New Jersey Agriculture in the Classroom

Growing Gloves

OVERVIEW: Transparent plastic gloves serve as the container for seed germination in this seed sprouting experiment. Students place a different type of seed on moistened cotton balls inside each finger of a glove. This activity is perfect for comparing the germination rates of five types of seeds.

GRADES: 2-5

OBJECTIVES: Students will be able to:

- Observe and describe the process of seed germination.
- Compare the germination process of different seeds.
- Graph the germination rate of each seed and compare them.

MATERIALS:

Transparent latex or plastic gloves, available from discount or drug stores or perhaps from your nurse's office or cafeteria. (Clear disposable food service gloves work best.)

Five different types of seeds. You can use five different herbs, for example, or compare the germination rates of large seeds (pumpkin, bean, squash) to small seeds (radish, tomato, pepper). You could also compare the germination rates of cool-season plants like lettuce, kale, and peas, to warm season plants like tomatoes, cucumbers, or melons.

Bowls or other open containers for seeds

Cotton balls

Bowl filled with water

Twist ties or string

PROCEDURE:

Discuss the meaning of the word germination and the process with your students. What do they think happens first when a seed germinates? What part of the plant will appear first? What part of the plant will appear last? How long do they think it will take to see the seed sprout? Do they think big seeds or small seeds will germinate faster?

Explain to students that you are going to plant seeds in a way that the students will be able to watch the entire germination process and how long it takes different seeds to germinate.

Begin by writing the name of a different seed on each finger and thumb of the glove. Advise students to write these labels near the top of the glove, so the writing doesn't obscure the view of the seeds. Next, dip a cotton ball into some water and squeeze it gently to remove excess water. Press the moist cotton ball into one of the containers of seeds.

Slip the cotton ball into the correctly labeled finger carefully so the seeds don't dislodge. Pushing the cotton into the finger with a pencil makes it easier. Do the same for each of the five seeds. For large seeds such as pea or pumpkin seeds, place the seed in the middle of the cotton ball and fold the sides up around the seed to secure it in place. Seal the top of the glove with a twist tie or string.

You should see the seeds begin to sprout within a week. There is no need to water the seeds. The cotton ball contains enough water to germinate the seeds. You can even experiment with the best placement of the gloves – is there a difference in the germination rate if the gloves are placed in a dark closet or on a bright windowsill? In a cool place or a warm place?

Ask the students to record their observations of the germination process daily in their science journals. They should record the number of days it takes each seed to send out a root, to sprout above ground, and to develop leaves. When all five plants have leaves, the students graph the different germination rates, compare them, and calculate the differences between the rates.

When the small sprouts have leaves, you can remove the tiny plant from the glove and replant it in a small pot with soil to keep the plant growing. Plant the cotton ball with the roots into the soil.

Evaluation:

Students' written observations in journals.

Students' graph of each seeds germination rate.

Ask students to write a paragraph or several paragraphs explaining the differences they observed in the germination of the different seeds.

Extension:

Ask the students to graph the germination progress of each different seed to compare the germination rates. How many days does it take each seed to sprout roots? How many days until a stem appears? How many days until the plant has leaves?

New Jersey Learning Standards

Science: 2:LS2.A 3:LS1.B 4:LS1.A 5:LS1.C

English Language Arts: 2:W.2.2,4,8 3:W.3.2.A-D; W.3.4,8 4:W.4.2.A-E; W.4.4,8
5: W.5.2.A-E; W.5.4,8
Math: 2.MD.D 3.NF.A 4.NF.B,C 5.NF.A