

Grade 2 - Unit 3 - Matter: Solids, Liquids, and Gases

Unit Focus

In this unit, students will explore the states of matter through the analysis and classification of different materials. Through hands-on activities, students will develop an understanding of the effects of temperature on various substances and how that may cause reversible or irreversible changes. Students will be introduced to atoms and molecules and their relationship to all types of matter. As a culminating experience, Students will use their understanding of the properties of matter, phase changes and chemical/physical changes to create a new solid or liquid to present to the class.

Stage 1: Desired Results - Key Understandings

Established Goals	Transfer	
<p>Next Generation Science <i>Elementary Standards: 2</i></p> <ul style="list-style-type: none"> Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. <i>2-PS1-4</i> Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object. <i>2-PS1-3</i> Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. <i>2-PS1-1</i> <p>Next Generation Science Standards (DCI) <i>Science: 2</i></p> <ul style="list-style-type: none"> Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties. <i>PS1.2.A1</i> Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not. <i>PS1.2.B1</i> <p>Student Growth and Development 21st Century Capacities Matrix <i>Creative Thinking</i></p> <ul style="list-style-type: none"> Imagining: Students will be able to conceive of a novel approach to create a text, performance, solution, 	<p>T1 Use the scientific process to generate evidence that addresses the original questions. T2 Analyze qualitative and quantitative data to interpret patterns, draw conclusions, and/or make predictions.</p>	
	Meaning	
	Understandings	Essential Questions
	<p>U1 Everything is made of matter. U2 Different kinds of matter exist and many of them can be either solid or liquid, depending on the temperature. Matter can be described by its observable properties. U3 Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not. U4 Matter of any type can be subdivided into particles that are too small to see. U5 In a chemical reaction, the particles that make up the original substances can be regrouped into different substances. These new substances may have different properties than the original substances.</p>	<p>Q1 What does matter look like? Q2 How does changing the temperature affect an object? Q3 When an object changes, can it be changed back? Q4 What do the results tell me? What patterns do I see or what conclusions can I draw?</p>
	Acquisition of Knowledge and Skill	
Knowledge	Skills	
<p>K1 Matter can be identified as solids, liquids, and gases.</p>	<p>S1 Construct explanations to justify reasoning.</p>	

Stage 1: Desired Results - Key Understandings

<p>application, or inquiry. MM.2.2 <i>Collaboration/Communication</i></p> <ul style="list-style-type: none">• Presentation: Students will be able to relay information and ideas to an authentic audience (other than the teacher) to promote collective understanding. MM.3.3	<p>K2 Matter can be classified by their properties. K3 Temperature can change the properties of matter which can sometimes be reversed. K4 Atoms are tiny particles that compose all matter. K5 <u>Vocabulary</u>: solid, liquid, gas, matter, property, texture, hardness, flexibility, viscous, transparent, translucent, elements, periodic table, physical change, chemical change and molecules</p>	<p>S2 Identify patterns of properties of matter.</p>
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