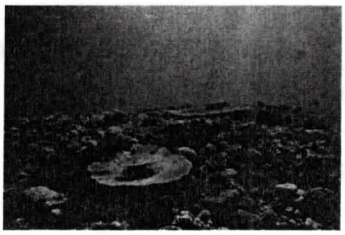
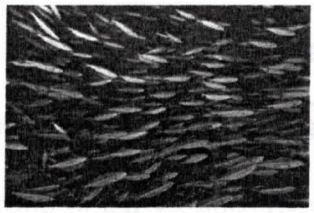
Energy Flow in Ecosystems

- Ecology – the study of the _____ between organisms and their _____
- Ecosystem -- a community of _____ and their nonliving environment
- Environment – everything that _____ an organism (living & nonliving)

- Community – all of the _____ of different _____ that live in the same area



- Population – a _____ of individuals of the _____ species that live together in the same area



- Species – characterized by a _____ of organisms that can _____ with one another to produce fertile offspring

Components of an Ecosystem

All the _____ and _____ things that interact in a particular area.

Organisms in an ecosystem are called _____ factors. _____ in an ecosystem interact with one another.

They also interact with the nonliving things, or _____ factors

Biotic

- All living organisms such as:
- Plants
- Animals
- Bacteria
- Fungi

Abiotic

- Temperature
- Water
- Oxygen
- Soil
- Sunlight

Producers

- An organism that uses _____ directly to make its own food. Producers are the source of _____ the food in an ecosystem.
  - _____
  - Algae (main producers in the ocean)
  - Some _____
- Energy enters most ecosystems as _____. Organisms, such as plants, _____, and some bacteria, capture the _____ of sunlight and store it as food energy. These organisms use the sun's energy to turn water and carbon dioxide into food molecules in a process called _____.

Deep Ocean Habitats – Deep Water Thermal Vents

- In a few ecosystems, _____ obtain energy from a source _____ than sunlight. One such ecosystem is found in rocks deep beneath the _____ called <u>thermal vents</u>.
- Certain _____make their own food by using energy in a gas, <u>hydrogen sulfide</u>, that is found in their deep water environment.

Consumers

- Some members of an _____ cannot make their own food.
- An organism that obtains energy by feeding on other organisms is a _____.
  - _____ – a consumer that eats plants
    - Grasshoppers, gophers, prairie dogs, bison
  - Carnivore – a consumer that eats animals
    - spiders, snakes, coyotes, hawks, owls
  - _____ – eat both plants and animals
    - insects, scorpions, lizards, humans

Scavengers

- <u>An animal that _____ on the dead bodies of other animals</u>
  - Turkey vulture, catfish, snails, worms, crabs

Decomposers

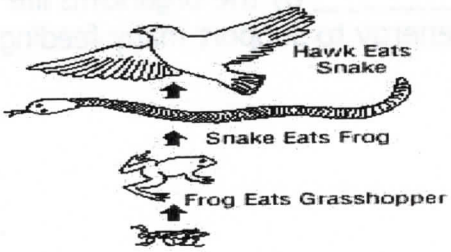
- If an _____ had only producers and consumers, the raw materials of life would stay locked up in _____ and the bodies of dead organisms.

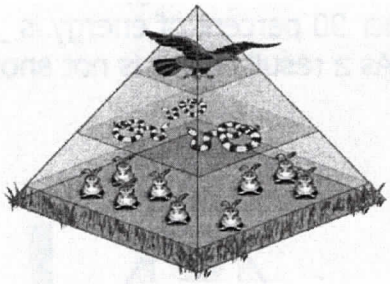
- Fortunately, _____break down wastes and dead organisms and return the raw materials to the _____.

Food Chain

The path of _____ from one feeding level to another and obtains energy.

Chain reaction





The first _____ in a food chain is always a producer. Can you name three producers?

- _____
- _____
- _____

- The _____ organism feeds on the producer and is called a _____-level consumer. The termite is a first level consumer.
- A _____-level consumer eats the first-level consumer. So the Woodpecker would eat the termite.

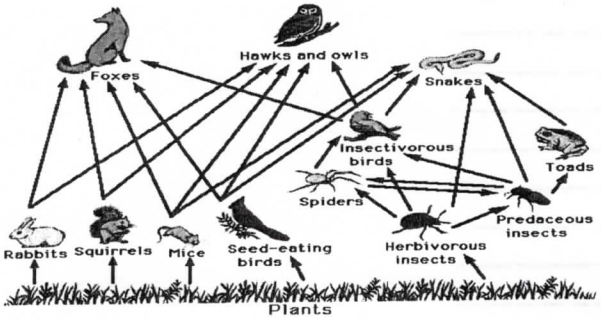
Flow of Energy

- A consumer that eats a consumer that already ate a consumer is called a _____ level consumer or tertiary consumer
- May be a _____ or an omnivore
- May be a predator
- May be a _____

Food Web

- All of the food _____ in a community linked together;
- Represents the many _____ by which energy can flow through an _____

The arrows show how the energy flows through the food web! Can you identify the first, second, and third level consumers?



Energy Pyramids: Another way of showing the transfer of energy

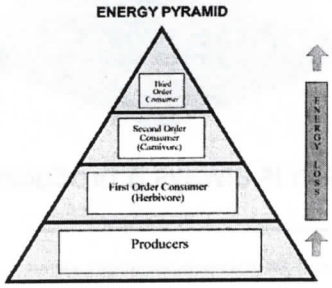
- When _____ in an ecosystem eats, it obtains energy. The organism uses this _____ to move, grow, reproduce, and carry out other life activities. This means that

only _____ of the energy it obtains will be available to the next organism in a food web.

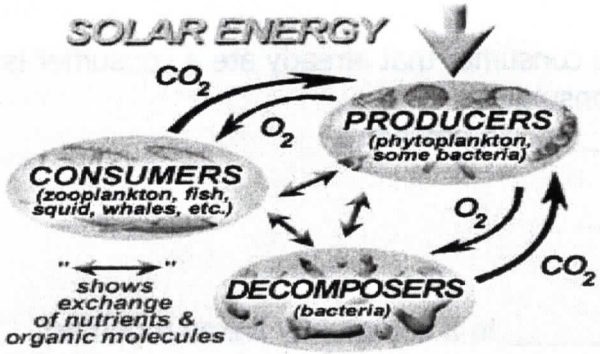
- The energy pyramid above shows the amount of energy that moves from one feeding level to the next. The _____ energy is available at the producer level of the pyramid. As you move up the pyramid, each level has _____ energy available than the level below.

Energy Pyramids

- Only about _____ percent of the energy at one level of a food web is transferred to the next higher lever. The other 90 percent of energy is _____ by the organisms life or is _____ by heat. As a result, there is not enough energy to support many feeding levels in an ecosystem.



- Since so much energy is _____ at each level, the amount of energy available at the producer level _____ the number of consumers that the ecosystem is able to _____. As a result, there are usually _____ organisms at the highest level in a food web.



Where Did Your Dinner Come From?

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_____

_____

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_____

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