



Soil Sam

Description: Students will create a soil "Sam" or soil "Samantha" to demonstrate the need for healthy soils for seed germination.



Grade Level: K-3, 8

Indiana Academic Standards:

Examples of select academic standards possibly met during this activity. Additional academic standards may be achieved with added enrichment activities.

Earth and Space Science: CS1.2; 1.2.4; 1.3.3; 2.3.1; 3.2.5; 8.2.6

Life Science: CSK.3; 3.3.1; 3.3.2;

Time: 45 minutes, plus set-up.

Materials:

Knee high stockings
Grass seed, 1 Tbsp per student
Potting soil
Baby food jar or small plastic cup
Water
Jiggle eyes
Scissors
Fabric or colored tape
Glue (quick drying craft glue)

Recommended Resources:

The Science of Soil
www.thescienceofsoil.com

Recommended Reading:

Anno's Magic Seeds by Mitsumasa Anno
Seedfolks by Paul Fleishman and Judy Pederson
Seeds and Seedlings by Elaine Pascoe

Objectives:

- Describe what happens when a seed germinates.
- List the elements needed for a seed to germinate.
- Explain what fertilizer is and the importance of healthy soil for growing plants.
- Observe the life cycle of a plant.

Background:

Soil is an important natural resource. Farmers must take good care of the soil so it will continue to grow food. Farmers must check the soil to make sure it has the right nutrients in the right amounts. If the soil doesn't have adequate nutrients, farmers need to adjust the balance of nutrients to grow healthy crops. Farmers may grow crops that add nutrients such as nitrogen to the soil, or they may add fertilizers containing nitrogen and other nutrients.

Activity Directions:

1. Using knee-high stockings, place 1-tablespoon grass seed in the toe where you want the seed to grow. The toe-end of the hose is the head of the Soil Sammy and the grass will look like hair when it grows.
2. Pack a handful of soil in the end of the hose on top of the seeds. Make sure the ball of soil is slightly larger than the opening of the baby food jar or cup.
3. Tie a double-knot in the hose under the ball of soil.
4. Completely wet the head of the Soil Sammy. Place the top of the hose (which is the bottom of the Soil Sammy) in a baby food jar filled with water, making sure the head is above the mouth of the jar. The end of the hose will absorb water to feed the grass seed, which will germinate through the hose. You may have to cut a few small holes in the hose to help the grass come through.
5. Now you can decorate! Suggestions include a round piece of fabric to fit over the mouth of the jar for a shirt, buttons glued to the shirt, jiggle eyes for the face, felt cut-out for the mouth, etc.
6. Water as needed and be sure to cut the grass "hair" and style as desired.

For Discussion:

Will the grass hair grow better or faster with fertilizer? Try it and find out. Add different fertilizers to the soil and water and see which grows best.

Add to the water:

- Store-bought liquid fertilizer
- Soda pop (it has phosphorus)
- Apple juice (it has citric acid)
- Lemon scented liquid soap (it has citric acid)
- Ammonia (it has nitrogen)

Add to the soil:

- Store-bought fertilizer stick
- Coffee grounds (caffeine has nitrogen)
- Baking soda (it has nitrogen)
- Epsom salt (it has magnesium sulfate)
- Cream of tartar (it has potassium)

Farmers must be careful to add just the right amount of fertilizer. Too much fertilizer can be harmful, and too little fertilizer can result in plants that don't grow well due to lack of nutrients. Farmers attend special classes and use math problems to figure out the right amount to use. You shouldn't use too much fertilizer either, but you can experiment with different amounts.

Take it Further

Ask students to write descriptive narratives about their Soil Sammy.