

ENVIRONMENTAL ENCOUNTERS

Lesson Plans for the Science of Water



Growing Plants from Seeds

Suggested grade level:

First grade

Objective:

Students will be able to describe the elements and conditions that help plants grow and how plants help people.

Curriculum ties:

- ✓ First grade Science Standard 3 Objective 1 a-e, Objective 2 d
- ✓ Math Standard 5 Objective 1 a-b, Objective 2 a
- ✓ Health Standard 1 Objective 1 b, d

Time needed:

- ✓ Prep: 1-2 hours
- ✓ Pre trip: 3+ hours over the course of several weeks
- ✓ Garden: 1-2 hours
- ✓ Post trip: 15 minutes every day or a few times a week for 2 months

Materials needed:

- ✓ Untreated seeds, such as peas, marigolds, nasturtiums, blue flax, and/or butterfly weed
- ✓ Potting soil
- ✓ Small pots or paper cups for each student or group of students
- ✓ A few see-through cups, jars, or containers
- ✓ Plant fertilizer
- ✓ Paper and writing or drawing utensils for each student
- ✓ Field Notes (attached), if desired

Teacher notes:

This activity teaches children about how plants grow and use resources such as sunlight and water, and about the benefits plants provide for people. (*Always check with parents before allowing students to eat anything they may grow.*) For the students' safety, use seeds that are not treated with fungicides, help students when applying fertilizer or apply it for them, and have students wear gloves and/or wash their hands when handling soil.

Explain to the students that plants need a few things to grow. They need soil, nutrients from the soil (often added in the form of compost or fertilizers), water to move the nutrients through their systems (like blood moves nutrients through ours), air, and sunlight. They turn sunlight into energy, which we get from plants when we eat the edible parts. They use the air to breathe, except they take in carbon dioxide and give off oxygen, which makes the air cleaner for people. They also help keep our water clean by filtering some of the pollution out of water and by preventing erosion, which can wash dirt into water supplies and cause landslides and floods.

**Procedures:**Preparation

Get a packet of untreated seeds such as peas, some potting soil, and enough paper cups (or small pots) for each student or group of students to have one. You can also get a few extra see-through cups or jars – plants grown in these will allow students to see their roots, but may not thrive because of the organisms that grow in the soil when it is exposed to light. You may also want to plant a few plants ahead of time in larger pots to provide an example to the students. Peas may take a week or two to sprout, and about two months to produce peas.

Call 801-565-4314 to schedule your visit to the Conservation Garden Park at Jordan Valley.

In the classroom

Help the students punch small holes in the bottom of their cups so extra water can drain out. Fill the cups with soil, put a small hole in the soil about twice as deep as the seed is wide, and cover the seed again with soil. Have the students water their seeds when the soil feels dry and keep their cups in a sunny window or a sheltered but sunny place outside. You should fertilize them for the students according to the instructions on the fertilizer. As the plants grow, students can talk about which plants do better than others and why (some get more light, too much heat, more or less water, different amounts of fertilizer, etc.). You can also use the seeds growing in the see-through containers to show them the roots. If the plants grow successfully, the students can watch the flowers form and the peas develop in the pod. Plants started earlier by the teacher can also demonstrate how the peas develop.

Field trip

Now that the students have an understanding of what is necessary for seeds to grow into plants, tell them they are going to get a chance to see a variety of plants and learn more about their seeds at the Garden. Have the students draw pictures of the plants they observe at the Garden. A Garden guide will point out seeds to the students (this can be grass seeds, perennials, or trees – mostly in late summer or fall). They will observe and draw the seeds and discuss how the seeds might be spread and where the best places would be for them to grow based on what they have learned. They will also observe the “First Amendments” exhibit and the “Outsmarting Invaders” exhibit and discuss how fertilizers help plants and why fertilizers and pesticides should be used carefully. Finally they will see the vegetable garden and talk about how plants help people. This includes the food and other resources they produce and the services they provide like cleaning the air and water. Students can also collect leaves that have fallen from plants if they visit in the fall, and record in their Field Notes what colors they see in the Garden or the size of the seeds they observe.

Follow up

Students will grow seeds of plants they saw at the Garden and observe the plants’ growth. Provide the students with seeds of some of the native plants you saw at the Garden. Some seeds, like blue flax or butterfly weed are readily available in stores. You may also want to consider providing some other easy-to-grow seeds such as marigolds, nasturtiums, or short sunflowers. Have the students experiment with plant growth by giving some plants more or less light, water, or fertilizer.

Assessment:

During the post-trip activity, students should be able to explain what conditions and resources plants need to grow, and some of the benefits plants provide to people, such as food or cleaner air and water.