

UNDERSTANDING AND BIODIVERSITY OF LIVING THINGS

BENCHMARKS: SC.G.1.4.1 , b.1.4.1, AND SC.G.2.4.2

Summary: The ultimate source of energy for living things is the sun. Energy flows through the ecosystem which is made up of producers, consumers, and decomposers. Some energy is lost as heat and is not recycled. Energy is required for biological processes. Any change in a component of an ecosystem will have unpredictable effects on the entire system. The system will usually react in order to restore its original condition.

Vocabulary: Ecology, biosphere, species, population, community, ecosystem, photosynthesis, biomass nutrient, biotic, abiotic , autotroph, heterotroph , herbivores, carnivores, omnivores, ecosystem, trophic level, ecological pyramids, producers, consumers, adaptation, decomposer, interdependence, food chain, food web, biodiversity, organism, natural selection, biogeochemical cycle, evaporation, transpiration, nutrient, nitrogen fixation, niche, habitat, competition, predation, symbiosis, mutualism , commensalism, parasitism, primary and secondary succession, biome, population density, exponential and logistics growth, energy sources

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Activate the following simulations: Food Chains, Natural Selection, Interdependence of Plants and Animals, Rainfall and Bird Beaks, Forest Ecosystem, Rabbit Population by Season, Effects of Environment on New Life Forms

Probing Questions:

1. Suppose that a very large meteor hit the Earth and caused dust to rise and block sunlight from a large area of land. If no sunlight could reach Earth's surface for a long period of time, what would be the first effect on the environment?

 - A. the consumers would be overcome with fear
 - B. the decomposer would quickly die from lack of food
 - C. herbivores and carnivores would migrate to search for food
 - D. the producers would be unable to make food.
2. The cycling of matter through nature is essential to life. Energy moves through nature also. How do matter and energy differ as they move through nature?

 - A. energy can be recycled by both plant and animals
 - B. energy increases as it moves through a food web
 - C. matter is only cycled a single time through nature
 - D. matter is seldom recycled by plants, but often by animals
3. What measures might help improve the condition of the forest or even restore it to its original condition?

 - A. Plant a tree farm
 - B. Prevent human intervention
 - C. Set up smaller communities
 - D. Introduce native animals back into the area