

Photosynthesis Model Project

NGSS Standard: MS-LS1-6 - Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.

Florida State Benchmark: SC.4.L.16.2 - Explain that plants use energy from the Sun, air, and water to make their own food.

Objective:

- Create a model of photosynthesis to demonstrate the process by which plants produce food.
- Visualize the role of sunlight, water, and carbon dioxide in photosynthesis.

Materials:

- Cardboard pieces
- Green construction paper or foam
- Scissors
- Glue or tape
- Markers
- Photosynthesis diagram handouts
- Cut-out plant parts (leaves, roots, stem) or printable templates
- Flashlights (if indoors) or access to sunlight

Safety Precautions:

- Handle scissors and glue safely.
 - Use flashlights carefully—do not shine directly into eyes.
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Procedures:

1. **Step 1:** Distribute the materials to students. Give each student a cardboard base, green construction paper or foam, scissors, and other supplies to build their model.
2. **Step 2:** Have students cut out and arrange plant parts (roots, stem, and leaves) on the cardboard. The parts should be labeled with markers.
3. **Step 3:** Ask students to represent **sunlight** using yellow or orange paper, and show how it interacts with the plant model. This can be done with arrows or by drawing light beams onto the plant.
4. **Step 4:** Instruct students to show how **carbon dioxide** enters the plant through the leaves and **water** enters through the roots. Use arrows to represent the flow of energy and matter in the photosynthesis process.

5. **Step 5:** Once the model is completed, ask students to present their models to the class and explain how photosynthesis works. Students should explain how sunlight, water, and carbon dioxide work together to produce food and oxygen in the plant.
 6. **Step 6:** Review the key elements of photosynthesis as students present, using diagrams as a visual reference to reinforce the concepts.
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Note: Clean-up:

- Students should clean up by placing all scraps in the recycling bin and returning unused materials to their proper places. Make sure scissors and flashlights are safely stored.