| Standard ID | Standard Text | Edgenuity Lesson Name |
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| NGSS.MS-PS. | PHYSICAL SCIENCE (NGSS) | |
| MS-PS1. | Matter and Its Interactions | |
| | Students who demonstrate understanding can: | |
| MS-PS1-1. | Develop models to describe the atomic composition of simple molecules and extended structures. | |
| | | Introduction to Matter |
| | | Physical Properties |
| | | Density |
| | | Lab: Density of Solids |
| | | Atomic Theory |
| | | Atoms |
| | | Elements |
| | | Periodic Table |
| | | Metals |
| | | Nonmetals |
| | | Metalloids |
| | | Radioactivity |
| | | Chemical Bonding |
| | | Ionic Bonds |
| | | Covalent Bonds |
| | | Lab: Ionic and Covalent Bonds |
| | | Compounds |
| | | Mixtures |
| | | Solubility |
| | | Properties of Acids and Bases |
| | | Acids and Bases in Solution |
| | | Lab: Acids and Bases |
| MS-PS1-2. | Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred. | |
| | | Chemical Properties |
| | | Types of Chemical Reactions |
| | | Rate of Chemical Reactions |
| | | Lab: Rate of Chemical Reactions |

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| MS-PS1-3. | Gather and make sense of information to describe that synthetic materials come from natural resources and impact society. | |
| | | Polymers |
| | | Nonrenewable Resources |
| | | Renewable Resources |
| MS-PS1-4. | Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed. | |
| | | States of Matter |
| | | Changes of State |
| MS-PS1-5. | Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved. | |
| | | Balancing Chemical Equations |
| | | Types of Chemical Reactions |
| | | Rate of Chemical Reactions |
| | | Lab: Rate of Chemical Reactions |
| MS-PS1-6. | Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes. | |
| | | Types of Chemical Reactions |
| | | Rate of Chemical Reactions |
| | | Lab: Rate of Chemical Reactions |
| MS-PS2. | Motion and Stability: Forces and Interactions<br>Students who demonstrate understanding can: | |
| MS-PS2-1. | Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects. | |
| | | Newton's Laws of Motion |
| | | Momentum |
| MS-PS2-2. | Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. | |
| | *(Cont'd.)* | Introduction to Motion |
| | | Speed and Velocity |
| | | Acceleration |
| | | Lab: Motion |
| | | Introduction to Forces |

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| MS-PS2-2. | Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. | |
| | *(Cont'd.)* | Friction<br>Gravity<br>Newton's Laws of Motion<br>Lab: Newton's Laws of Motion |
| MS-PS2-3. | Ask questions about data to determine the factors that affect the strength of electric and magnetic forces. | |
| | | Electric Charge<br>Magnets and Magnetism<br>Lab: Magnetic and Electric Fields<br>Electromagnetism |
| MS-PS2-4. | Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects. | |
| | | Gravity |
| MS-PS2-5. | Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact. | |
| | | Lab: Magnetic and Electric Fields |
| MS-PS3. | Energy<br>Students who demonstrate understanding can: | |
| MS-PS3-1. | Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object. | |
| | | Introduction to Energy<br>Potential and Kinetic Energy<br>Lab: Kinetic Energy<br>Energy Transformations |
| MS-PS3-2. | Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system. | |
| | | Introduction to Energy<br>Potential and Kinetic Energy<br>Energy Transformations |

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| MS-PS3-3. | Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer. | |
| | | Temperature and Thermal Energy<br>Heat<br>Conduction<br>Convection<br>Radiation<br>Lab: Thermal Energy Transfer |
| MS-PS3-4. | Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample. | |
| | | Lab: Kinetic Energy |
| MS-PS3-5. | Construct, use, and present arguments to support the claim that when the motion energy of an object changes, energy is transferred to or from the object. | |
| | | Potential and Kinetic Energy<br>Energy Transformations |
| MS-PS4. | Waves and Their Applications in Technologies for Information Transfer<br>Students who demonstrate understanding can: | |
| MS-PS4-1. | Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave. | |
| | | Introduction to Waves<br>Properties of Waves<br>The Electromagnetic Spectrum |
| MS-PS4-2. | Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials. | |
| | | Wave Interactions<br>Sound Waves<br>Using Sound<br>Properties of Light<br>Reflection and Mirrors<br>Refraction and Lenses<br>Using Light |
| MS-PS4-3. | Integrate qualitative scientific and technical information to support the claim that digitized signals (sent as wave pulses) are a more reliable way to encode and transmit information. | |
| | | Using Sound |

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| NGSS.MS-ETS. | ENGINEERING DESIGN (NGSS) | |
| MS-ETS1. | Engineering Design | |
| | Students who demonstrate understanding can: | |
| MS-ETS1-1. | Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. | |
| | | Technological Design |
| MS-ETS1-2. | Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. | |
| | | Technological Design |
| MS-ETS1-3. | Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success. | |
| | | Technological Design<br>Momentum<br>Radiation |
| MS-ETS1-4. | Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved. | |
| | | Technological Design<br>Momentum<br>Radiation |