



High School Science Virtual Learning

College Biology

April 29, 2020



High School College Biology

Lesson: April 29, 2020

Objective/Learning Target:

Students will be able to discuss how chemicals are cycled through an ecosystem and the importance of conservation and restoration of ecosystems.

Let's Get Started:

1. What is the main abiotic factor that distinguishes primary from secondary succession?
2. Deserts and semi desert scrub cover about the same amount of surface area as tropical rain forests but contribute less than 1% of Earth's primary production, while rain forests contribute 22%. Explain this difference.

Answers:

1. Absence of soil (primary succession) versus presence of soil (secondary succession) at the onset of succession.
2. A square meter of tropical rain forest produces more than 20 times as much biomass as a square meter of desert or semidesert scrub because lack of water in a desert ecosystem limits productivity.

Lesson Activity:

1. Read over pages 27-38 of the Chapter 20 Notes. ([Linked Here](#))
2. Watch this Crash Course videos on
[Biogeochemical Cycles 1](#)
[Biogeochemical Cycles 2](#)
[Conservation and Restoration](#)



Practice:

1. What is an abiotic reservoir and why are they important?
2. How do humans disrupt the nitrogen cycle?
3. What are biodiversity “hotspots”?

Practice Answers:

1. An abiotic reservoir is where an element or compound is stockpiled or accumulates outside of a living organism. They are important because all the nutrients/elements can't be held by living organisms.
2. Human activities like burning fossil fuels and the use of fertilizers containing nitrogen add nitrogen to the biosphere.
3. Relatively small areas with a large number of endangered or threatened species and an exceptional number of endemic species. (Species that are found nowhere else)

More Practice:

1. According to the energy pyramid, why is eating grain-fed beef a relatively inefficient means of obtaining the energy trapped by photosynthesis?
2. Local conditions, such as heavy rainfall or the removal of plants, may limit the amount of nitrogen, phosphorus, or calcium available to a particular terrestrial ecosystem. Why is the amount of carbon available to the ecosystem seldom a problem.

More Practice:

3. A(n) _____ is a local grouping of interacting ecosystems with several adjacent habitats.

4. Movement corridors are

- a. strips or clumps of habitat that connect isolated fragments.
- b. landscapes that include several different ecosystems.
- c. edges or boundaries between ecosystems.
- d. buffer zones that protect the long-term viability of protected areas.

More Practice Answers:

1. Only about 10% of the energy trapped by photosynthesis is turned into biomass by the plant, and only about 10% of that energy is turned into the meat of a grazing animal. Therefore, grain-fed beef provides only about 1% of the energy captured by photosynthesis
2. Many nutrients come from the soil, but carbon comes from CO_2 in the air
3. Landscape
4. A



Review Tools:

-[Kahoot 3](#)

- Mr. Anderson videos about biogeochemical cycles: [Video 1](#),
[Video 2](#).

-[Restoration Ecology](#) Video.