

<p align="center"><b>Big Idea:</b>  <b>If I have a frozen water bottle that weighs 500 mg, how much will it weigh if the water melts?</b>  <b>Guiding Questions:</b>  <b>Part A: How can we make slime?- Conduct an investigation to determine whether the mixing of two or more substances results in new substances. (5-PS1-4)</b>  <b>Part B: How can baking soda and vinegar burst a zip-lock bag? - Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved. (5-PS1-2)</b></p>							
21st Century Themes/Skills:							
DCI (Disciplinary Core Ideas)	Science and Engineering Practices	Crosscutting Concepts	Student Learning Objectives	Differentiated Activities (Consider the 5 Es)	Resources/Technology	Formative Assessments	Benchmark Assessment
Structure and Properties of Matter - When two or more different substances are mixed, a new substance with different properties may be formed. (5-PS1-4)	Planning and Carrying Out Investigations • Conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (5-PS1-4)	Cause and Effect • Cause and effect relationships are routinely identified and used to explain change. (5-PS1-4)	Students will explain the difference between mixtures and substances by modeling the separation of a mixture.	Engage students with a cup of trail mix and ask them to describe it.	Trail Mix		
				Students will separate their trail mix.	Trail mix		
				Explain that a mixture is a physical combination of two or more substances that retain their own properties.	<a href="http://studyjams.scholastic.com/studyjams/jams/science/matter/mixtures.htm">http://studyjams.scholastic.com/studyjams/jams/science/matter/mixtures.htm</a>	video quiz	
				Describe two types of mixtures as heterogeneous and homogeneous; both can be solid, liquid, gas.			
				Identify trail mix as heterogeneous mixture.	Mixture or Solution Chart		
				Students will make a substance using lemons and water. (homogeneous)			
				Discover the difference between solvent and solute			
Structure and Properties of Matter - The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. (5-PS1-2)	Planning and Carrying Out Investigations • Measure and graph quantities such as weight to address scientific and engineering questions and problems. (5-PS1-2)	Cause and Effect • Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume.	Use balances to measure the mass of the original substances and the mass of the substance made when the original substances are mixed	Engage: Ask will the weight of salt and water be the same if you dissolve the salt in the water? Explain	Solution Lab or use Fresh Water vs. Salt Water activities PDF (activities folder)		
Structure and Properties of Matter - When two or more different substances are mixed, a new substance with different properties may be formed. (5-PS1-4)	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 be able to identify and control variables to design an experiment to see whether the temperature of a solvent affects the speed at which a solute dissolves.	Engage: Have students work in groups to design an experiment to investigate whether the temperature of water affects the amount of M&M coating that dissolves.			
				Explore: Have groups place an M&M in cold, room-temperature, and hot water at the same time to investigate the effect of temperature on dissolving.	<a href="http://www.middleschoolchemistry.com/lessonplans/chapter5/lesson6">http://www.middleschoolchemistry.com/lessonplans/chapter5/lesson6</a>		
				Explain: Discuss how differences in molecular motion caused more of the sugar coating to dissolve in hot than in cold water.	<a href="http://www.middleschoolchemistry.com/lessonplans/chapter5/lesson6">http://www.middleschoolchemistry.com/lessonplans/chapter5/lesson6</a>		
				Explore: Either do a demonstration or show a video to investigate whether all substances dissolve much better in hot water than in cold water.	<a href="http://www.middleschoolchemistry.com/lessonplans/chapter5/lesson6">http://www.middleschoolchemistry.com/lessonplans/chapter5/lesson6</a>		
Structure and Properties of Matter Measure and graph quantities such as weight to address scientific and engineering questions and problems. (5-PS1-2)	Developing and Using Models - The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. (5-PS1-2)	Scale, Proportion, and Quantity - Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume. (5-PS1-2)	Students will reasearch to gather evidence to show that matter can exist and not be seen.	In this video, ice is placed on two similar-looking black surfaces—one aluminum and the other plastic. The ice melts faster on the aluminum because it is a better thermal conductor than the plastic.	Use video to engage <a href="http://www.middleschoolchemistry.com/lessonplans/chapter2/lesson5">http://www.middleschoolchemistry.com/lessonplans/chapter2/lesson5</a>		
Structure and Properties of Matter Measure and graph quantities such as weight to address scientific and engineering questions and problems. (5-PS1-2)	Developing and Using Models - The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. (5-PS1-2)	Scale, Proportion, and Quantity - Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume. (5-PS1-2)	Students will develop a model to exemplify that matter can exist and not be seen.	Explore: How can you make the ice melt faster? turn and talk Explain that the diagram illustrates the motion and arrangement of atoms or molecules in a single substance (not water) when it changes between a solid, liquid, and gas.	<a href="http://www.middleschoolchemistry.com/lessonplans/chapter2/lesson5">http://www.middleschoolchemistry.com/lessonplans/chapter2/lesson5</a>		
			Students will develop a model to exemplify that matter can exist and not be seen.	Use activity sheet to help explain differences. Click link.	Activity Sheet on the above website.		
			Students will continue to construct exlanations for unseen matter.	Explain how did the motion and arrangement of the water molecules change as the ice melted.	<a href="http://www.middleschoolchemistry.com/lessonplans/chapter2/lesson5">http://www.middleschoolchemistry.com/lessonplans/chapter2/lesson5</a>		
			To determine if solid, liquid, and gasses can float.	Engage: ask why an ice cube can float and a pebble will sink in a glass of water (show both glasses). Explore what causes some things to float or sink.	<a href="https://mail.google.com/mail/u/0/#inbox/154d87a6f2c72ae4?projector=1">https://mail.google.com/mail/u/0/#inbox/154d87a6f2c72ae4?projector=1</a>		