



# Dirt/Nature(al) Clay Sources

## Grades 4-12 Cumulative Activities

<b>Project</b>	<i>How Environment Inspires Ceramic Art: Soil Science</i>	
<b>Teaching Artist</b>	Chloe Rizzo	
<b>Descriptive Overview</b>	In this lesson students will source and analyze the clay content of their local soil and investigate the connection between the physical characteristics of different clays and the resulting artwork made from them.	
<b>Arts Learning Community</b>	Youth	
<b>Time Required for Lessons</b>	<p>Each of these activities may be completed independently.</p> <p>Activity #1 &amp; 2 will require 2-3 sessions of active involvement and 1 week to complete.</p> <p>Activity #3 &amp; 4 will each require 1-2 sessions of active involvement or research.</p>	<p><b>Activity #1, Soil Composition Experiment</b></p> <p><u>Step 1: Shake it Up!</u>            In this experiment students will discover the amount of Clay contained in their local soil. Collect a sample (about a handful/cup) of soil found in a location where you are allowed to take a small amount of soil. Natural soil directly from the ground is required. Potting soil won't work. Remove rocks and organic materials large enough to remove from the soil. If you don't have a yard, ask permission from one of your local community gardeners. Put the soil in your quart jar. Fill it with water and shake for 2 minutes. Place it on a flat even surface (like a table) where it won't be disturbed for at least 2 days. During this time the layers of the soil will settle. You may want to have students complete predictions and soil typing activities while waiting.</p> <p>Dirt Shake Particle Size Reference  <a href="https://naitc-api.usu.edu/media/uploads/2015/10/20/Dirt_Shake.pdf">https://naitc-api.usu.edu/media/uploads/2015/10/20/Dirt_Shake.pdf</a></p> <p><u>Step 2: Predications and Recording Results</u>            Do 2 contour line drawings of the jar (one prediction, one result). In one of the drawings students predict the amounts of Organic material, Clay, Silt, and Sand that will settle out in layers by coloring in the drawing. Use different colors for each layer. The file above provides a visual explanation, but stress that your students will see different amounts, because each of their samples will be unique. After a week, have students draw what the settled layers actually look like and compare the results to their prediction.</p> <p><b>Activity #2 Soil Typing</b></p> <p>Make small mudpies using the same soil &amp; predict how much clay they think is in their soil sample (percentage). Try using soil from different parts of the available outdoor location. Here are some advanced activities and a recording sheet:  <a href="https://www.doctordirt.org/files/dr-dirt/texture-feel.pdf">https://www.doctordirt.org/files/dr-dirt/texture-feel.pdf</a></p>

		<p><b>Activity #3 Dirt Painting</b></p> <p><u>Step #1: Making the dirt paint</u>  Students take a small excursion outside &amp; note where the soil changes color. Encourage them to try to locate different colored soils within their outdoor location.</p> <p>Mix each spoonful of dirt with a small amount of water. Adding a drop or two of liquid glue or modge podge will help the dirt paint adhere to the paper. If students cannot locate different colored soil, they may experiment with different quantities of water to change the color of a single soil sample.</p> <p><u>Step #2: Do a dirt painting</u>  Do a dirt painting (landscapes are fun) or line study where they try to identify the different types of clay that might contribute to the hue of their soil paints. Cotton Swabs can be substituted for paintbrushes. Finger Painting is an option too!</p> <p><u>Step #3: List different types of clay</u>  Have students list the identifying characteristics of different types of clays. Earthenware, Stoneware, Ball clays, Fire clays, and Kaolins all have distinct properties and uses. If they aren't doing a lot of online research, they can use information gathered from the soil typing and painting activities by classifying color and plasticity of each type of clay.  <a href="https://www.thesprucecrafts.com/clay-basics-2746314">https://www.thesprucecrafts.com/clay-basics-2746314</a></p> <p><b>Activity #4 Ceramic Geography</b></p> <p>Create a Clay Map. Look at pottery made on different continents and hypothesize about the types of clay found in those regions.  <a href="https://en.wikipedia.org/wiki/Pottery#History">https://en.wikipedia.org/wiki/Pottery#History</a></p>
<p><b>Learning Goals for Arts Learners</b></p>	<ul style="list-style-type: none"> <li>● Learners will be introduced to soil composition for identifying natural local clay sources.</li> <li>● Demonstrate how inorganic soil particles are defined by their size and are categorized as sand, silt, or clay.</li> <li>● The learners will understand that the proportion of sand, silt, and clay define the soil texture and thus clay plasticity.</li> <li>● Learners will be able to identify and differentiate between different types of clays used to make commonly used clay bodies.</li> <li>● Learners will correlate geographic and artistic information to create an anthropological hypothesis.</li> </ul>	



<b>Resources &amp; Equipment Required</b>	<p>Quart Jar, Water, Spoon or Small Shovel, Small Containers, Marker, Paper &amp; Drawing Materials, Paint Brush or Cotton Swab for Dirt Painting, Optional Glue or Mod Podge for Dirt Painting</p> <p><a href="http://www.minneapolismn.gov/sustainability/homegrown/WCMS1P-129871">http://www.minneapolismn.gov/sustainability/homegrown/WCMS1P-129871</a></p> <p><a href="http://www.ci.minneapolis.mn.us/www/groups/public/@health/documents/webcontent/convert_271418.pdf">http://www.ci.minneapolis.mn.us/www/groups/public/@health/documents/webcontent/convert_271418.pdf</a></p> <p><a href="https://www.soils4teachers.org/lessons-and-activities">https://www.soils4teachers.org/lessons-and-activities</a></p>
<b>Lesson Tasks &amp; Activities Towards Outcomes</b>	<p>The learners are asked to apply the scientific method to their investigation of an art making material.</p>
<b>Evaluation Methods for Assessment of Learning Goals</b>	<p><b>Technical:</b> Are the experiments completed accurately and recorded with attention to detail?</p> <p><b>Aesthetic:</b> Did the learner demonstrate creativity and exploration of the material?</p> <p><b>Concept:</b> Did the learner demonstrate critical thinking or analysis of the topic?</p> <p><b>Critique:</b> The application of the materials will offer opportunities for group comparisons and self-assessment.</p>
<b>Lesson Alignment to State/National Education Standards or Community Learning Goals</b>	<p><b>State Standard 4.1.2.5.1, 6.1.2.5.1, 9.1.2.5.1</b></p> <p>Standard 2: Demonstrate knowledge and use of the technical skills of the art form integrating technology when applicable.</p>