

Big Idea:

When matter changes, does its weight change?

Guiding Questions:

Part A: How can properties be used to identify materials? - Make observations and measurements to identify materials based on their properties. 5-PS-3

Part B: What kind of model would best represent/describe matter as made of particles that are too small to be seen? - Develop a model to describe that matter is made of particles too small to be seen. 5-PS1-1

21st Century Themes/Skills:

<i>DCI (Disciplinary Core Ideas)</i>	<i>Science and Engineering Practices</i>	<i>Crosscutting Concepts</i>	<i>Student Learning Objectives</i>	<i>Differentiated Activities (Consider the 5 Es)</i>	<i>Resources/Technology</i>	<i>Formative Assessments</i>	<i>Benchmark Assessment</i>
Structure and Properties of Matter - Measurements of a variety of properties can be used to identify materials.(5-PS1-3)	Planning and Carrying Out Investigations - Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon.	Scale, Proportion, and Quantity - Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume.(5-PS1-3)	Students will make observations about properties of matter by measuring and describing physical properties.	Students will experiment with different substances with which they will describe and identify the physical properties of each and classify them according to those properties.	http://www.sas.upenn.edu/~mkate/Perrone_LessonPlan.pdf	Matter/Solution	
				Students will explore and describe different types of matter. Teacher will list student ideas.	http://www.mccrackenkyschools.us/Downloads/5th%20Grade%20Structures%20and%20Properties%20of%20Matter.pdf	The McCracken link in the resource block has a whole unit on Properties of Matter that can be used.	
				Explain that matter can be described and identified by its properties including color, hardness, reflectivity, electric conductivity, thermal conductivity, magnetism, and solubility. (exclude density).	Properties of Matter Lab (multiple days)		
				Investigate properties of solid substances.	https://app.discoveryeducation.com/techbook/concept/conceptGuid/D89A8BE5-4479-4FDB-809D-10C75CFE18D1/unitGuid/2D6301FA-AAED-4CE7-BD89-889B411FA58C#/tab=engage-tab&page=1&subTab=	This link to Discovery Education has great videos, assessments, and online features. You will need an account to access the Science Techbook which is the link in the resource block.	
				Learn about properties of liquids and solids. Apply their knowledge of properties to the usability of the substance to create a new object.	http://cmase.uark.edu/teacher/workshops/AIMS-lessons/colloid.pdf		
Structure and Properties of Matter - Measurements of a variety of properties can be used to identify materials.(5-PS1-3)	Planning and Carrying Out Investigations - Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon.	Scale, Proportion, and Quantity - Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume.(5-PS1-3)	Students will make observations and measurements of solids and liquids by measuring and describing their physical properties.	Students will engage in identifying physical properties of solids based on the properties previously discussed using a variety of solid matter and a variety of tools from which to choose.	Inquiry in Action (variety of activities to choose from) http://www.inquiryinaction.org/classroomactivities/		
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Structure and Properties of Matter - Measurements of a variety of properties can be used to identify materials.(5-PS1-3)	Planning and Carrying Out Investigations - Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon.	Scale, Proportion, and Quantity - Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume.(5-PS1-3)	Students will make observations and measurements to identify matter as either a solid or a liquid or a colloid by measuring and describing their physical properties.	Engage students with a passage from the book Bartholomew and the Oobleck. Have students describe the Oobleck.	Book: Bartholomew and Oobleck Online version: https://www.youtube.com/watch?v=r9bo5N2N5zI		
				Have students explore the real oobleck and make predictions as to whether it is a liquid or a solid. Students will then continue to explore in tests to identify its properties, providing evidence as to its classification of a liquid or a solid.	https://inside.osceola.k12.fl.us/Departments/DeptPages/Elementary_Education/documents/Product_Tesing.pdf		
				Students will make an analysis based on their evidence.	http://www.inquiryinaction.org/classroomactivities/		
Developing and Using Models - Use models to describe phenomena.	Scale, Proportion, and Quantity - Natural objects exist from the very small to the immensely large.	Students will use models and examples to show that matter can exist and not be seen.	Teacher will engage students with the book Horton Hears a Who and students will identify evidence that Horton used to prove Whos existed.	Book: Horton Hears a Who Online version: https://www.youtube.com/watch?v=BSH_OKeL5pg			
			Students will explore the concept of matter remaining matter regardless of how small they make it by tearing up a piece of paper until it is barely seen. Students will relate this to the book.	http://www.sedl.org/scimath/pasopartners/pdfs/matter.pdf			
			Teacher will explain that matter is made of tiny particles that aren't always seen.	Study Jams: Properties of Matter	Video Quiz		
			Students will elaborate and apply their understanding by making observations while watching a wind storm video.	http://www.sedl.org/scimath/pasopartners/pdfs/matter.pdf			

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Structure and Properties of Matter •Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. (5-PS1-1)	Developing and Using Models - Use models to describe phenomena.	Scale, Proportion, and Quantity - Natural objects exist from the very small to the immensely large.	Students will measure matter in various ways to prove it can exist and not be seen.	Students see that they can measure the volume and mass of a solid, liquid or gas	http://www.sedl.org/scimath/pasopartners/pdfs/matter.pdf	Variety of activities and assessments from sedl.org can be used for this objective.	
Structure and Properties of Matter •Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. (5-PS1-1)	Developing and Using Models - Use models to describe phenomena.	Scale, Proportion, and Quantity - Natural objects exist from the very small to the immensely large.	Students will develop a model to exemplify that matter can exist and not be seen.	Students will further elaborate to exemplify the phenomena that matter is made up of tiny, unseen particles by using their research to develop a model to explain.	Ballon Bottle Activity		
Structure and Properties of Matter •Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. (5-PS1-1)	Developing and Using Models - Use models to describe phenomena.	Scale, Proportion, and Quantity - Natural objects exist from the very small to the immensely large.	Students will develop a model to exemplify that matter can exist and not be seen.	Continued, students will use the model of sugar dissolved in water to further support the claim that matter exists no matter how small by collaboratively determining ways to prove it. Teacher will guide teams with questioning to use property analysis, as completed in the beginning of the unit, specifically, weight.	http://www.sedl.org/scimath/pasopartners/pdfs/matter.pdf	Variety of activities and assessments from sedl.org can be used for this objective.	
Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means.	Developing and Using Models - Use models to describe phenomena.	Scale, Proportion, and Quantity - Natural objects exist from the very small to the immensely large.	Students will continue to construct explanations for unseen matter.	Students will evaluate and synthesize their understanding by viewing a video on properties of matter.	http://www.mheducation.ca/school/applets/bcscience7/particle/	Science Journal: Explain how we know matter exists even if it cannot be seen.	