5th grade Physical Science	
	Matter and Its Interactions
5-PS1 Matter and Its Interactions – unit 1	
Standard:	
5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen. [Clarification Statement: Examples of evidence supporting a model could include adding air to expand a basketball, compressing air in a syringe, dissolving sugar in water, and evaporating salt water.] [Assessment Boundary: Assessment does not include the atomic-scale mechanism of evaporation and condensation or defining the unseen particles.]	
5-PS1-2. 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. [Clarification Statement: Examples of reactions or changes could include phase changes, dissolving, and mixing that form new substances.] [Assessment Boundary: Assessment does not include distinguishing mass and weight.]	
5-PS1-3. Make observations and measurements to identify materials based on their properties. [Clarification Statement: Examples of materials to be identified could include baking soda and other powders, metals, minerals, and liquids. Examples of properties could include color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, and solubility; density is not intended as an identifiable property.]	

[Assessment Boundary: Assessment does not include density or distinguishing mass and weight.]	
5-PS1-4. Conduct an investigation to determine whether the mixing of two or more substances results in new substances.	
21 st Century Learning Expectations:	
 Hinsdale students will communicate through various means Hinsdale students will be able to solve problems 	http://www.hnhsd.org/~hmhs/?page_id=17
Enduring Understandings (cross cutting concepts):	
 Cause and effect relationships are routinely identified, tested, and used to explain change. (5-PS1-4) Natural objects exist from the very small to the immensely large. Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume. (5-PS1-2), (5-PS1-3) 	
Learning Competencies (engineering practices)	Essential Questions (core ideas)
Students will be able to: (NGSS Science and Engineering practices)	What happens when you mix two substances? Based on these core ideas:
 Develop a model to describe phenomena. (5-PS1-1) 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) 	• 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. A model showing that gases are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including the inflation and

 Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon. (5-PS1-3) Measure and graph quantities such as weight to address scientific and engineering questions and problems. (5-PS1-2) 	 shape of a balloon and the effects of air on larger particles or objects. (5-PS1-1) The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. (5-PS1-2) Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.) (5-PS1-3) PS1.B: Chemical Reactions When two or more different substances are mixed, a new substance with different properties may be formed. (5-PS1-4) No matter what reaction or change in properties occurs, the total weight of the substances does not change. (Boundary: Mass and weight are not distinguished at this grade level.) (5-PS1-2)
Performance Task Resources/Sample:	
The Amazing Elephant Toothpaste	

Grade 5 Physical Science	Links
5-PS2 Motion and Stability: Forces and Interactions – unit 2	Motion and Stability - Forces and Interactions
Standard:	
 Support an argument that the gravitational force exerted by Earth on objects is directed down. [Clarification Statement: "Down" is a local PS2- description of the direction that points toward the center of the spherical Earth.] [Assessment Boundary: Assessment does not include mathematical representation of gravitational force.] 	
21 st Century Learning Expectations:	
 Hinsdale students will communicate through various means Hinsdale students will be able to solve problems 	http://www.hnhsd.org/~hmhs/?page_id=17
Enduring Understandings (cross cutting concepts):	
Cause and effect relationships are routinely identified and used to explain change. (5-PS2-1)	
Learning Competencies (engineering practices)	Essential Questions (core ideas)
Students will be able to: (NGSS Science and Engineering practices)	Why must things that go up come down? Based on this core idea:
• Support an argument with evidence, data, or a model. (5-PS2-1)	The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. (5-PS2-1)

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Performance Task Resources/Sample:	
What Goes Up Must Come Down	

Grade 5 Physical Science	
	Links
5-PS3 Energy – unit 3	En over 1
	<u>Energy</u>
Standard:	
Use models to describe that energy in animals' food (used	
5- for body repair, growth, and motion and to maintain body	
PS3- warmth) was once energy from the sun. [Clarification	
1. Statement: Examples of models could include diagrams, and flow charts.	
21 st Century Learning Expectations:	
Hinsdale students will communicate through various means	http://www.hnhsd.org/~hmhs/?page_id=17
Hinsdale students will be able to solve problems	
Enduring Understandings (cross cutting concepts):	
 Energy can be transferred in various ways and between 	
objects. (5-PS3-1)	
Learning Competencies (engineering practices)	Essential Questions (core ideas)
	Where does the energy in food come from?
Students will be able to: (NGSS Science and Engineering practices)	Based on these core ideas:
• Use models to describe phenomena. (5-PS3-1)	• The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). (5-PS3-1) L

	• Food provides animals with the materials they need for body repair and growth and the energy they need to maintain body warmth and for motion. (secondary to 5-PS3-1)
Performance Task Resource/Sample: Wetlands are Wonderful	