

Investigation Two – Green Apples

Standard V Students will understand that the sun is the main source of heat and light for things living on Earth. They will also understand that the motion of rubbing objects together may produce heat.
Objective 1 Provide evidence showing that the sun is the source of heat and light for Earth.
Intended Learning Outcomes <ol style="list-style-type: none">1. Use science process and thinking skills4. Communicate effectively using science language and reasoning

Standard
V

Objective
1

Background Information

All seeds have enough food inside to start to grow. Seedlings in light will grow green and strong. Seedlings in the dark will grow weak and yellow. Plants need light to make food. Without light, plants will lose their color and soon die.

Pre-Assessment/Invitation to Learn

Show the students a large piece of white batting cut into the shape of an apple. Ask them, “How can I turn this white material green?” Let the children brainstorm for answers. Next tell them that you have a very special way to change the color.

Instructional Procedure

Activity 1

1. Place the batting in the pie tin. Wet it all over. Sprinkle alfalfa seeds on top so that it covers the batting. Spray with spray bottle to wet the seeds. Repeat with a second batting of alfalfa seeds.
2. Put one of the pie tins in the sunlight and the other in a dark cupboard.
3. Give each child the student worksheet on seed observation.
4. Each day water the sprouts in the morning and afternoon. On the first, third, fifth, and seventh days have the children write what they observe on the observation sheet.

Activity 2

1. Take two paper cups and six lima beans. Fill both cups nearly to the top with soil. Put three seeds in each cup. Plant them so they are about 1 inch deep.

Materials

- A piece of batting cut into an apple shape
- Pie tin
- Alfalfa sprouts
- Spray bottle
- Two paper cups for each child
- Six lima beans

2. Add enough water to each cup to make a small puddle on top. Place one cup in a dark cupboard. Place the other in a bright sunny windowsill. Each day add a teaspoon of water to each cup. In a few days, seedlings will start to sprout in both cups.
3. Leave the cups where they are. Continue to water the plants in an identical manner. In a few days, the plants in the sunlight will be big and healthy, but the plants in the closet will stop growing and die.

Curriculum Extensions

Math –

- Measure the length of the plants each day for a couple of weeks. Keep a record of their growth. (*Standard IV, Objective 2*)

Science –

- Have children experiment with placing seeds in different places. One pan of seeds could be placed in the refrigerator, on the counter, or near a heating vent. Predict what will happen. Check the plants daily and record your observations. (*ILOs 1,3,4*)
- Students could start seeds in bottles with dark paper placed on the bottles in different ways. As plants start to grow, they will bend toward the light in different ways. (*ILO 1*)

Assessment Suggestions

- See how well the students follow directions.
- Have the students observed and recorded accurately on their worksheet?

Resources

Books:

- *Who Eats What?* by Patricia Lauber (Harper Collins Publishers)
- *Seeds* by Melvin Berger (Scholastic)
- *The Nature and Science of Seeds* by Jane Burton (Garth Stevens Publishing)
- *Outdoor Science Adventures* by Melvin Berger (Scholastic)
- *What Shall I Grow?* by Ray Gibson (Scholastic)
- *How Do Plants Get Food?* by Melvin Goldish (Raintree Steck-Vaughn)
- *Food* by Sally Hewitt (Children's Press)
- *What is a Plant?* by Bobbie Kalman (Crabtree)
- *Do You Know How Plants Grow?* by Stephen Parker (Warwick Press)
- *The Magic School Bus Gets Planted: A Book About Photosynthesis*, ISBN 0-590-92246-7

Videos:

- *How Seeds Get Here...and There*, MBG Videos
- *What's Inside a Seed?* Coronet, The Multimedia Co.
- *All Things Plant* VH, Catalog Number 4448
- *Magic School Bus Gets Eaten* VH, 22023

Web sites:

- www.dole5aday.com/about/citrus.organges.html
- www.icangarden.com/kidz.htm
- www.arborday.net/kids/kid_lings.htm
- <http://www.ajkids.com/> search plants
- http://www.nasaexplores.com/lessons/01-028/k-4_2-t.html lesson plan on plants with leaves wrapped in red, green and blue clear wrap
- <http://www.ed.gov/pubs/parents/Science/plants.html> lesson on covering leaves of plants and its effect.
- <http://www.scholastic.com/magicschoolbus/games/teacher/eaten/index.htm> lesson plan and student worksheet on food chains.
- <http://www.scholastic.commagicschoolbus/games/teacher/planted/index.htm> lesson plan and student worksheet on plants and their need for sunlight.

Homework and Family Connections

Have the children talk with their families about gardening. Perhaps they can plan a Family garden together. Visit a nursery to view all the variety of seedlings that are growing. Talk about the conditions in a nursery that make growing plants so ideal.

Name: _____

Observe the Growth of Alfalfa Sprouts

Seeds Placed in Sunlight			
	Color	Measurement	Observation
Day 1			
Day 3			
Day 5			
Day 7			

Seeds Placed in Closet			
	Color	Measurement	Observation
Day 1			
Day 3			
Day 5			
Day 7			