

4th Grade Life Science Vocabulary

All organisms need energy and matter to live and grow.

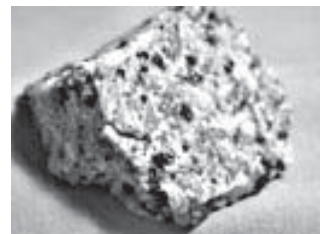
Biome: Large areas classified by the type of plants and animals living there, the climate, and the soil. There are seven terrestrial (on land) biomes: tundra, taiga (coniferous forest), temperate (deciduous) forest, chaparral, grassland, and desert. There are eight aquatic (under or near water) biomes, which are mostly characterized by their physical features: lake, river, wetland, estuary, intertidal zone, coral reef, ocean (pelagic), and ocean floor (benthic) zone.



2.a Plants are the primary source of matter and energy entering most food chains.

Energy: The ability to do work. Chemical, electrical, kinetic, and geothermal are examples.

Matter: Anything that takes up space and has mass. Refers to any solid, liquid, or gas.



Energy

Matter

2.b Producers and consumers (herbivores, carnivores, omnivores, and decomposers) are related in food chains and food webs and may compete with each other for resources in the ecosystem.

Organism: Any living thing - plant, animal, or microbe.



Producers: An organism that can produce its own food. Producers are also called autotrophs.

Consumer: An organism that gets its energy by eating other organisms. Consumers are also called heterotrophs.



Producers

Consumers

Herbivore: A consumer that only eats plants.



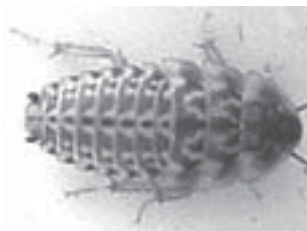
Carnivore: A consumer that only eats animals.



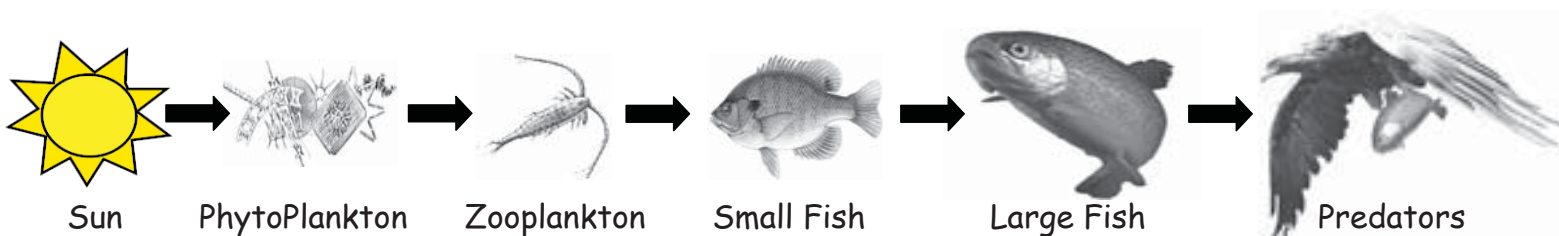
Omnivore: A consumer that eats both plants and animals.



Decomposer: An organism that breaks down dead organic matter into simple chemical compounds, thereby returning nutrients to the environment.



Food Chain: A group of organisms involved in the transfer of energy from its primary source. e.g.: phytoplankton are eaten by zooplankton which are eaten by small fish which are eaten by larger fish which are eaten by birds.



Food Web: A summary of the flow of food energy made by interlocking of all of the food chains in a community. (see next page for diagram)

Ecosystem: A community of organisms interacting within a given physical environment.

Biomass: An estimate of the total amount of living plant and animal matter in a particular area.

Food Web - Deciduous Forest Biome

Large Predators

Cougars
Carnivores



Bears
Omnivores



Small predators

Insectivores, carnivores, omnivores

Opposums



Skunks



Birds



Owls



Foxes

Primary Consumers

Herbivores

Insects



Birds



Rodents



Deer



Sunlight

Primary Producers



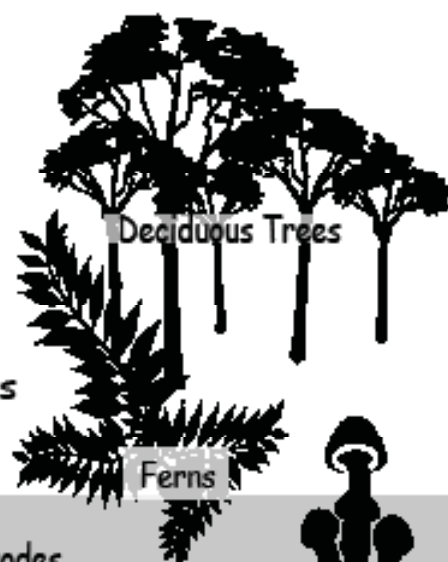
Fruit Trees



Flowers



Berries



Deciduous Trees

Ferns

Decomposers

Nematodes

Soil Bacteria

Fungi

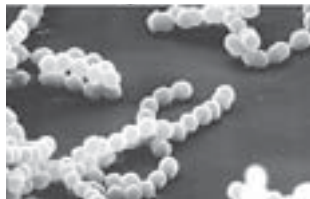


2.c Students know decomposers, including many fungi, insects, and microorganisms, recycle matter from dead plants and animals.

Fungi: Molds, yeasts, mushrooms, and other forms of plants that don't need sunlight to live. They get their energy and nutrients by consuming other organic material. Along with bacteria they are the decomposers in the ecosystem.



Bacteria: Single-celled microorganisms. Most are decomposers but some are autotrophs and some are parasites.



Streptococcus



Bacterial Cell

Wastes: Remaining mass often including dead organic matter that can be decomposed so that nutrients are recycled within the environment.

3.a Students know ecosystems can be characterized by their living and nonliving components.

Biotic: Living. All the living parts of the system.



Abiotic: All the nonliving parts such a pH, salinity, temperature, climate, weather, soil, geology, etc. of a given system.



3.b Students know that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.

Environment: The total of all of the surroundings - biotic and abiotic factors - that affect an organism or group of organisms.

Adaptation: A trait that allows an organism to be more successful, such as a longer beak or coloring that blends in with the background. The gene for that trait can be passed along to offspring and become more common in that population over long periods of time. This is called an "Evolutionary adaptation."



walking stick



hummingbird with long beak

Genetic process: The process of passing traits from one generation to the next. Some adaptations are genetically determined over many generations and allow organisms a better chance to survive.

Accommodations: Changes in an individual, not a species, that enable it to be successful in its environment. Examples include: changing color with seasons and having an adjustable lens in the eye to focus on different distances.

3.c Students know many plants depend on animals for pollination and seed dispersal, and animals depend on plants for food and shelter.

Pollination: The transfer of pollen grains (the male reproductive sperm) from one plant to the pistil (female reproduction organ) of another plant of the same species.



Seed Dispersal: The way that fertilized seeds travel to a place to germinate, grow, and develop into a new plant. Seeds can be carried by wind, water, or animals (caught in animal's fur or passing through the digestive system).



Shelter: Cover from elements, for natal activity, for breeding, for bedding, etc.; varies depending on species.

Mutually dependent: An arrangement in which two different organisms live in close association to the advantage of both.

Ecology: The branch of biology dealing with the interrelationships between living things and their environment.

Natural history: Archaic meaning: the study of animals, plants, and minerals in a general manner. Now it often restricted to the general study of a specific group and focuses on classification, life cycle, geographic distribution., etc.

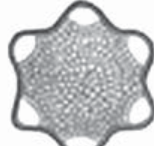
3.d Students know that most microorganisms do not cause disease and that many are beneficial.

Disease: A departure from a body's normal healthy state as a result of an infectious organism, environmental stress, or inherent weakness.

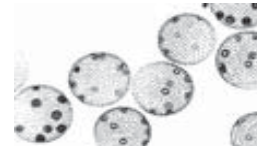
Protist: A very diverse group of largely single-celled but many multicellular organisms. Some are plantlike others are animal-like and some are fungus-like. Green algae, paramecium, diatoms, and slime molds are examples of protists.



Paramecium



diatom



algae

Hay infusion: An excellent way to produce a variety of microbes at a high density during any time of the year. Using a jar such as a mayonnaise jar, add cut up hay to pond or creek water. The sugars in the dried grass provide food for the bacteria and other microbes. The population will peak in about one week.



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