

ecosystems

energy in ecosystems

Energy in Ecosystems

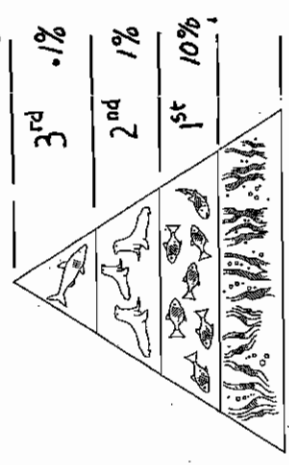
How is energy transferred in an ecosystem?

A food chain shows the movement of energy from one organism to another in an ecosystem. Food chains begin with producers. Producers use sunlight to make their own food. Consumers eat the producers, other consumers eat those consumers, and so on.

Most of the time, the movement of energy in an ecosystem is not this simple. That's because organisms often form part of several different food chains. All the food chains in an ecosystem together make up a food web.

Producers use most of their food energy for life processes and store the rest. Consumers also store energy. This stored energy is what gets passed along the food chain. Only about 10% of the energy at each level is passed on to the organisms at the next level. This means that less food energy is available at each step of a food chain. An energy pyramid shows this relationship.

Less energy is available at the top of the pyramid. Thus, there are many fewer sharks than protists in an ocean food chain.



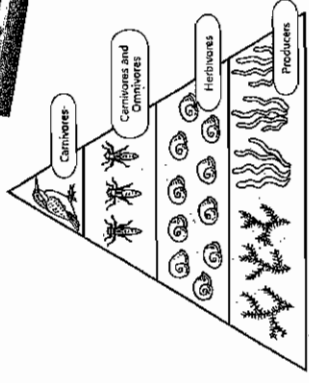
Producers include algae and one-celled organisms like diatoms. They form the base of an energy pyramid in the ocean, providing large amounts of food energy for other ocean organisms.

Only about ten percent of the energy from each level of an energy pyramid is available to organisms on the next higher level.

How is a food chain different from a food web?

What does available energy mean?

Read pages 298, 299, 300 and 301 of your textbook NY Science- Grade 6 / Chapter 10 Section 3



How are these images similar? How are they different?

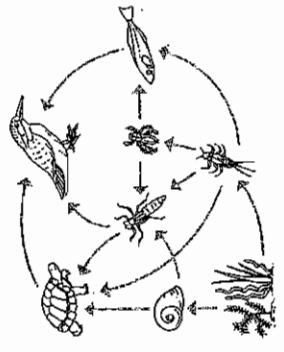
A pyramid has triangular sides and a broad base. So does an energy pyramid. An energy pyramid represents all of the food energy available in an ecosystem. The energy pyramid's largest segment is at the bottom. Think of this part as a solar-energy warehouse. The producers that occupy this part of the pyramid use the energy in sunlight to make their own food. They use some of the food energy they make to live and then store the rest. The energy they store goes to the consumers that eat them.

When consumers eat, they take in the sun's energy stored in plant tissues. They use only a small part of this energy for their life processes. The rest is lost as waste heat. At each step in a food chain, the consumer gets about 10% of the energy stored in the food it eats. The rest, or 90%, is given off as waste heat. To understand what this means in an energy pyramid, let's think of this energy change as the 10% rule.

The 10% rule tells you that most of an ecosystem's useful energy is stored in the producers. At each trophic level, or feeding step in the chain, less and less food energy is available to consumers. That explains why there are fewer and fewer consumers at each level.

Why do we show energy movement as a pyramid?

Our goal is to find out about food chains, food webs and food pyramids and to see how energy moves through an ecosystem



Standard LE 6.1a, 6.1b

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