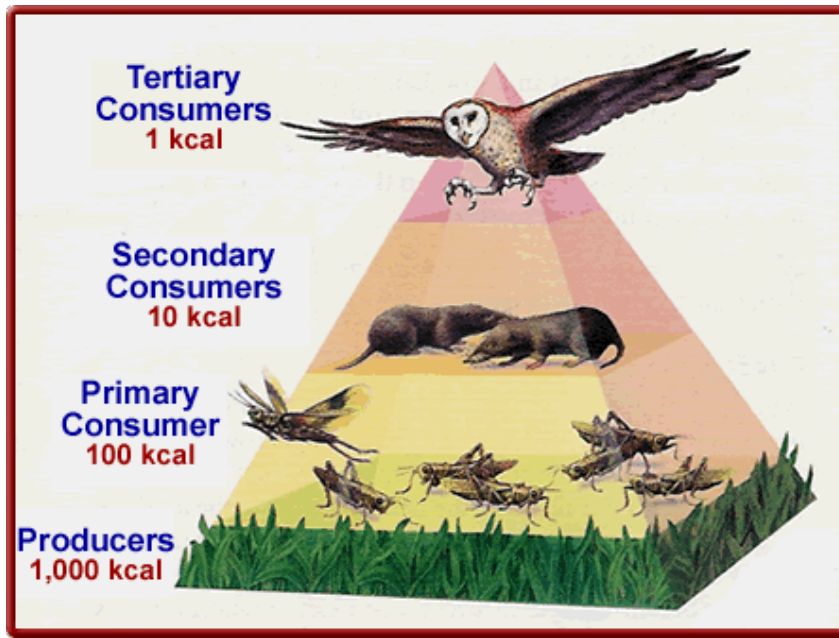
Food Webs

- A series of overlapping food chains that exist in an ecosystem.
- More accurate and complex than food chains.



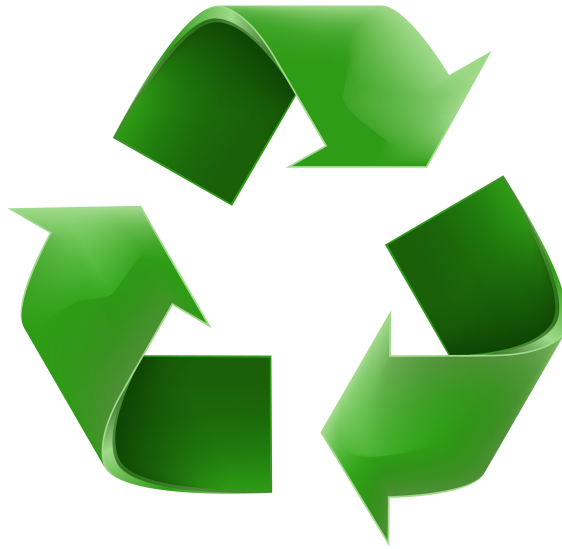
Energy Pyramid

- Compares the energy available at each level of a food chain.
- The energy that is passed on to the next level of a food chain is significantly reduced.



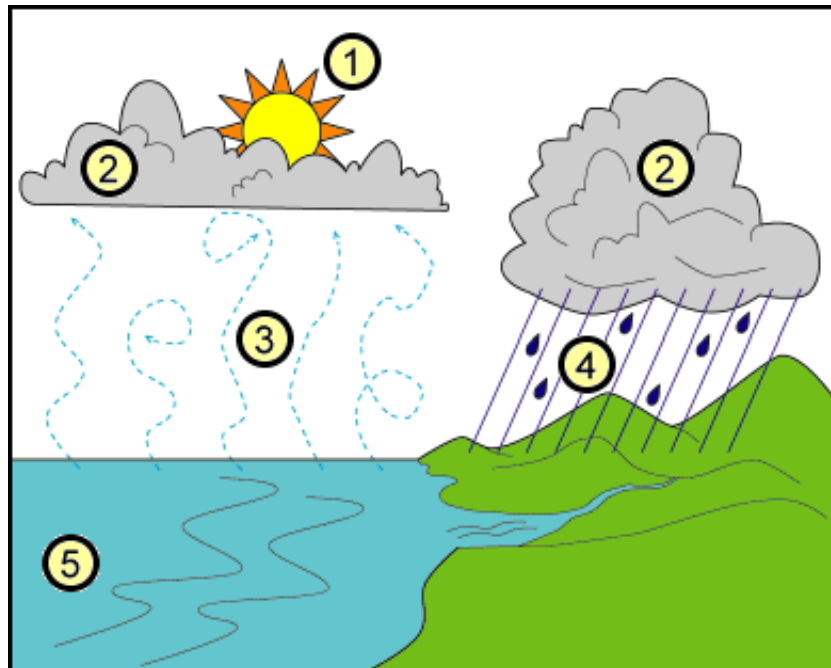
The Cycles of Matter

- Many important materials that are essential for life are recycled through the environment.



Water Cycle

- Water molecules constantly rise through the atmosphere, fall back to Earth, soak into the ground, and flow in rivers and streams.



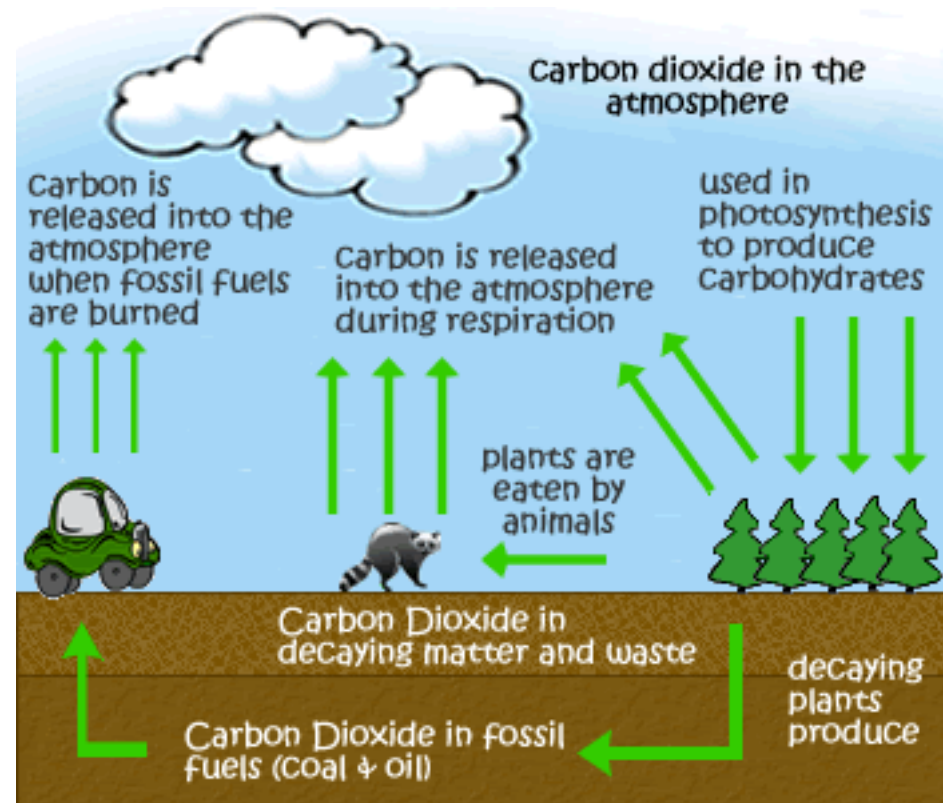
Carbon Cycle

- Carbon is the building block for all living things on Earth.
- Carbon is common in non-living things such as the air (carbon dioxide) and sea water.



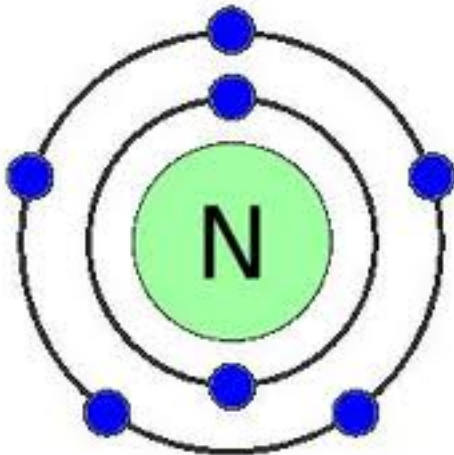
Aspects of the Carbon Cycle

- Animals add carbon dioxide to the air when they breath. Volcanoes release carbon dioxide into the air.
- Plants absorb carbon dioxide during photosynthesis. Sea water also absorbs carbon dioxide. When animals die the carbon in their body is absorbed in the ground.



Nitrogen

- Nitrogen makes up most of the air.
- Nitrogen is necessary for our cells to function.
- We get nitrogen from our food.



Nitrogen Cycle

- Nitrogen goes from the air to the ground to plants and animals and back into the air.
- Nitrogen falls to the ground from precipitation.
- bacteria helps plants use the nitrogen from the air.

