



Washington Office of Superintendent of
PUBLIC INSTRUCTION

*Initial Washington State
K–12 Learning Standards for
Science*

INITIAL WASHINGTON STATE K–12 LEARNING STANDARDS FOR SCIENCE

October 2026

FOR REVIEW



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FOR REVIEW

INTRODUCTION

The Washington State K–12 Learning Standards for Science (WA Science 2026) define what students should know and be able to do in science. The standards have been revised to improve clarity, prioritize the most important learning, and support all students. These revisions remain grounded in the *Framework for K–12 Science Education* and the *Next Generation Science Standards* (NGSS). They strengthen learning experiences that engage students in making sense of phenomena, applying science and engineering practices, and connecting learning to the world around them.

Key Goals of the Revisions

Revisions were guided by the following goals:

- Add revised Environmental and Sustainability standards
- Highlight key experiences for students through tags
- Update Clarification Statements to support shifts in instruction
- Update Assessment Boundaries to support grade-level scope
- Prioritize Learning Standards

Added Environmental and Sustainability Standards

The Environmental and Sustainability Education (ESE) standards were added as a domain across grade levels. Revised ESE standards connect science concepts and practices to environmental systems, sustainability, and communities. The new ESE standards are organized around five themes:

- Water and Air Quality
- Natural Resources and Sustainable Systems
- Food and Agricultural Systems
- Energy Use and Transportation
- Ecosystems and Biodiversity

Highlight Key Experiences for Students Through Tags

Key experiences tags identify standards that provide strong opportunities for students to engage in five key learning experiences associated with high-quality science instruction and priority standards. Each grade-level includes at least one standard from each of the five key experience categories, helping ensure students engage in these experiences throughout their K–12 science education. The five key experience tags are:

- Student-Led Investigations [INV]
- Student-Led Engineering Experiences [ENG]
- Science Outdoors [OTDR]
- Climate Learning [CLIM]
- Environmental and Sustainability Education [ESE]

See the *Key Experiences* [document on the Learning Standards Review webpage](#) for more details.

Update Clarification Statements to Support Shifts in Instruction

To clarify the intent of the standards and the instructional approaches that support high-quality science learning, clarification statements were expanded and revised to better illustrate what three-dimensional science learning looks like in practice.

The revised clarification statements emphasize student sensemaking through investigation of local and relevant phenomena through which students ask questions, develop explanations, and make connections between scientific ideas and the world around them. New examples demonstrate how standards can be implemented through place-based, community-connected, and phenomenon-driven learning experiences. Updated clarification statements can be found in the *Standards Excel Spreadsheet* [on the Learning Standards Review webpage](#).

Update Assessment Boundaries to Support Grade-Level Scope

Assessment boundaries were updated and refined to provide clearer guidance about the concepts and practices students are expected to demonstrate at each grade level. The revised assessment boundaries help educators better understand the focus of each standard and support instructional planning across grades. They also identify the limits of what can be assessed on the Washington Comprehensive Assessment of Science (WCAS), helping make assessment expectations clear and consistent. The assessment boundaries can be used by educators to support the development of classroom-based assessments. Updated assessment boundaries can be found in the *Standards Excel Spreadsheet* [on the Learning Standards Review webpage](#).

Priority Learning Standards

Priority Learning Standards are the most important academic skills and concepts students need as they move from one grade to the next. These standards were selected to ensure all students have equitable access to the knowledge and skills that can be used, both in school and beyond. Other learning standards support and reinforce the Priority Learning Standards. The Priority Learning Standards identify the universal set of standards that each and every student should have the opportunity to learn and be able to do.

Because state standards encompass many learning goals for each subject and grade, OSPI collaborated with groups of educators from kindergarten through 12th grade over two years to identify the standards that are most critical to focus on in teaching and assessment. The process was guided by national best practices. Educators had multiple opportunities to review and give feedback before the Priority Learning Standards were finalized.

Priority Learning Standards were identified using the following criteria:

- **Endurance:** Will this skill or knowledge still be valuable beyond a single test, school year, or post-high school?
- **Leverage:** Is this skill or knowledge useful across multiple subjects?
- **Readiness:** Does this skill or knowledge prepare students for success in the next grade-level, course, or post-high school option

Priority Learning Standards in science were identified through a careful review of the disciplinary core idea (DCI) progressions described in *A Framework for K–12 Science Education*, connections across standards, and extensive educator feedback. Maintaining clear K–12 learning progressions was a central focus throughout the prioritization process because scientific understanding develops over time through repeated and increasingly sophisticated exposure to the core ideas. As a result, standards were selected not only for their individual importance, but also for the role they play in supporting future learning and preserving the interconnected nature of science learning across grades and disciplines. Prioritization was intended to maintain the integrity of disciplinary core idea progressions and reduce gaps that could interrupt student learning.

The number of priorities in each grade-level or grade band for science are listed in Table 1.

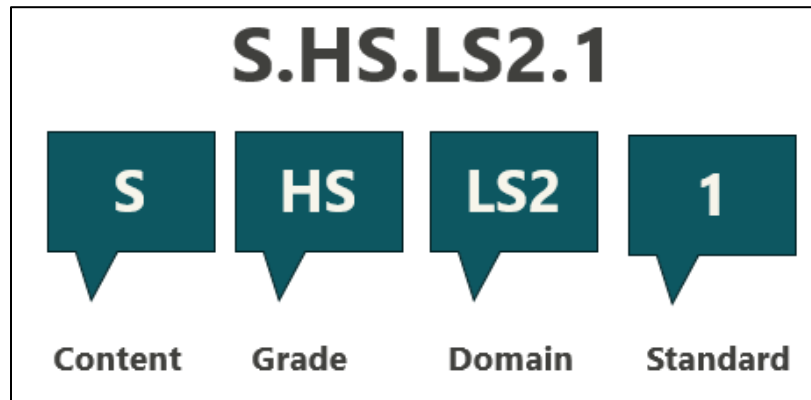
Table 1: Number of Priorities

Grade-Level and Standard	Priorities in the Grade-Level or Grade Band
Kindergarten: 14	7
Grade 1: 13	6
Grade 2: 15	7
Grade 3: 19	10
Grade 4: 18	8
Grade 5: 17	9
Middle School: 62	36
High School: 75	42

How to Read the Standards

The WA Science 2026 expands on the structure of the NGSS. The order of the standards, domains, and categories within a grade level do not indicate the order in which they should be taught.

Figure 1: Science code example



Content code tells which content area or subject the standard is for. The WA Science 2026 standards use "S."

Grade level or grade band tells which grade-level(s) the science standard is for:

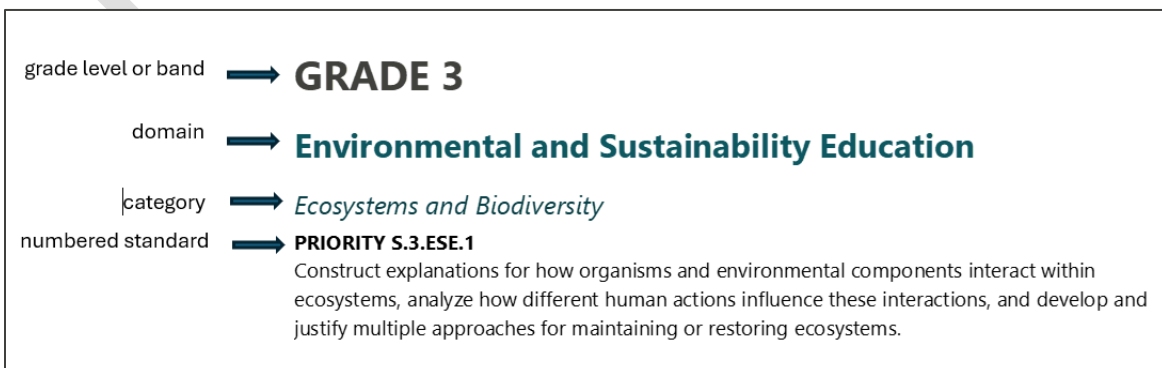
- Kindergarten uses "K."
- Grades 1 through 5 use the number for the grade-level.
- Middle school standards use "MS."
- High school standards use "HS."

Domains are larger groups of standards grouped within each discipline:

- Environmental and Sustainability Education: ESE
- Physical Sciences: PS1, PS2, PS3, PS4
- Life Sciences: LS1, LS2, LS3, LS4
- Earth and Space Sciences: ESS1, ESS2, ESS3
- Engineering, Technology, and Applications of Science: ETS1

Standards define what students should understand and be able to do and have a number from 1 to 8 in the code.

Figure 2: Example within Word Document



Key Features of the Three-Dimensions and Domains

The Washington State K–12 Learning Standards for Science are three-dimensional, requiring the integration of Science and Engineering Practices (SEPs), Crosscutting Concepts (CCCs), and Disciplinary Core Ideas (DCIs). Students develop understanding by using practices to investigate phenomena and solve problems while applying crosscutting concepts to identify patterns, relationships, and systems. Physical sciences, life sciences, earth and space sciences, engineering, technology and applications of science, and environmental and sustainability education are taught through this integrated approach. This integration helps students make sense of the natural and designed world through science and engineering.

While standards identify particular Science and Engineering Practices and Crosscutting Concepts that are emphasized within a learning experience, any Science and Engineering Practice or Crosscutting Concept may be meaningfully applied to a Disciplinary Core Idea when it supports student sensemaking, investigation, modeling, explanation, or problem-solving.

Science and Engineering Practices

Students learn science best by doing science. Science and Engineering Practices engage students in making sense of phenomena and solving problems through the kinds of thinking, reasoning, and work used by scientists and engineers. Rather than viewing science as a collection of facts to memorize, students actively build understanding by asking questions, using evidence, developing explanations, and refining ideas over time. Using these practices helps students develop a deeper understanding of scientific concepts while experiencing science as a process of discovery, investigation, and sensemaking.

Science and Engineering Practices:

- Asking Questions and Defining Problems
- Developing and Using Models
- Planning and Conducting Investigations
- Analyzing and Interpreting
- Using Mathematics and Computational Thinking
- Constructing Explanations and Designing Solutions
- Engaging in Argument from Evidence
- Obtaining, Evaluating, and Communicating Information

Crosscutting Concepts

Crosscutting Concepts help students recognize patterns and make connections across different areas of science. These concepts provide a powerful lens for thinking about the natural and designed world, helping students organize knowledge, transfer learning across disciplines, and develop a deeper understanding of science over time. By using Crosscutting Concepts repeatedly across grades and disciplines, students learn to see the big ideas that unite science and engineering.

Crosscutting Concepts:

- Patterns
- Cause and Effect: Mechanism and Prediction
- Scale, Proportion, and Quantity
- Systems and System Models
- Energy and Matter: Flows, Cycles, and Conservation
- Structure and Function
- Stability and Change

Disciplinary Core Ideas

Disciplinary Core Ideas (DCIs) represent the most important content within science and engineering. Students develop understanding of these core ideas through the application of Science and Engineering Practices and Crosscutting Concepts.

Disciplinary Core Ideas are divided into domains within each discipline. While the domains are presented separately below, high-quality science learning involves connections across multiple domains, disciplines, and dimensions of the standards.

Environmental and Sustainability Education

The environmental and sustainability education standards are organized into five categories:

- **Water and Air Quality:** Examines how air and water systems support life and how natural processes, human activities, and community decisions influence environmental quality, human health, and ecosystem resilience.
- **Natural Resources and Sustainable Systems:** Explores how resources are obtained, used, conserved, and managed within interconnected ecological, cultural, and economic systems, with an emphasis on sustainability and long-term stewardship.
- **Food, Agriculture, and Regeneration:** Investigates the relationships among food systems, land, water, energy, climate, ecosystems, and human cultures, including regenerative approaches that support healthy communities and environments.
- **Energy and Transportation:** Examines how energy production, use, and transportation systems affect communities, ecosystems, and climate, and how scientific and engineering solutions can support sustainable and equitable futures.
- **Ecosystems and Biodiversity:** Explores how organisms, ecosystems, and human communities interact, and how biodiversity, stewardship, and resilience contribute to thriving natural and human systems over time.

Physical Sciences

The four domains of Physical Sciences are:

- **Matter and Its Interactions (PS1):** Investigates the structure and properties of atoms, molecules, and bulk matter. Students explore the conservation of mass, chemical reactions, and nuclear processes.
- **Motion and Stability: Forces and Interactions (PS2):** Explores the causes of motion, including Newton's laws of motion, gravity, electromagnetism, and macroscopic forces.
- **Energy (PS3):** Covers the conservation of energy, energy transformations, heat, electrical energy, and the relationship between energy and forces.
- **Waves and Their Applications in Technologies for Information Transfer (PS4):**

Examines the physical properties of waves (mechanical and electromagnetic), wave behaviors (reflection/refraction), and how waves are used in modern digital communication.

Life Sciences

The four domains of Life Sciences are:

- **From Molecules to Organisms: Structures and Processes (LS1):** Investigates the structures and functions of living organisms, including cells, body systems, growth, reproduction, and the flow of matter and energy.
- **Ecosystems: Interactions, Energy, and Dynamics (LS2):** Explores interactions among organisms and their environments, including energy transfer, matter cycling, population dynamics, biodiversity, and ecosystem stability.
- **Heredity: Inheritance and Variation of Traits (LS3):** Examines the transmission of genetic information and the factors that contribute to inherited traits and biological variation.
- **Biological Evolution: Unity and Diversity (LS4):** Investigates the evidence and mechanisms of evolution, including natural selection, adaptation, common ancestry, biodiversity, extinction, and environmental change.

Earth and Space Sciences

The three domains of Earth and Space Sciences are:

- **Earth's Place in the Universe (ESS1):** Investigates Earth's place in the solar system and the universe, including planetary motion, Earth's history, and the formation and evolution of stars, galaxies, and planetary systems.
- **Earth's Systems (ESS2):** Explores the processes and interactions that shape Earth, including plate tectonics, geologic processes, the water cycle, weather and climate, and the movement of energy and matter among Earth's systems.
- **Earth and Human Activity (ESS3):** Examines interactions between human activities and Earth systems, including natural resources, natural hazards, environmental impacts, climate change, sustainability, and mitigation strategies.

Engineering, Technology, and Applications of Science

The engineering, technology, and applications of science discipline has one domain:

- **Engineering Design (ETS1):** Investigates the processes used to define problems and develop solutions, including criteria and constraints, prototyping, testing, analysis, and design optimization.

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Environmental and Sustainability Education

Water and Air Quality

PRIORITY S.K.ESE.1

Use observations and shared experiences to describe how water supports and connects people, plants, animals, and places, explain why clean and available water matters for living systems, and communicate ways people and communities care for water.

Physical Sciences

Motion and Stability: Forces and Interactions

PRIORITY S.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. [INV]

PRIORITY S.K.PS2.2

Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull. [ENG]

Energy

S.K.PS3.1 Make observations to determine the effect of sunlight on Earth's surface.

PRIORITY S.K.PS3.2

Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area. [CLIM] [ENG]

Life Sciences

From Molecules to Organisms: Structures and Processes

S.K.LS1.1 Use observations to describe patterns of what plants and animals (including humans) need to survive.

Earth and Space Sciences

Earth's Systems

PRIORITY S.K.ESS2.1

Use and share observations of local weather conditions to describe patterns over time. [OTDR]

S.K.ESS2.2 Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.

Earth and Human Activity

PRIORITY S.K.ESS3.1

Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live. [CLIM]

S.K.ESS3.2 Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather. [ENG]

PRIORITY S.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. [CLIM] [ENG]

Engineering, Technology, and Applications of Science

Engineering Design

S.K-2.ETS1.1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

S.K-2.ETS1.2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

S.K-2.ETS1.3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

GRADE 1

Environmental and Sustainability Education

Food, Agriculture, and Regeneration

PRIORITY S.1.ESE.1

Use observations to describe how plants provide food for people, animals, and ecosystems, explain how caring for plants supports healthy systems, and evaluate ways people grow and share food in their communities.

Physical Sciences

Waves and Their Applications in Technologies for Information Transfer

PRIORITY S.1.PS4.1

Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. [INV]

S.1.PS4.2 Make observations to construct an evidence-based account that objects in darkness can be seen only when illuminated.

PRIORITY S.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. [INV]

S.1.PS4.4 Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance. [ENG]

Life Sciences

From Molecules to Organisms: Structures and Processes

PRIORITY S.1.LS1.1

Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs. [ENG]

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

Heredity: Inheritance and Variation of Traits

PRIORITY S.1.LS3.1

Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.

Earth and Space Sciences

Earth's Place in the Universe

PRIORITY S.1.ESS1.1

Use observations of the sun, moon, and stars to describe patterns that can be predicted. [OTDR]

S.1.ESS1.2 Make observations at different times of year to relate the amount of daylight to the time of year. [OTDR]

Engineering, Technology, and Applications of Science

Engineering Design

S.K-2.ETS1.1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

S.K-2.ETS1.2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

S.K-2.ETS1.3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

GRADE 2

Environmental and Sustainability Education

Natural Resources and Sustainable Systems

PRIORITY S.2.ESE.1

Analyze how natural materials are obtained and used in everyday objects, explain how extracting, using, and disposing of these materials affects environmental and human systems, and compare and justify approaches for reducing waste and conserving resources.

Physical Sciences

Matter and Its Interactions

PRIORITY S.2.PS1.1

Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. [INV]

PRIORITY S.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. [ENG]

S.2.PS1.3 Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.

S.2.PS1.4 Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.

Life Sciences

Ecosystems: Interactions, Energy, and Dynamics

PRIORITY S.2.LS2.1

Plan and conduct an investigation to determine the effect of varying amounts of sunlight and water on plants. [INV]

S.2.LS2.2 Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants. [ENG]

Biological Evolution: Unity and Diversity

PRIORITY S.2.LS4.1

Make observations of plants and animals to compare the diversity of life in different habitats. [OTDR]

Earth and Space Sciences

Earth's Place in the Universe

S.2.ESS1.1 Use information from several sources to provide evidence that Earth events can occur quickly or slowly. [CLIM]

Earth's Systems

PRIORITY S.2.ESS2.1

Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land. [ENG] [ESE]

PRIORITY S.2.ESS2.2

Develop a model to represent the shapes and kinds of land and bodies of water in an area. [OTDR]

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

Engineering, Technology, and Applications of Science

Engineering Design

S.K-2.ETS1.1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

S.K-2.ETS1.2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

S.K-2.ETS1.3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

GRADE 3

Environmental and Sustainability Education

Ecosystems and Biodiversity

PRIORITY S.3.ESE.1

Construct explanations for how organisms and environmental components interact within ecosystems, analyze how different human actions influence these interactions, and develop and justify multiple approaches for maintaining or restoring ecosystems.

Physical Sciences

Motion and Stability: Forces and Interactions

PRIORITY S.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. [INV]

S.3.PS2.2 Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

PRIORITY S.3.PS2.3

Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.

S.3.PS2.4 Define a simple design problem that can be solved by applying scientific ideas about magnets. [ENG]

Life Sciences

From Molecules to Organisms: Structures and Processes

PRIORITY S.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.

Ecosystems: Interactions, Energy, and Dynamics

S.3.LS2.1 Construct an argument that some animals form groups that help members survive.

Heredity: Inheritance and Variation of Traits

PRIORITY S.3.LS3.1

Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms. [OTDR]

S.3.LS3.2 Use evidence to support the explanation that traits can be influenced by the environment. [ESE]

Biological Evolution: Unity and Diversity

PRIORITY S.3.LS4.1

Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.

S.3.LS4.2 Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. [ESE]

PRIORITY S.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. [OTDR]

S.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. [ENG]

Earth and Space Sciences

Earth's Systems

PRIORITY S.3.ESS2.1

Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. [CLIM]

PRIORITY S.3.ESS2.2

Obtain and combine information to describe climates in different regions of the world. [CLIM]

Earth and Human Activity

PRIORITY S.3.ESS3.1

Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard. [CLIM] [ENG]

Engineering, Technology, and Applications of Science

Engineering Design

S.3-5.ETS1.1 Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

S.3-5.ETS1.2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

S.3-5.ETS1.3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

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GRADE 4

Environmental and Sustainability Education

Energy and Transportation

PRIORITY S.4.ESE.1

Apply scientific ideas about energy to analyze how energy is generated, transferred, and used, explain how energy choices affect environmental and community systems, and evaluate tradeoffs among strategies for using energy based on impacts, efficiency, and access.

Physical Sciences

Energy

S.4.PS3.1 Use evidence to construct an explanation relating the speed of an object to the energy of that object.

PRIORITY S.4.PS3.2

Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. [INV]

PRIORITY S.4.PS3.3

Ask questions and predict outcomes about the changes in energy that occur when objects collide.

S.4.PS3.4 Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. [ENG] [ESE]

Waves and Their Applications in Technologies for Information Transfer

PRIORITY S.4.PS4.1

Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.

S.4.PS4.2 Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.

S.4.PS4.3 Generate and compare multiple solutions that use patterns to transfer information.

Life Sciences

From Molecules to Organisms: Structures and Processes

PRIORITY S.4.LS1.1

Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. [OTDR]

S.4.LS1.2 Use a model to describe that animals receive different types of information through their senses process the information in their brain and respond to the information in different ways.

Earth and Space Sciences

Earth's Place in the Universe

S.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. [CLIM]

Earth's Systems

PRIORITY S.4.ESS2.1

Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. [CLIM] [INV] [OTDR]

S.4.ESS2.2 Analyze and interpret data from maps to describe patterns of Earth's features. [OTDR]

Earth and Human Activity

PRIORITY S.4.ESS3.1

Obtain and combine information to describe that energy and fuels are derived from natural resources, and their uses affect the environment. [CLIM]

PRIORITY S.4.ESS3.2

Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans. [ENG] [OTDR]

Engineering, Technology, and Applications of Science

Engineering Design

S.3-5.ETS1.1 Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

S.3-5.ETS1.2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

S.3-5.ETS1.3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

GRADE 5

Environmental and Sustainability Education

Water and Air Quality

PRIORITY S.5.ESE.1

Analyze data to identify patterns linking specific human activities and system-level processes to changes in air and/or water conditions, explain how these changes affect organisms, ecosystems, and communities in different ways, and develop and justify evidence-based approaches to improve environmental and community health.

Physical Sciences

Matter and Its Interactions

PRIORITY S.5.PS1.1

Develop a model to describe that matter is made of particles too small to be seen.

PRIORITY S.5.PS1.2

Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is unchanged. [INV]

S.5.PS1.3 Make observations and measurements to identify materials based on their properties.

S.5.PS1.4 Conduct an investigation to determine whether the mixing of two or more substances results in new substances. [INV]

Motion and Stability: Forces and Interactions

S.5.PS2.1 Support an argument that the gravitational force exerted by Earth on objects is directed down.

Energy

PRIORITY S.5.PS3.1

Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.

Life Sciences

From Molecules to Organisms: Structures and Processes

PRIORITY S.5.LS1.1

Support an argument that plants get the materials they need for growth chiefly from air and water.

Ecosystems: Interactions, Energy, and Dynamics

PRIORITY S.5.LS2.1

Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

Earth and Space Sciences

Earth's Place in the Universe

S.5.ESS1.1 Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.

PRIORITY S.5.ESS1.2

Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. [CLIM]

Earth's Systems

PRIORITY S.5.ESS2.1

Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. [OTDR]

S.5.ESS2.2 Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.

Earth and Human Activity

PRIORITY S.5.ESS3.1

Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. [CLIM]

Engineering, Technology, and Applications of Science

Engineering Design

S.3-5.ETS1.1 Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. [ENG]

S.3-5.ETS1.2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. [ENG]

S.3-5.ETS1.3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. [ENG]

MIDDLE SCHOOL (GRADES 6–8)

Environmental and Sustainability Education

Energy and Transportation

PRIORITY S.MS.ESE.1

Analyze how different energy and transportation choices affect environmental systems and communities, and evaluate and design evidence-based approaches that reduce environmental impacts while meeting community needs.

Food, Agriculture, and Regeneration

PRIORITY S.MS.ESE.2

Analyze and interpret data to evaluate how different food production systems influence ecosystems, resource use, and human communities, and develop evidence-based arguments about the impacts of different food system approaches.

Natural Resources and Sustainable Systems

PRIORITY S.MS.ESE.3

Construct explanations based on evidence for how the extraction, production, use, and disposal of natural resources impact Earth systems and human communities, and evaluate approaches for reducing environmental harm and supporting more sustainable resource systems.

Physical Sciences

Matter and Its Interactions

PRIORITY S.MS.PS1.1

Develop models to describe the atomic composition of simple molecules and extended structures.

PRIORITY S.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.

S.MS.PS1.3 Gather and make sense of information to describe that synthetic materials come from natural resources and impact society. [CLIM]

PRIORITY S.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. [CLIM]

S.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.

PRIORITY S.MS.PS1.6

Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes. [ENG]

*Motion and Stability: Forces and Interactions***PRIORITY S.MS.PS2.1**

Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects. [ENG]

PRIORITY S.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. [INV] [OTDR]

S.MS.PS2.3 Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.

PRIORITY S.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.

S.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. [INV]

*Energy***PRIORITY S.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.

PRIORITY S.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.

S.MS.PS3.3 Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer. [ENG]

S.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. [CLIM] [INV]

S.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.

*Waves and Their Applications in Technologies for Information Transfer***PRIORITY S.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.

PRIORITY S.MS.PS4.2

Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.

S.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.

Life Sciences

From Molecules to Organisms: Structures and Processes

PRIORITY S.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. [INV]

PRIORITY S.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.

S.MS.LS1.3 Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.

S.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.

S.MS.LS1.5 Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. [CLIM]

PRIORITY S.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. [CLIM]

PRIORITY S.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.

S.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.

Ecosystems: Interactions, Energy, and Dynamics

PRIORITY S.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. [CLIM]

S.MS.LS2.2 Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems. [CLIM]

PRIORITY S.MS.LS2.3

Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. [OTDR]

S.MS.LS2.4 Construct an argument supported by empirical evidence that changes how physical or biological components of an ecosystem affect populations. [CLIM]

PRIORITY S.MS.LS2.5

Evaluate competing design solutions for maintaining biodiversity and ecosystem services. [ENG]
[OTDR]

Heredity: Inheritance and Variation of Traits

PRIORITY S.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.

PRIORITY S.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.

Biological Evolution: Unity and Diversity

PRIORITY S.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.

S.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.

S.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.

PRIORITY S.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.

S.MS.LS4.5 Gather and synthesize information about technologies that have changed the way humans influence the inheritance of desired traits in organisms.

PRIORITY S.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.

Earth and Space Sciences

Earth's Place in the Universe

PRIORITY S.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.

S.MS.ESS1.2 Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.

PRIORITY S.MS.ESS1.3

Analyze and interpret data to determine scale properties of objects in the solar system.

S.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.

Earth's Systems

PRIORITY S.MS.ESS2.1

Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.

S.MS.ESS2.2 Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.

PRIORITY S.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.

PRIORITY S.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. [OTDR]

S.MS.ESS2.5 Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions. [CLIM] [INV] [OTDR]

PRIORITY S.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. [CLIM]

Earth and Human Activity

S.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.

PRIORITY S.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. [CLIM] [INV]

PRIORITY S.MS.ESS3.3

Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. [CLIM] [ENG] [OTDR]

PRIORITY S.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. [CLIM]

PRIORITY S.MS.ESS3.5

Ask questions to clarify evidence of the factors that have caused climate change over the past century. [CLIM]

Engineering, Technology, and Applications of Science

Engineering Design

S.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.

S.MS.ETS1.2 Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

S.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.

S.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.

HIGH SCHOOL (GRADES 9–12)

Environmental and Sustainability Education

Water and Air Quality

PRIORITY S.HS.ESE.1

Use models and chemical and physical principles to explain how human-produced substances and energy systems influence air and water conditions, and evaluate and design evidence-based technological and policy approaches to reduce environmental and health impacts.

Ecosystems and Biodiversity

PRIORITY S.HS.ESE.2

Analyze data and models to evaluate factors influencing biodiversity and ecosystem resilience, and construct and defend evidence-based arguments about how different stewardship strategies support or limit ecosystem outcomes across ecological, cultural, and community contexts.

Natural Resources and Sustainable Systems

PRIORITY S.HS.ESE.3

Analyze geoscience and socioeconomic data to evaluate how natural resource extraction, production, and use shape Earth systems and social outcomes, and construct evidence-based arguments about pathways toward more just and sustainable resource management.

Physical Sciences

Matter and Its Interactions

PRIORITY S.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.

PRIORITY S.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.

S.HS.PS1.3 Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles. [INV]

PRIORITY S.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.

S.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.

S.HS.PS1.6 Refine the design of a chemical system by specifying a change in conditions that would produce increased amounts of products at equilibrium.

PRIORITY S.HS.PS1.7

Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.

PRIORITY S.HS.PS1.8

Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.

Motion and Stability: Forces and Interactions

PRIORITY S.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. [OTDR]

S.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.

S.HS.PS2.3 Apply science and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision. [ENG]

PRIORITY S.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.

PRIORITY S.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. [INV]

S.HS.PS2.6 Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials. [ENG]

Energy

PRIORITY S.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.

PRIORITY S.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 motion of particles (objects) and energy associated with the relative positions of particles (objects).

PRIORITY S.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. [ENG]

S.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 (second law of thermodynamics). [INV]

S.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.

Waves and Their Applications in Technologies for Information Transfer

PRIORITY S.HS.PS4.1

Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.

S.HS.PS4.2 Evaluate questions about the advantages of using a digital transmission and storage of information.

S.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.

PRIORITY S.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. [CLIM]

S.HS.PS4.5 Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.

Life Sciences

From Molecules to Organisms: Structures and Processes

PRIORITY S.HS.LS1.1

Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins, which carry out the essential functions of life through systems of specialized cells.

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

PRIORITY S.HS.LS1.3

Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis. [INV]

PRIORITY S.HS.LS1.4

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

PRIORITY S.HS.LS1.5

Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.

S.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.

PRIORITY S.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.

Ecosystems: Interactions, Energy, and Dynamics

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

PRIORITY S.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. [CLIM]

S.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.

PRIORITY S.HS.LS2.4

Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem. [CLIM]

PRIORITY S.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. [CLIM]

PRIORITY S.HS.LS2.6

Evaluate claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem. [CLIM]

PRIORITY S.HS.LS2.7

Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity. [CLIM] [ENG] [OTDR]

S.HS.LS2.8 Evaluate evidence for the role of group behavior on individual and species' chances to survive and reproduce.

Heredity: Inheritance and Variation of Traits

S.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.

PRIORITY S.HS.LS3.2

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

PRIORITY S.HS.LS3.3

Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population.

Biological Evolution: Unity and Diversity

S.HS.LS4.1 Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.

PRIORITY S.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.

S.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.

S.HS.LS4.4 Construct an explanation based on evidence for how natural selection leads to adaptation of populations.

PRIORITY S.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.

[CLIM]

S.HS.LS4.6 Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity. [CLIM] [ENG]

Earth and Space Sciences

Earth's Place in the Universe

PRIORITY S.HS.ESS1.1

Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy that eventually reaches Earth in the form of radiation.

PRIORITY S.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.

S.HS.ESS1.3 Communicate scientific ideas about the way stars, over their life cycle, produce elements.

S.HS.ESS1.4 Use mathematical or computational representations to predict the motion of orbiting objects in the solar system.

S.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.

PRIORITY S.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.

Earth's Systems

PRIORITY S.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.

PRIORITY S.HS.ESS2.2

Analyze geoscience data to make the claim that one change to Earth's surface can create feedback that cause changes to other Earth systems. [OTDR]

S.HS.ESS2.3 Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection.

PRIORITY S.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. [CLIM]

PRIORITY S.HS.ESS2.5

Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes. [INV] [OTDR]

PRIORITY S.HS.ESS2.6

Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere. [CLIM]

S.HS.ESS2.7 Construct an argument based on evidence about the simultaneous coevolution of

Earth's systems and life on Earth.

Earth and Human Activity

PRIORITY S.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. [CLIM]

S.HS.ESS3.2 Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios. [CLIM] [ENG] [ESE]

S.HS.ESS3.3 Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity. [CLIM] [ESE]

PRIORITY S.HS.ESS3.4

Evaluate or refine a technological solution that reduces impacts of human activities on natural systems. [CLIM] [ENG] [ESE]

PRIORITY S.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. [CLIM] [ESE]

PRIORITY S.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. [CLIM]

Engineering, Technology, and Applications of Science

Engineering Design

PRIORITY S.HS.ETS1.1

Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.

PRIORITY S.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.

PRIORITY S.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.

PRIORITY S.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.

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