

Carbon Cycle Poster

Carbon Cycle: Carbon is an extremely common element on earth and can be found in all four major spheres of the planet: biosphere, atmosphere, hydrosphere, and lithosphere. Carbon is part of both the living and non-living parts of the planet, as a component in organisms, atmospheric gases, water, and rocks. The carbon contained in any of the planet's spheres does not remain there forever. Instead, it moves from one sphere to another in an ongoing process known as the carbon cycle. The carbon cycle is extremely important on earth as it influences crucial life processes such as photosynthesis and respiration, contributes to fossil fuel formation, and impacts the earth's climate.

Besides the relatively small additions of carbon from meteorites, the amount of carbon on the planet is stable. But, the amount of carbon in any given sphere of the planet can increase or decrease depending on the fluctuations of the carbon cycle. The cycle can be thought of in terms of reservoirs (places where carbon is stored) and flows (the movement between reservoirs). The atmosphere, the biosphere, the hydrosphere, and the lithosphere are the reservoirs and the processes by which carbon moves from one reservoir to another are the flows. Although carbon is extremely common on earth, pure carbon is not common. Rather, carbon is usually bound to other elements in compounds. Thus, when carbon moves or cycles, it is usually doing so within compounds, such as carbon dioxide and methane.

In general, the short-term carbon cycle encompasses photosynthesis and respiration. On land, there is a flow of carbon from the atmosphere to plants with photosynthesis and then a flow back to the atmosphere with plant and animal respiration and decomposition. For aquatic plants, photosynthesis involves taking carbon dioxide dissolved in the water around them and respiration and decomposition put carbon dioxide back into the water. In addition to moving between plants and the atmosphere or the water, carbon dioxide is also constantly moving between the atmosphere and water via diffusion. The long-term carbon cycle encompasses more of the lithospheric processes. It involves the weathering and erosion of carbon-containing rocks, the accumulation of carbon-rich plant and animal material in sediments, and the slow movement of those sediments through the rock cycle.

Vocabulary

Respiration: plant and animal cells break down sugar, which results in carbon dioxide

Photosynthesis: plants use carbon dioxide and energy from the sun to build sugar

Diffusion: a process that moves particles, such as atoms or molecules, from one place to another (from higher concentration to lower concentration)

Sedimentation: process of laying down sediments and forming sedimentary rocks

Weathering: processes by which rocks exposed to the weather change and break down

Erosion: wearing away and movement of rock and sediment, often by water, wind, glaciers, and waves

PROCEDURE

Each piece of paper will represent one of the four spheres: biosphere, atmosphere, hydrosphere, and lithosphere.

Write the names of the four spheres (one on each sheet of paper) and draw something that represents that sphere.

Place (glue or tape) four circles onto their poster, making sure that they are spread apart.

Your Task is to place the arrows between the appropriate spheres and the arrows must show how carbon moves from one sphere to another.

Place the arrows between the appropriate spheres and facing the appropriate direction on your poster.