Biology

- Ecosystems are dynamic and have the ability to respond to change, within limits, while maintaining their ecological balance.

- People have the responsibility to regulate their impact on the sustainability of ecosystems in order to preserve them for future generations.

Can you communicate using appropriate terminology related to sustainable ecosystems, including, but not limited to: bioaccumulation, biosphere, diversity, ecosystem, equilibrium, sustainability, sustainable use, protection

Can you explain the importance of biodiversity for all sustainable ecosystems?

Can you analyse the effect of human activity on the populations of terrestrial and aquatic ecosystems by interpreting data and generating graphs? (stressors associated with human use of natural areas, such as trampled vegetation, wildlife mortality from motor vehicles, and the removal of plants, animals, and/or natural objects; suburban developments and their impact on the food supply for animals such as foxes and racoons)

Compare and contrast biotic and abiotic characteristics of sustainable and unsustainable terrestrial and aquatic ecosystems.

Describe the complementary processes of cellular respiration and photosynthesis with respect to the flow of energy and the cycling of matter within ecosystems (i.e., carbon dioxide is a by\_product of cellular respiration and is used for photosynthesis, which produces oxygen needed for cellular respiration), and explain how human activities can disrupt the balance achieved by these processes (e.g., fossil fuel use increases the amount of carbon dioxide in the atmosphere; planting more trees decreases the amount of carbon dioxide in the atmosphere)

Describe the limiting factors of ecosystems (e.g., nutrients, space, water, energy, predators), and explain how these factors affect the carrying capacity of an ecosystem (e.g., the effect of an increase in the moose population on the wolf population in the same ecosystem)

Identify the earth's four spheres (biosphere, hydrosphere, lithosphere, atmosphere), and describe the relationship that must exist between these spheres if diversity and sustainability are to be maintained

Identify various factors related to human activity that have an impact on ecosystems (e.g., the introduction of invasive species), and explain how these factors affect the equilibrium and survival of ecosystems (e.g., invasive species push out native species and upset the equilibrium in an ecosystem; shoreline development affects the types of terrestrial and aquatic life that can live near lake shores or river banks; acid rain changes the pH of water, which affects the type of aquatic life that can survive in a lake)

Review:

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