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Science Notes
Chapter 7 – Ecosystems

Lesson 2 – How do organisms get energy?

I. Energy Flow in Ecosystems
   a. All organisms need energy to carry on life functions, such as growth, movement, repair, and reproduction.
   b. Most living things on Earth depend on the energy of sunlight – either directly or indirectly.
   c. Plants use energy from sunlight in the process of photosynthesis to produce glucose.
   d. Plants are producers, organisms that can make their own food.
   e. Bears and other animals do not have adaptations for capturing sunlight to make food.
   f. Organisms that get energy by eating other organisms are called consumers.
   g. When an animal eats food, it gets energy stored in that food, so it's indirectly using energy from sunlight.

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h. Organisms that get their energy by breaking down the remains of dead organisms are called decomposers.
i. Decomposers release the materials from dead organisms' bodies back into the environment where they can be used by other organisms.

II. Life Without Sunlight
a. Tubeworms get their energy from billions of bacteria that live inside them.
b. These bacteria are producers but don't use sunlight.
c. The bacteria change energy from chemicals in the vent water into food for the tubeworms.

III. Food Chains
a. As organisms produce food or eat other organisms for food, energy travels from organism to organism throughout an ecosystem.
b. A food chain shows one possible path along which energy can move though an ecosystem.

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IV. Food Webs
   a. An ecosystem has many different food chains.
   b. Each food chain has producers and consumers.
   c. A food web shows how food chains in an ecosystem are connected.

V. Energy Pyramid
   a. A food chain doesn't tell you anything about how much energy moves from link to link.
   b. Organisms must use energy to grow, move, and reproduce. As a result, only part of the energy is available to the next level of the food chain.
   c. An energy pyramid shows how energy moves through an ecosystem.
   d. The amount of available energy gets smaller at higher levels because most of the energy has been used by organisms for life processes or is given off by heat.
   e. Only energy that is stored in the tissues of organisms can be passed from one level to the next.

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f. Only about ten percent of the energy at one level of a food chain moves to the next higher level.
g. Organisms at the higher level must eat more organisms to get the energy they need.
h. Most food chains have no more than five links because the energy remaining by the fifth link is only a very small percentage of what was available at the first link.

VI. Chemicals in the Food Chain
a. Harmful substances can pass along though the food chain.
b. Harmful substances are stored in the tissues of an organism and become more concentrated as they move up the food chain.