

Chapter Two Science: Ecosystems Study Guide

Lesson Five

Biotic Factors-living things; biotic factors need certain nonliving things in order to survive

Abiotic Factors-nonliving factors that support biotic factors; include water, minerals, sunlight, air, and soil

Climate-the pattern of precipitation and temperatures throughout a year

- Climate differs by location to equator and closeness to water

- Climate can also be affected by landforms, wind, and rainfall

Biomes-large land regions with given climates; each is characterized by main kind of plant life

Biomes

- Tropical Rain Forest-near equator; hot all year round

- Deciduous Forest-mid latitudes; four distinct seasons a year; relatively mild, humid summers and cold winters

- Desert-mid-latitudes; very hot days and cool nights

- Grassland-mid-latitudes on the interior of the continents; cool in winter and hot in summer

- Taiga-mid to high latitudes; very cold, snowy winters with cool summers

- Tundra-High-northern latitudes; very cold, harsh, and long winters; short cool summers

Chaparral-a special ecosystem found in the southern foothills of California characterized by thick growth of brush or trees; can also be found in some other western states and in Mexico

Agriculture-is the science and art of cultivating soil, producing crops, and raising livestock

Agricultural Pests

- If raising only one plant it can be risky because pests that eat that plant thrive

 - also entire crops can be destroyed quickly

- Poisons that were previously used (including DDT) have been found to be dangerous and now farmers and scientists work to develop alternatives

- Integrated Pest Management-offers ways to manage pests and minimize environmental, health, and economic risks. Involves using natural means for pest control and reserving pesticides for emergency situations only

- Plant diversity helps attract different insects

Lesson Six

Ecosystem-biotic and abiotic factors, together with their interactions

Niche-each living thing, each species, has a role in its ecosystem; includes what an organism eats, where it lives, and the way it raises its young

Population-all the organisms of the same kind living in a particular place

Community-all the populations living together in the same place

Competition-populations can share the same habitat but they cannot share the same niche for very long

- populations with adaptations that make them better at a job will survive, reproduce, and eventually crowd out populations that are not as well suited.

Mutualism-when a behavior is helpful to two populations; example-plants can grow only with the help of fungi that form on their roots

Parasitism-a relationship in which only one organism benefits while the other is harmed

The Water Cycle-water constantly cycled from the surface of Earth through the atmosphere, and back through the main processes of precipitation, evaporation, and condensation

The Oxygen-Carbon Dioxide Cycle-Oxygen and carbon dioxide are cycled through the environment by the processes of respiration and photosynthesis.

The Nitrogen Cycle-Nitrogen-fixing bacteria make usable nitrogen, then living things then use these nitrogen compounds. When they die, bacteria break down the compounds and nitrogen gas is returned to the air.

Biodiversity-the wide variety of life on Earth

Food Chain-a model of how the energy in food is passed from organism to organism in an ecosystem.

- Plants (or its seeds) are usually the producers in the food chain; beginning of the chain
- Primary producers-plant eaters (herbivores)
- Consumers-can be plant or animal eaters
- Decomposers-organisms that get their food by breaking down dead organisms into nutrients

Food Web-Overlapping food chains; energy flow in a food web still begins with primary producers and moves through the various levels of consumers, just as it does in a food chain

Freshwater Ecosystems

- Living things in water are categorized in three groups-plankton, nekton, and benthos
- Three types of freshwater ecosystems
 - Ponds, lakes, and rivers
 - Wetlands-are a mix of land and water including marshes, swamps, bogs, and fens
 - Estuaries-along coasts where rivers flow into seas; and a blend of salt and freshwater

Plankton-organisms that float on water; includes microscopic algae and protozoa

Nekton-animals that swim through water

Benthos-bottom dwellers