

# **Plants and Survival**

## **5<sup>th</sup> Grade**

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### **References:**

Producers and Energy Transfer, Theo Nicholson III and Jamie Melton  
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 – 4 Summarize that organisms can survive only in ecosystems in which their needs can met. The world has different ecosystems and distinct ecosystems support the lives of different organisms.

### **Objectives**

- Students should be able to describe the role of plants as the producers in ecosystems. They should also be able to describe photosynthesis. They should learn what plants need to survive and thrive.
- Students will discuss why different plants survive in different climates/environments.

### **Materials**

- Science journals (for each student)
- Plant seeds, soil, containers for plants (enough for as many experiments the students would like to perform- most likely less than 10)
- Anything the students decide to use in their experiment

### **First Activity**

Discuss 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).

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. They should draw their animal/plant on a piece of paper and write a number by it (to represent the number of animals/plants/decomposers). It is up to the group if they will have each category. 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).

## **Second activity**

Students will be asked what producers need to survive. We will review photosynthesis and discuss abiotic factors. Students will be asked to design an experiment to determine what a radish seed needs in order to germinate and thrive. We will explore as many factors as the students generate. (If the students fail to generate something critical to examine (such as amount of water), ask them questions to get them rolling.

Students will diagram their experiment and be told to record the amount/weight of anything that they add to their plant. We will measure the plants every week.

The experiment is designed to elucidate the fact that plants need to breathe ( $\text{CO}_2$ ) and need water and light to live. Pollution will interfere with a plants ability to survive. 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.