



**Science**  
**Critical Content Standards**  
**Kindergarten**

*Critical standards represent the basics a student must learn to be able to reach high levels of learning, allow teachers and schools to target 'must know' skills to support individual students (non-negotiable skills), but do not represent all that we are going to teach.*

**Physical Science: Motion and Stability: Forces and Interactions**

SC.K.PS2.1 Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object (AK SA1, SB4). (Knowledge Utilization)

**Life Science: From Molecules to Organisms: Structures and Processes**

SC.K.LS1.1 Use observations to describe patterns of what plants and animals (including humans) need to survive (AK SA1, SC2). (Analysis)

**Earth and Space Sciences: Earth's Systems**

SC.K.ESS2.1 Use and share observations of local weather conditions to describe patterns over time (AK SA1, SD3). (Analysis)

**Earth and Space Sciences: Earth and Human Activity**

SC.K.ESS3.2 Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather (AK SA2, SD3, SE1, SE3). (Comprehension)

SC.K.ESS3.3 Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment (AK SE2, SE3). (Comprehension)



**Science**  
**Critical Content Standards - Unpacked**  
**1<sup>st</sup> Grade**

*Critical standards represent the basics a student must learn to be able to reach high levels of learning, allow teachers and schools to target 'must know' skills to support individual students (non-negotiable skills), but do not represent all that we are going to teach.*

**Physical Science: Waves and Their Applications in Technologies for Information Transfer**

SC.1.PS4.1 Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. (Knowledge Utilization)

SC.1.PS4.3 Plan and conduct investigations to determine the effect of placing objects made with different materials in the path of a beam of light. (Knowledge Utilization)

**Life Science: From Molecules to Organisms: Structures and Processes**

SC.1.LS1.2 Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive. (Analysis)

**Earth and Space Sciences: Earth's Place in the Universe**

SC.1.ESS1.1 Use observations of the sun, moon, stars, and tides to describe patterns that can be predicted. (Knowledge Utilization)

SC.1.ESS1.2 Make and graph observations at different times of year to relate the amount of daylight to the time of year, and graph findings. (Analysis)



**Science**  
**Critical Content Standards**  
**2<sup>nd</sup> Grade**

*Critical standards represent the basics a student must learn to be able to reach high levels of learning, allow teachers and schools to target ‘must know’ skills to support individual students (non-negotiable skills), but do not represent all that we are going to teach.*

**Physical Science: Matter and Its Interactions**

SC.2.PS1.2 Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. (Analysis)

SC.2.PS1.4 Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. (Knowledge Utilization)

**Life Science: Ecosystems: Interactions, Energy, and Dynamics**

SC.2.LS2.2 Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants. (Analysis)

**Life Science: Biological Evolution: Unity and Diversity**

SC.2.LS4.1 Make observations of plants and animals to compare the diversity of life in different habitats. (Analysis)

**Earth and Space Sciences: Earth’s Place in the Universe**

SC.2.ESS1.1 Use information from several sources to provide evidence that Earth events can occur quickly or slowly. (Comprehension)

**Earth and Space Sciences: Earth’s Systems**

SC.2.ESS2.2 Develop a model to represent the shapes and kinds of land and bodies of water in an area. (Analysis)

SC.2.ESS2.3 Obtain information to identify where water is found on Earth and that it can be solid or liquid. (Retrieval)



**Science**  
**Critical Content Standards**  
**3<sup>rd</sup> Grade**

*Critical standards represent the basics a student must learn to be able to reach high levels of learning, allow teachers and schools to target 'must know' skills to support individual students (non-negotiable skills), but do not represent all that we are going to teach.*

**Physical Science: Motion and Stability: Forces and Interactions**

SC.3.PS2.1 Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object. (Knowledge Utilization)

**Life Science: From Molecules to Organisms: Structures and Processes**

SC.3.LS1.1 Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death. (Analysis)

**Life Science: Biological Evolution: Unity and Diversity**

SC.3.LS4.3 Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. (Knowledge Utilization)

SC.3.LS4.4 Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change. (Analysis)

**Earth and Space Sciences: Earth's Systems**

SC.3.ESS2.2 Obtain and combine information to describe climates in different regions of the world. (Comprehension)



**Science**  
**Critical Content Standards**  
**4<sup>th</sup> Grade**

*Critical standards represent the basics a student must learn to be able to reach high levels of learning, allow teachers and schools to target 'must know' skills to support individual students (non-negotiable skills), but do not represent all that we are going to teach.*

**Physical Science: Energy**

SC.4.PS3.1 Use evidence to construct an explanation relating the speed of an object to the energy of that object. (Analysis)

SC.4.PS3.2 Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. (Analysis)

**Physical Science: Waves and Their Applications in Technologies for Information Transfer**

SC.4.PS4.1 Develop and use a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. (Analysis)

**Life Science: From Molecules to Organisms: Structures and Processes**

SC.4.LS1.1 Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. (Knowledge Utilization)

**Earth and Space Sciences: Earth's Place in the Universe**

SC.4.ESS1.1 Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. (Analysis)

**Earth and Space Sciences: Earth's Systems**

SC.4.ESS2.2 Analyze and interpret data from maps to describe patterns of Earth's features. (Analysis)



**Science**  
**Critical Content Standards**  
**5<sup>th</sup> Grade**

*Critical standards represent the basics a student must learn to be able to reach high levels of learning, allow teachers and schools to target 'must know' skills to support individual students (non-negotiable skills), but do not represent all that we are going to teach.*

**Physical Science: Matter and Its Interactions**

SC.5.PS1.1 Develop a model to describe that matter is made of particles too small to be seen. (Analysis)

SC.5.PS1.3 Make observations and measurements to identify materials based on their properties. (Analysis)

SC.5.PS1.4 Conduct an investigation to determine whether the mixing of two or more substances results in new substances. (Knowledge Utilization)

**Physical Science: Motion and Stability: Forces and Interactions**

SC.5.PS2.1 Support an argument that the gravitational force exerted by Earth on objects is directed toward the center of the Earth. (Analysis)

**Life Science: From Molecules to Organisms: Structures and Processes**

SC.5.LS1.1 Support an argument that plants get the materials they need for growth chiefly from air and water. (Analysis)

**Life Science: Ecosystems: Interactions, Energy, and Dynamics**

SC.5.LS2.1 Develop and describe a model that describes the movement of matter among plants, animals, decomposers, and the environment. (Analysis)

**Earth and Space Sciences: Earth's Systems**

SC.5.ESS2.1 Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere (water), cryosphere (ice) and/or atmosphere interact. (Analysis)



**Science**  
**Critical Content Standards**  
**6<sup>th</sup> Grade**

*Critical standards represent the basics a student must learn to be able to reach high levels of learning, allow teachers and schools to target ‘must know’ skills to support individual students (non-negotiable skills), but do not represent all that we are going to teach.*

**Earth and Space Sciences: Earth’s Place in the Universe**

SC.MS.ESS1.1

- a.) Develop and use a model to explain how the positions of the Earth-Sun-Moon in a system and the cyclic patterns of each cause lunar phases and eclipses of the sun and moon.
- b.) Develop and use a model to explain how the seasons occur. (Analysis)

**Earth and Space Sciences: Earth’s Systems**

SC.5.ESS2.1 Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. (Analysis)

SC.MS.ESS2.2 Construct and present an evidence-based explanation of how geoscience processes have changed Earth’s surface at varying time and spatial scales. (Analysis)

SC.MS.ESS2.3 Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions. (Analysis)

SC.MS.ESS2.5 Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions. (Analysis)

SC.MS.ESS2.6 Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates. (Analysis)

**Earth and Space Sciences: Earth and Human Activity**

SC.MS.ESS3.1 Construct an evidence-based explanation for how the uneven distributions of Earth’s mineral, energy, and groundwater resources are the result of past and current geoscience processes. (Analysis)

SC.MS.ESS3.2 Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects. (Analysis)

SC.MS.ESS3.3 Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. (Knowledge Utilization)





Science  
Critical Content Standards  
7<sup>th</sup> Grade

*Critical standards represent the basics a student must learn to be able to reach high levels of learning, allow teachers and schools to target ‘must know’ skills to support individual students (non-negotiable skills), but do not represent all that we are going to teach.*

**Life Science: From Molecules to Organisms: Structures and Processes**

SC.MS.LS1.2 Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function. (Analysis)

SC.MS.LS1.4 Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively. (Analysis)

SC.MS.LS1.5 Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. (Analysis)

SC.MS.LS1.6 Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms. (Analysis)

**Life Science: Ecosystems: Interactions, Energy, and Dynamics**

SC.MS.LS2.2 Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems. (Analysis)

SC.MS.LS2.3 Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. (Analysis)

SC.MS.LS2.4 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations. (Knowledge Utilization)

**Life Science: Heredity: Inheritance and Variation of Traits**

SC.MS.LS3.2 Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation. (Analysis)

**Life Science: Biological Evolution: Unity and Diversity**



SC.MS.LS4.1 Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past. (Analysis)

SC.MS.LS4.2 Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships. (Analysis)

SC.MS.LS4.4 Construct and present an evidence-based explanation of how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment. (Analysis)

SC.MS.LS4.6 Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time. (Analysis)



Science  
Critical Content Standards  
8<sup>th</sup> Grade

*Critical standards represent the basics a student must learn to be able to reach high levels of learning, allow teachers and schools to target ‘must know’ skills to support individual students (non-negotiable skills), but do not represent all that we are going to teach.*

**Physical Sciences: Matter and Its Interactions**

SC.MS.PS1.1 Develop models to describe the atomic composition of simple molecules and extended structures. (Analysis)

SC.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. (Analysis)

SC.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. (Analysis)

SC.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. (Analysis)

**Physical Sciences: Motion and Stability: Forces and Interactions**

SC.MS.PS2.1 Apply Newton’s Third Law to design a solution to a problem involving the motion of two colliding objects. (Knowledge Utilization)

SC.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. (Knowledge Utilization)

SC.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. (Knowledge Utilization)

**Physical Sciences: Energy**

SC.MS.PS3.3 Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer. (Knowledge Utilization)



**Physical Sciences: Waves and Their Applications in Technologies for Information Transfer**

SC.MS.PS4.1 Qualitatively and quantitatively describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave. (Analysis)

SC.MS.PS4.2 Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials. (Analysis)



**Science**  
**Critical Content Standards**  
**High School Biology**

*Critical standards represent the basics a student must learn to be able to reach high levels of learning, allow teachers and schools to target ‘must know’ skills to support individual students (non-negotiable skills), but do not represent all that we are going to teach.*

**Life Sciences: From Molecules to Organisms: Structures & Process**

SC.HS.LS1.2 Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. (Analysis)

SC.HS.LS1.3 Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis. (Knowledge Utilization)

SC.HS.LS1.4 Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.

SC.HS.LS1.5 Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy. (Comprehension)

SC.HS.LS1.6 Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules. (Analysis)

SC.HS.LS1.7 Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy. (Comprehension)

**Life Sciences: Ecosystems: Interactions, Energy, & Dynamics**

SC.HS.LS2.1 Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.

SC.HS.LS2.2 Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.

SC.HS.LS2.3 Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions. (Analysis)

SC.HS.LS2.4 Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem. (Analysis)

SC.HS.LS2.5 Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere. (Analysis)



### **Life Sciences: Heredity: Inheritance & Variation of Traits**

SC.HS.LS3.1 Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring. (Comprehension)

SC.HS.LS3.2 Make and defend a claim based on evidence that inheritable genetic variations may result from (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors. (Analysis)

SC.HS.LS3.3 Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population. (Analysis)

### **Life Sciences: Biological Evolution: Unity & Diversity**

SC.HS.LS4.2 Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment. (Analysis)

SC.HS.LS4.3 Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait. (Analysis)

SC.HS.LS4.4 Construct an explanation based on evidence for how natural selection leads to the adaptation of populations. (Analysis)

SC.HS.LS4.5 Evaluate the evidence supporting claims that changes in environmental conditions may result in (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species. (Analysis)



**Science**  
**Critical Content Standards**  
**High School Chemistry**

*Critical standards represent the basics a student must learn to be able to reach high levels of learning, allow teachers and schools to target ‘must know’ skills to support individual students (non-negotiable skills), but do not represent all that we are going to teach.*

**Physical Sciences: Matter & Its Interactions**

SC.HS.PS1.1 Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms. (Analysis)

SC.HS.PS1.2 Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties. (Analysis)

SC.HS.PS1.4 Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy. (Analysis)

SC.HS.PS1.5 Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs. (Analysis)

SC.HS.PS1.7 Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction. (Analysis)

**Physical Sciences: Energy**

SC.HS.PS3.1 Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known. (Analysis)

SC.HS.PS3.2 Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects). (Analysis)

SC.HS.PS3.3 Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy. (Knowledge Utilization)

SC.HS.PS3.4 Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (AK SEcond law of thermodynamics). (Knowledge Utilization)



**Science**  
**High School Earth Science**  
**Critical Content Standards**

*Critical standards represent the basics a student must learn to be able to reach high levels of learning, allow teachers and schools to target ‘must know’ skills to support individual students (non-negotiable skills), but do not represent all that we are going to teach.*

**Earth & Space Sciences: Earth’s Place in the Universe**

SC.HS.ESS1.2 Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe. (Analysis)

SC.HS.ESS1.3 Communicate scientific ideas about the way stars, over their life cycle, produce elements (AK SA2, SD3, SD4). (Comprehension)

SC.HS.ESS1.5 Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks. (Analysis)

SC.HS.ESS1.6 Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth’s formation and early history. (Analysis)

**Earth & Space Sciences: Earth’s Systems**

SC.HS.ESS2.1 Develop a model to illustrate how Earth’s internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features. (Analysis)

SC.HS.ESS2.2 Analyze geoscience data to make the claim that one change to Earth's surface create feedbacks that cause changes to other Earth systems. (Analysis)

SC.HS.ESS2.3 Develop a model based on evidence of Earth’s interior to describe the cycling of matter by thermal convection. (Analysis)

SC.HS.ESS2.4 Use a model to describe how variations in the flow of energy into and out of Earth’s systems result in changes in climate. (Comprehension)

SC.HS.ESS2.5 Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes. (Knowledge Utilization)

SC.HS.ESS2.6 Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere. (Analysis)

SC.HS.ESS2.7 Construct an argument based on evidence about the simultaneous coevolution of Earth’s systems and life on Earth. (Knowledge Utilization)



### **Earth & Space Sciences: Earth & Human Activity**

SC.HS.ESS3.1 Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity. (Analysis)

SC.HS.ESS3.2 Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios. (Analysis) SC.HS.LS3.3 Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population. (Analysis)

SC.HS.ESS3.5 Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems. (Analysis)

SC.HS.ESS3.6 Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity. (Analysis)

### **Engineering, Technology, & Applications of Science: Engineering Design**

SC.HS.ETS1.2 Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering. (Knowledge Utilization)

SC.HS.ETS1.3 Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts. (Analysis)

SC.HS.ETS1.4 Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem. (Knowledge Utilization)



**Science**  
**Critical Content Standards**  
**High School Physics**

*Critical standards represent the basics a student must learn to be able to reach high levels of learning, allow teachers and schools to target ‘must know’ skills to support individual students (non-negotiable skills), but do not represent all that we are going to teach.*

**Physical Sciences: Motion & Stability: Forces & Interactions**

SC.HS.PS2.4 Use mathematical representations of Newton’s Law of Gravitation and Coulomb’s Law to describe and predict the gravitational and electrostatic forces between objects (AK SA2, SB4). (Analysis)

HS-PS2-1 Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration

HS-PS2-2 Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

HS-PS2-3 Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.

HS-PS2-5 Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.

**Physical Sciences: Energy**

SC.HS.PS3.1 Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known. (Analysis)

SC.HS.PS3.2 Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects). (Analysis)

SC.HS.PS3.3 Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy. (Knowledge Utilization)

SC.HS.PS3.5 Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction (AK SB4, SE2). (Analysis)



### **Physical Sciences: Waves & Their Applications in Technologies for Information Transfer**

SC.HS.PS4.1 Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media (AK SA2, SB4). (Analysis)

SC.HS.PS4.3 Evaluate the claims, evidence, and reasoning behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other (AK SA2, SB4). (Analysis)

SC.HS.PS4.4 Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter (AK SA2, SB4). (Analysis)