

Simplified Outline of Presentation

Title: Photosynthesis, Respiration, and Combustion: Carbon Cycling in Action

SOL Objectives: Biology (2d, 8b), Life Science (6a-d)

- I. The Chemistry of Carbon Flow
 - a. The Common forms of Carbon
 - b. The processes and reactions of the Carbon Cycle
 - c. The storage sites and sinks of the Carbon Cycle
- II. Carbon Flow Game
- III. Use of the Li-Cor Gas Analyzer
 - a. Discussion of the process of photosynthesis
 - i. What organisms undergo photosynthesis?
 - ii. Explain differences between the light-dependent and light-independent reactions
 - iii. How does carbon get used in photosynthesis?
 - b. Discussion of the process of respiration and the transformations of carbon
 - i. What organisms undergo respiration?
 - ii. Discussion of respiration's ultimate goals and the transformations of carbon during it
 - c. Discussion of combustion and decay and the transformations of carbon
 - i. Explanation that combustion and decay are the same chemical process
 - ii. Discuss natural and human-induced instances of combustion/decay
 - iii. What happens to carbon during combustion/decay?
- IV. Explanation of how photosynthesis, respiration, and combustion/decay form the carbon cycle
 - a. Explain the normal functions of the carbon cycle
 - b. Explain that unnatural disturbances in the carbon cycle can contribute to climate change