



Beyond the Book Activity

The Zach and Zoe Mysteries: The Missing Baseball

by Mike Lupica

Once you have read the book, it is time to move outside. Take a few minutes to prepare for the outdoors and remember, the more comfortable you are the more success you will have on this endeavor. Follow the guide below to an adventure beyond the book!

Engage: Soil Detectives	Extend: Soil Composition
<p>Not all dirt is created equal. What is in the soil in your yard?</p> <p>By being curious, observant, and paying attention to tiny details like Zoe, you can discover answers to many of the mysteries in the things around you.</p> <p>Take a small cup and go out in your yard. Find a garden, flowerbed, grassy spot, or woods, and dig up a few handfuls of soil.</p> <p>Dump your cup of soil onto a white sheet of paper and start to look through it to see what you can find. You might have to look REALLY close!</p> <p>Examine clumps of soil for round holes. Then crumble the clumps and look for different colors, textures, or patterns. Use a magnifying glass if you have one!</p> <p>Can you find any tiny bits of leaves? Small roots or old blades of grass? Do you see any miniscule bugs, ants, or holes where a worm might have passed through? How about rocks, seeds, or bits of trash?</p>	<p>There are many different types of soil. Depending where you live, your soil might be sandy or mostly clay, or somewhere in between. Most soil is made up of a combination of sand, silt, clay, and decomposed organic material. That means tiny bits of natural objects like old grass, leaves, and even dead bugs and animals.</p> <p>The sand, silt, and clay come from rocks that get ground down into dust and tiny particles. This process is called erosion. Let's do a short experiment to try to see the different parts of the soil.</p> <p>Take the sample of soil that you collected before or gather a new one and put it in a large glass jar. Fill the jar halfway with water. Take a stick and stir your soil and water really hard so that the soil totally breaks down and the water looks super muddy.</p> <p>Let your jar sit for 20-40 minutes. When the soil resettles in the jar you should see layers. The bottom layer is the heaviest particles – pebbles and sand. The next layer is silt, then clay. The water will now look muddy because it has dissolved organic material and the organic materials that can't dissolve are floating on top. See the photo below.</p>
Explore: Decomposers	Resources
<p>Decomposers are small critters like worms, insects, and even bacteria and fungi, that live in the soil and do the important job of breaking down larger natural objects into tiny particles. These particles all become part of the soil and provide nutrients so that plants can grow!</p> <p>Find a rock, old log or piece of wood, or even a toy that has been sitting in one spot outside for a long time. Turn it over. Is there anything living underneath? What do you find? Look carefully.</p> <p>How many insects and worms do you see? How many decomposers other than bugs do you see? Remember fungus and moss count too!</p>	<p>Watch decomposers hard at work in this short video https://www.pbslearningmedia.org/resource/tdc02.sci.life.oate.decompose/decomposers/</p> <p>Diary of a Worm by Doreen Cronin https://www.youtube.com/watch?v=Z3-3CYftTY0</p> <p>Up in the Garden & Down in the Dirt by Kate Messner https://www.youtube.com/watch?v=w5qhb1jpow4</p>



experience
LEARNING
beyond the classroom