Cognia Science Alternate Assessment

Elementary Grade-Level Standards and Extended Performance Expectations (EPEs) for Maine Department of Education

FINAL

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AdvancED and Measured Progress are now cognia

Elementary Grade-Level Standards

Standards

NGSS Performance Expectation 3-ESS2-1	
3-ESS2-1 Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. [Clarification Statement: Examples of data could include average temperature, precipitation, and wind direction.] [Assessment Boundary: Assessment of graphical displays is limited to pictographs and bar graphs. Assessment does not include climate change.]	
Science and Engineering Practices (SEP)	**Analyzing and Interpreting Data** • Represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships.
Disciplinary Core Ideas (DCI)	**ESS2.D: Weather and Climate** • Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next.
Crosscutting Concepts (CCC)	**Patterns** • Patterns of change can be used to make predictions.

Extended Performance Expectation 3-ESS2-1			
	Level 1	***Level 2***	***Level 3***
	Less Complex ⟵ ⟵ ⟵ ⟵ ⟶ ⟶ ⟶ ⟶ ***More Complex***		
	3-ESS2-1.1 Use observations to describe weather conditions.	**3-ESS2-1.2** Use tables or graphical displays of data to describe patterns of typical weather conditions in a particular season.	**3-ESS2-1.3** Use tables and/or graphical displays of data to predict patterns of typical weather conditions for a particular season.
Science and Engineering Practices (SEP)	**Analyzing and Interpreting Data** • Represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships. **Supporting:** **Planning and Carrying Out Investigations**		
Disciplinary Core Ideas (DCI)	**ESS2.D: Weather and Climate** • Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next.		
Crosscutting Concepts (CCC)	**Patterns** • Patterns of change can be used to make predictions.		

Elementary Grade-Level Standards

Standards

NGSS Performance Expectation 3-LS3-1	
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. [Clarification Statement: Patterns are the similarities and differences in traits shared between offspring and their parents, or among siblings. Emphasis is on organisms other than humans.] [Assessment Boundary: Assessment does not include genetic mechanisms of inheritance and prediction of traits. Assessment is limited to non-human examples.]	
Science and Engineering Practices (SEP)	**Analyzing and Interpreting Data** • Analyze and interpret data to make sense of phenomena using logical reasoning.
Disciplinary Core Ideas (DCI)	**LS3.A: Inheritance of Traits** • Many characteristics of organisms are inherited from their parents. **LS3.B: Variation of Traits** • Different organisms vary in how they look and function because they have different inherited information.
Crosscutting Concepts (CCC)	**Patterns** • Similarities and differences in patterns can be used to sort and classify natural phenomena.

Extended Performance Expectation 3-LS3-1			
	Level 1	***Level 2***	***Level 3***
	Less Complex ⟵ ⟵ ⟵ ⟵ ⟵ ⟶ ⟶ ⟶ ⟶ ⟶		***More Complex***
	3-LS3-1.1 Use media (e.g., drawings, photographs) to identify or show pairs of parents and their offspring.	**3-LS3-1.2** Use observations to identify patterns of similarities and differences in traits of groups of organisms (e.g., parents and their offspring, siblings, populations of similar organisms).	**3-LS3-1.3** Use data to show that plants and animals inherit traits from their parents, and that there are differences in these traits in groups of similar organisms.
Science and Engineering Practices (SEP)	**Analyzing and Interpreting Data** • Analyze and interpret data to make sense of phenomena using logical reasoning. **Supporting: Obtaining, Evaluating, and Communicating Information**		
Disciplinary Core Ideas (DCI)	**LS3.A: Inheritance of Traits** • Many characteristics of organisms are inherited from their parents. **LS3.B: Variation of Traits** • Different organisms vary in how they look and function because they have different inherited information.		
Crosscutting Concepts (CCC)	**Patterns** • Similarities and differences in patterns can be used to sort and classify natural phenomena.		

Elementary Grade-Level Standards

Standards

NGSS Performance Expectation 3-LS4-1	
3-LS4-1 Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. [Clarification Statement: Examples of data could include type, size, and distributions of fossil organisms. Examples of fossils and environments could include marine fossils found on dry land, tropical plant fossils found in Arctic areas, and fossils of extinct organisms.] [Assessment Boundary: Assessment does not include identification of specific fossils or present plants and animals. Assessment is limited to major fossil types and relative ages.]	
Science and Engineering Practices (SEP)	**Analyzing and Interpreting Data** • Analyze and interpret data to make sense of phenomena using logical reasoning.
Disciplinary Core Ideas (DCI)	**LS4.A: Evidence of Common Ancestry and Diversity** • Some kinds of plants and animals that once lived on Earth are no longer found anywhere. • Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments.
Crosscutting Concepts (CCC)	**Scale, Proportion, and Quantity** • Observable phenomena exist from very short to very long time periods.

Extended Performance Expectation 3-LS4-1			
	Level 1	***Level 2***	***Level 3***
	Less Complex ⟵ ⟵ ⟵ ⟵ ⟵ ⟶ ⟶ ⟶ ⟶ ⟶		***More Complex***
	3-LS4-1.1 Use text and media (e.g., drawings, diagrams, photographs) to recognize that there was life on Earth long ago.	**3-LS4-2.2** Use observations from fossils to describe plants and animals that lived long ago or compare fossils to their modern-day relatives.	**3-LS4-2.3** Use data from fossils to describe the type of environment in which the plants or animals lived long ago.
Science and Engineering Practices (SEP)	**Analyzing and Interpreting Data** • Analyze and interpret data to make sense of phenomena using logical reasoning. **Supporting:** **Obtaining, Evaluating, and Communicating Information**		
Disciplinary Core Ideas (DCI)	**LS4.A: Evidence of Common Ancestry and Diversity** • Some kinds of plants and animals that once lived on Earth are no longer found anywhere. • Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments.		
Crosscutting Concepts (CCC)	**Scale, Proportion, and Quantity** • Observable phenomena exist from very short to very long time periods.		

Elementary Grade-Level Standards

Standards

NGSS Performance Expectation 3-PS2-2	
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. [Clarification Statement: Examples of motion with a predictable pattern could include a child swinging in a swing, a ball rolling back and forth in a bowl, and two children on a see-saw.]	
Science and Engineering Practices (SEP)	**Planning and Carrying Out Investigations** • Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution.
Disciplinary Core Ideas (DCI)	**PS2.A: Forces and Motion** • The patterns of an object's motion in various situations can be observed and measured; when that past motion exhibits a regular pattern, future motion can be predicted from it. (Boundary: Technical terms, such as magnitude, velocity, momentum, and vector quantity, are not introduced at this level, but the concept that some quantities need both size and direction to be described is developed.)
Crosscutting Concepts (CCC)	**Patterns** • Patterns of change can be used to make predictions.

Extended Performance Expectation 3-PS2-2			
	Level 1	***Level 2***	***Level 3***
	Less Complex ⟵ ⟵ ⟵ ⟵ ⟵ ⟶ ⟶ ⟶ ⟶ ⟶ ***More Complex***		
	3-PS2-2.1 Use observations or data to identify patterns in the motion of an object.	**3-PS2-2.2** Use observations or measurements of patterns of an object's motion to predict the object's future motion.	**3-PS2-2.3** Describe observations or measurements that can be made to determine predictable patterns in the motion of an object.
Science and Engineering Practices (SEP)	**Planning and Carrying Out Investigations** • Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. **Supporting:** **Analyzing and Interpreting Data**		
Disciplinary Core Ideas (DCI)	**PS2.A: Forces and Motion** • The patterns of an object's motion in various situations can be observed and measured; when that past motion exhibits a regular pattern, future motion can be predicted from it. (Boundary: Technical terms, such as magnitude, velocity, momentum, and vector quantity, are not introduced at this level, but the concept that some quantities need both size and direction to be described is developed.)		
Crosscutting	**Patterns**		

Elementary Grade-Level Standards

Concepts (CCC)	• Patterns in the natural and human and designed world can be observed. • Patterns of change can be used to make predictions.

Elementary Grade-Level Standards

Standards

NGSS Performance Expectation 4-LS1-1	
4-LS1-1 Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. [Clarification Statement: Examples of structures could include thorns, stems, roots, colored petals, heart, stomach, lung, brain, and skin.] [Assessment Boundary: Assessment is limited to macroscopic structures within plant and animal systems.]	
Science and Engineering Practices (SEP)	**Engaging in Argument from Evidence** • Construct an argument with evidence, data, and/or a model.
Disciplinary Core Ideas (DCI)	**LS1.A: Structure and Function** • Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction.
Crosscutting Concepts (CCC)	**Systems and System Models** • A system can be described in terms of its components and their interactions.

Extended Performance Expectation 4-LS1-1			
	Level 1	***Level 2***	***Level 3***
	Less Complex ⟵ ⟵ ⟵ ⟵ ⟶ ⟶ ⟶ ⟶ ⟶ ***More Complex***		
	4-LS1-1.1 Use a model to identify major internal or external structures of plants or animals that are used for specific functions (e.g. thorns, stems, roots, colored petals, heart, stomach, lung, brain, skin).	**4-LS1-1.2** Use data or observations to describe how internal or external structures help a plant or animal survive, grow, or reproduce.	**4-LS1-1.3** Describe the evidence that would be needed to support a claim that plants or animals have internal or external structures that function to support survival, growth, behavior, and/or reproduction.
Science and Engineering Practices (SEP)	**Engaging in Argument from Evidence** • Construct an argument with evidence, data, and/or a model. **Supporting:** **Developing and Using Models** **Analyzing and Interpreting Data**		
Disciplinary Core Ideas (DCI)	**LS1.A: Structure and Function** • Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction.		
Crosscutting Concepts (CCC)	**Systems and System Models** • A system can be described in terms of its components and their interactions. **Supporting:** **Structure and Function**		

Elementary Grade-Level Standards

Standards

NGSS Performance Expectation 4-PS3-4	
4-PS3-4 Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.* [Clarification Statement: Examples of devices could include electric circuits that convert electrical energy into motion energy of a vehicle, light, or sound; and, a passive solar heater that converts light into heat. Examples of constraints could include the materials, cost, or time to design the device.] [Assessment Boundary: Devices should be limited to those that convert motion energy to electric energy or use stored energy to cause motion or produce light or sound.]	
Science and Engineering Practices (SEP)	**Constructing Explanations and Designing Solutions** • Apply scientific ideas to solve design problems
Disciplinary Core Ideas (DCI)	**PS3.B: Conservation of Energy and Energy Transfer** • Energy can also be transferred from place to place by electric currents, which can then be used locally to produce motion, sound, heat, or light. The currents may have been produced to begin with by transforming the energy of motion into electrical energy. **PS3.D: Energy in Chemical Processes and Everyday Life** • The expression "produce energy" typically refers to the conversion of stored energy into a desired form for practical use. **ETS1.A: Defining Engineering Problems** • Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account.(secondary)
Crosscutting Concepts (CCC)	**Energy and Matter** • Energy can be transferred in various ways and between objects.

Extended Performance Expectation 4-PS3-4			
	Level 1	***Level 2***	***Level 3***
	Less Complex ⟵ ⟵ ⟵ ⟵ ⟵ ⟶ ⟶ ⟶ ⟶ ⟶ ***More Complex***		
	4-PS3-4.1 Identify forms of energy present in a system.	**4-PS3-4.2** Describe the energy transfer that occurs in an everyday object or device.	**4-PS3-4.3** Identify which design or improvement will work best to transfer energy from one form to another.
Science and Engineering Practices (SEP)	**Constructing Explanations and Designing Solutions** • Apply scientific ideas to solve design problems		
Disciplinary Core Ideas (DCI)	**PS3.B: Conservation of Energy and Energy Transfer** • Energy can also be transferred from place to place by electric currents, which can then be used locally to produce motion, sound, heat, or light. The currents may have been produced to begin with by transforming the energy of motion into electrical energy.		

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	PS3.D: Energy in Chemical Processes and Everyday Life • The expression “produce energy” typically refers to the conversion of stored energy into a desired form for practical use. **ETS1.A: Defining Engineering Problems** • Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account.(secondary)
Crosscutting Concepts (CCC)	**Energy and Matter** • Energy can be transferred in various ways and between objects.

Elementary Grade-Level Standards

Standards

NGSS Performance Expectation 5-ESS1-2	
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. [Clarification Statement: Examples of patterns could include the position and motion of Earth with respect to the sun and selected stars that are visible only in particular months.][*Assessment Boundary: Assessment does not include causes of seasons.*]	
Science and Engineering Practices (SEP)	**Analyzing and Interpreting Data** • Represent data in graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships.
Disciplinary Core Ideas (DCI)	**ESS1.B: Earth and the Solar System** • The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the day, month, and year.
Crosscutting Concepts (CCC)	**Patterns** • Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena.

Extended Performance Expectation 5-ESS1-2			
	Level 1	***Level 2***	***Level 3***
	Less Complex ⟵ ⟵ ⟵ ⟵ ⟵ ⟶ ⟶ ⟶ ⟶ ⟶ ***More Complex***		
	5-ESS1-2.1 Identify or label a model that shows the positions of the Sun, the Moon, and Earth in the solar system.	**5-ESS1-2.2** Use models or data to identify patterns of change related to the rotation of Earth, Earth's orbit around the Sun, and/or the Moon's orbit around Earth (e.g., length and direction of shadows, day and night, seasonal appearance of stars).	**5-ESS1-2.3** Use models or data to predict or infer patterns of change related to the rotation of Earth, Earth's orbit around the Sun, and the Moon's orbit around Earth (e.g., length and direction of shadows, day and night, seasonal appearance of stars).
Science and Engineering Practices (SEP)	**Analyzing and Interpreting Data** • Represent data in graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships. **Supporting: Developing and Using Models**		
Disciplinary Core Ideas (DCI)	**ESS1.B: Earth and the Solar System** • The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the day, month, and year.		
Crosscutting	**Patterns**		

Elementary Grade-Level Standards

Concepts (CCC)	• Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena. **Supporting**: **Systems and System Models**

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Standards

NGSS Performance Expectation 5-ESS2-1	
5-ESS2-1 . Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. [Clarification Statement: Examples could include the influence of the ocean on ecosystems, landform shape, and climate; the influence of the atmosphere on landforms and ecosystems through weather and climate; and the influence of mountain ranges on winds and clouds in the atmosphere. The geosphere, hydrosphere, atmosphere, and biosphere are each a system.] [Assessment Boundary: Assessment is limited to the interactions of two systems at a time.]	
Science and Engineering Practices (SEP)	**Developing and Using Models** • Develop a model using an example to describe a scientific principle.
Disciplinary Core Ideas (DCI)	**ESS2.A: Earth Materials and Systems** • Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather.
Crosscutting Concepts (CCC)	**Systems and System Models** • A system can be described in terms of its components and their interactions.

Extended Performance Expectation 5-ESS2-1			
	Level 1	***Level 2***	***Level 3***
	Less Complex ⟵ ⟵ ⟵ ⟵ ⟶ ⟶ ⟶ ⟶ ⟶ ***More Complex***		
	5-ESS2-1.1 Use a model (diagram) to identify parts of various Earth systems (e.g., geosphere, hydrosphere, atmosphere, biosphere).	**5-ESS2-1.2** Use a model to describe how any two Earth systems interact.	**5-ESS2-1.3** Develop a model to show ways in which any two Earth systems interact.
Science and Engineering Practices (SEP)	**Developing and Using Models** • Use a model as an example to describe a scientific principle.		
Disciplinary Core Ideas (DCI)	**ESS2.A: Earth Materials and Systems** • Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather.		
Crosscutting Concepts (CCC)	**Systems and System Models** • A system can be described in terms of its components and their interactions.		

Elementary Grade-Level Standards

Standards

NGSS Performance Expectation 5-ESS3-1	
5-ESS3-1 Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.	
Science and Engineering Practices (SEP)	**Obtaining, Evaluating, and Communicating Information** • Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem.
Disciplinary Core Ideas (DCI)	**ESS3.C: Human Impacts on Earth Systems** • Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments.
Crosscutting Concepts (CCC)	**Systems and System Models** • A system can be described in terms of its components and their interactions.

Extended Performance Expectation 5-ESS3-1			
	Level 1	***Level 2***	***Level 3***
	Less Complex ⟵ ⟵ ⟵ ⟵ ⟶ ⟶ ⟶ ⟶ ***More Complex***		
	5-ESS3-1.1 Identify or describe natural or human impacts on the environment.	**5-ESS3-1.2** Use text or media information to describe an effect (positive or negative) of human activities on the environment.	**5-ESS3-1.3** Use text or media information to describe how people are using science ideas to protect Earth's resources and/or the environment.
Science and Engineering Practices (SEP)	**Obtaining, Evaluating, and Communicating Information** • Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem.		
Disciplinary Core Ideas (DCI)	**ESS3.C: Human Impacts on Earth Systems** • Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments.		
Crosscutting Concepts (CCC)	**Systems and System Models** • A system can be described in terms of its components and their interactions. **Supporting:** **Cause and Effect**		

Elementary Grade-Level Standards

Standards

NGSS Performance Expectation 5-PS1-2	
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 conserved. [Clarification Statement: Examples of reactions or changes could include phase changes, dissolving, and mixing that form new substances.] [Assessment Boundary: Assessment does not include distinguishing mass and weight.]	
Science and Engineering Practices (SEP)	**Using Mathematics and Computational Thinking** • Measure and graph quantities such as weight to address scientific and engineering questions and problems.
Disciplinary Core Ideas (DCI)	**PS1.A: Structure and Properties of Matter** • The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. **PS1.B: Chemical Reactions** • No matter what reaction or change in properties occurs, the total weight of the substances does not change. (Boundary: Mass and weight are not distinguished at this grade level.)
Crosscutting Concepts (CCC)	**Scale, Proportion, and Quantity** • Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume.

Extended Performance Expectation 5-PS1-2			
	Level 1	***Level 2***	***Level 3***
	Less Complex ⟵ ⟵ ⟵ ⟵ ⟶ ⟶ ⟶ ⟶ ***More Complex***		
	5-PS1-2.1 Match the appropriate tools or standard units of measurement to physical quantities such as weight, time, temperature, or volume to complete a scientific task.	**5-PS1-2.2** Use data to compare the weight of substances before and after they are heated, cooled, or mixed.	**5-PS1-2.3** Measure, graph, or use mathematical relationships to show that the weight of substances (in standard units) does not change when they are heated, cooled, or mixed.
Science and Engineering Practices (SEP)	**Using Mathematics and Computational Thinking** • Measure and graph quantities such as weight to address scientific and engineering questions and problems.		
Disciplinary Core Ideas (DCI)	**PS1.A: Structure and Properties of Matter** • The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. **PS1.B: Chemical Reactions** • No matter what reaction or change in properties occurs, the total weight of the substances does not change. (Boundary: Mass and weight are not distinguished at this grade level.)		

Elementary Grade-Level Standards

Crosscutting Concepts (CCC)	**Scale, Proportion, and Quantity** • Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume.

Elementary Grade-Level Standards

Standards

NGSS Performance Expectation 5-PS2-1	
5-PS2-1 Support an argument that the gravitational force exerted by Earth on objects is directed down. [Clarification Statement: "Down" is a local description of the direction that points toward the center of the spherical Earth.] [Assessment Boundary: Assessment does not include mathematical representation of gravitational force.]	
Science and Engineering Practices (SEP)	**Engaging in Argument from Evidence** • Support an argument with evidence, data, or a model.
Disciplinary Core Ideas (DCI)	**PS2.B: Types of Interactions** • The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center.
Crosscutting Concepts (CCC)	**Cause and Effect** • Cause and effect relationships are routinely identified and used to explain change.

Extended Performance Expectation 5-PS2-1			
	Level 1	***Level 2***	***Level 3***
	Less Complex ⟵ ⟵ ⟵ ⟵ ⟶ ⟶ ⟶ ⟶ ***More Complex***		
	5-PS2-1.1 Use observations to identify patterns in the motion of objects when they are released on Earth.	**5-PS2-1.2** Select or complete a model that shows the direction objects move when they are released on Earth (downward).	**5-PS2-1.3** Describe observations, data, or a model that supports the claim that Earth's gravity pulls objects down (toward Earth's center).
Science and Engineering Practices (SEP)	**Engaging in Argument from Evidence** • Support an argument with evidence, data, or a model. **Supporting:** **Planning and Carrying Out Investigations** **Developing and Using Models**		
Disciplinary Core Ideas (DCI)	**PS2.B: Types of Interactions** • The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center.		
Crosscutting Concepts (CCC)	**Cause and Effect** • Cause and effect relationships are routinely identified and used to explain change. **Supporting:** **Patterns**		

Elementary Grade-Level Standards

Standards

NGSS Performance Expectation 5-PS3-1	
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. [Clarification Statement: Examples of models could include diagrams and flow charts.]	
Science and Engineering Practices (SEP)	**Developing and Using Models** • Use models to describe phenomena.
Disciplinary Core Ideas (DCI)	**PS3.D: Energy in Chemical Processes and Everyday Life** • The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). **LS1.C: Organization for Matter and Energy Flow in Organisms** • Food provides animals with the materials they need for body repair and growth and the energy they need to maintain body warmth and for motion. (secondary)
Crosscutting Concepts (CCC)	**Energy and Matter** • Energy can be transferred in various ways and between objects.

Extended Performance Expectation 5-PS3-1			
	Level 1	***Level 2***	***Level 3***
	Less Complex ⟵ ⟵ ⟵ ⟵ ⟷ ⟶ ⟶ ⟶ ⟶		***More Complex***
	5-PS3-1.1 Identify food chains or drawings of ecosystems that show the Sun as the common source of energy for ecosystems.	**5-PS3-1.2** Use a model to describe or show the direction of energy transfer between two organisms (e.g., plant-animal, animal-animal) or between the Sun and a plant.	**5-PS3-1.3** Use a model to describe or show how the energy animals obtain from food comes from the Sun.
Science and Engineering Practices (SEP)	**Developing and Using Models** • Use models to describe phenomena.		
Disciplinary Core Ideas (DCI)	**PS3.D: Energy in Chemical Processes and Everyday Life** • The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). *Note: ecosystems that derive energy from chemicals are excluded at the elementary level.*		
Crosscutting Concepts (CCC)	**Energy and Matter** • Energy can be transferred in various ways and between objects.		

Elementary Grade-Level Standards

	Supporting: **Patterns**