

Target Standard(s):

18.4.4 Exchange scientific observations and ideas.

17.4.2 Observe, investigate, and describe how some environmental changes occur quickly and some occur slowly.

3.5.1 Investigate and describe how warm objects cool and cool objects warm when they are put together, until they reach the same temperature.

3.5.2 Investigate and describe how energy can be used to bring about changes in matter (e.g., melting an ice cube).

4.5.1 Investigate and describe how observable changes in matter may occur when different materials are heated, mixed, or cooled.

I can identify how temperatures affect different matter found in the environment.

Grade Band	4th Grade - 5th Grade
Theme	Temperature vs. Matter
Description	Turn up the heat! Explore how temperature affects different pieces of matter. Collect data and share your findings with your fellow scientists.
Activity Materials	<ul style="list-style-type: none">- water- Ice- Dirt- oil- Tree bark- Grass- Flower- Salt- Sugar- Baking soda- Leaves (native to the area)- Rocks (native to the area)- Sand

	<ul style="list-style-type: none">- Natural soil (native to the area)- Dropper- Flat stovetop or burner <p>*** Adult supervision required</p>
Activity Setup	<p>Provide each student with an exploration map. Click here to download the Exploration Map</p> <p>Provide students with the matter materials</p> <p>Provide each student with access to a flat stovetop or burner + adult supervision</p> <p>Math Connection: In order to conduct a fair test all items must be measured and equal. Teachers may prepare items so they are pre-measured for students or require that students measure each item and convert between milliliters and grams.</p> <p>*** Adult supervision is required.</p>
Exploration	<p>Students will choose the amount of heat each item receives. This can be specific such as heating the surface to 200 degrees or a specific heat setting on the stovetop or burner.</p> <p>Students will place each item on a flat stovetop and set their timer. At 1, 3, and 5 minutes, students will record how the matter has reacted to the heat.</p> <p>with the current template, students can choose to increase the heat throughout the experiment and record results.</p> <p>once students have tested each item on the stovetop/burner and recorded results, they will discuss to synthesize their data.</p> <p>Students will analyze and record their conclusions with the final sheet of the</p>

	Exploration Map.
Publish Your Work	Email a picture of your creation and observation notes to communityrelations@lvnhm.org