Next Generation Science Standards
Grade 8 - Structure and Properties of Matter

Next Generation Science Standard	"I can" Statements
MS-PS1-1. - Develop models to describe the atomic composition of simple molecules and extended structures.	I can… • represent models of atoms and molecules in a variety of formats • I can show how atoms combine to make simple molecules
MS-PS1-3. - Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.	I can… • gather information about the pure substances and energy needed to produce synthetic materials • gather information about new resources that may be needed for the future
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.	I can... • make a model that shows a change of state of a substance • show changes in substances that are based on a transfer of energy • show that the amount of kinetic energy a substance has will determine the temperature and phase

Next Generation Science Standards
Grade 8 - Chemical Reactions

Next Generation Science Standard	"I can" Statements
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.	I can… • identify the difference between physical and chemical properties • see changes in substances based on chemical change • explain new properties of a substance after a chemical reaction
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.	I can… • demonstrate the law of conservation of matter by using models • show that matter is rearranged but not lost in 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.	I can… • give examples of endothermic and exothermic changes of state • determine if a reaction is endothermic or exothermic

Next Generation Science Standards
Grade 8 - Forces and Interactions

Next Generation Science Standards	"I can" Statements
MS-PS2-1. Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.	I can… • make a model that shows there is an equal and opposite reaction to every action

	• solve a simple problem with using Newton's Third Law and experimentation
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.	I can… • plan a device that will show energy exchange • construct a device that will show my design • test my device by measuring and analyzing data to show the energy exchanged • make a model that shows a change in motion based on the forces applied • explain the difference between balanced and unbalanced forces and how they are related to new force and motion • explain the movement of an object according to a reference point
MS-PS2-3. Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.	I can… • show the effects of electricity and magnetism on objects • explain how the strength of electric current can impact an object
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.	I can… • explain that mass and distance between objects determines gravitational force • explain orbiting involves free fall and forward motion • explain projectile motion involves both vertical and horizontal motion • explain the difference between orbiting and projectile motion
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.	I can… • an experiment that proves there are different magnetic and electrical forces that act on objects

Next Generation Science Standards
Grade 8 - Energy

Next Generation Science Standards	"I can" Statements
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.	I can… • make and interpret a graph with data collected from an experiment that shows the relationship between mass and speed • explain that kinetic energy is determined by mass and speed
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.	I can… • make a model that explains how an object's kinetic and potential energy changes with position • identify different types of energy
MS-PS3-3. Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.	I can… • make a device that transfers energy
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.	I can… • plan an experiment that shows the effects of temperature on different types of energy • show the relationship between matter and temperature change through experimentation

MS-PS3-5. Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes,energy is transferred to or from the object.	I can… • explain the conservation of energy • construct a claim that supports the fact that motion has an effect on temperature

Next Generation Science Standards
Grade 8 - Waves and Electromagnetic Radiation

Next Generation Science Standards	"I can" Statements
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.	I can… • design a model that shows the characteristics of waves • use a model to explain constructive and destructive interference
MS-PS4-2. Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.	I can… • show wave interactions in different materials • explain reflection, refraction, diffraction, and interference • describe what happens when waves interact with each other.
MS-PS4-3. Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.	I can… • compare at least two types of digital technology in terms of their performance and cost