NGSS - 6th Grade Standards

6	CER/scientific method	
6	Questioning	
6	Lab Safety	
6	Common Language	

6	MS-ESS 1-1	Earth's Place in the Universe	Earth, sun, moon system, lunar phases, eclipse of sun and moon, seasons
6	MS-ESS 1-2	Earth's Place in the Universe	Gravity in the motions within galaxies an the solar system
6	MS-ESS 1-3	Earth's Place in the Universe	Scale and proportion in earth and its solar system
6	MS-ESS 2-1	Earth's Systems	Cycling of earth's materials and flow of energy
6	MS-ESS 2-4	Earth's Systems	Water cycle driven by energy from the sun and force of gravity
6	MS-ESS 3-1	Earth and Human Activity	Uneven distribution of Earth's resources mineral, energy and groundwater, are a result of past and current geoscience processes
6	MS-ESS 3-3	Earth and Human Activity	monitor and minimize human impact on environment
6	MS-ESS 3-4	Earth and Human Activity	Population and per-capita consumption impacts Earth's natural resources and systems
6	MS-LS 2-1	Ecosystems: Interactions, Energy, & Dynamics	Effects of resource availability on organisms and populations in an ecosystem
6	MS-LS 2-2	Ecosystems: Interactions, Energy, & Dynamics	Organisms and interaction across multiple ecosystems
6	MS-LS 2-3	Ecosystems: Interactions, Energy, & Dynamics	Cycling of matter and flow of energy among living and non living parts of an ecosystem, conservation of matteC
6	MS-LS 2-4	Ecosystems: Interactions, Energy, & Dynamics	Patterns in data making inferences about changes in populations due to change in ecosystem
6	MS-LS 2-5	Ecosystems: Interactions, Energy, & Dynamics	Evaluated designs for maintaining biodiversity and ecosystems
6	MS-PS 2-3	Forces and Interactions	Determine the factors that affect the strength of electrical and magnetic forces
6	MS-PS 2-4	Forces and Interactions	Use evidence to support the claim that gravitational interactions are attractive and depend on the mass of the objects
6	MS-PS 2-5	Forces and Interactions	Provide evidence that fields exist between objects exerting forces on each other even though not in contact

NGSS - 7th Grade Standards

7	MS-ESS 1-4	Earth's Place in the Universe	Geologic timescale through rock formations
7	MS-ESS 2-5	Earth's Systems	Weather conditions result from interactions of air masses
7	MS-ESS 2-6	Earth's Systems	Unequal heating of the Earth and rotation cause patterns of atmospheric, oceanic circulation, and regional climate
7	MS-ESS 3-5	Earth & Human Activity	Clarify evidence of factors that cause rise in global temperature, human activates and natural processes
7	MS-LS 1-1	From Molecules to Organisms: Structures and Processes	Living things are made of cells; one or many different number and types, distinguish between living and nonliving
7	MS-LS 1-2	From Molecules to Organisms: Structures and Processes	Function of a cell as a whole and ways the parts of cells contribute to function
7	MS-LS 1-3	From Molecules to Organisms: Structures and Processes	Body is a system of interacting sub-systems composed of groups of cells
7	MS-LS 1-4	From Molecules to Organisms: Structures and Processes	Animal behaviors and specialize plant structures affect probability of successful reproduction
7	MS-LS 1-5	From Molecules to Organisms: Structures and Processes	Environmental and genetic factors influence on growth
7	MS-LS 1-6	From Molecules to Organisms: Structures and Processes	Role of photosynthesis in the cycling of matter and flow of energy into and out of organisms
7	MS-LS 1-7	From Molecules to Organisms: Structures and Processes	Food rearrangement through chemical reactions forming new molecules that support growth and energy release as it move through and organism
7	MS-LS 1-8	From Molecules to Organisms: Structures and Processes	Sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memorie
7	MS-LS 4-1	Biological Evolution: Unity and Diversity	Patterns in fossil records that document the existence, extinction, diversity, and change of life throughout the history of Earth
7	MS-LS 4-2	Biological Evolution: Unity and Diversity	Comparison of modern day organisms to fossil ancestors to infer evolutionary relationships
7	MS-LS 4-3	Biological Evolution: Unity and Diversity	Compare patterns of similarities in embryological development across multiple species to identify relationships
7	MS-PS 1-1	Matter and Interactions	Atomic composition of simple molecules and extended structures
7	MS-PS 1-2	Matter and Interactions	Properties of substances before and after they interact to determine if a chemical reaction has occurred
7	MS-PS 1-3	Matter and Interactions	Make sense of information to describe that synthetic materials come from natural resources that impact society
7	MS-PS 3-1	Energy	Describe the relationship of kinetic energy to the mass of and object and the speed of an object
7	MS-PS 3-2	Energy	Describe that when the arrangement of objects interacting at distance changes, different amounts of potential energy is stored

NGSS - 8th Grade Standards

8	MS-ESS 2-2	Earth's Systems	Geoscience processes changing Earth's surface at varying time and spatial scales
8	MS-ESS 2-3	Earth's Systems	Fossil and rock distribution caused by plate tectonics, continental shapes, seafloor structure as evidence
8	MS-ESS 3-2	Earth and Human Activity	Natural hazards data use to forecast future catastrophic events, development of technology to mitigate effects, earthquake, volcanic, severe weather
8	MS-LS 3-1	Heredity: Inheritance and Variation of Traits	Describe how mutations in chromosomes may result in harmful, beneficial or neutral effects to an organism
8	MS-LS 3-2	Heredity: Inheritance and Variation of Traits	Asexual reproduction results in offspring with identical genetics & Sexual Reproduction results in offspring with variation
8	MS-LS 4-4	Biological Evolution: Unity and Diversity	Genetic variations of traits in a population can increase the probability of survival in an environment
8	MS-LS 4-5	Biological Evolution: Unity and Diversity	Gather and synthesize information about technologies that have changes the way humans influence the inheritance of desired traits
8	MS-LS 4-6	Biological Evolution: Unity and Diversity	Use of math to support explanations of how natural selection may lead to increases or decreases of traits in populations over time
8	MS-PS 1-4	Matter and Interactions	Develop model to predict and describes changes in particle motion, temperature and state of a substance when energy is added or removed
8	MS-PS 1-5	Matter and Interactions	Develop model to show Law of Conservation of Mass
8	MS-PS 1-6	Matter and Interactions	Design project to show release or absorption of thermal energy by chemical processes
8	MS-PS 2-1	Forces and Interactions	Apply Newton's 3rd Law to design a solution to a problem involving the motion of two colliding objects
8	MS-PS 2-2	Forces and Interactions	Provide evidence that the change in an object's motion depends on the sum of forces on the object and the mass Newton's 1st and 2nd Law
8	MS-PS 3-3	Energy	Design, construct and test a device that minimizes or maximizes thermal energy transfer
8	MS-PS 3-4	Energy	Determine the relationships among energy transferred, type of matter, mass, and change in kinetic energy of particles to measure temperature
8	MS-PS 3-5	Energy	Construct, use and present arguments to support the claim that when kinetic energy of an object changes, energy is transferred to or from the object
8	MS-PS 4-1	Waves and Their Applications in Technology for Info transfe	Math representation to describe a simple model for wave including amplitude related to energy in a wave
8	MS-PS 4-2	Waves and Their Applications in Technology for Info transfe	Wave interactions , reflection, absorption, and transmission through various materials
8	MS-PS 4-3	Waves and Their Applications in Technology for Info transfe	Support the claim that digitized signals are more reliable way to encode and transmit information than analog signals. (Fiber optics)

NEXT GENERATION SCIENCE STANDARDS