

Correlation to the Massachusetts Learning Standards for Science

Amplify Science

This correlation provides a small number of examples of where each Performance Expectation is addressed in Amplify Science. It is not an exhaustive list.

Kindergarten

K-PS1: Matter and Its Interactions	
Performance Expectation	Correlations to Core Science Units
K-PS1-1 (MA) Investigate and communicate the idea that different kinds of materials can be solid or liquid depending on temperature.	<p><i>Properties of Materials</i></p> <ul style="list-style-type: none"> ● Lesson 1.2 ● Lesson 1.3 ● Lesson 1.5 ● Lesson 1.9 ● Lesson 2.1 ● Lesson 2.2 ● Lesson 4.3

K-PS2: Motion and Stability: Forces and Interactions	
Performance Expectation	Correlations to Core Science Units
K-PS2-1 Compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.	<p><i>Pushes and Pulls</i></p> <ul style="list-style-type: none"> ● Lesson 1.3 ● Lesson 2.2 ● Lesson 3.2 ● Lesson 4.2 ● Lesson 6.3

K-PS3: Energy	
Performance Expectation	Correlations to Core Science Units
K-PS3-1 Make observations to determine the effect of sunlight on Earth’s surface.	<p><i>Sunlight and Weather</i></p> <ul style="list-style-type: none"> ● Lesson 2.2 ● Lesson 2.4

	<ul style="list-style-type: none"> • Lesson 3.1 • Lesson 4.1
K-PS3-2 Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.	<p><i>Sunlight and Weather</i></p> <ul style="list-style-type: none"> • Lesson 2.2 • Lesson 2.4 • Lesson 4.4

K-LS1: From Molecules to Organisms: Structures and Processes

Performance Expectation	Correlations to Core Science Units
K-LS1-1 Observe and communicate that animals (including humans) and plants need food, water, and air to survive. Animals get food from plants or other animals. Plants make their own food and need light to live and grow.	<p><i>Needs of Plants and Animals</i></p> <ul style="list-style-type: none"> • Lesson 1.4 • Lesson 2.3 • Lesson 3.1 • Lesson 3.2 • Lesson 4.4
K-LS1-2 (MA) Recognize that all plants and animals grow and change over time.	<p><i>Needs of Plants and Animals</i></p> <ul style="list-style-type: none"> • Lesson 2.1 • Lesson 2.2

K-ESS2: Earth Systems

Performance Expectation	Correlations to Core Science Units
K-ESS2-1 Use and share quantitative observations of local weather conditions to describe patterns over time.	<p><i>Sunlight and Weather</i></p> <ul style="list-style-type: none"> • Lesson 1.3 • Lesson 1.4 • Lesson 3.2 • Lesson 5.1
K-ESS2-2 Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their	<p><i>Needs of Plants and Animals</i></p> <ul style="list-style-type: none"> • Lesson 3.4

needs.	<ul style="list-style-type: none"> • Lesson 4.2 • Lesson 4.3 • Lesson 4.4
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K-ESS3: Earth and Human Activity

Performance Expectation	Correlations to Core Science Units
K-ESS3-2 Obtain and use information about weather forecasting to prepare for, and respond to, different types of local weather.	<p><i>Sunlight and Weather</i></p> <ul style="list-style-type: none"> • Lesson 5.1 • Lesson 5.3 • Lesson 5.4 • Lesson 5.5
K-ESS3-3 Communicate solutions to reduce the amount of natural resources an individual uses.	<p><i>Needs of Plants and Animals</i></p> <ul style="list-style-type: none"> • Lesson 4.2 • Lesson 4.3 • Lesson 4.4

Grade 1

1-PS4: Waves and their Applications in Technologies for Information Transfer

Performance Expectation	Correlations to Core Science Units
1-PS4-1 Demonstrate that vibrating materials can make sound and that sound can make materials vibrate.	<p><i>Light and Sound</i></p> <ul style="list-style-type: none"> • Lesson 4.1 • Lesson 4.2 • Lesson 4.3 • Lesson 4.4
1-PS4-3 Conduct an investigation to determine the effect of placing materials that allow light to pass through them, allow only some light through them, block all the light, or redirect light when put in the path of a	<p><i>Light and Sound</i></p> <ul style="list-style-type: none"> • Lesson 2.3 • Lesson 3.1

<p>beam of light.</p>	<ul style="list-style-type: none"> ● Lesson 3.2 ● Lesson 3.3 ● Lesson 3.4 ● Lesson 3.5 ● Lesson 4.1
<p>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.</p>	<p><i>Light and Sound</i></p> <ul style="list-style-type: none"> ● Lesson 1.1 ● Lesson 2.4 ● Lesson 3.4 ● Lesson 4.1 ● Lesson 4.5 ● Lesson 4.6
<p>1-LS1: From Molecules to Organisms: Structure and Processes</p>	
<p>Performance Expectation</p>	<p>Correlations to Core Science Units</p>
<p>1-LS1-1 Use evidence to explain that (a) different animals use their body parts and senses in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air, and (b) plants have roots, stems, leaves, flowers, and fruits that are used to take in water, air, and other nutrients, and produce food for the plant.</p>	<p><i>Animal and Plant Defenses</i></p> <ul style="list-style-type: none"> ● Lesson 1.2 ● Lesson 1.3 ● Lesson 1.5 ● Lesson 2.1 ● Lesson 2.2 ● Lesson 2.7 ● Lesson 2.8
<p>1-LS1-2 Obtain information to compare ways in which the behavior of different animal parents and their offspring help the offspring to survive.</p>	<p><i>Animal and Plant Defenses</i></p> <ul style="list-style-type: none"> ● Lesson 3.2 ● Lesson 3.3 ● Lesson 3.4 ● Lesson 3.5

1-LS3: Heredity: Inheritance and Variation of Traits	
Performance Expectation	Correlations to Core Science Units
<p>1-LS3-1 Use information from observations (first-hand and from media) to identify similarities and differences among individual plants or animals of the same kind.</p>	<p><i>Animal and Plant Defenses</i></p> <ul style="list-style-type: none"> ● Lesson 3.1 ● Lesson 3.2 ● Lesson 3.3 <p><i>Environments and Survival</i></p> <ul style="list-style-type: none"> ● Lesson 2.1 ● Lesson 2.4 ● Lesson 2.6 ● Lesson 3.2 <p><i>Inheritance and Traits</i></p> <ul style="list-style-type: none"> ● Lesson 3.1 ● Lesson 3.2 ● Lesson 3.5 ● Lesson 3.6
1-ESS1: Earth’s Place in the Universe	
Performance Expectation	Correlations to Core Science Units
<p>1-ESS1-1 Use observations of the sun, moon, and stars to describe that each appears to rise in one part of the sky, appears to move across the sky, and appears to set.</p>	<p><i>Spinning Earth</i></p> <ul style="list-style-type: none"> ● Lesson 3.1 ● Lesson 3.3 ● Lesson 3.4 ● Lesson 4.1 ● Lesson 4.2 ● Lesson 5.3
<p>1-ESS1-2 Analyze provided data to identify relationships among seasonal patterns of change, including relative sunrise and sunset time changes,</p>	<p>Massachusetts Grade 1 Companion Lesson, "<i>Seasonal Changes</i>" (see Amplify Science Massachusetts site)</p>

<p>seasonal temperature and rainfall or snowfall patterns, and seasonal changes to the environment.</p>	<p>Spinning Earth</p> <ul style="list-style-type: none"> • Lesson 5.1 • Lesson 5.2
<p>K-2-ETS1: Engineering Design</p>	
<p>Performance Expectation</p>	<p>Correlations to Core Science Units</p>
<p>K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change that can be solved by developing or improving an object or tool.</p>	<p>Light and Sound</p> <ul style="list-style-type: none"> • Lesson 1.1 • Lesson 1.2 • Lesson 1.5 • Lesson 2.1 • Lesson 2.2 • Lesson 3.6 • Lesson 4.1
<p>K-2-ETS1-2 Generate multiple solutions to a design problem and make a drawing (plan) to represent one or more of the solutions.</p>	<p>Animal and Plant Defenses</p> <ul style="list-style-type: none"> • Lesson 2.8 • Lesson 4.1 • Lesson 4.2 • Lesson 4.4 <p>Light and Sound</p> <ul style="list-style-type: none"> • Lesson 3.4

Grade 2

2-PS1: Matter and Its Interactions	
Performance Expectation	Correlations to Core Science Units
<p>2-PS1-1 Describe and classify different kinds of materials by observable properties of color, flexibility, hardness, texture, and absorbency.</p>	<p>Properties of Materials</p> <ul style="list-style-type: none"> • Lesson 1.2 • Lesson 1.3 • Lesson 2.1 • Lesson 1.5 • Lesson 2.2 • Lesson 4.3
<p>2-PS1-2 Test different materials and analyze the data obtained to determine which materials have the properties that are best suited for an intended purpose.</p>	<p>Properties of Materials</p> <ul style="list-style-type: none"> • Lesson 1.2 • Lesson 1.3 • Lesson 1.6 • Lesson 2.3 • Lesson 3.3 • Lesson 4.1
<p>2-PS1-3 Analyze a variety of evidence to conclude that when a chunk of material is cut or broken into pieces, each piece is still the same material and, however small each piece is, has weight. Show that the material properties of a small set of pieces do not change when the pieces are used to build larger objects.</p>	<p>Massachusetts Grade 2 Companion Lesson, "Properties of Weight" (see Amplify Science Massachusetts site)</p> <p>Properties of Materials</p> <ul style="list-style-type: none"> • Lesson 1.2 • Lesson 1.3 • Lesson 2.1 • Lesson 4.1
<p>2-PS1-4 Construct an argument with evidence that some changes to materials caused by heating or cooling can be reversed and some cannot.</p>	<p>Properties of Materials</p> <ul style="list-style-type: none"> • Lesson 1.8 • Lesson 2.1 • Lesson 2.2 • Lesson 2.3

	<ul style="list-style-type: none"> • Lesson 2.4 • Lesson 3.4 • Lesson 4.4
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2-PS3: Energy	
Performance Expectation	Correlations to Core Science Units
2-PS3-1 (MA) Design and conduct an experiment to show the effects of friction on the relative temperature and speed of objects that rub against each other.	Massachusetts Grade 3 Companion Lesson, "Friction" (see Amplify Science Massachusetts site)

2-LS2: Ecosystems: Interactions, Energy, and Dynamics	
Performance Expectation	Correlations to Core Science Units
2-LS2-3 (MA) Develop and use models to compare how plants and animals depend on their surroundings and other living things to meet their needs in the places they live.	<i>Plant and Animal Relationships</i> <ul style="list-style-type: none"> • Lesson 1.1 • Lesson 1.3 • Lesson 1.4 • Lesson 1.6 • Lesson 3.1 • Lesson 4.2 • Lesson 4.3

2-LS4: Biological Evolution: Unity and Diversity	
Performance Expectation	Correlations to Core Science Units
2-LS4-1 Use texts, media, or local environments to observe and compare (a) different kinds of living things in an area, and (b) differences in the kinds of living things living in different types of areas.	<i>Plant and Animal Relationships</i> <ul style="list-style-type: none"> • Lesson 1.1 • Lesson 1.3 • Lesson 1.4

	<ul style="list-style-type: none"> ● Lesson 1.5 ● Lesson 2.4 ● Lesson 3.1 ● Lesson 3.5 ● Lesson 4.2 ● Lesson 4.3
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2-ESS2: Earth's Systems	
Performance Expectation	Correlations to Core Science Units
<p>2-ESS2-1 Investigate and compare the effectiveness of multiple solutions designed to slow or prevent wind or water from changing the shape of the land.</p>	<p><i>Changing Landforms</i></p> <ul style="list-style-type: none"> ● Lesson 1.3 ● Lesson 2.2 ● Lesson 2.3 ● Lesson 2.5 ● Lesson 3.4 ● Lesson 4.2 ● Lesson 4.4
<p>2-ESS2-2 Map the shapes and types of landforms and bodies of water in an area.</p>	<p><i>Changing Landforms</i></p> <ul style="list-style-type: none"> ● Lesson 3.1 ● Lesson 3.2 ● Lesson 3.4
<p>2-ESS2-3 Use examples obtained from informational sources to explain that water is found in the ocean, rivers and streams, lakes and ponds, and may be solid or liquid.</p>	<p><i>Changing Landforms</i></p> <ul style="list-style-type: none"> ● Lesson 2.3 ● Lesson 2.4 ● Lesson 3.3
<p>2-ESS2-4 (MA) Observe how blowing wind and flowing water can move Earth materials from one place to another and change the shape of a landform.</p>	<p><i>Changing Landforms</i></p> <ul style="list-style-type: none"> ● Lesson 1.5 ● Lesson 2.2 ● Lesson 2.3

	<ul style="list-style-type: none"> • Lesson 2.5 • Lesson 2.6 • Lesson 4.2
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K-2-ETS1: Engineering Design

Performance Expectation	Correlations to Core Science Units
<p>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.</p>	<p><i>Properties of Materials</i></p> <ul style="list-style-type: none"> • Lesson 1.6 • Lesson 2.2 • Lesson 3.1 • Lesson 3.2 • Lesson 3.3 • Lesson 3.5 • Lesson 4.1

Grade 3

3-PS2: Motion and Stability: Forces and Interactions

Performance Expectation	Correlations to Core Science Units
<p>3-PS2-1 Provide evidence to explain the effect of multiple forces, including friction, on an object. Include balanced forces that do not change the motion of the object and unbalanced forces that do change the motion of the object.</p>	<p>Massachusetts Grade 3 Companion Lesson, "Friction" (see Amplify Science Massachusetts site)</p> <p><i>Balancing Forces</i></p> <ul style="list-style-type: none"> • Lesson 1.3 • Lesson 3.4 • Lesson 4.2 • Lesson 4.4 • Lesson 5.1 • Lesson 5.3 • Lesson 5.5

<p>3-PS2-3 Conduct an investigation to determine the nature of the forces between two magnets based on their orientations and distance relative to each other.</p>	<p>Balancing Forces</p> <ul style="list-style-type: none"> • Lesson 2.1 • Lesson 2.3 • Lesson 2.4 • Lesson 5.1 • Lesson 5.3
<p>3-PS2-4 Define a simple design problem that can be solved by applying scientific ideas about magnets.</p>	<p>Balancing Forces</p> <ul style="list-style-type: none"> • Lesson 2.3 • Lesson 2.4 • Lesson 5.1 • Lesson 5.3 • Lesson 5.5
<p>3-LS1: From Molecules to Organisms: Structures and Processes</p>	
<p>Performance Expectation</p>	<p>Correlations to Core Science Units</p>
<p>3-LS1-1 Use simple graphical representations to show that different types of organisms have unique and diverse life cycles. Describe that all organisms have birth, growth, reproduction, and death in common but there are a variety of ways in which these happen.</p>	<p>Inheritance and Traits</p> <ul style="list-style-type: none"> • Lesson 1.1 • Lesson 2.1 • Lesson 2.2
<p>3-LS3: Heredity: Inheritance and Variation of Traits</p>	
<p>Performance Expectation</p>	<p>Correlations to Core Science Units</p>
<p>3-LS3-1 Provide evidence, including through the analysis of data, that plants and animals have traits inherited from parents and that variation of these traits exist in a group of similar organisms.</p>	<p>Inheritance and Traits</p> <ul style="list-style-type: none"> • Lesson 1.2 • Lesson 1.3 • Lesson 1.5 • Lesson 2.3 • Lesson 2.4 • Lesson 2.5 • Lesson 2.6

<p>3-LS3-2 Distinguish between inherited characteristics and those characteristics that result from a direct interaction with the environment. Give examples of characteristics of living organisms that are influenced by both inheritance and the environment.</p>	<p><i>Inheritance and Traits</i></p> <ul style="list-style-type: none"> • Lesson 3.1 • Lesson 3.2 • Lesson 3.3 • Lesson 3.5 • Lesson 3.6
<p>3-LS4: Biological Evolution: Unity and Diversity</p>	
<p>Performance Expectation</p>	<p>Correlations to Core Science Units</p>
<p>3-LS4-1 Use fossils to describe types of organisms and their environments that existed long ago and compare those to living organisms and their environments. Recognize that most kinds of plants and animals that once lived on Earth are no longer found anywhere.</p>	<p>Massachusetts Grade 3 Companion Lesson, "Extinct Insects" (see Amplify Science Massachusetts site)</p> <p><i>Environments and Survival</i></p> <ul style="list-style-type: none"> • Lesson 2.2 • Lesson 2.3
<p>3-LS4-2 Use evidence to construct an explanation for how the variations in characteristics among individuals within the same species may provide advantages to these individuals in their survival and reproduction.</p>	<p><i>Environments and Survival</i></p> <ul style="list-style-type: none"> • Lesson 2.1 • Lesson 2.4 • Lesson 2.5 • Lesson 2.6 • Lesson 3.2
<p>3-LS4-3 Construct an argument with evidence that in a particular environment some organisms can survive well, some survive less well, and some cannot survive.</p>	<p><i>Environments and Survival</i></p> <ul style="list-style-type: none"> • Lesson 1.2 • Lesson 1.4 • Lesson 2.1 • Lesson 2.5
<p>3-LS4-4 Analyze and interpret given data about changes in a habitat and describe how the changes may affect the ability of organisms that live in that habitat to survive and reproduce.</p>	<p><i>Environments and Survival</i></p> <ul style="list-style-type: none"> • Lesson 3.1 • Lesson 3.2
<p>3-LS4-5 (MA) Provide evidence to support a claim that the survival of a</p>	<p><i>Inheritance and Traits</i></p>

<p>population is dependent upon reproduction.</p>	<ul style="list-style-type: none"> ● Lesson 1.1 ● Lesson 2.1 ● Lesson 2.2 <p><i>Environments and Survival</i></p> <ul style="list-style-type: none"> ● Lesson 3.1 ● Lesson 3.2 ● Lesson 3.4
<p>3-ESS2: Earth’s Systems</p>	
<p>Performance Expectation</p>	<p>Correlations to Core Science Units</p>
<p>3-ESS2-1 Use graphs and tables of local weather data to describe and predict typical weather during a particular season in an area..</p>	<p><i>Weather and Climate</i></p> <ul style="list-style-type: none"> ● Lesson 1.4 ● Lesson 2.3 ● Lesson 3.2 ● Lesson 3.3 ● Lesson 3.6 ● Lesson 3.7 ● Lesson 4.2
<p>3-ESS2-2 Obtain and summarize information about the climate of different regions of the world to illustrate that typical weather conditions over a year vary by region.</p>	<p><i>Weather and Climate</i></p> <ul style="list-style-type: none"> ● Lesson 3.2 ● Lesson 3.3 ● Lesson 3.5 ● Lesson 3.6
<p>3-ESS3: Earth and Human Activity</p>	
<p>Performance Expectation</p>	<p>Correlations to Core Science Units</p>
<p>3-ESS3-1 Evaluate the merit of a design solution that reduces the damage caused by weather.</p>	<p><i>Weather and Climate</i></p> <ul style="list-style-type: none"> ● Lesson 4.1 ● Lesson 4.2

	<ul style="list-style-type: none"> • Lesson 4.3 • Lesson 4.4
3-5-ETS1: Engineering Design	
Performance Expectation	Correlations to Core Science Units
<p>3-5-ETS1-1 Define a simple design problem that reflects a need or a want. Include criteria for success and constraints on materials, time, or cost that a potential solution must meet.</p>	<p><i>Environments and Survival</i></p> <ul style="list-style-type: none"> • Lesson 2.7 • Lesson 4.1 • Lesson 4.2 • Lesson 4.5 <p><i>Weather and Climate</i></p> <ul style="list-style-type: none"> • Lesson 4.3 <p><i>Balancing Forces</i></p> <ul style="list-style-type: none"> • Lesson 5.5
<p>3-5-ETS1-2 Generate several possible solutions to a given design problem. Compare each solution based on how well each is likely to meet the criteria and constraints of the design problem.</p>	<p><i>Environments and Survival</i></p> <ul style="list-style-type: none"> • Lesson 4.1 • Lesson 4.2 • Lesson 4.5 <p><i>Weather and Climate</i></p> <ul style="list-style-type: none"> • Lesson 4.3
<p>3-5-ETS1-4 (MA) Gather information using various informational resources on possible solutions to a design problem. Present different representations of a design solution</p>	<p><i>Environments and Survival</i></p> <ul style="list-style-type: none"> • Lesson 4.1 • Lesson 4.2 • Lesson 4.3 • Lesson 4.4 <p><i>Weather and Climate</i></p>

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Grade 4

4-PS3: Energy	
Performance Expectation	Correlations to Core Science Units
<p>4-PS3-1 Use evidence to construct an explanation relating the speed of an object to the energy of that object.</p>	<p>Energy Conversions</p> <ul style="list-style-type: none"> Lesson 3.4 Lesson 4.2 <p>Waves, Energy, and Information</p> <ul style="list-style-type: none"> Lesson 2.4 <p>Vision and Light</p> <ul style="list-style-type: none"> Lesson 2.5 Lesson 3.5 Lesson 4.6
<p>4-PS3-2 Make observations to show that energy can be transferred from place to place by sound, light, heat, and electric currents.</p>	<p>Energy Conversions</p> <ul style="list-style-type: none"> Lesson 1.5 Lesson 2.4 Lesson 4.2 <p>Waves, Energy, and Information</p> <ul style="list-style-type: none"> Lesson 1.4 Lesson 2.4 Lesson 2.6 <p>Vision and Light</p> <ul style="list-style-type: none"> Lesson 5.1 Lesson 5.2
<p>4-PS3-3 Ask questions and predict outcomes about the changes in energy</p>	<p>Waves, Energy, and Information</p>

<p>that occur when objects collide.</p>	<ul style="list-style-type: none"> ● Lesson 1.4 ● Lesson 2.4 ● Lesson 2.6 <p>Energy Conversions</p> <ul style="list-style-type: none"> ● Lesson 1.5 ● Lesson 4.2 <p>Vision and Light</p> <ul style="list-style-type: none"> ● Lesson 3.2 ● Lesson 5.1
<p>4-PS3-4 Apply scientific principles of energy and motion to test and refine a device that converts kinetic energy to electrical energy or uses stored energy to cause motion or produce light or sound.</p>	<p>Energy Conversions</p> <ul style="list-style-type: none"> ● Lesson 2.1 ● Lesson 3.2 ● Lesson 4.2
<p>4-PS4: Waves and their Applications in Technologies for Information Transfer</p>	
<p>Performance Expectation</p>	<p>Correlations to Core Science Units</p>
<p>4-PS4-1 Develop a model of a simple mechanical wave (including sound) to communicate that waves (a) are regular patterns of motion along which energy travels and (b) can cause objects to move.</p>	<p>Waves, Energy, and Information</p> <ul style="list-style-type: none"> ● Lesson 2.4 ● Lesson 2.5 ● Lesson 2.6 <p>Energy Conversions</p> <ul style="list-style-type: none"> ● Lesson 1.5 ● Lesson 2.1
<p>4-PS4-2 Develop a model to describe that light must reflect off an object and enter the eye for the object to be seen.</p>	<p>Vision and Light</p> <ul style="list-style-type: none"> ● Lesson 2.1 ● Lesson 2.3 ● Lesson 2.5 <p>Waves, Energy, and Information</p>

	<ul style="list-style-type: none"> Lesson 2.5
<p>4-PS4-3 Develop and compare multiple ways to transfer information through encoding, sending, receiving, and decoding a pattern.</p>	<p><i>Waves, Energy, and Information</i></p> <ul style="list-style-type: none"> Lesson 3.3 Lesson 3.6 Lesson 4.1 Lesson 4.3 Lesson 4.4 <p><i>Energy Conversions</i></p> <ul style="list-style-type: none"> Lesson 3.2 Lesson 3.4 Lesson 3.5 Lesson 4.3
<p>4-LS1: From Molecules to Organisms: Structures and Processes</p>	
Performance Expectation	Correlations to Core Science Units
<p>4-LS1-1 Construct an argument that animals and plants have internal and external structures that support their survival, growth, behavior, and reproduction.</p>	<p><i>Vision and Light</i></p> <ul style="list-style-type: none"> Lesson 1.2 Lesson 1.4 Lesson 3.1 Lesson 3.3 Lesson 3.5 Lesson 4.2
<p>4-ESS1: Earth’s Place in the Universe</p>	
Performance Expectation	Correlations to Core Science Units
<p>4-ESS1-1 Use evidence from a given landscape that includes simple landforms and rock layers to support a claim about the role of erosion or deposition in the formation of the landscape over long periods of time.</p>	<p><i>Earth’s Features</i></p> <ul style="list-style-type: none"> Lesson 2.2 Lesson 4.1 Lesson 4.2

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4-ESS2: Earth’s Systems

Performance Expectation	Correlations to Core Science Units
<p>4-ESS2-1 Make observations and collect data to provide evidence that rocks, soils, and sediments are broken into smaller pieces through mechanical weathering and moved around through erosion.</p>	<p>Earth’s Features</p> <ul style="list-style-type: none"> • Lesson 2.2 • Lesson 4.1 • Lesson 4.2 • Lesson 4.3 • Lesson 4.4 • Lesson 4.5
<p>4-ESS2-2 Analyze and interpret maps of Earth’s mountain ranges, deep ocean trenches, volcanoes, and earthquake epicenters to describe patterns of these features and their locations relative to boundaries between continents and oceans.</p>	<p>Earth’s Features</p> <ul style="list-style-type: none"> • Lesson 1.4 • Lesson 4.1 • Lesson 4.5

4-ESS3: Earth and Human Activity

Performance Expectation	Correlations to Core Science Units
<p>4-ESS3-1 Obtain information to describe that energy and fuels humans use are derived from natural resources and that some energy and fuel sources are renewable and some are not.</p>	<p>Energy Conversions</p> <ul style="list-style-type: none"> • Lesson 3.1 • Lesson 3.3 • Lesson 4.5
<p>4-ESS3-2 Evaluate different solutions to reduce the impacts of a natural event such as an earthquake, blizzard, or flood on humans.</p>	<p>Waves, Energy, and Information</p> <ul style="list-style-type: none"> • Lesson 1.3 <p>Earth’s Features</p>

	<ul style="list-style-type: none"> Lesson 4.3 <p>Energy Conversions</p> <ul style="list-style-type: none"> Lesson 3.3 Lesson 3.4
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3-5-ETS1: Engineering Design	
Performance Expectation	Correlations to Core Science Units
<p>3-5-ETS1-3 Plan and carry out tests of one or more design features of a given model or prototype in which variables are controlled and failure points are considered to identify which features need to be improved. Apply the results of tests to redesign a model or prototype.</p>	<p>Vision and Light</p> <ul style="list-style-type: none"> Lesson 5.1 Lesson 5.2 <p>Energy Conversions</p> <ul style="list-style-type: none"> Lesson 3.3 Lesson 3.4 Lesson 3.5
<p>3-5-ETS1-5 (MA) Evaluate relevant design features that must be considered in building a model or prototype of a solution to a given design problem.</p>	<p>Energy Conversions</p> <ul style="list-style-type: none"> Lesson 3.5 Lesson 3.6

Grade 5

5-PS1: Matter and its Interactions	
Performance Expectation	Correlations to Core Science Units
<p>5-PS1-1 Use a particle model of matter to explain common phenomena involving gasses, and phase changes between gas and liquid and between liquid and solid.</p>	<p>Modeling Matter</p> <ul style="list-style-type: none"> ● Lesson 1.3 ● Lesson 1.8 ● Lesson 1.6 ● Lesson 2.1 ● Lesson 2.2 ● Lesson 2.3 ● Lesson 4.4 <p>The Earth System</p> <ul style="list-style-type: none"> ● Lesson 2.2 ● Lesson 2.3 <p>Phase Change</p> <ul style="list-style-type: none"> ● Lesson 1.6 <p>Thermal Energy</p> <ul style="list-style-type: none"> ● Lesson 1.4 ● Lesson 3.3
<p>5-PS1-2 Measure and graph the weights (masses) of substances before and after a reaction or phase change to provide evidence that regardless of the type of change that occurs when heating, cooling, or combining substances, the total weight (mass) of matter is conserved.</p>	<p>The Earth System</p> <ul style="list-style-type: none"> ● Lesson 1.1 ● Lesson 2.5 ● Lesson 3.2 ● Lesson 5.3 <p>Modeling Matter</p> <ul style="list-style-type: none"> ● Lesson 1.3 ● Lesson 2.4

<p>5-PS1-3 Make observations and measurements of substances to describe characteristic properties of each, including color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, and solubility.</p>	<p>Massachusetts Grade 5 Companion Lesson, "Composters" (see Amplify Science Massachusetts site)</p> <p>The Earth System</p> <ul style="list-style-type: none"> • Lesson 1.1 • Lesson 5.1 • Lesson 5.2 <p>Modeling Matter</p> <ul style="list-style-type: none"> • Lesson 1.2 • Lesson 1.3 • Lesson 1.8
<p>5-PS1-4 Conduct an experiment to determine whether the mixing of two or more substances results in new substances with new properties (a chemical reaction) or not (a mixture).</p>	<p>The Earth System</p> <ul style="list-style-type: none"> • Lesson 2.3 • Lesson 5.2 • Lesson 5.3 • Lesson 5.4 • Lesson 5.5 <p>Modeling Matter</p> <ul style="list-style-type: none"> • Lesson 3.4 <p>Patterns of Earth and Sky</p> <ul style="list-style-type: none"> • Lesson 2.1 • Lesson 2.2
<p>5-PS2: Motion and Stability: Forces and Interaction</p>	
<p>Performance Expectation</p>	<p>Correlations to Core Science Units</p>
<p>5-PS2-1 Support an argument with evidence that the gravitational force exerted by Earth on objects is directed toward Earth's center.</p>	<p>Patterns of Earth and Sky</p> <ul style="list-style-type: none"> • Lesson 2.1 • Lesson 2.4 • Lesson 2.5

	<ul style="list-style-type: none"> Lesson 3.6 <p>Ecosystem Restoration</p> <ul style="list-style-type: none"> Lesson 1.8 Lesson 2.7
5-PS3: Energy	
Performance Expectation	Correlations to Core Science Units
<p>5-PS3-1 Use a model to describe that the food animals digest (a) contains energy that was once energy from the Sun, and (b) provides energy and nutrients for life processes, including body repair, growth, motion, body warmth, and reproduction.</p>	<p>Ecosystem Restoration</p> <ul style="list-style-type: none"> Lesson 1.3 Lesson 2.2 Lesson 2.3 Lesson 2.4 Lesson 2.5 Lesson 2.7 <p>Modeling Matter</p> <ul style="list-style-type: none"> Lesson 1.6
5-LS1: From Molecules to Organisms: Structures and Processes	
Performance Expectation	Correlations to Core Science Units
<p>5-LS1-1 Ask testable questions about the process by which plants use air, water, and energy from sunlight to produce sugars and plant materials needed for growth and reproduction.</p>	<p>Ecosystem Restoration</p> <ul style="list-style-type: none"> Lesson 1.7 Lesson 2.1 Lesson 2.2 Lesson 2.3 Lesson 2.7 Lesson 3.3

5-LS2: Ecosystems: Interactions, Energy, and Dynamics	
Performance Expectation	Correlations to Core Science Units
<p>5-LS2-1 Develop a model to describe the movement of matter among producers, consumers, decomposers, and the air, water, and soil in the environment to (a) show that plants produce sugars and plant materials, (b) show that animals can eat plants and/or other animals for food, and (c) show that some organisms, including fungi and bacteria, break down dead organisms and recycle some materials back to the air and soil.</p>	<p><i>Ecosystem Restoration</i></p> <ul style="list-style-type: none"> • Lesson 1.6 • Lesson 1.7 • Lesson 1.8 • Lesson 2.3 • Lesson 2.5 • Lesson 3.2 • Lesson 3.5 • Lesson 3.6 • Lesson 3.7
<p>5-LS2-2 (MA) Compare at least two designs for a composter to determine which is most likely to encourage decomposition of materials.</p>	<p>Massachusetts Grade 5 Companion Lesson, "Composters" (see Amplify Science Massachusetts site)</p>

5-ESS1: Earth’s Place in the Universe	
Performance Expectation	Correlations to Core Science Units
<p>5-ESS1-1 Use observations, first-hand and from various media, to argue that the Sun is a star that appears larger and brighter than other stars because it is closer to Earth.</p>	<p><i>Patterns of Earth and Sky</i></p> <ul style="list-style-type: none"> • Lesson 1.3 • Lesson 1.4 • Lesson 1.5 • Lesson 1.6
<p>5-ESS1-2 Use a model to communicate Earth’s relationship to the Sun, Moon, and other stars that explain (a) why people on Earth experience day and night, (b) patterns in daily changes in length and direction of shadows over a day, and (c) changes in the apparent position of the Sun, Moon, and stars at different times during a day, over a month, and over a year.</p>	<p><i>Patterns of Earth and Sky</i></p> <ul style="list-style-type: none"> • Lesson 2.2 • Lesson 2.3 • Lesson 2.5 • Lesson 3.1 • Lesson 3.2 • Lesson 3.3

	<ul style="list-style-type: none"> • Lesson 3.6
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5-ESS2: Earth’s Systems

Performance Expectation	Correlations to Core Science Units
<p>5-ESS2-1 Use a model to describe the cycling of water through a watershed through evaporation, precipitation, absorption, surface runoff, and condensation.</p>	<p>The Earth System</p> <ul style="list-style-type: none"> • Lesson 2.3 • Lesson 3.3 • Lesson 4.2 • Lesson 4.4
<p>5-ESS2-2 Describe and graph the relative amounts of salt water in the ocean; fresh water in lakes, rivers, and groundwater; and fresh water frozen in glaciers and polar ice caps to provide evidence about the availability of fresh water in Earth’s biosphere.</p>	<p>The Earth System</p> <ul style="list-style-type: none"> • Lesson 1.1 • Lesson 3.2 • Lesson 4.2 <p>Ecosystem Restoration</p> <ul style="list-style-type: none"> • Lesson 1.3 • Lesson 2.1

5-ESS3: Earth and Human Activity

Performance Expectation	Correlations to Core Science Units
<p>5-ESS3-1 Obtain and combine information about ways communities reduce human impact on the Earth’s resources and environment by changing an agricultural, industrial, or community practice or process.</p>	<p>The Earth System</p> <ul style="list-style-type: none"> • Lesson 1.2 <p>Ecosystem Restoration</p> <ul style="list-style-type: none"> • Lesson 1.2 • Lesson 1.8 • Lesson 2.5 • Lesson 2.6

	<ul style="list-style-type: none"> • Lesson 3.5 • Lesson 3.6 <p>Modeling Matter</p> <ul style="list-style-type: none"> • Lesson 1.3
<p>5-ESS3-2 (MA) Test a simple system designed to filter particulates out of water and propose one change to the design to improve it.</p>	<p>Massachusetts Grade 5 Companion Lesson, "Water Filters" (see Amplify Science Massachusetts site)</p> <p>The Earth System</p> <ul style="list-style-type: none"> • Lesson 2.7 • Lesson 2.8 • Lesson 3.4 • Lesson 3.5

3-5-ETS1: Engineering Design	
Performance Expectation	Correlations to Core Science Units
<p>3-5-ETS3-1 Use informational text to provide examples of improvements to existing technologies (innovations) and the development of new technologies (inventions). Recognize that technology is any modification of the natural or designed world done to fulfill human needs or wants.</p>	<p>The Earth System</p> <ul style="list-style-type: none"> • Lesson 1.1 • Lesson 1.2 • Lesson 2.8 <p>Modeling Matter</p> <ul style="list-style-type: none"> • Lesson 1.1 • Lesson 1.8
<p>3-5-ETS3-2 Use sketches or drawings to show how each part of a product or device relates to other parts in the product or device.</p>	<p>The Earth System</p> <ul style="list-style-type: none"> • Lesson 2.3 • Lesson 3.3 • Lesson 4.2 • Lesson 4.3 • Lesson 4.4

Modeling Matter

- Lesson 1.6
- Lesson 2.4