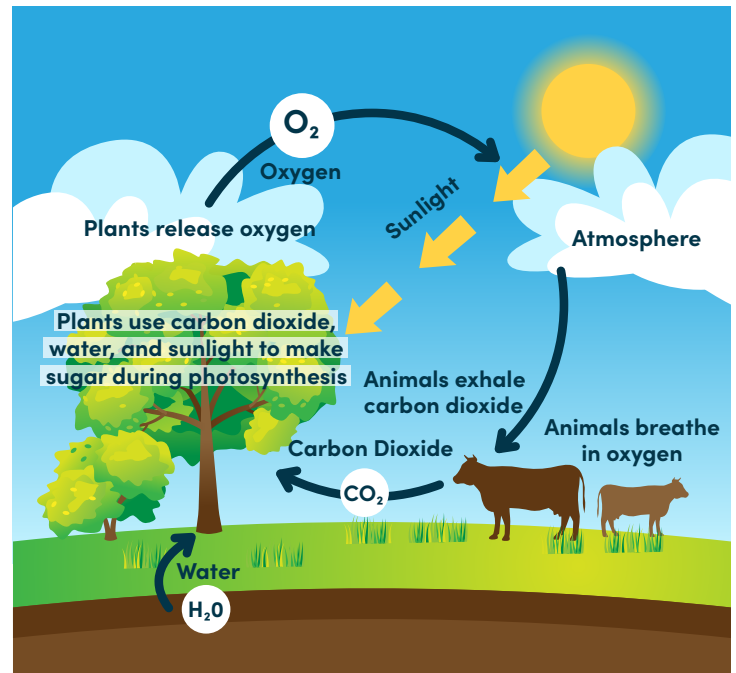


Photosynthesis: Cycling of Matter and Flow of Energy

Photosynthesis is the process through which plants, algae, and many microorganisms use energy from sunlight to make sugars from water and carbon dioxide. These sugars can be used immediately as a source of energy, or they can be stored for growth or later use. During photosynthesis, carbon dioxide is removed from the atmosphere and oxygen is released into it.

Even though animals don't conduct photosynthesis, photosynthesis is still important to them! Some animals eat photosynthetic organisms, such as plants. Those animals get energy that came from the sun and was converted into sugars by the plants. Even carnivores get energy that ultimately came from the sun because they eat animals who ate plants.

Animals also benefit from the oxygen that's released during photosynthesis. Animals breathe in oxygen and then breathe out carbon dioxide. That carbon dioxide is, in turn, needed for photosynthesis!



Answer the following questions about photosynthesis based on the passage you read above.

- What do photosynthetic organisms need to conduct photosynthesis?
Sunlight, carbon dioxide, and water
- What do photosynthetic organisms produce through photosynthesis?
Sugar and oxygen
- Why do plants, algae, and many microorganisms conduct photosynthesis?
(Sample answer) Plants conduct photosynthesis to produce sugars. These sugars can be used immediately for energy or stored for growth or later use.
- How do animals obtain energy?
(Sample answer) Animals eat food and breathe in oxygen to obtain energy.
- What gas do animals release into the atmosphere?
Carbon dioxide
- Explain how animals and photosynthetic organisms depend on each other.
(Sample answer) Animals eat photosynthetic organisms, or other organisms that have eaten photosynthetic organisms, and breathe in oxygen that was released into the atmosphere during photosynthesis. Animals use this matter to produce energy and materials for growth and survival. In turn, photosynthetic organisms take in the carbon dioxide released by animals to conduct photosynthesis.
- Explain how all living things, even carnivorous animals, ultimately get their energy from the sun.
(Sample answer) Photosynthesis is powered by sunlight, and it produces the sugars that photosynthetic organisms need for energy. Animals consume photosynthetic organisms (or other organisms that have eaten photosynthetic organisms) and breathe in the oxygen they produce for energy. Therefore, all energy sources that animals depend on for life processes can be traced back to energy from the sun.