Grade: **4**

Subject Area: Physical Setting

Title: **In Search of Soil**

Standards:

Earth and the Processes that Shape It

S 4.3.7 Explain that smaller rocks come from the breakage and weathering of bedrock and larger rocks and that soil is made partly from weathered rock, partly from plant remains, and also contains many living organisms.

Goals & Objectives:

The learner will explain that soil is made partly from different types of weathered rock, partly from animal remains, and partly from many living organisms by collecting, observing, and analyzing the components of various soil samples and reading non-fiction text about soil as a renewable resource

Materials:

- Plastic spoons
- Baggies
- Glue
- Pie tins
- Magnifying glasses
- Index cards (one per student)
- Scott Foresman leveled readers 4.10 (below & on-level only) on Resources, or Scott Foresman Text book Chapter 10, lesson #1 p. 287-289, or other non-fiction text that explains what soil is made of and how soil is made.
- Activity sheet (attached)

Activities:

A. Students will gather soil samples from different places in the school yard, will prepare the sample for observation, will draw a representation of the sample, will discuss observations with a small group, will present findings to the whole class, and will compare findings with samples from other groups
B. Students will read non-fiction text containing information on soil as a renewable resource and complete an activity

Procedure:

<u>Day 1</u>

1. Remind students that there are many different resources important to life in Indiana. (If the 3 regions of Indiana have not yet been studied, Scott Foresman Social Studies Text on the 3 regions) Ask students to come up with a list of resources that are important to the three regions in Indiana. Guide them to remember that Tipton Till Plain is known for its rich soil, Great Lakes Plain is also abundant with rich soil, and the

southwest corner of the Southern Hills and Low Lands is also known for its melons grown in the rich soil of that area.

2. Ask the students if they think that all soil is the same. Ask them to explain their ideas and discuss as a whole group.

3. On their activity sheet have students answer #1.
    - Make a list all of the materials that you think you will find in soil?

4. Divide students into groups of 3 or 4.

5. Pass out 1 plastic bag and 1 spoon to each group.

6. Instruct students to collect a soil sample. Tell them to go only to the place they are assigned on the play ground. Instruct the students to collect enough soil to fill the baggie at least half full.

7. When finished colleting samples, pass out index cards, 1 to each student

8. Instruct students to draw a circle approximately 1.5 inches in diameter on the unlined side of the card, and write their name in the upper left hand corner.

9. Using white glue, have students spread a thin layer of glue inside the circle.

10. Using the spoon sprinkle soil onto the card while holding the card over the pie tin. Shake excess soil into the pie tin. After everyone has a card with a soil sample, pour dirt from pie tin back into the baggie for the next lesson.

11. Set cards in a safe place to dry.

Day 2

1. Students collect index cards with soil samples.
2. Students observe their soil sample and complete #2 on their activity sheet.
    - Draw exactly what you see in the circle that contains the soil sample.
3. Have students discuss observations within their group for a few minutes, circulate and ask questions that encourage discussion
4. Pass out magnifying glasses, and instruct students to observe the soil sample and allow open discussion within groups
5. Instruct students to complete # 3
    - What do you see with the magnifying glass that you didn't see before?
6. Pass out leveled readers or textbooks, or other non-fiction text about the materials found in soil.
7. Have students read individually, in pairs, in small groups, or as a part of your guided reading instruction.
8. Instruct students to return to their activity sheet to see if they can identify the materials in their soil sample. Complete # 4 on their activity sheet.
    - Using the magnifying glass, re-draw the soil sample and label the materials you can identify. Be sure to include the details that you couldn't see without the magnifying glass.
9. Discuss in small groups.
10. In whole class grouping, have each group present their findings. Discuss. Refer back to the text when needed.

11. Instruct students to individually complete # 5 on their activity sheet.
    - Explain on the lines below what soil is made from. Describe what materials are found in soil and how soil is made. Draw and label a representation of a soil sample in the circle provided. Include all the materials you might find in a soil sample.

    Possible Accommodations for ENL / Special Ed students
    - Scribe can write the descriptions, exactly as stated
    - A list of vocabulary words to copy from at individual desks
    - Only assess the drawing if writing skills are below level

Assessment:

Based on Science Power Indicator 4.3.7

Formal Assessment:

Activity Sheet / #5 only

Assessment Rubric:

Exemplary: Learner accurately explains that soil is made from weathered pieces of rock, the remains of plants and animals, and living organisms and accurately draws and labels small pieces of rock, dead plants and animals, and living organisms. Explanation or Drawing includes specific names of rocks and minerals, plants and animals, and or living organisms that are found in soil. Explanation includes extensions and details from the non-fiction text or discussion beyond what materials are found in soil. Examples:

- Learner explains why plant and animal remains are important to plants.
- Learner explains how living organisms benefit soil fertility and drainage ability.

Proficient: Learner accurately explains that soil is made from small pieces of rock, dead plants and animals, and living organisms / Or / Learner accurately draws and labels small pieces of rock, dead plants and animals, and living organisms.

Progressing: Learner's explanation and or drawing include at least 2 of the three components required.

- Soil contains small pieces of rock
- Soil contains dead plants and animals
- Soil contains living organisms

Not Yet: Learner's explanation and or drawing include less than 2 of the three components listed in Progressing.

In Search of Soil

Activity Sheet

Name_____ Date_____

1. Make a list of all the different materials you think that you will find in soil.

_____ _____ _____
_____ _____ _____
_____ _____ _____
_____ _____ _____
_____ _____ _____

2. Draw exactly what you see in the circle that contains the soil sample.

3. Explain what you see with the magnifying glass that you didn't see before.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

4. Using the magnifying glass, re-draw the soil sample and label the materials that you can identify. Be sure to include the details that you couldn't see without the magnifying glass.

5. Explain on the lines below what soil is made from. Describe what materials are found in soil. Be specific. Draw and label a representation of a soil sample in the space provided below the lines. Include all the materials you might find in a soil sample.

DRAW & LABEL SOIL SAMPLE BELOW