

Producers and Energy Transfer
5th Grade
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References

- Columbus Public Schools 5th grade curriculum guide pages 33-40.

Benchmarks

- GLI LS-1: Describe the role of producers in the transfer of energy entering ecosystems as sunlight to chemical energy through photosynthesis.
- GLI LS-2: Explain how almost all kinds of animals' food can be traced back to plants.

Objectives

- Students should be able to describe the role of plants in the ecosystem and how they accomplish that role. They should also be able to describe photosynthesis. They should learn what plants need to survive and thrive.
- Students should be able to the relationships between producers, consumers, and decomposers. And name what living things make up each category.

Materials

- Science journals (for each student)
- Plant seeds, soil, pots (enough for 1 per 4 children, divide into groups)
- Pictures of producers, consumers, and decomposers (if not possible, illustrate on board)

Day 1

Begin the discussion by asking questions of the students relating to the energy pyramid and the organisms' roles in this pyramid. Describe the relationship between producers, consumers, and decomposers. Ask for examples of each. Describe the distinctions within the consumer group (carnivores, herbivores, and omnivores) and ask for examples (give some as well). Also go through examples of both producers and decomposers.

Continue with an example of producers, consumers, and decomposers. Break the class into groups of 4 (use these groups later for the plant experiments to come). Have the groups decide who will be producers, consumers, and decomposers. It is up to the group whether or not they will have each category (if no producers, everything dies, etc.). Let the groups explain their ecosystem and how it "works". Point out the groups errors and praise their accomplishments.

Near the end of class, explain that each group will receive their own plant and perform a joint experiment with the rest of the class. Explain briefly the experiment and make sure they remember their groups (you may want to write them down).

Day 2

Begin the class with a review of the previous day's material. A small post test may be in order (nothing too fancy or complicated, maybe a question and answer period). Explain the plant experiment and begin the experiment.

- Plant experiment
 - For the next few weeks, each group will take care of a plant with specific instructions for care. The instructions for care are described in the table below.

	Control	No Light	No Water	No Air
Plant 1	X			
Plant 2		X	X	X
Plant 3		X		
Plant 4			X	
Plant 5				X
Plant 6	X			

This experiment will be revisited and observations will be made in their science journals. Each student will have a brief description of the experiment in their journal. The experiment is designed to elucidate the fact that plants need to breathe (CO₂) and need water and light to live. Students should be able to describe the experiment and the things plants need in order to survive as well as how plants fit into the ecosystem.