Grade 1	**Lesson:** **Rocks and Soil – Part 2**	Reference to English Interconnections Lesson What is Soil? pg. 58

Science Standard(s): Standard 2.1 Earth and Space Science

Content Objective(s):	**Language Objective(s):**
Students will observe and draw 4 different soil samples on their soil paper individually. ***I can draw 4 different soil samples on my paper by myself.***	Students will respond to the teachers questioning through actions and oral responses during whole group discussions. ***I can respond to my teacher's question through actions and talking during whole group discussions.***
Essential Questions: How can we investigate the natural world at school?	**Required Academic Vocabulary for Word Wall:** **Listen:** soil **Speak:** soil **Read:** **Write:** **Sentence Frames:**
Materials: • Magnifying Glasses (1 per student if possible, 1 per group if possibile) • Newspaper • Soil – different kinds (sand, clay, humus, gardening soil) • Clear large jar (mason jar, mayo jar) • Picture of plants growing in soil • Pictures of things in the soil and NOT in the soil such as twigs, rocks, leave, bugs, buttons, penny, etc. • Pictures of soil texture words like wet, dry, sticky, loose, sandy, etc. • Pictures to describe the color of the soil like brown, tan, black, etc.	**Additional Lesson Vocabulary:** Sticky, loose, wet, dry, brown, green, gray, red, leaves, grass, twig, insects, big, small **Review Vocabulary:** Rocks,

Lesson: Soil — **Instructional Time: 35 minutes**

Opening: (8 minutes)

- Review the rocks lesson.

T: "Last time we talked about ROCKS! Please look around the room and point something made from rock."

S: *will look around the room and point at something made from rock.*

- Teacher will then call on students to tell her/him what they a pointing at.

T: " ------- (students name) what are you pointing at?"

S: *will respond, "desk" or "metal" or "a rock"*

T: "So, you are telling me that _____ is made from rock?" (desk, scissors, etc.)

S: *will respond, "yes, _____ is made from rock."*

- Continue asking at least 6 students what they are pointing at and make a list on the board using pictures and labels.

Introduction to New Material (Direct Instruction): (minutes)

T: "Yesterday we learned about rocks and how they are all around us. Today we are going to learn about soil. We will be soil scientists.

- Write SOIL on the board. Show pictures of plants growing soil.

T: Plants grow in soil. There are different kinds of soil.

Experiment and Record: (15 minutes)

Teacher Preparation:

- Collect different kinds of samples of soil from your yard or a garden center. Try to find **humus** (pronounced HUE-muss; the top layer of soil that has bits of leaves, twigs etc.), **sand** (small grains of rocks), **clay** (small particles that stick together), and **mud** (wet dirt).

- Line tables with newspaper, or do activity outside.
- Put 4 samples of different soil types on the tables so that students can explore them in small groups (sand, humus, clay, and mud). Label each soil sample with a number 1-4 using a wooden popsicles stick or tongue depressor. This will ensure that during the discussions, everyone is talking about the same soil sample. Put the samples in the "Soil" paper in one of the 4 different circles.

Use the modeling cycle:

- Divide the students into groups, and, if possible, give them magnifying glasses.
- Give each member of the group a "Soil" paper with four numbered circles on it exactly the same as the ones placed on each table that has the soil samples in it.)
- Have each group of students look closely at the soil samples on the table and draw/color a picture of the soil type in each circle on their "Soil" paper.

Teacher Does:

T: "Today we are going to do an observation with SOIL. Say soil with me."

S: *will say "soil" with the teacher.*

T: "Good, soil is very important and today we are going to see what different kinds of soil are made out of."

- Teacher will demonstrate the observation as she/he explains it.

T: "On each table you will find 4 soil samples. You need to look closely at each sample and draw what you see and feel. Let me show you what I expect.

1. **Here is a paper with 4 circles on it. One for each soil sample.**
2. **After I have my paper I head to my table and look at the first soil sample. I inspect it very closely. I touch it to see how it feels.**
3. **Then I draw what I see and feel.**
4. **I do this 4 times- once for each soil sample.**
5. **When I am finished I will then go sit on the carpet and wait for the other students. You may read a book while waiting.**

You will have 8 minutes to complete your observation. Make sure you do your best drawings. You can discuss the soil samples at your table while you work."

Student Does:

T: "I need a student to come up and model the observation."

- Teacher will choose a student.

S: O*ne student will come up and model picking up the paper, observing and investigating the soil and drawing it.*

T: "Good job! You picked up the paper, observed and investigated the soil and drew it."

All Students Do:

T: "All students wearing red may now walk quietly to pick up their soil paper and go to their table to begin observing.

S: Students wearing red pick up paper and walk quietly to table to observe.

Continue dismissing children by the color they are wearing until all children are observing the soil.

Discussion and Report: (8 minutes)

- Bring the groups together and ask them the following questions about what they observed?

T: "Now that you have observed and investigated 4 different soil samples, I am going to ask you some questions. "

T: "Here on the board are some pictures of things that you may have found in the soil samples." (Include pictures of things that are NOT in the soil samples as well.) **"We are going to use these pictures to help us describe the soil samples. Since we are scientists, we can make a chart to help us record our observations."**

Draw a chart like the one at the end of the lesson. Fill it in as you ask questions to help record the discussion and observations about each soil type.

1. **What did you see in the soil?**

T: "Did you see small rocks? Thumbs up for yes, thumbs down for no."

S: *will show thumbs up or down.*

T: "Did you see leaves? Thumbs up for yes, thumbs down for no."

S: *will show thumbs up or down.*

T: Did you see twigs? Thumbs up for yes, thumbs down for no."
S: *will show thumbs up or down.*
T: "Did you see grass? Thumbs up for yes, thumbs down for no."
S: *will show thumbs up or down.*
T: "Did you see bugs?" Thumbs up for yes, thumbs down for no."
S: *will show thumbs up or down.*
T: "When you were looking at the soil you saw a lot stuff in it. Time for question #2."

2. **What color is the soil?**

T: "This time I want you to look at your paper in front of you. Look at the different colors of soil and then turn to your neighbor and tell them the color of the soil samples. When I count to 3 tell your neighbor. 1,2,3.
S: *will turn to their neighbor and tell them the color of the soil samples they saw.*
T: "Awesome, you saw _____ colors. Last question."

3. **What is the soil like?**

T: "Was the soil wet or dry? Put your finger on your nose if the soil was wet." (Refer to the pictures to help them understand the soil textures)
S: *will put their finger on their nose if the soil was wet.*
T: "Was the soil dry? Put your finger on your stomach if the soil was dry."
S: *will put their finger on their stomach if the soil was dry.*
T: "Was the soil sticky (stuck together) or loose? Tell your neighbor."
S: *will turn to their neighbor and tell them stick or loose.*
T: "Say it with me, 'the soil was _____ (sticky or loose).
S: *will say it with the teacher.*

Closing: (2 minutes)

T: "So today we learned two things about soil:

1. **Soil is made from very small rocks and other things.**
2. **There are different kinds of soil."**

T: "Let's look back at our objective. Did we draw four types of soil on our papers?"
S: "Yes"
T: "Did we answer the questions I asked about the soil by actions and talking?"
S: "Yes"
T: "Good. It would be fun for you to look at the soil near your home and see what you find. If you would like to take a soil paper home to draw the soil around your house, you may do so. If you would like, you could bring your paper back tomorrow and show us what the soil was like."

- Have extra papers for those who want to observe soil at home. Allow time for children to share their observations with the class tomorrow if possible. This is not required homework, but can be offered as an optional activity at home. Realize that some children will not be able to complete this activity at home. Do not penalize those that can't. Simply allow those that do a moment to share with the class what they observed

Assessment:

- Observe how the students share their "Soil" pictures with other students.

Extra Ideas:

Optional Extension:

T: "To finish off the experiment today, we are going to mix the soil samples in to this large jar."

- Add the samples from one of the tables one at a time into a large clear jar. As you add each soil sample, name them for the class.

T: "Now, we have all the soil samples mixed together. I am going to add some water and shake it up."

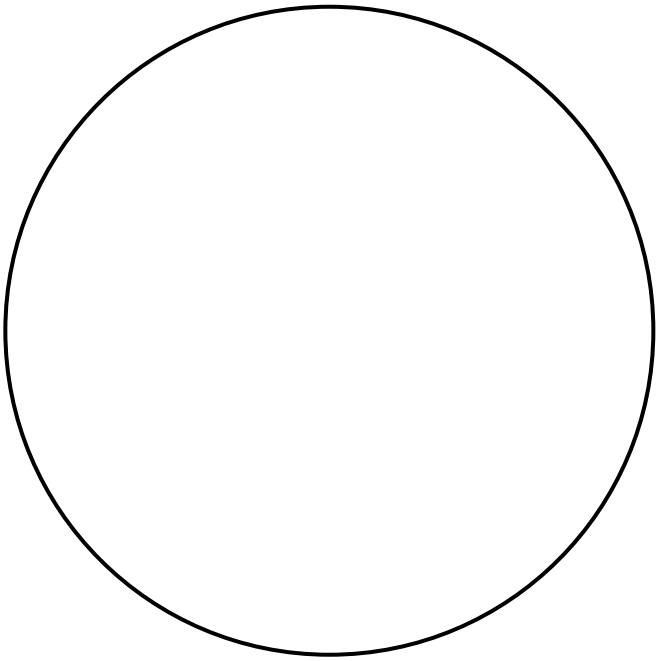
- Add the water and shake up all the soils together.

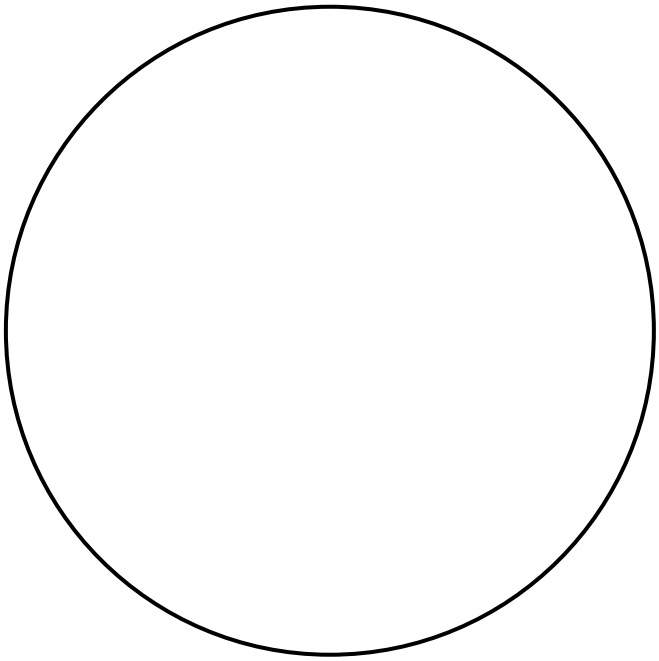
T: "Students, I want you to observe what happens to the soil after 5 minutes when it all settles. Where does the water go? What stuff goes to the bottom and what stuff stays on top? Talk with your neighbor."
S: *will turn to their neighbor and say "rocks went to the bottom" or "leaves stayed on top."*
Talk to the students about what happened in the jar to the soil samples.

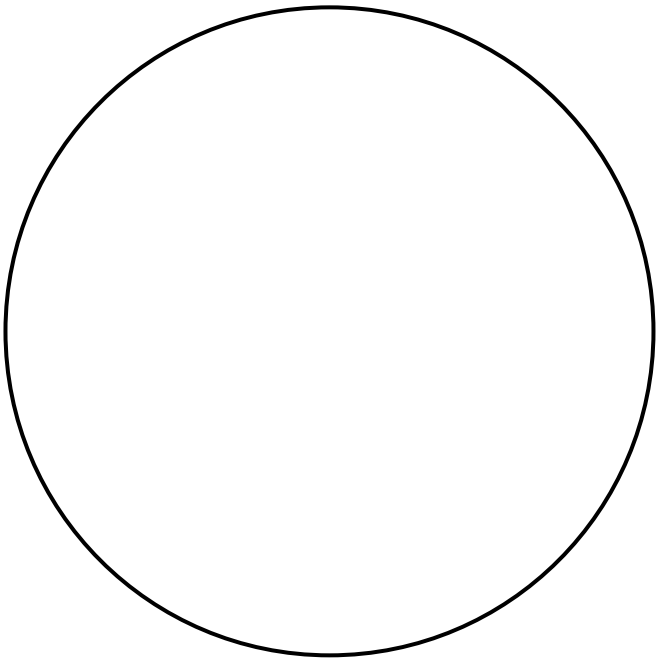
Worms and Soil:
1. Create a worm observation jar for the class (a jumbo size plastic jar that used to hold licorice, jelly beans, cheese ball puffs or pretzels like at a warehouse store is perfect). 2. Fill the jar with alternating layers of good soil and thin layers of sand. Spray each layer with water to make sure it is moist but not soggy.
3. Get some earthworms from your yard (or from a bait supply place) and place the worms in the jar. Add some leaves and grass.
4. Cover the jar with a cloth to make it dark for the worm. Place in a spot that is not too hot or cold.
5. Check the jar to see what the worms have been up to. You may be able to see the worm along the side of the jar. Have students observe how the worm moves and what happens to the neat and tidy layers of soil. Explain to students that worms are very helpful in the garden to mix up the soil. Let the worms go after a few days.

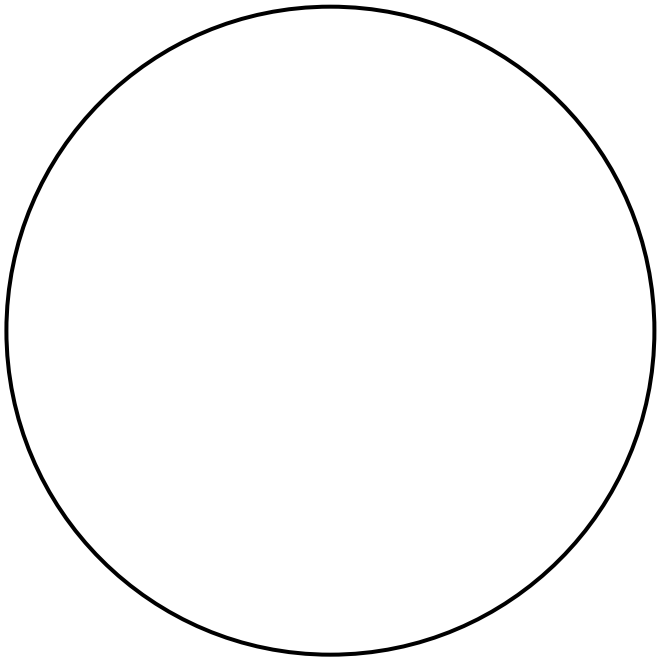
Worm Zoologist:
Place a live worm in a tray and let students observe how it moves (point out how it moves by squeezing and stretching its body). Look at the worm with a magnifying glass and see how it has small hairs/bristles to help the worm move through the soil.

Soil









	Soil sample 1	Soil Sample 2	Soil Sample 3	Soil Sample 4
Rocks	Yes	no		
Leaves				
Bugs				
Twigs				
Colors				
Wet				
Dry				
Sticky				
Loose				