

NGSS Standard	Station Labs	Complete 5E Lessons
MS PS1-1 - Develop models to describe the atomic composition of simple molecules and extended structures.	Atoms Molecules Solids Liquids and Gases Organic Compounds Elements, Compounds, Mixtures Counting Atoms and Elements	Atoms Molecules Solids Liquids and Gases Organic Compounds Elements, Compounds, Mixtures Counting Atoms and Elements
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.	Density of a Regular Shaped Object Density of an Irregular Shaped Object Chemical Changes Chemical Bonds	Density of a Regular Shaped Object Density of an Irregular Shaped Object Chemical Changes Chemical Bonds
MS PS1-3 - Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.	Elements, Compounds, Mixtures Chemical Changes	Elements, Compounds, Mixtures Chemical Changes
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.	Solids Liquids and Gases Conduction, Convection, Radiation Energy Transformations	Solids Liquids and Gases Conduction, Convection, Radiation Energy Transformations
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.	Energy Transformations Balancing Chemical Equations Chemical Bonds	Energy Transformations Balancing Chemical Equations Chemical Bonds
MS PS1-6 - Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes	Chemical Changes Energy Transformations Balancing Chemical Equations Conduction, Convection, Radiation	Chemical Changes Energy Transformations Balancing Chemical Equations

STATION LABS - include a student-led lab with 8 different stations where students are learning new information and applying their knowledge - 1-2 day activity

COMPLETE 5E LESSONS - include the station lab PLUS engagement activity, content PowerPoints, modified notes, student interactive notebook templates, anchor chart ideas, student choice mastery project, homework, final assessment (modified also included) - 1.5-2 week comprehensive lesson

MS-PS2

NGSS Standard	Station Labs	Complete 5E Lessons
MS PS2-1 - Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.	Balanced and Unbalanced Forces Newton's Laws	Balanced and Unbalanced Forces Newton's Laws
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.	Balanced and Unbalanced Forces Newton's Laws Average Speed	Balanced and Unbalanced Forces Newton's Laws Average Speed
MS PS2-3 - Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.	Electric and Magnetic Forces <i>coming soon</i>	Electric and Magnetic Forces <i>coming soon</i>
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	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.	Gravity Electric and Magnetic Forces <i>coming soon</i>	Gravity Electric and Magnetic Forces <i>coming soon</i>

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NGSS Standard	Station Labs	Complete 5E Lessons
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.	Potential and Kinetic Energy Newton's Law's (second law) Average Speed	Potential and Kinetic Energy Newton's Law's (second law) Average 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.	Potential and Kinetic Energy	Potential and Kinetic Energy
MS PS3-3 - Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.*	Conduction, Convection, Radiation	Conduction, Convection, Radiation
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.	Potential and Kinetic Energy Conduction, Convection, Radiation Energy Transformations	Potential and Kinetic Energy Conduction, Convection, Radiation Energy Transformations
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.	Potential and Kinetic Energy Conduction, Convection, Radiation Energy Transformations	Potential and Kinetic Energy Conduction, Convection, Radiation Energy Transformations

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NGSS Standard	Station Labs	Complete 5E Lessons
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.	Properties of Waves <i>coming soon</i>	Properties of Waves <i>coming soon</i>
MS PS4-2 - Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.	Visible Light <i>coming soon</i>	Visible Light <i>coming soon</i>
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.	N/A	N/A

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MS-LS1

NGSS Standard	Station Labs	Complete 5E Lessons
MS LS1-1 - Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.	Cell Theory	Cell Theory
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.	Plant and Animal Cells	Plant and Animal Cells
MS LS1-3 - Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.	Characteristics of Organisms	Characteristics of Organisms
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.	Sexual and Asexual Reproduction Inherited Traits	Sexual and Asexual Reproduction Inherited Traits
MS LS1-5 - Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.	Inherited Traits Genetics Mitosis and Meiosis	Inherited Traits Genetics Mitosis and Meiosis
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.	Photosynthesis <i>coming soon</i> Food Webs Energy Pyramids	Photosynthesis <i>coming soon</i> Food Webs Energy Pyramid
MS LS1-7 - Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.	Photosynthesis Balancing Chemical Equations Digestive System Chemical Reactions	Photosynthesis Balancing Chemical Equations Digestive System Chemical Reactions

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MS-LS1

MS LS1-8 - Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

Nervous System

Nervous System

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MS LS2-1 - Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.	Organism Relationships	Organism Relationships
MS LS2-2 - Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.	Organism Relationships Abiotic and Biotic Factors	Organism Relationships Abiotic and Biotic Factors
MS LS2-3 - Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.	Nitrogen Cycle <i>coming soon</i>	Nitrogen Cycle <i>coming soon</i>
MS LS2-4 - Construct an argument supported by empirical evidence that shows changes to physical or biological components of an ecosystem affect populations	Organism Relationships	Organism Relationships
MS LS2-5 - Evaluate competing design solutions for maintaining biodiversity and ecosystem services.	Biodiversity	Biodiversity

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MS LS3-1 - Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.	Genetics Natural Selection	Genetics Natural Selection
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.	Sexual and Asexual Reproduction Genetics	Sexual and Asexual Reproduction Genetics

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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.	Fossils Geologic Time Scale	Fossils Geologic Time Scale
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.	Natural Selection Fossils Geologic Time Scale	Natural Selection Fossils Geologic Time Scale
MS LS4-3 - Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.	N/A	N/A
MS LS4-4 - Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.	Natural Selection	Natural Selection
MS LS4-5 - Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.	Natural Selection	Natural Selection
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.	Genetics Natural Selection	Genetics Natural Selection

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NGSS Standard	Station Labs	Complete 5E Lessons
MS ESS1-1 - Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.	Lunar Cycle Seasons Eclipses	Lunar Cycle Seasons Eclipses
MS ESS1-2 - Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.	Gravity Galaxies	Gravity Galaxies
MS ESS1-3 - Analyze and interpret data to determine scale properties of objects in the solar system.	Inner Planets Outer Planets	Planets
MS ESS1-4 - Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.	Geologic Time Scale	Geologic Time Scale

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NGSS Standard	Station Labs	Complete 5E Lessons
MS ESS2-1 - Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.	Carbon Cycle Nitrogen Cycle <i>coming soon</i> Water Cycle Convection Currents	Carbon Cycle Nitrogen Cycle <i>coming soon</i> Water Cycle Convection Currents
MS ESS2-2 - Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.	Plate Tectonics Volcanoes	Plate Tectonics Volcanoes
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.	Plate Tectonics Erosion and Deposition Oceans Rock Cycle Earthquakes	Plate Tectonics Erosion and Deposition Oceans Rock Cycle Earthquakes
MS ESS2-4 - Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.	Conduction, Convection, Radiation Water Cycle Convection Currents	Conduction, Convection, Radiation Water Cycle Convection Currents
MS ESS2-5 - Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions. [Clarification Statement: Emphasis is on how air masses flow from regions of high pressure to low pressure, causing weather (defined by temperature, pressure	Atmosphere Weather Maps Air Pressure	Atmosphere Weather Maps and Air Pressure
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.	Atmosphere Oceans Weather Maps and Air Pressure Conduction, Convection, Radiation	Atmosphere Oceans Weather Maps and Air Pressure Conduction, Convection, Radiation

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MS ESS3-1 - Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.	Minerals Watersheds <i>coming soon</i> Water Cycle	Minerals Watersheds <i>coming soon</i> Water Cycle
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.	Catastrophic Events	Catastrophic Events
MS ESS3-3 - Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.*	Watersheds <i>coming soon</i>	Watersheds <i>coming soon</i>
MS ESS3-4 - Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.	N/A	N/A
MS ESS3-5 - Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.	N/A	N/A

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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.	Standards should be integrated into all lessons. STEM Projects are Available Here	Standards should be integrated into all lessons. STEM Projects are Available Here
MS ETS1-2 - Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem	Standards should be integrated into all lessons. STEM Projects are Available Here	Standards should be integrated into all lessons. STEM Projects are Available Here
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.	Standards should be integrated into all lessons. STEM Projects are Available Here	Standards should be integrated into all lessons. STEM Projects are Available Here
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.	Standards should be integrated into all lessons. STEM Projects are Available Here	Standards should be integrated into all lessons. STEM Projects are Available Here

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