

Science 8<sup>th</sup> grade

Next Generation Science Standards					
MS-PS1	Matter and Its Interactions				
MS-PS2	Motion and Stability: Forces and Interactions				
MS-PS3	Energy				
MS-PS4	Waves and their Applications in Technologies for Information Transfer				
MS-ETS1	Engineering Design				
Technology					
SMART Board, Elmo, projector, computer, iPads, Discovery Education					
Standards	Essential Questions	Content	Skills	Assessment	Resources
<b>Scientific Method</b> MS-ETS1	<b>Scientific Method</b> How can the scientific method be used to solve a question or problem?  How are formulas applied to science?	<b>Scientific Method</b> -Question and inferences -Hypothesis -Research and Experiment -Data -Result analysis -Conclusion -Lab safety -Formulas and practical applications	<b>Scientific Method</b> -Apply steps of scientific method -Demonstrate proficiency in use of formulas and units	<b>Scientific Method</b> -Tests	<b>Scientific Method</b> - <i>Elevate Science Physical</i> by Pearson (2019) -Lab kits
<b>Matter and Its Interactions</b> MS-PS1	<b>Matter and Its Interactions</b> How do atomic particles interact?  How do atoms behave differently in the three states of matter?  How do different atoms interact?	<b>Matter and Its Interactions</b> -Atomic structure -Periodic table -Properties of matter -Chemical reactions -Conservation of matter -Phase changes of matter at molecular level -Thermal energy	<b>Matter and Its Interactions</b> -Identify and locate subatomic particles and their relationships -Understand patterns and groups located on the periodic table -Know the properties that differentiate phases of matter -Balance simple chemical equations -Distinguish between ionic and covalent bonds -Determine the difference between endothermic and exothermic energy	<b>Matter and Its Interactions</b> -Tests -Labs -Projects	<b>Matter and Its Interactions</b> - <i>Elevate Science Physical</i> by Pearson (2019) -Lab kits

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Standards	Essential Questions	Content	Skills	Assessment	Resources
<b>Motion and Stability</b> MS-PS2	<b>Motion and Stability</b> How are forces and motion related?	<b>Motion and Stability</b> -Motion: speed, velocity, acceleration -Forces: friction, balanced vs. unbalanced -Newton's three laws of motion -Newton's law of universal gravitation -Work -Simple machines -Formulas and practical applications	<b>Motion and Stability</b> -Understand the relationships between types of motion -Describe force in relation to motion -Demonstrate and explain Newton's three laws of motion and law of universal gravitation -Explain work in terms of force and distance -Identify the six types of simple machines -Know the difference between work input and output -Understand the efficiency of machines -Demonstrate how machines make work easier -Demonstrate proficiency in use of formulas and units	<b>Motion and Stability</b> -Tests -Labs -Projects	<b>Motion and Stability</b> - <i>Elevate Science Physical</i> by Pearson (2019) -Lab kits
<b>Energy</b> MS-PS3	<b>Energy</b> How are matter and energy related?	<b>Energy</b> -Kinetic and potential -Momentum -Thermal energy -Energy transformation -Magnetism: electric -Formulas and practical applications	<b>Energy</b> -Explain and demonstrate the differences between kinetic and potential energies -Show how kinetic energy is related to mass and speed -Construct an instrument to minimize or maximize thermal energy transfer -Know how magnetic force is related to electric energy -Demonstrate proficiency in use of formulas and units	<b>Energy</b> -Tests -Projects	<b>Energy</b> - <i>Elevate Science Physical</i> by Pearson (2019) -Lab kits

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Standards	Essential Questions	Content	Skills	Assessment	Resources
<p><b>Waves</b> MS-PS4</p>	<p><b>Waves</b> How do waves transfer energy?</p>	<p><b>Waves</b> -Transverse and longitudinal waves -Properties: amplitude, frequency, wavelength, wave height -Sound waves -Light waves -Application of waves</p>	<p><b>Waves</b> -Compare properties and types of waves -Discuss characteristics of sound in relation to frequency and amplitude -Discuss and give examples of the Doppler Effect -Model how light waves are reflected, absorbed, or transmitted through various materials -Examine how waves are used in daily lives</p>	<p><b>Waves</b> -Tests -Projects</p>	<p><b>Waves</b> -<i>Elevate Science Physical</i> by Pearson (2019) -Lab kits</p>