

Carbon Cycle and Energy Flow Quiz Review

Quiz Date: _____

This quiz will consist of multiple choice, diagraming, and short answer questions. To study, look at your DQs, your reading notes/article, video notes, and the concepts learned from labs/simulations. Here are the learning targets you should be able to hit:

LT: I can diagram and describe how carbon flows through the biotic and abiotic components of an ecosystem.

LT: I can describe the Greenhouse Effect and the causes and impacts of rising greenhouse gas levels.

LT: I can use an energy pyramid to explain how energy flows through an ecosystem.

1. Only humans can remove carbon from this carbon sink/reservoir.
 - A. plants
 - B. animals
 - C. atmosphere
 - D. fossil fuels
2. Each day, plants and animals return CO₂ to the atmosphere by “breathing” in a process called _____.
 - A. combustion
 - B. respiration
 - C. photosynthesis
 - D. decomposition
3. One of the main ways CO₂ is removed from the atmosphere is _____.
 - A. photosynthesis
 - B. respiration
 - C. combustion
 - D. decomposition
4. Organisms at the _____ of an energy pyramid have the _____ amount of energy available to them compared to organisms at other levels.
 - A. top; most
 - B. top; least
 - C. middle; least
 - D. bottom; least
5. Processes that release CO₂ or CH₄ to the atmosphere are known as carbon _____.
 - A. sinks
 - B. reservoirs
 - C. sources
 - D. footprints
6. This is a way of describing all the carbon an individual, organization, or country puts into the atmosphere.
 - A. carbon source
 - B. carbon footprint
 - C. the Greenhouse Effect
 - D. photosynthesis
7. How does the Greenhouse Effect work? Use a diagram to help your explanation. Why is the Greenhouse Effect important? What are some current concerns about the Greenhouse Effect?

8. What processes are producing additional greenhouse gases, upsetting the natural flow of the carbon to and from the atmosphere? What evidence do scientists have that greenhouse gas levels are higher than they have been in the past?

9. What are some of the impacts increased greenhouse gas emissions to the atmosphere are having on people and the environment? What are scientists already observing? What other impacts are predicted for the future?

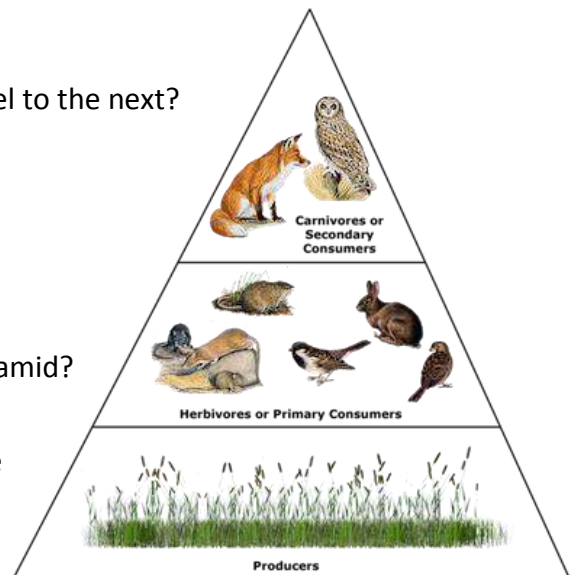
10. Use the energy pyramid below to help answer the following questions:

a. If there 10,000 units of energy in the producers, about how much is available for the fox?

b. Why isn't 100% of the energy transferred from one level to the next?

c. What is the primary source of energy in any energy pyramid?

d. If there are 50 kg of rabbits in this ecosystem, using the "Rule of 10", how many kilograms of producers would you expect to find? Explain your reasoning.



11. Draw an example carbon cycle, showing the atmosphere and at least 3 other major sinks/reservoirs. Include biotic and abiotic components in your diagram. Show how carbon flows to and from all four of these locations, labeling the process that connects each. Include one example of how humans are connected to the carbon cycle.

Vocab to know!

- Greenhouse gases (CO_2 , CH_4 , water vapor, N_2O)
- Greenhouse Effect
- Carbon sink/reservoir
- Carbon source
- Carbon cycle (know major locations and processes)
- Carbon footprint
- Photosynthesis
- Cellular respiration
- Decomposition
- Combustion
- Fossil fuels (oil, natural gas, coal)
- Producers
- Consumers (top consumer)
- Energy Pyramid
- Climate Change
- Biomass
- Rule of 10/10 % Rule
- Light energy
- Chemical energy
- Thermal energy
- Ice cores
- Biotic
- Abiotic