


# Soil Moisture Observations

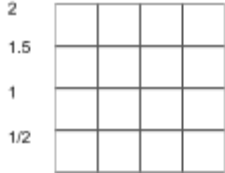
We are going to explore soil moisture to see how plants, animals and humans interact in ways that change our soil!

 <p>Field Based Investigations</p>	<p>Use this tool if you are interested in asking investigation questions like:</p> <ol style="list-style-type: none"> <li><b>1. What is the difference in soil moisture where there are lots of leaves versus where there is grass?</b></li> <li><b>2. What kinds of relationships do we observe in the soil?</b></li> <li><b>3. How does the soil moisture affect erosion in my yard?</b></li> <li><b>4. How have humans shaped the soil in our neighborhood?</b></li> </ol>	<p><b>We will gather data about:</b></p> <ol style="list-style-type: none"> <li>1. type of soil in three locations.</li> <li>2. how soil type and cover relate to soil moisture.</li> <li>3. how soil moisture is related to the plants and animals in places.</li> </ol>
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**Why is soil moisture important to socio-ecological systems?:** Soil moisture is the amount of water that is stored in soil that is available for plants, so soil moisture is very important for supporting the types, numbers and health of plants and the animals and humans that depend on them in our neighborhoods. Different neighborhoods have different types of soil that include sandy soil, silty soil (what we usually call dirt), and clay which each relate to how well our soil can hold moisture and drain excess water. The types of plants that grow in our soil also affect soil moisture- grass and leaf coverage will keep water from leaving the soil and can hold soil in place during weather events, like heavy rain and strong wind!

## **Why does soil matter to my neighborhood- connecting to our should-we questions:**

Because soil helps with so many things--storing and filtering water, being the home for many kinds of plants and animals, providing nutrients for plants and animals, and even providing the basic foundation in which our homes and buildings are built--it is important that we understand how moist our soil actually is. If soil is too moist it won't be able to hold enough nutrients for plants, and the soil can be easily washed away (eroded) by rain. If it is too dry, it might not be a good home for the plants and animals that depend on it. If it is too hard and dry, we may not be able to dig into it to build buildings. "Should we questions" like "Should we buy garden soil for our gardens", or "Should we water our lawn during dry weather" all relate to soil moisture!

Materials needed:	Directions:
<ul style="list-style-type: none"> <li><input type="checkbox"/> paper towel</li> <li><input type="checkbox"/> pencil</li> <li><input type="checkbox"/> The next page or blank paper</li> <li><input type="checkbox"/> <i>Optional:</i> thermometer</li> </ul>	<p><b>Cut out TWO 2x2" squares of paper towel and draw lines every ½" to make a grid on them</b></p> <p>Choose 3 different places or 3 times to do your observations.</p> <ul style="list-style-type: none"> <li>❖ If you have a thermometer, record the temperature of the soil</li> <li>❖ Place the paper towel on the soil hole and gently press for 30 seconds.</li> <li>❖ Lift out the paper towel to see how much water it soaked up – this is called absorption. How many squares are wet? Using your pencil/colored pencil color in the corresponding squares on your data collection sheet.</li> <li>❖ Use the formula below to calculate the percentage moisture.</li> <li>❖ Repeat your observations. Depending on the question you're asking, you might repeat your observation in <b>another place</b> or in the <b>same place at another time</b>. Use the charts below to record what you see.             <ul style="list-style-type: none"> <li>➤ All scientists repeat their observations so that they can say whether what they're seeing is unique to one place or time or not.</li> </ul> </li> </ul> <div style="text-align: right; margin-top: 20px;">  </div>



Location 1 or  time 1:

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Soil Temperature \_\_\_\_\_

**Soil Moisture:**

Shade in the squares where you found moisture absorbed into the paper towel.


Turn your **moisture into a percentage.**  
(Number of squares covered / Total number of squares) x 100

$$\frac{\_\_\_}{16} = \frac{\_\_\_\_\_}{\_\_\_\_\_} \times 100 = \_\_\_\_\_\%$$

Location 2 or  time 2:

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Soil Temperature \_\_\_\_\_

**Soil Moisture:**

Shade in the squares where you found moisture absorbed into the paper towel.


Turn your **moisture into a percentage.**  
(Number of squares covered / Total number of squares) x 100

$$\frac{\_\_\_}{16} = \frac{\_\_\_\_\_}{\_\_\_\_\_} \times 100 = \_\_\_\_\_\%$$

Location 3 or  time 3:

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Soil Temperature \_\_\_\_\_

**Soil Moisture:**

Shade in the squares where you found moisture absorbed into the paper towel.


Turn your **moisture into a percentage.**  
(Number of squares covered / Total number of squares) x 100

$$\frac{\_\_\_}{16} = \frac{\_\_\_\_\_}{\_\_\_\_\_} \times 100 = \_\_\_\_\_\%$$



<p><b>Type of Soil.</b> Feel the soil in your hands. Based on its feel and the moisture percentage you calculated, circle the type of soil you explored in this place.</p> <p>Sand   Silt   Clay   Peat   Chalk Loam</p>	<p><b>Type of Soil.</b> Feel the soil in your hands. Based on its feel and the moisture percentage you calculated, circle the type of soil you explored in this place.</p> <p>Sand   Silt   Clay   Peat   Chalk Loam</p>	<p><b>Type of Soil.</b> Feel the soil in your hands. Based on its feel and the moisture percentage you calculated, circle the type of soil you explored in this place.</p> <p>Sand   Silt   Clay   Peat   Chalk Loam</p>

### Types of Soil

Sand	Silt	Clay	Peat	Chalk	Loam
Large soil particles that dry out easily. The large particle size allows water to drain easily down to plant roots.	Silt has a floury feel when dry and slippery feel when wet. It is one of the most fertile soils and is found on floodplains and near rivers.	Clay is a very fine-grained type of soil that develops a semi-solid, flexible texture when wet which makes it hard for water and air to move through.	Peat soils are nutrient rich and filled with decomposed plant material.	Chalk is a soft rock that breaks down easily. Water drains easily and chalky soils can lose nutrients easily.	Loam is considered the perfect soil for growing plants and is a mixture of 40% sand, 40% silt and 20% clay. It holds nutrients and water, but also allows for drainage.