

# A STEM in the Park

## Take Home Activity

# STEM

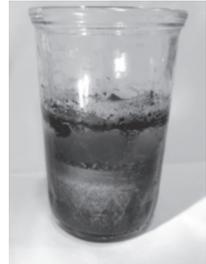
in the **PARK**™

Science, Technology, Engineering, and Mathematics

## Explore Your Soil

### ***What You Need***

- Transparent (see through) jar with lid
- ½ jar amount of your soil
- Water
- Sponge
- Sun or oven
- Flashlight (Optional)



### ***What To Do***

See how water separates soil particles (Part A) and how a sponge can model the way water behaves in soil (Part B).

#### **Part A: Exploring Your Soil**

1. Scoop up a ½ cup of soil from your garden or yard and place in a clear jar that has a lid, like an empty peanut butter container or jam jar.
2. Mark the level of the soil with a marker, piece of tape or a post-it note. Add water with a spoon several times and see if the level of the soil goes up.
3. Add more water starts until the jar is about ¾ full. Put the lid on the jar and shake up the water and soil. Put it down on the counter to watch it settle into layers. Use the flashlight to see better.

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## ***What To Do cont.***

### **Part B: Sponge Model of Soil Moisture**

1. Dry a sponge in the hot sun or in a low temperature oven (~100 degrees) until it dries out
2. Place the sponge in a shallow bowl. Pour water on your dried sponge to see how much water it can hold before making a puddle.
3. Pour more water until the water level just covers the sponge.
4. Push your fingers on the sponge. Look for bubbles
5. Pick up the soggy sponge and carefully squeeze the water out into a measuring cup.
6. Feel the sponge for dampness.

## ***Thing to think about***

### **Part A: Exploring Your Soil**

- Why do you think the soil level didn't get higher when you added the water if the soil was filled up to the marker? Where did the water go? You can watch the water go down into the soil on the side of the jar. The soil has air in it. Gravity pulls the water down slowly around the particles.
- Why does the water look dirty? Let the jar sit for a while until the water clears. Do you see any layering in your soil, such as sand or big particles on the bottom and darker small sized particles on top? It is these small particles that are found at the bottom of the Maumee River. Much sediment came from soil near the river.

### **Part B: Sponge Model of Soil Moisture**

- Soil can dry out like this if exposed to sun and heat. Sometimes it feels like rock.
- Is it filled with water? Rain goes down into the soil too.
- Is the sponge filled with water now?
- Do you see air bubbles? There must have been air still in the wet sponge. It is hard to get all the air out of the soil too.
- How much water did your sponge hold? Different soils hold different amounts of water.
- Is there still water in it? The remaining water that makes the sponge feel wet is water that is attached to the sponge tightly. This moisture is like the moisture in the soil that the plants cannot use and causes the plant to wilt.

***This activity is brought to you by the St Ursula Academy STEM Club***

