FOSS Next Generation Detail Correlation for New York State Science Learning Standards

Grades 6-8

New York State EDUCATION DEPARTMENT
Knowledge › Skill › Opportunity

FOSS Next Generation

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Middle School Physical Sciences		
MS-PS1-1: Develop models to describe the atomic composition of simple molecules and extended structures.	**Disciplinary Core Ideas** PS1.A: Structure and Properties of Matter **Science and Engineering Practices** Developing and Using Models **Crosscutting Concepts** Scale, Proportion, and Quantity	**CHEMICAL INTERACTIONS** Investigations 2, 7, 9, 10
MS-PS1-3: Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.	**Disciplinary Core Ideas** PS1.A: Structure and Properties of Matter PS1.B: Chemical Reactions **Science and Engineering Practices** Obtaining, Evaluating, and Communicating Information **Crosscutting Concepts** Structure and Function	**CHEMICAL INTERACTIONS** Investigation 9
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.	**Disciplinary Core Ideas** PS1.A: Structure and Properties of Matter PS3.A: Definitions of Energy **Science and Engineering Practices** Developing and Using Models **Crosscutting Concepts** Cause and Effect	**CHEMICAL INTERACTIONS** Investigation 3-5, 7, 8 **WEATHER AND WATER** Investigation 1-3, 6-7
MS-PS1-7: Use evidence to illustrate that density is a property that can be used to identify samples of matter. (NYSSLS-Specific)	**Disciplinary Core Ideas** PS1.A: Structure and Properties of Matter **Science and Engineering Practices** Engaging in Argument from Evidence **Crosscutting Concepts** Energy and Matter	**CHEMICAL INTERACTIONS** Investigation 7, Parts 1 and 2
MS-PS1-8: Plan and conduct an investigation to demonstrate that mixtures are combinations of substances. (NYSSLS-Specific)	**Disciplinary Core Ideas** PS1.A: Structure and Properties of Matter **Science and Engineering Practices** Planning and Carrying Out Investigations **Crosscutting Concepts** Energy and Matter	**CHEMICAL INTERACTIONS** Investigation 1, Parts 1 and 2
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.	**Disciplinary Core Ideas** PS1.A: Structure and Properties of Matter PS1.B: Chemical Reactions **Science and Engineering Practices** Analyzing and Interpreting Data **Crosscutting Concepts** Patterns	**CHEMICAL INTERACTIONS** Investigation 1, 3, 9, 10

Middle School Physical Sciences		
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.	**Disciplinary Core Ideas** PS1.B: Chemical Reactions **Science and Engineering Practices** Developing and Using Models **Crosscutting Concepts** Energy and Matter	**CHEMICAL INTERACTIONS** Investigation 9, 10
MS-PS1-6: Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.*	**Disciplinary Core Ideas** PS1.B: Chemical Reactions **Science and Engineering Practices** Constructing Explanations and Designing Solutions **Crosscutting Concepts** Energy and Matter	**CHEMICAL INTERACTIONS** Investigation 8
MS-PS2-1: Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.*	**Disciplinary Core Ideas** PS2.A: Forces and Motion **Science and Engineering Practices** Constructing Explanations and Designing Solutions **Crosscutting Concepts** Systems and System Models	**GRAVITY AND KINETIC ENERGY** Investigation 3, 4
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.	**Disciplinary Core Ideas** PS2.A: Forces and Motion **Science and Engineering Practices** Planning and Carrying Out Investigations **Crosscutting Concepts** Stability and Change	**ELECTROMAGNETIC FORCE** Investigation 1, 2 **GRAVITY AND KINETIC ENERGY** Investigation 2, 3
MS-PS2-3: Ask questions about data to determine the factors that affect the strength of electrical and magnetic forces.	**Disciplinary Core Ideas** PS2.B: Types of Interactions **Science and Engineering Practices** Asking Questions and Defining Problems **Crosscutting Concepts** Cause and Effect	**ELECTROMAGNETIC FORCE** Investigation 2, 3
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.	**Disciplinary Core Ideas** PS2.B: Types of Interactions **Science and Engineering Practices** Engaging in Argument from Evidence **Crosscutting Concepts** Systems and System Models	**GRAVITY AND KINETIC ENERGY** Investigation 2

**This performance expectation integrates traditional science content with engineering through a practice or disciplinary core idea.*

Middle School Physical Sciences		
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.	**Disciplinary Core Ideas** PS2.B: Types of Interactions **Science and Engineering Practices** Planning and Carrying Out Investigations **Crosscutting Concepts** Cause and Effect	**ELECTROMAGNETIC FORCE** Investigation 2, 3
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.	**Disciplinary Core Ideas** PS3.A: Definitions of Energy **Science and Engineering Practices** Analyzing and Interpreting Data **Crosscutting Concepts** Scale, Proportion, and Quantity	**GRAVITY AND KINETIC ENERGY** Investigation 3
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.	**Disciplinary Core Ideas** PS3.A: Definitions of Energy PS3.C: Relationship Between Energy and Forces **Science and Engineering Practices** Developing and Using Models **Crosscutting Concepts** Systems and System Models	**ELECTROMAGNETIC FORCE** Investigation 2, 3 **GRAVITY AND KINETIC ENERGY** Investigation 3
MS-PS3-3: Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.*	**Disciplinary Core Ideas** PS3.A: Definitions of Energy PS3.B: Conservation of Energy and Energy Transfer **Science and Engineering Practices** Constructing Explanations and Designing Solutions **Crosscutting Concepts** Energy and Matter	**CHEMICAL INTERACTIONS** Investigation 6
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.	**Disciplinary Core Ideas** PS3.A: Definitions of Energy PS3.B: Conservation of Energy and Energy Transfer **Science and Engineering Practices** Planning and Carrying Out Investigations **Crosscutting Concepts** Scale, Proportion, and Quantity	**CHEMICAL INTERACTIONS** Investigation 5, 8 **WEATHER AND WATER** Investigation 3-4

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Middle School Physical Sciences		
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.	**Disciplinary Core Ideas** PS3.B: Conservation of Energy and Energy Transfer **Science and Engineering Practices** Engaging in Argument from Evidence **Crosscutting Concepts** Energy and Matter	**CHEMICAL INTERACTIONS** Investigation 5 **WEATHER AND WATER** Investigation 4 **ELECTROMAGNETIC FORCE** Investigation 4 **GRAVITY AND KINETIC ENERGY** Investigation 3, 4
MS-PS3-6: Make observations to provide evidence that energy can be transferred by electric currents. (NYSSLS-Specific)	**Disciplinary Core Ideas** PS3.B: Conservation of Energy and Energy Transfer **Science and Engineering Practices** Planning And Carrying Out Investigations **Crosscutting Concepts** Energy and Matter	**DELTA SCIENCE READER** **Physical Science** How Do We Get Electricity? Including activities How Do Use Electricity? Including activities
MS-PS4-1: Develop a model and use mathematical representations to describe waves that includes frequency, wavelength, and how the amplitude of a wave is related to the energy in a wave.	**Disciplinary Core Ideas** PS4.A: Wave Properties **Science and Engineering Practices** Using Mathematics and Computational Thinking **Crosscutting Concepts** Patterns	**WAVES** Investigation 1, 2
MS-PS4-2: Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.	**Disciplinary Core Ideas** PS4.A: Wave Properties PS4.B: Electromagnetic Radiation **Science and Engineering Practices** Developing and Using Models **Crosscutting Concepts** Structure and Function	**WAVES** Investigations 2 and 3
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.	**Disciplinary Core Ideas** PS4.C: Information Technologies and Instrumentation **Science and Engineering Practices** Obtaining, Evaluating, and Communicating Information **Crosscutting Concepts** Structure and Function	**WAVES** Investigation 4

Disciplinary Core Idea and Engineering Assessment Opportunities

Physical Science DCI	Chemical Interactions	Waves	Electro-magnetic Force	Gravity and Kinetic Energy
PS1.A				
PS1.B				
PS2.A				
PS2.B				
PS3.A				
PS3.B				
PS3.C				
PS3.D				
PS4.A				
PS4.B				
PS4.C				
ETS1.A				
ETS1.B				
ETS1.C				

Science and Engineering Practices Assessment Opportunities

Physical Science SEP	Chemical Interactions	Waves	Electro-magnetic Force	Gravity and Kinetic Energy
Asking Questions and Defining Problems				
Developing and Using Models				
Planning and Carrying Out Investigations				
Analyzing and Interpreting Data				
Using Mathematics and Computational Thinking				
Constructing Explanations and Designing Solutions				
Engaging in Argument from Evidence				
Obtaining, Evaluating, and Communicating Information				

Crosscutting Concepts Assessment Opportunities

Physical Science CCC	Chemical Interactions	Waves	Electro-magnetic Force	Gravity and Kinetic Energy
Patterns				
Cause and Effect				
Scale, Proportion, and Quantity				
Systems and System Models				
Energy and Matter				
Structure and Function				
Stability and Change				

Middle School Life Sciences		
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.	**Disciplinary Core Ideas** LS1.A: Structure and Function **Science and Engineering Practices** Planning and Carrying Out Investigations **Crosscutting Concepts** Scale, Proportion, and Quantity	**DIVERSITY OF LIFE** Investigation 1-5, 9
MS-LS1-2: Develop and use a model to describe the function of a cell as a whole and ways the parts of cells contribute to the function.	**Disciplinary Core Ideas** LS1.A: Structure and Function **Science and Engineering Practices** Developing and Using Models **Crosscutting Concepts** Structure and Function	**DIVERSITY OF LIFE** Investigation 2-4
MS-LS1-3: Use arguments supported by evidence for how the body is a system of interacting sub-systems composed of groups of cells.	**Disciplinary Core Ideas** LS1.A: Structure and Function **Science and Engineering Practices** Engaging in Argument from Evidence **Crosscutting Concepts** Systems and System Models	**DIVERSITY OF LIFE** Investigation 1, 5, 8 **HUMAN SYSTEMS INTERACTIONS** Investigation 1-3
MS-LS1-8: Gather and synthesize information that sensory receptors respond to stimuli be sending messages to the brain for immediate behavior or storage as memories.	**Disciplinary Core Ideas** LS1.D: Information Processing **Science and Engineering Practices** Obtaining, Evaluating, and Communicating Information **Crosscutting Concepts** Cause and Effect	**HUMAN SYSTEMS INTERACTIONS** Investigation 3
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.	**Disciplinary Core Ideas** LS1.C: Organization for Matter and Energy Flow in Organisms **Science and Engineering Practices** Constructing Explanations and Designing Solutions **Crosscutting Concepts** Energy and Matter	**HUMAN SYSTEMS INTERACTIONS** Investigation 2 **POPULATIONS AND ECOSYSTEMS** Investigation 5
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.	**Disciplinary Core Ideas** LS1.C: Organization for Matter and Energy Flow in Organisms **Science and Engineering Practices** Developing and Using Models **Crosscutting Concepts** Energy and Matter	**POPULATIONS AND ECOSYSTEMS** Investigation 5

Middle School Life Sciences		
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.	**Disciplinary Core Ideas** LS2.A: Interdependent Relationships in Ecosystems **Science and Engineering Practices** Analyzing and Interpreting Data **Crosscutting Concepts** Cause and Effect	**POPULATIONS AND ECOSYSTEMS** Investigation 6-8
MS-LS2-3: Develop a model to describe the cycling of matter and flow of energy among living and non-living parts of an ecosystem.	**Disciplinary Core Ideas** LS2.B: Cycle of Matter and Energy Transfer in Ecosystems **Science and Engineering Practices** Developing and Using Models **Crosscutting Concepts** Energy and Matter	**POPULATIONS AND ECOSYSTEMS** Investigation 5-6
MS-LS2-4: Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.	**Disciplinary Core Ideas** LS2.C: Ecosystem Dynamics, Functioning, and Resilience **Science and Engineering Practices** Engaging in Argument from Evidence **Crosscutting Concepts** Stability and Change	**POPULATIONS AND ECOSYSTEMS** Investigation 7-9
MS-LS2-2: Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.	**Disciplinary Core Ideas** LS2.A: Interdependent Relationships in Ecosystems **Science and Engineering Practices** Constructing Explanations and Designing Solutions **Crosscutting Concepts** Patterns	**POPULATIONS AND ECOSYSTEMS** Investigation 3-4, 6-8
MS-LS2-5: Evaluate competing design solutions for maintaining biodiversity and ecosystem services.*	**Disciplinary Core Ideas** LS2.C: Ecosystem Dynamics, Functioning, and Resilience **Science and Engineering Practices** Engaging in Argument from Evidence **Crosscutting Concepts** Stability and Change	**POPULATIONS AND ECOSYSTEMS** Investigation 8-9

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Middle School Life Sciences		
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.	**Disciplinary Core Ideas** LS1.B: Growth and Development of Organisms **Science and Engineering Practices** Engaging in Argument from Evidence **Crosscutting Concepts** Cause and Effect	**DIVERSITY OF LIFE** Investigation 4, 8
MS-LS1-5: Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.	**Disciplinary Core Ideas** LS1.B: Growth and Development of Organisms **Science and Engineering Practices** Constructing Explanations and Designing Solutions **Crosscutting Concepts** Cause and Effect	**DIVERSITY OF LIFE** Investigation 6
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 an organism.	**Disciplinary Core Ideas** LS3.A: Inheritance of Traits LS3.B: Variation of Traits **Science and Engineering Practices** Developing and Using Models **Crosscutting Concepts** Structure and Function	**HEREDITY AND ADAPTATION** Investigation 2-3
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.	**Disciplinary Core Ideas** LS3.A: Inheritance of Traits LS3.B: Variation of Traits **Science and Engineering Practices** Developing and Using Models **Crosscutting Concepts** Cause and Effect	**DIVERSITY OF LIFE** Investigation 3, 4, 6, 7 **HEREDITY AND ADAPTATION** Investigation 2
MS-LS4-5: Gather and synthesize information about technologies that have changed the way humans influence the inheritance of desired traits in organisms.	**Disciplinary Core Ideas** LS4.B: Natural Selection **Science and Engineering Practices** Obtaining, Evaluating, and Communicating Information **Crosscutting Concepts** Cause and Effect	**HEREDITY AND ADAPTATION** Investigation 3

Middle School Life Sciences		
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.	**Disciplinary Core Ideas** LS4.A: Evidence of Common Ancestry and Diversity **Science and Engineering Practices** Analyzing and Interpreting Data **Crosscutting Concepts** Patterns	**HEREDITY AND ADAPTATION** Investigation 1
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.	**Disciplinary Core Ideas** LS4.A: Evidence of Common Ancestry and Diversity **Science and Engineering Practices** Constructing Explanations and Designing Solutions **Crosscutting Concepts** Patterns	**HEREDITY AND ADAPTATION** Investigation 1-2
MS-LS4-3: Analyze displays of pictorial data to compare patterns of similarities in embryological development across multiple species to identify relationships not evident in the fully formed anatomy.	**Disciplinary Core Ideas** LS4.A: Evidence of Common Ancestry and Diversity **Science and Engineering Practices** Analyzing and Interpreting Data **Crosscutting Concepts** Patterns	**HEREDITY AND ADAPTATION** Investigation -2
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.	**Disciplinary Core Ideas** LS4.B: Natural Selection **Science and Engineering Practices** Constructing Explanations and Designing Solutions **Crosscutting Concepts** Cause and Effect	**HEREDITY AND ADAPTATION** Investigation 3
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.	**Disciplinary Core Ideas** LS4.C: Adaptation **Science and Engineering Practices** Using Mathematics and Computational Thinking **Crosscutting Concepts** Cause and Effect	**HEREDITY AND ADAPTATION** Investigation 3

Disciplinary Core Ideas Assessment Opportunities

Life Science DCI	Diversity of Life	Populations and Ecosystems	Heredity And Adaptation	Human Systems Interactions
LS1.A				
LS1.B				
LS1.C				
LS1.D				
LS2.A				
LS2.B				
LS2.C				
LS3.A				
LS3.B				
LS4.A				
LS4.B				
LS4.C				
LS4.D				

Science and Engineering Practices Assessment Opportunities

Life Science SEP	Chemical Interactions	Waves	Electro-magnetic Force	Gravity and Kinetic Energy
Asking Questions and Defining Problems				
Developing and Using Models				
Planning and Carrying Out Investigations				
Analyzing and Interpreting Data				
Using Mathematics and Computational Thinking				
Constructing Explanations and Designing Solutions				
Engaging in Argument from Evidence				
Obtaining, Evaluating, and Communicating Information				

Crosscutting Concepts Assessment Opportunities

Life Science CCC	Chemical Interactions	Waves	Electro-magnetic Force	Gravity and Kinetic Energy
Patterns				
Cause and Effect				
Scale, Proportion, and Quantity				
Systems and System Models				
Energy and Matter				
Structure and Function				
Stability and Change				

Middle School Earth Science		
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.	**Disciplinary Core Ideas** ESS1.A: The Universe and Its Stars ESS1.B: Earth and the Solar System **Science and Engineering Practices** Developing and Using Models **Crosscutting Concepts** Patterns	**WEATHER AND WATER** Investigation 4 **PLANETARY SCIENCE** Investigation 2, 4
MS-ESS1-2: Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.	**Disciplinary Core Ideas** ESS1.A: The Universe and Its Stars ESS1.B: Earth and the Solar System **Science and Engineering Practices** Developing and Using Models **Crosscutting Concepts** Systems and System Models	**PLANETARY SCIENCE** Investigation 6-7
MS-ESS1-3: Analyze and interpret data to determine scale properties of objects in the solar system.	**Disciplinary Core Ideas** ESS1.B: Earth and the Solar System **Science and Engineering Practices** Analyzing and Interpreting Data **Crosscutting Concepts** Scale, Proportion, and Quantity	**PLANETARY SCIENCE** Investigation 3-4, 7
MS-ESS1-4: Construct a scientific explanation based on evidence from rock strata for how the geologic timescale is used to organize Earth's 4.6-billion-year-old history.	**Disciplinary Core Ideas** ESS1.C: The History of Planet Earth **Science and Engineering Practices** Constructing Explanations and Designing Solutions **Crosscutting Concepts** Scale, Proportion, and Quantity	**EARTH HISTORY** Investigation 1, 3, 9
MS-ESS2-2: Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.	**Disciplinary Core Ideas** ESS2.A: Earth's Materials and Systems ESS2.C: The Roles of Water in Earth's Surface Processes **Science and Engineering Practices** Constructing Explanations and Designing Solutions **Crosscutting Concepts** Scale, Proportion, and Quantity	**EARTH HISTORY** Investigation 1-3, 6-7, 9 **PLANETARY SCIENCE** Investigation 5, 7

Middle School Earth Science		
MS-ESS2-3: Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of past plate motions.	**Disciplinary Core Ideas** ESS2.B: Plate Tectonics and Large-Scale System Interactions **Science and Engineering Practices** Analyzing and Interpreting Data **Crosscutting Concepts** Patterns	**EARTH HISTORY** Investigation 6-7, 9
MS-ESS2-1: Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.	**Disciplinary Core Ideas** ESS2.A: Earth's Materials and Systems **Science and Engineering Practices** Developing and Using Models **Crosscutting Concepts** Stability and Change	**EARTH HISTORY** Investigation 1-3, 7, 9
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.	**Disciplinary Core Ideas** ESS2.C: The Roles of Water in Earth's Surface Processes **Science and Engineering Practices** Developing and Using Models **Crosscutting Concepts** Energy and Matter	**WEATHER AND WATER** Investigation 7-8
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.	**Disciplinary Core Ideas** ESS3.A: Natural Resources **Science and Engineering Practices** Constructing Explanations and Designing Solutions **Crosscutting Concepts** None specifically stated	**EARTH HISTORY** Investigation 6, 8
MS-ESS2-5: Collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions.	**Disciplinary Core Ideas** ESS2.C: The Roles of Water in Earth's Surface Processes ESS2.D: Weather and Climate **Science and Engineering Practices** Planning and Carrying Out Investigations **Crosscutting Concepts** Cause and Effect	**WEATHER AND WATER** Investigation 1-2, 6, 8, 10
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.	**Disciplinary Core Ideas** ESS2.C: The Roles of Water in Earth's Surface Processes ESS2.D: Weather and Climate **Science and Engineering Practices** Developing and Using Models **Crosscutting Concepts** Systems and System Models	**WEATHER AND WATER** Investigation 3-4, 6, 8-9, 10

Middle School Earth Science		
MS-ESS3-5: Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.	**Disciplinary Core Ideas** ESS3.D: Global Climate Change **Science and Engineering Practices** Asking Questions and Defining Problems **Crosscutting Concepts** Stability and Change	**WEATHER AND WATER** Investigation 9 **EARTH HISTORY** Investigation 8
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.	**Disciplinary Core Ideas** ESS3.B: Natural Hazards **Science and Engineering Practices** Analyzing and Interpreting Data **Crosscutting Concepts** Patterns	**WEATHER AND WATER** Investigation 9 **EARTH HISTORY** Investigation 6, 8
MS-ESS3-3: Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.*	**Disciplinary Core Ideas** ESS3.C: Human Impacts on Earth Systems **Science and Engineering Practices** Constructing Explanations and Designing Solutions **Crosscutting Concepts** Cause and Effect	**POPULATIONS AND ECOSYSTEMS** Investigation 9 **WEATHER AND WATER** Investigation 9 **EARTH HISTORY** Investigation 8 **PLANETARY SCIENCE** Investigation 7
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.	**Disciplinary Core Ideas** ESS3.C: Human Impacts on Earth Systems **Science and Engineering Practices** Engaging in Argument from Evidence **Crosscutting Concepts** Cause and Effect	**POPULATIONS AND ECOSYSTEMS** Investigation 9 **WEATHER AND WATER** Investigation 8-9 **EARTH HISTORY** Investigation 8 **PLANETARY SCIENCE** Investigation 7

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Disciplinary Core Idea and Engineering Assessment Opportunities

Earth Science DCI	Weather and Water	Earth History	Planetary Science
ESS1.A			
ESS1.B			
ESS1.C			
ESS2.A			
ESS2.B			
ESS2.C			
ESS2.D			
ESS3.A			
ESS3.B			
ESS3.C			
ESS3.D			
ETS1.1			
ETS1.2			
ETS1.3			
ETS1.4			

Science and Engineering Practices Assessment Opportunities

Earth Science SEP	Weather and Water	Earth History	Planetary Science
Asking Questions and Defining Problems			
Developing and Using Models			
Planning and Carrying Out Investigations			
Analyzing and Interpreting Data			
Using Mathematics and Computational Thinking			
Constructing Explanations and Designing Solutions			
Engaging in Argument from Evidence			
Obtaining, Evaluating, and Communicating Information			

Crosscutting Concepts Assessment Opportunities

Earth Science CCC	Weather and Water	Earth History	Planetary Science
Patterns			
Cause and Effect			
Scale, Proportion, and Quantity			
Systems and System Models			
Energy and Matter			
Structure and Function			
Stability and Change			