Photosynthesis

Purpose & SOL

- Students will observe the importance of sunlight for plant grow, and explore how plants derive energy from the sun through the process of photosythesis.
- Science 2.8 (c), 3.10 (a), 3.11 (a), 4.4 (c)

Materials

- A bucket or dark fabric to cover the plants

Preparation

- A week prior to doing this lesson, cover a plant up with a bucket so no light reaches the plant. Otherwise, tend to it the same as the other plants.

Engage

- Where do plants get the majority of their energy (food) from?
- Photosynthesis is the process plants use to make food by getting energy from the sun, just like we get energy from the food we eat. Plants do not have to cook their food to eat it, they make their own food (autotroph vs. heterotroph). The light from the sun is absorbed by the plants' cells. These cells make up the plants' leaves and the plant as a whole.
- Photosynthesis occurs when plants use energy from sunlight to produce sugar ($C_6H_{12}O_6$) and oxygen (O_2) from carbon dioxide (CO_2) (absorbed through their leaves), and water (H_2O) (absorbed through their leaves and roots.)
- Discuss the relationship between plant respiration and animal (human!) respiration=>We produce CO_2, which plants need and plants produce O_2, which we need.

Procedure

1. Explain to the students how you covered a plant one week ago.
2. Ask them to make a prediction about what you think happened to the plant that was covered compared to the plant that was left alone. Discuss predictions and reasons for their guess.
3. Unveil the plant and instruct students to make observations. Split the class into two groups and have them observe each plant for a few minutes. Tell the groups to switch stations so they observe the other plant.
4. Discuss the differences between the plants. Compare your observations to the predictions.
5. How did the plants look different? How did covering the plant impact it's growth or survival?

Discuss what would happen if the plant was left covered for another week. Discuss the process of photosynthesis and how it was different in each plant.

Did You Know?

Most people when asked where plants get their nutrients from will respond that plants get their nutrients from the soil. In fact, plants receive the majority of their nutrients from the sun.

Classroom Extension

Have the students draw a diagram that shows the process of photosynthesis.