

## Plants Need Light – to Produce!

**Adapted from:** Life Lab “Star Food” from [The Growing Classroom](#) and [Corvallis School District](#) Third Grade Science unit, “Plants as Producers”

**Overview:** Plants need light to grow. Students learn about the needs of plants, and compare plant growth when aluminum foil is used to reflect more light onto the plant.

**Subject area:** Science

**Grade level:** 3<sup>rd</sup>

### Next Generation Science Standards:

**3-LS3** Heredity: Inheritance and Variation of Traits

- **3.LS3.2.** Use evidence to support the explanation that traits can be influenced by the environment.

**Objectives:** Students will be able to discuss the needs of plants, identify plants as producers, and discover whether or not photosynthesis can be increased by reflecting more light onto a plant.

**Prep time:** 30 minutes

**Initial lesson time:** 30 minutes

**Follow-up lesson and observation time:** 15 minutes per week for 6-8 weeks

### Materials needed:

- Two small garden beds
- Seedlings to transplant (larger ones such as broccoli and tomatoes are preferable)
- Aluminum foil
- Garden spades
- Watering cans

**Space needed:** Garden

**Staff needed:** 1

**Preparation steps:** Prepare garden beds for planting.

### Discussion:

- How do plants get food? (they make it)
- What do plants need in order to make food? (sun, air, soil, water, space)
- How do plants make their own food? (they receive energy from the sun, in a process called photosynthesis)
- Where are plants in the food chain? (producers)

- What do you think would happen if we increased the amount of sunlight plants receive? How could we do this?
- Explain each part of an experiment to students (problem, observation, hypothesis, experiment, results, and conclusion). Discuss variables and control in an experiment.

**Action:**

1. Explain the experiment the students will be conducting.
2. Demonstrate how to plant a seedling.
3. Have students plant each bed with the same amount and arrangement of crops.
4. Demonstrate how to place the collar of aluminum foil around the base of each plant.
5. Have students place a wide collar of aluminum foil around the base of each plant in one bed and leave the other (control) bed alone. Try to have as much of the bed covered with foil as possible, but leave enough space around the base of the plants to water. If necessary, weight down the foil with rocks. Try to treat each bed exactly the same.
6. As a class, measure the height of each plant and record the date. Each time the class comes out to the garden, have them continue to observe and measure the height.
7. After six to eight weeks, have students present their results and the average height of the plant in each bed.

**Conclusion:** *Do you think the plants of one bed will grow bigger or faster? If so, why? Do you think the plants could get too much light? (Plants can sunburn.) What would happen if you did a similar experiment adding more water?*