Photosynthesis and Respiration

Analyzing Photosynthesis and Respiration

During photosynthesis, green plants use carbon dioxide and water to produce food in the form of glucose. Oxygen is given off as a by-product of this reaction. During plant respiration, the glucose is broken down to be used as energy by the plant. As the glucose is broken down, carbon dioxide is released by the plant. Carbon dioxide, oxygen, and water form a continuous cycle during these two processes.

Study the diagram of the carbon cycle that is shown in Figure 1. Answer the questions based on the diagram and your knowledge of photosynthesis and respiration.

1. The concentration of CO\(_2\) in the atmosphere remains at a stable 0.004 percent. Which two processes keep this concentration stable? ________________________________________

2. Plants depend upon the activities of animals for a continuing supply of which substance? ________________________________________

3. Which process removes CO\(_2\) from the atmosphere? ________________________________________

4. Which process adds CO\(_2\) to the atmosphere? ________________________________________

5. Into which organic compound does photosynthesis convert the carbon of CO\(_2\)? ________________________________________
6. After plants are eaten by animals, what process changes the carbon in these organic compounds back to CO₂? ____________________________

7. Respiration and photosynthesis play a role in the O₂ cycle. In the space below, make a diagram that shows how photosynthesis and respiration take part in the O₂ cycle.

8. In your own words describe how the processes of photosynthesis and cellular respiration are interdependent. ____________________________
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9. Combine your diagram from question 7 and Figure 1 into one diagram that demonstrates both cycles at the same time.