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**TEKS 1.7 Earth and space. The student knows that the natural world includes rocks, soil, and water that can be observed in cycles, patterns, and systems. The student is expected to:**

- (A) observe, compare, describe, and sort components of soil by size, texture, and color;
  - (B) identify and describe a variety of natural sources of water, including streams, lakes, and oceans; and
  - (C) gather evidence of how rocks, soil, and water help to make useful products.
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### **Background Knowledge**

The natural world is made of rocks, soil, and water. They are very important resources that we use in our everyday lives. Soil is formed when rocks are broken down into tiny pieces by wind, water, and ice. Soil can be described and sorted depending on the size, texture, color, and type of rock materials. Soil is needed to grow crops. Most of Earth's surface is covered by water. Water is very essential for all our daily needs. Natural sources of water include streams, lakes, rivers, and oceans. Rocks are used for making roads, buildings, and jewelry.

### **Essential Questions**

What properties can we use to describe different types of soil?  
(Particle size, texture, color)

Where on Earth do you find natural sources of water?  
(Lakes, rivers, streams, oceans)

How are rocks and soil used to make other useful things?  
(Building materials, jewelry, soil provides nutrients for plants.)

How is water useful?  
(Every living thing including plants needs water to survive. Water is used to drink, to bathe with, and for recreation. Water can be mixed with other substances.)

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## Soil Components

### **Objective:**

To help students describe different kinds of soil.

### **Materials:**

- Plastic bags
- Garden implements
- Magnifying glass
- Seeds of a flower or vegetable
- Clock
- Paper clips

### **How to Conduct:**

- A. Divide the students into groups of three. Provide them with plastic bags and a few garden implements to pick up soil. Have magnifying glasses handy. Have the students collect soil from different areas of the playground. Compare the soils.

Ask:

What color is the soil?

(Dark brown, light brown, reddish-brown, etc.)

What does it feel like?

(Gritty, sandy, smooth, etc.)

What kinds of things can be seen in the sample? Use magnifying glasses.

(Leaves, small twigs, pinecones, rocks, etc.)

- B. Discuss different types of soils found in Texas. Besides Texas black soil, ask the students if they have noticed any other soil colors in different parts of Texas. The websites below have some resource.

- ✓ Texas State Historical Assoc.
- ✓ -Soils and Composting at TAMU.edu

- C. Choose three very different types of soil from the samples brought to class by the students.

- Have the students plant the same type of flower or vegetable seeds in each type of soil.
- Water them and place them in the Sun. Note the time the seeds are watered.
- Have the students continue to water the plants over the course of a couple of weeks, and monitor the development of the seeds into plants. Have the students water the plants at the same time each day. Measure the growth of the plants using paperclips or some other non-standard measuring unit. Ask the students if they can conclude that one kind of soil was better for plant development than the others, and ask why they believe this was the case. (topsoil, sandy soil, etc.)

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## **Water Bodies**

### **Objective:**

To help students differentiate between freshwater and saltwater, and that saltwater covers three-fourths of Earth's surface.

### **Materials:**

- Drinking water
- Three glasses
- Salt
- Wooden ice cream sticks
- Construction paper
- Color pencils

### **How to Conduct:**

Fill three glasses with drinking water. Leave one as is. This is the water we use for daily consumption. Add a pinch of table salt to the second, and the water may taste fresh or slightly salty. Add a teaspoon of salt to the third—about the same salt content as a glass of seawater. Provide wooden ice cream sticks. (Three per student—one for each glass.)

- Have the students dip their ice cream sticks in each of the three glasses and taste the water. Ask them to guess which has the same salt content as seawater.

The students have learned that most of the Earth is covered with water—seventy-one percent. Using a piece of white construction paper, fold the paper in half, then into fourths.

- Have children color three sections blue and one brown. This creates a visual picture of land vs. water mass.