

Grade 2: Properties of Matter

Stage 1 Desired Results		
ESTABLISHED GOALS: <u>Competencies:</u> <u>Nature of Science and Engineering</u> - Students will demonstrate the ability to work collaboratively and individually to generate testable questions or define problems, plan and conduct investigations using a variety of research methods in various settings, analyze and interpret data, reason with evidence to construct explanations in light of existing theory and previous research, and effectively communicate the research processes and conclusions. <u>Patterns</u> - Students will demonstrate the ability to observe and describe patterns in natural and human designed phenomena and use those patterns to support claims about the observed or predicted relationships among phenomena. <u>Cause & Effect</u> - Students will demonstrate the ability to investigate, explain, and evaluate potential causal relationships by using evidence to support claims and predictions about the mechanisms that drive those relationships. <u>Content Standards:</u> 2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. 2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose 2-PS1-3. 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 2-PS1-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.	Transfer	
	<i>Students will be able to independently use their learning to identify causal relationships as a means for explaining change.</i>	
	Meaning	
	ENDURING UNDERSTANDINGS <i>Students will understand that...</i> - patterns in the natural and human designed world can be observed. - events have causes that generate observable patterns. - simple tests can be designed to gather evidence to support or refute student ideas about causes. - objects may break into smaller pieces and be put together into larger pieces, or change shapes. - every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world.	ESSENTIAL QUESTIONS Can all matter change?
	Acquisition	
	<i>Students will know...</i> - that different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. - that different materials have different properties. - that matter can be described and classified by its observable properties. - that different properties are suited to different purposes. - that a great variety of objects can be built up from a small set of pieces. - that heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not. - studying the properties of materials allows us to engineer solutions to problems that people have. - that different properties of materials lead to different processes when it comes time to recycle those materials.	<i>Students will be skilled at...</i> - determining an object's observable properties of matter. - planning and conducting an investigation to gather data on observable properties of materials. - classifying different kinds of materials by their observable properties of matter. - providing evidence that some changes caused by heating or cooling can be reversed and some cannot. - building a variety of objects from a small set of pieces.

	<u>Student vocabulary:</u> absorb, freeze, gas, liquid, material, matter, melt, properties, solid, reversible, waterproof <u>Teacher vocabulary:</u> compare, experiment, identify, investigate, model, observe, pattern, predict	
Content Area Literacy Standards		21st Century Skills
not applicable		• communicate clearly • think creatively • interact effectively with others • collaborate with others

Stage 2 - Evidence	
Evaluative Criteria	Assessment Evidence
	PERFORMANCE TASK(S):
	OTHER EVIDENCE:

Stage 3 – Learning Plan	
Summary of Key Learning Events and Instruction	
Language Arts Integration	Mathematics Integration
• RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. • RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. • RI.2.8 Describe how reasons support specific points the author makes in a text. • W.2.1 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section. • W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).	• MP.5 Reason abstractly and quantitatively. • MP.4 Model with mathematics. • MP.5 Use appropriate tools strategically. • 2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.

• W.2.8 Recall information from experiences or gather information from provided sources to answer a question.

Technology Integration

District Materials