

See-Ds: Watch a Seed Grow

Adapted from <http://www.ecoliteracy.org/downloads/make-mini-greenhouse-cd-case>

Grade Level: 3

Time: 45 min class period (soak seeds prior to lesson, observe seeds for a 10-day period)

Essential Standard: Understand how plants survive in their environments.

Clarifying Objectives:

1. Remember the function of the following structures as it relates to the survival of the plants in their environments:
 - Roots – absorb nutrients
 - Stems – provide support
 - Leaves – synthesize food
 - Flowers – attract pollinators and produce seeds for reproduction
2. Explain how environmental conditions determine how plants survive and grow.
3. The distinct life cycle of seed plants.
4. Explain how the basic properties (texture and capacity to hold water) and components (sand, clay, humus) of soil determine the ability of soil to support the growth and survival of many plants.

Materials: CD case with clear cover, absorbent fabric (paper towel, felt), and seeds (radish recommended) – you will need to soak the seeds the night prior to the lesson, 3-4 seeds per student

Introduction/Warm-Up

Tell the students they will be “planting” seeds today. Ask them to recall what they know a seed will need to grow into a plant and keep track of their answers with a list on the board.

Pour a handful of seeds into a clear cup and allow the students to pass it around the room and look at the seeds. Ask them to share their observations about the seeds and guess what plant the seed will become. Pass around a packet of the seeds with a color photo on the front so they can identify radishes (or plant of your choice).

If you haven't discussed greenhouses before consider going over the concept of a greenhouse. Reading A-Z 's How to Build a Greenhouse (attached in email) was used for my reference but teachers need an account to access this resource.

Activity

Pass out the CD cases and fabric while explaining to the students this will be their "pot". Ask them to predict how the plant will grow in the CD case. Review how a seed grows by starting with a drawing of a plain seed on the board. Ask the students what parts of the plant will grow from the seed and have a student come to the front to add each part to the drawing. Make sure to emphasize the function of each structure as it is added to the picture. Review the list made at the beginning of class to decide how and where we will get the things that the seeds will need to grow. Explain that the paper towel (or other absorbent fabric) will be the soil because it holds the water for the plant. Have them trace the CD case on the fabric so they can cut a square. The fabric will need to be wet before the seeds are planted. Be sure not to place the seeds in the small circle at the center of this case as this may prevent the seeds from sprouting as easily. Allow the students to observe the seeds that soaked overnight, ask if they notice a difference between the soaked seeds and the dry seeds passed out at the beginning of class. Have them write their names on the spine of the CD case and place them in the sun.

Lesson Conclusion

The students will ask if they will be able to plant the seedling after it has outgrown the CD case. The seedling will have been growing horizontally, not vertically, and will not likely survive being transplanted into soil. The purpose of this activity is mainly focused on watching the stages of growth and does not typically produce "healthy" seedlings that will be able to be transported to a garden.

Extended

The seedlings grow for approximately 10 days before they are expected to reach the limits to the CD case. Have the students lightly water their plants as needed (when the fabric is not damp) and mark a line on the outside of the case where the sprout has grown and record each mark by the number of days since the seed was first "planted". The students also have the option of planting a few seeds in a small Dixie cup to grow traditional seedlings. After watching the CD seeds they can estimate when their cup seeds will first sprout. If there is a school garden the cup seedlings can be transplanted. The students can also compare the results of the CD seedlings and the cup seedlings to understand the importance of soil and roots in plant growth.

