


# Soil Data Collection

 <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 soil like in and around our neighborhoods and gardens?</b></li> <li><b>2. What kinds of relationships can we observe in the soil?</b></li> <li><b>3. How have humans shaped what kinds of soil and relationships we can observe?</b></li> </ol>	<p><b>We will gather data about:</b></p> <ol style="list-style-type: none"> <li>1. what is above, around, and below our soil: <b>relationships to other animals, plants, rocks, and elements</b></li> <li>2. how much water our soil holds: <b>moisture content</b></li> <li>3. <b>temperature of the soil</b> at different depths</li> </ol>
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**Why is soil important to socio-ecological systems?:** One important role that soil plays is to store water and nutrients for plants. Sometimes other organisms such as fungi (like mushrooms), and animals (like worms) who live in soil help to make nutrients by breaking down dead things (decomposition). Different plants and animals need different amounts of water and nutrients stored in the soil. Soil temperature also helps plants know when to transition into different parts of their seasonal cycle, like when to bud in the spring, fruit in the summer, or get ready for dormancy in the fall - this is called phenophase.

## **Why does soil matter to my neighborhood--connecting to our “Should We” questions:**

“Should we” questions like “Should we plant a garden” or “Should we rake the leaves or keep them on the ground” or “Should we grow grass in our parks” are all related to soil and soil health. For example, growing and mowing grass does not usually contribute to decomposition and give nutrients back to the soil. It may lead to other “should we” questions about using fertilizer to help continue the health of soil and growth of grass. You may want to study what you find in the soil of a grassy lawn and compare it to the soil of a garden, under a tree, or a forest. Are there differences in temperature, moisture, or in the diversity of root systems and critters?



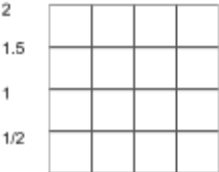
**The investigation question we are asking is:**

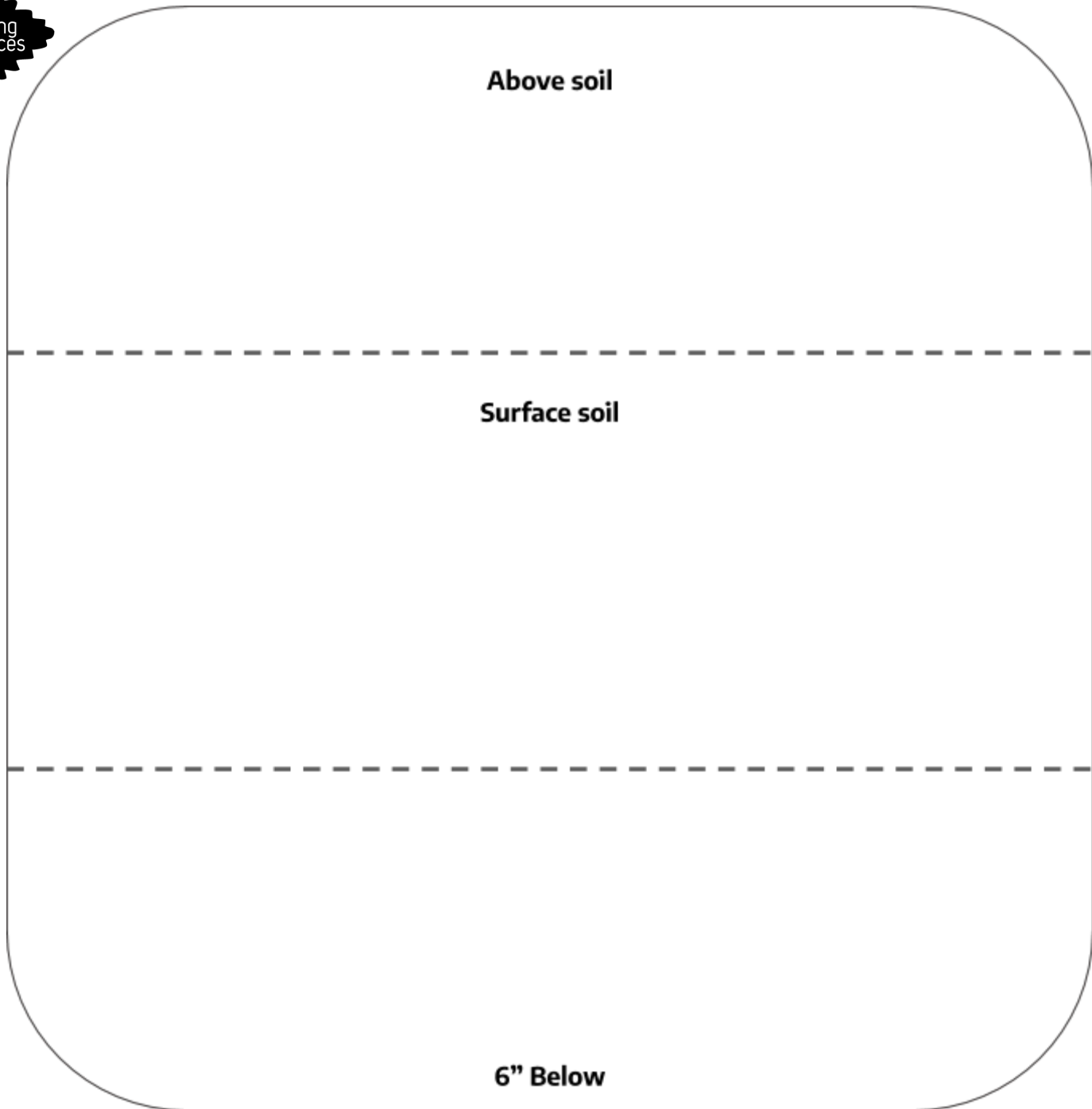
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**The “Should We” question we are exploring is:**

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Materials needed:	Directions:
<ul style="list-style-type: none"> <li><input type="checkbox"/> Something to dig with: a small shovel, trowel, cup, etc.</li> <li><input type="checkbox"/> ruler</li> <li><input type="checkbox"/> paper towel</li> <li><input type="checkbox"/> pencil</li> <li><input type="checkbox"/> colored pencils or markers</li> <li><input type="checkbox"/> this sheet or blank paper</li> <li><input type="checkbox"/> <i>Optional:</i> thermometer</li> </ul>	<p><b>Cut out a 2x2” square of paper towel and draw lines every ½” to make a grid on it</b></p>  <p>Find a place where you can dig deep into the ground (at least 6 inches).</p> <p><b>Above</b></p> <ul style="list-style-type: none"> <li>❖ Observe what is above the soil using all your senses. Draw or write this in “above soil” section</li> <li>❖ If you have a thermometer: Record the air temperature</li> </ul> <p><b>Surface</b></p> <ul style="list-style-type: none"> <li>❖ Observe the top layer (or surface) of the soil. You may need to gently move leaf litter. Draw or write this in the “surface soil” section.</li> <li>❖ If you have a thermometer: stick the thermometer about 1 inch into the soil and record the temperature</li> </ul> <p><b>6 inches below</b></p> <ul style="list-style-type: none"> <li>❖ Dig a hole about 6 inches deep with your shovel or trowel. Draw or write what you find in the “6” below” section.</li> <li>❖ Using the 2”x2” paper towel, gently but firmly press the paper towel into the hole you’ve dug so that all of it is evenly pressed on the soil. Be careful not to press so hard you rip the paper towel. Count to “5 Mississippi” slowly, trying to be as even as you can. 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> </ul>



Air Temperature

Surface Soil  
Temperature

Soil Temperature  
at 6"

Soil Moisture Absorption