



All About Soil

Lesson Description

In this lesson, students learn about the components of soil. They learn why soil is important for plants. They do two activities to observe and experience soil.

- Time required: 60 minutes
- Location of lesson: Classroom and garden

Learning Objectives

- Identify the three components of soil: sand, clay and silt.
- Appreciate the necessity of soil for plants to grow.

Materials and Preparation

- Soil – 1 large bag
- Dixie cups – 2 per student
- Paper bowls – 1 per student
- Soil sifters (or drain stoppers) – 1 for every 2 students
- Magnifying glasses
- Watering can (full) or a gallon of water
- Dropper
- Before class, prepare the activity stations outside or on plastic cloths on the classroom floor; the activity can get messy
-  **Soil Discovery**
- Prepared vegetable snack of the week – 1 for each student
- Water to drink during the Class Warm-up – water dispenser in the classroom and 1 cup or a water bottle for each student

Class Warm-up: Champion Cheer and Veggie Taste Test (5-10 minutes)

- Give each student a cup of water or ensure that they have a filled water bottle in front of them.
- Give each student the prepared veggie snack of the day.
- Lead the students in enthusiastically reciting the  **Champion Cheer**.
- At the end of the cheer, drink water and eat the veggie snack together.
- Have students complete their  **Taste Test Observations** about the vegetable snack of the week.

Review of Last Lesson (2-3 minutes)

- Review the evaluation questions from last week's lesson. Evaluation questions from all lessons are listed at the end of the workbook .

Class Discussion (5 minutes)

Today we are going to be learning about soil. What is soil? Where do we find soil?

Soil is one of the Earth's most important natural resources. Animals use soil for shelter. What kinds of animals do we see living in soil? (examples - worms, ants) Plants use soil for food. What kinds of plants in our garden are in soil? (Answer: all of them!)

Soil is better than dirt for plants to grow. Soil has living things in it; dirt does not have living things in it. Soil is more nutritious than dirt, just like how healthy foods are more nutritious for us. We can add things to soil to make it even better for the plants. Have you seen the compost in our garden? Compost is made from old plants. Compost is used to make the soil more nutritious for the plants.

Soil is made up of three parts. Who knows what those three parts are? (Answer: sand, clay, silt)

Sand is the largest particle found in soil. It feels rough and gritty.

Clay is the smallest particle found in soil. It feels smooth when it is dry. It feels thick and sticky when wet.

Silt falls between sand and clay. It feels smooth, silky, and powdery when dry. It feels silky and smooth when wet.

We are going to do an activity to examine the different parts of soil.

Activity – Soil Discovery (45 minutes)

Divide the class into two groups. One group will start at Station 1 and the other group will start at Station 2, and then they will switch. This activity can be messy – do this outside or on plastic cloths on the classroom floor.

-  **Station 1 – What is soil made up of?**
 1. Refer students to their workbook page  **Soil Discovery**.
 2. Give each student a Dixie cup, bowl, soil sifter, and magnifying glass.
 3. Ask each student to scoop up a cup full of soil and then return to their work space.
 4. Ask students to look at their soil and touch the soil.

5. Ask students to answer questions # 1, # 2, and # 3 in their workbooks (What is the color of your soil? What other things did you find in your soil? What are the size and shape of the soil particles?).
6. Demonstrate how to sift the soil by putting the soil into the soil sifter and letting the sifted soil drop into their bowl below.
7. Ask students to sift their soil into their bowls.
8. *What remains in your sifter? (it should be the larger particles) What does it feel like? This is the sand. Sand is the largest particle found in soil.*
9. *What is in your bowl? (it should be the smallest particles) What does it feel like? This is the clay. Clay is the smallest particle found in soil.*
10. Ask students to use their magnifying glasses to observe the soil more closely. Ask them to write down their observations in # 4 in the workbook (What do you see differently?).

•  **Station 2 – The Texture of Soil**

1. Refer students to their workbook page  **Soil Discovery**.
2. Ask students to answer questions # 5 and # 6 in their workbooks (What is texture? What are the three parts of soil?)
3. Give each student a Dixie cup.
4. Ask each student to scoop up a half-cup full of soil and then return to their work space.
5. Drop a droplet of water into each student’s Dixie cup.
6. Ask the students to touch and feel the soil.
7. Ask students to answer yes/no to # 7a, # 7b and # 7c in their workbooks. (Is your soil rough and gritty? Is your soil thick and sticky? Is your soil silky and smooth?).
8. *Let’s review the three parts of soil:*
 - a. *Sand is the largest particle found in soil. It feels rough and gritty.*
 - b. *Clay is the smallest particle found in soil. It feels smooth when it is dry. It feels thick and sticky when wet.*
 - c. *Silt falls between sand and clay. It feels smooth, silky, and powdery when dry. It feels silky and smooth when wet.*
9. *What do you have more of in your cup? Sand, clay or silt?*
10. Answer # 8, # 9 and # 10 in the workbook as a group (Is your soil is rough and gritty, what kind of soil do you have? If your soil is thick and sticky, what kind of soil do you have? If your soil is silky and smooth, what kind of soil do you have?)

Ask students to wash their hands after this activity.

Bring the groups back together and ask some wrap-up questions:

- *Did you have fun learning about soil today?*
- *If you had soil particles that felt rough and gritty, what part of soil was it? (Answer: sand)*
- *If you had soil particles that felt thick and sticky when wet, what part of soil was it? (Answer: clay)*
- *If you had soil particles that felt silky and smooth when wet, what part of soil was it? (Answer: silt)*
- *Do you think plants need all three parts of the soil to grow well? (Answer: yes)*
- *Why do we call soil “the foundation of life”?* (Answer: it is the starting point for so many things that we see in our world and use in our daily life)

Evaluation Questions (5 minutes)

1. *What are the three basic parts of soil?* (Answer: sand, clay, and silt)
2. *What part of the soil is thick and sticky when wet?* (Answer: clay)
3. *What part of the soil is rough and gritty?* (Answer: sand)
4. *What part of the soil is silky and smooth?* (Answer: silt)
5. *How much water should you drink every day?* (Answer: at least 6 cups of water a day)
6. *How many fruits and vegetables should you eat every day?* (Answer: at least 5 fruits and vegetables a day)
7. *Does gardening connect you to your culture and help you learn new words in your language?* (Answer: yes)

Preparation for Future Lessons – Reminder for the Instructor

- Review the materials and preparation needed for the next lesson.
- Remember that an Elder guest instructor is needed for these Spring lessons: lesson 1 (Eating a Rainbow), lesson 4 (Water and Precipitation), and lesson 9 (Plant Parts: Identifying Parts of a Flower).

Notes
