

12- 8 What is the Carbon Cycle?

Carbon Cycle Living things are made up of organic compounds. Organic compounds contain carbon. Carbon is found in the atmosphere in the form of carbon dioxide, or CO_2 . The process by which carbon is recycled is called the **carbon cycle**. It is repeated movement of carbon between Earth's atmosphere and living things. Photosynthesis and cellular respiration are the main parts of the carbon cycle. Producers use carbon dioxide to make food in photosynthesis. Some of the carbon dioxide is returned to the atmosphere when this food is used for energy during cellular respiration. The rest is stored in the producer's body as sugar. It becomes available to consumers for energy. Primary consumers eat producers. They release some carbon dioxide through cellular respiration. This transfer of carbon continues throughout the food chain.

All organisms eventually die. Their bodies are broken down by decomposers. Decomposers release carbon dioxide into the atmosphere through cellular respiration.

Fossil Fuels **Fossil Fuels** are a nonrenewable energy source formed from the remains of plants and animals that lived and died long ago. They are a major source of carbon. Oil, coal, and natural gas are three types of fossil fuels. The carbon found in ancient organisms has been transformed into oil, coal, and natural gas by high temperatures and pressure. This process took millions of years. When fossil fuels are burned to release energy, carbon dioxide is released into the atmosphere.

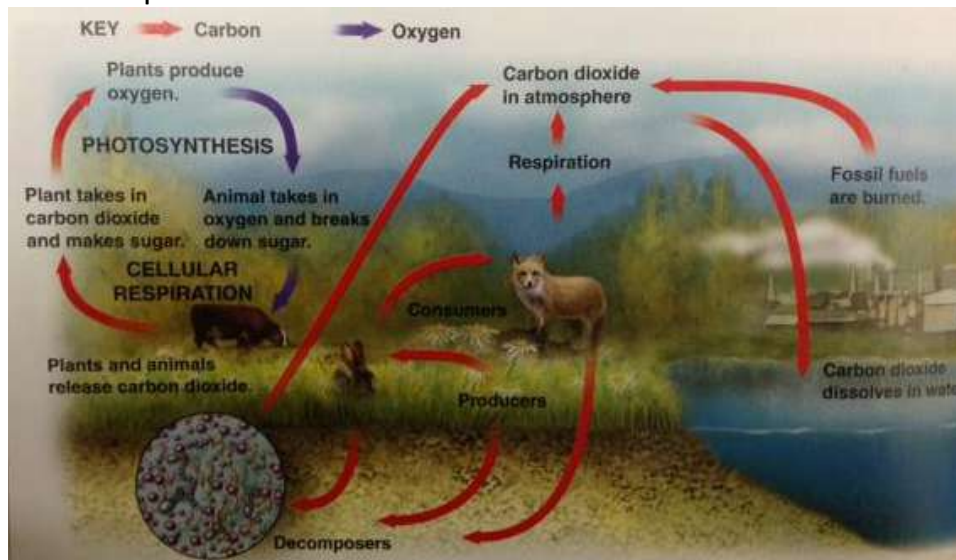


Fig. 12-23 The repeated movement of carbon between Earth's atmosphere and organisms is called the carbon cycle.

Human Activities and the Carbon Cycle In the late 1800's, people started making more goods in factories. This required more energy. Humans began using more fossil fuels as an energy source. This led to an increase in the amount of carbon dioxide released into the atmosphere.

Another factor that contributed to the release of more carbon dioxide into the atmosphere is deforestation. Deforestation is the excessive removal of forests. Tens of millions of acres of forests are cut down each year. In many cases, deforestation occurs because people need the land. The carbon stored in trees is released into the atmosphere through burning. The burning of fossil fuels and deforestation has added to the amount of carbon dioxide in the atmosphere. It has increased 28% since 1850.

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Lesson Review

Complete the following.

1. What is the carbon cycle? _____

2. How do producers use carbon dioxide? _____
3. How is carbon dioxide released into the air by consumers? _____
4. What are fossil fuels? _____

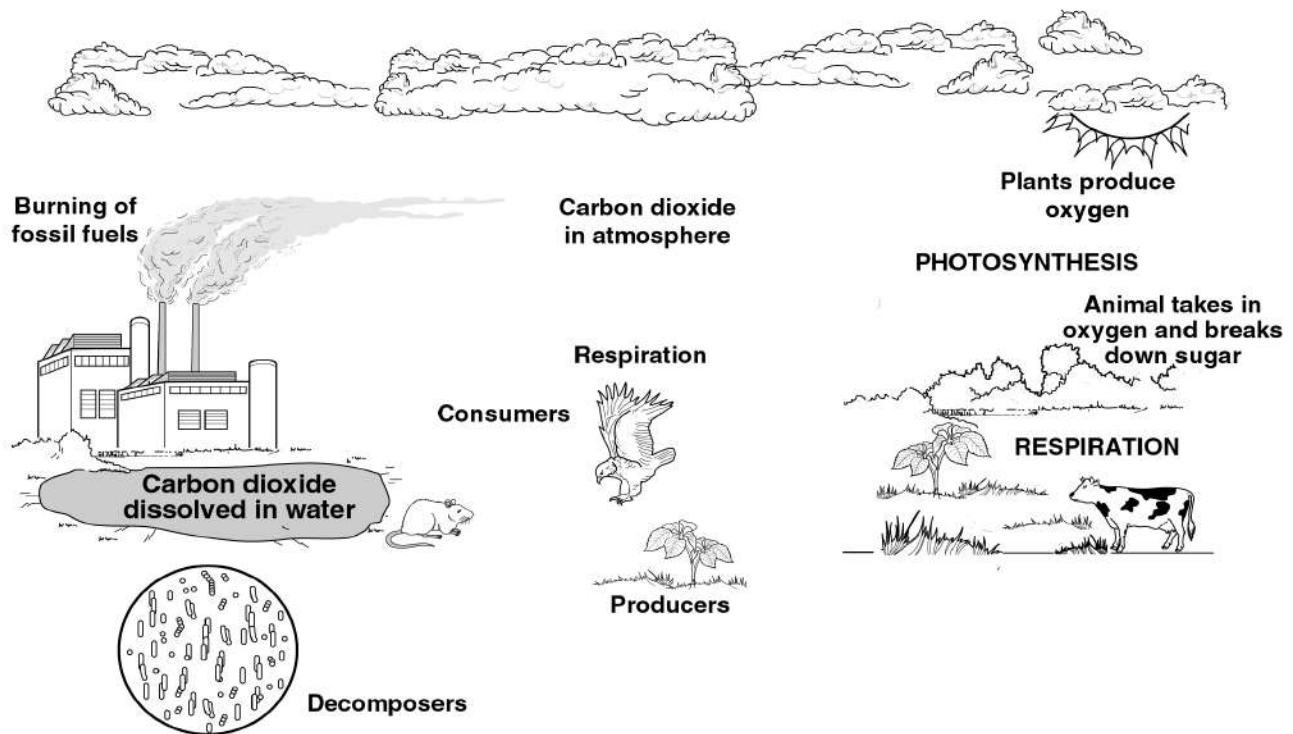
5. How do fossil fuels release carbon dioxide into the atmosphere? _____
6. Name three types of fossil fuels. _____
7. What led humans to burn more fossil fuels? _____
8. What is deforestation? _____

Skill Challenge

Skills: *identifying, classifying*

Draw arrows to show the direction of energy throughout the carbon cycle.

You may use your text if necessary.



CHECKING CONCEPTS

1. During which life process do producers use carbon dioxide? _____

2. What role do decomposers play in the carbon cycle? _____

3. What are fossil fuels? _____

4. Why has the amount of carbon dioxide increased in the atmosphere since 1850?

5. What is deforestation? _____
