

Lab 13. Carbon Cycling: Which Carbon Cycle Process Affects Atmospheric Carbon the Most?

1. Zachary thinks that deforestation only affects the levels of carbon dioxide gas (CO_2) in the atmosphere because of burning the trees that get cut down. Elizabeth thinks cutting the trees down is enough to affect the levels of CO_2 in the atmosphere. Using what you know about the carbon cycle, provide supporting evidence for either Zachary or Elizabeth.

2. Some students in science class were discussing photosynthesis and the carbon cycle. The students were confused about the impact of burning fossil fuels. Burning fossil fuels releases CO_2 into the atmosphere, and plants use CO_2 during photosynthesis to grow. The students concluded that burning fossil fuels is a good thing because all the plants and trees will grow bigger. Use what you know about the carbon cycle and atmospheric CO_2 to help clear up their confusion.

3. In science, data and evidence are the same thing.
 - a. I agree with this statement.
 - b. I disagree with this statement.

Explain your answer, using an example from your investigation about carbon cycling.

4. When scientists study complex systems like the carbon cycle, they must focus on processes that occur on very different time scales. For example, trees can take 100 years to reach full size, fossil fuels have formed over millions of years, photosynthesis is an ongoing process, and trees can be cut down and burned in just a few seconds or minutes. Explain why understanding the different time scales for events is important, using an example from your investigation about carbon cycling.

5. Scientists study complex systems that have many related parts. Change in one aspect of a system can have impacts on many other parts of the system. Explain how changes in one aspect of the carbon cycle influence other aspects of the system.