energy in living things

plants making food

food web

9-12

The chemical elements that make up the molecules of living things pass through food webs and are combined and recombined in different ways. At each link in a food web, some energy is stored in newly made structures but much is dissipated

Chemical energy is associated with the configuration of atoms in molecules that make up a substance. Some changes of configuration require a net input of energy whereas others cause a net release.

6-8

Almost all food energy comes originally from sunlight.

Food provides molecules that serve as fuel and building material for all organisms.

Atoms may link together in well-defined molecules, or may be packed together in crystal patterns. Different arrangements of atoms into groups compose all substances and determine the characteristic properties of

Organisms get energy from oxidizing their food, releasing some of its energy as thermal energy.

An important kind of reaction between substances involves the combination of oxygen with something else -- as in burning or rusting.

Organisms that eat plants break down the plant structures to produce the materials and energy they need to survive. Then they are consumed by other organisms.

All organisms, including the human species, are part of and depend on two main interconnected global food webs. One includes microscopic ocean plants, the animals that feed on them, and finally the animals that feed on those animals. The other

Plants use the energy from light to make sugars from carbon dioxide and water.

Plants can use the food they make immediately or store it for later use.

One of the most general distinctions among organisms is between plants, which use sunlight to make their own food, and animals, which consume energy-rich foods. Some kinds of organisms, many of them microscopic, cannot be neatly

Energy can change from one form to another in living things.

Energy can be transferred from one system to another (or from a system to its environment) in different ways: 1) thermally, when a warmer object is in contact with a cooler one; 2) mechanically, when two objects push or pull on

3-5

From food, people obtain fuel and materials for body repair and growth.

Almost all kinds of animals' food can be traced back to plants.

Some source of "fuel" is needed for all organisms to stay alive and grow.

K-2

Most living things need water, food, and air.

Plants and animals both need to take in water, and animals need to take in food. In addition, plants need light.

Animals eat plants or other animals for food and may also use plants (or even other animals) for shelter and nesting.