



LESSON SUMMARY

To give students an opportunity to observe the internal part of a seed and discover how a seed germinates.

Activity Information

Estimated Duration: 20 minutes preparation, 1 to 2 weeks growth

Materials: Fresh lima beans (two per child), pie plate or foam cups, paper towels, water, magnifying glasses, tweezers, metric rulers, one small clear plastic container with lid per group (e.g. pill vial).

Setting: Indoors

ACTIVITY

Activity #1

(You could include a second seed type and corn kernels)

Step 1 Soak lima beans overnight on a pie plate or in foam cups lined and covered with paper towels. Keep moist

Step 2 Distribute one soaked and one dry lima bean or corn kernel to each student. Have magnifying glasses available for close study. Encourage students to carefully observe and generate questions about their seeds, such as:

- What does the skin of each look like?
- How does each bean feel?
- How does each bean smell?
- How would you describe your bean to a friend?
- Which bean do you think would be easier to open?
- What do you think you will find inside of each bean?

Have students measure the length and width of their bean. Have them find something that is the same size as their bean.

Step 3 Demonstrate how to peel away the seed coats of each bean carefully (this will be much easier for the soaked bean). Try using tweezers to pull apart the fleshy seed parts that contain the food reserves for the seedling (cotyledon). If they are careful, students will find a complete plant embryo (root, the beginning of a stem, and tiny leaves inside the soaked bean). Some may even find a smaller embryo inside the dry bean.

Step 4 Discuss the changes that occurred during the overnight soaking.

Activity #2

Step 1 Fill the container with seeds. Add enough water to cover the seeds. Seal the lid with masking tape.

Step 2 Discuss the process of germination with your students. Ask them to predict what will happen to the seeds and the container and to write down some of their predictions.

Step 3 Set the container aside and observe daily. (Eventually the absorption of water and internal pressures in the germinating seeds will create sufficient pressure to crack the plastic container.) Compare students' predictions with what actually occurred.

Activity #3**Sock Walk (Adopted from Project Wild)**

On a day in October ask students to bring in an old sock. Take students to an area of long grass (e.g. fence line or field). Have them pull the sock over their shoe and walk around the area for 5 min. or so. Remove the sock, and count and compare the variety of seeds each sock has collected.

Extra Information

Have your students observe and sketch a variety of tree seeds. For a nutty variation, examine peanuts, walnuts, pecans, almonds, chestnuts and beech nuts.

Have students compare the germination rates of a variety of seed types and graph the results.

Place an avocado in a paper bag with an elastic around the neck. Pass it around the class. Encourage your students to feel the bag gently and to speculate on the contents. Then remove the avocado and dissect it. Suspend the seed in a glass of water, pointed end down (toothpicks may be inserted into the sides of the seed to suspend it). Make sure the pointed end of the avocado is in the water at all times. Observe the avocado over a three week period and note any changes (roots should begin to grow). Once the roots appear, plant the seed in a medium sized flower pot. Place in diffuse light and water regularly.

Take a spring hike through the neighbourhood looking for signs of germinating seeds. In an urban environment, look for unusual examples of the power of germinating seeds (e.g. plants that have pushed through asphalt or cracks in concrete).

For the Sock Walk, plant several of the socks in a flat container – cover with soil and keep moist. Observe and record observations for as long as plants survive. Several socks could be placed in a paper bag and left in the refrigerator for two months or so before being planted. Compare results.