

MAP-A Science

Strand 1: Properties and Principles of Matter and Energy (ME)

1. Changes in properties and states of matter provide evidence of the atomic theory of matter.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
A.	ME 1.1 Explore physical properties of objects using one or more of the five senses.	ME 1.1 Explore physical properties of objects using one or more of the five senses.	ME 1.1 Explore physical properties of objects using one or more of the five senses.	ME 1.1 Explore physical properties of objects using one or more of the five senses.
	ME 1.2 Identify common materials using one or more of the five senses.	ME 1.2 Identify common materials using one or more of the five senses.	ME 1.2 Identify common materials using one or more of the five senses. ME 1.3 Sort objects into small groups using one or more physical properties. ME 1.4 Use simple tools to compare the size (the amount of space an object occupies) of objects. ME 1.5 Use simple tools to measure the weight of objects. ME 1.6 Measure the volume of liquids and/or solids. ME 1.7 Measure temperature. ME 1.8 Engage in an experiment with objects that float and sink in water. ME 1.9 Investigate that objects float or sink in water.	ME 1.2 Identify common materials using one or more of the five senses. ME 1.3 Sort objects into small groups using one or more physical properties. ME 1.4 Use simple tools to compare the size (the amount of space an object occupies) of objects. ME 1.5 Use simple tools to measure the weight of objects. ME 1.6 Measure the volume of liquids and/or solids. ME 1.7 Measure temperature. ME 1.8 Engage in an experiment with objects that float and sink in water. ME 1.9 Investigate that objects float or sink in water. ME 1.10 Identify the concept that matter takes up space and may have weight.
Objects, and the materials they are made of, have properties that can be used to describe and classify them.				

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1. Changes in properties and states of matter provide evidence of the atomic theory of matter.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
B. Properties of mixtures depend upon the concentrations, properties, and interactions of particles.	ME 2.1 Explore how mixtures are made by combining solids.	ME 2.1 Explore how mixtures are made by combining solids.	ME 2.1 Explore how mixtures are made by combining solids.	ME 2.1 Explore how mixtures are made by combining solids.
		ME 2.2 Engage in an activity which creates a mixture (i.e., combine materials to form a new material with new properties, such as flour and water combined make dough).	ME 2.2 Engage in an activity which creates a mixture (i.e., combine materials to form a new material with new properties, such as flour and water combined make dough).	ME 2.2 Engage in an activity which creates a mixture (i.e., combine materials to form a new material with new properties, such as flour and water combined make dough).
		ME 2.3 Identify the components in a mixture.	ME 2.3 Identify the components in a mixture.	ME 2.3 Identify the components in a mixture.
		ME 2.5 Explore different solutions (e.g., Kool-Aid, lemonade, and/or chocolate milk).	ME 2.5 Explore different solutions (e.g., Kool-Aid, lemonade, and/or chocolate milk).	ME 2.5 Explore different solutions (e.g., Kool-Aid, lemonade, and/or chocolate milk).
		ME 2.6 Compare different solutions using their physical properties (e.g., color, smell, and/or taste).	ME 2.6 Compare different solutions using their physical properties (e.g., color, smell, and/or taste).	ME 2.6 Compare different solutions using their physical properties (e.g., color, smell, and/or taste).
		ME 2.7 Investigate the properties of each component in a mixture/solution (e.g., oil and vinegar <i>do not</i> form solutions; salt and water <i>do</i> form solutions).	ME 2.7 Investigate the properties of each component in a mixture/solution (e.g., oil and vinegar <i>do not</i> form solutions; salt and water <i>do</i> form solutions).	ME 2.7 Investigate the properties of each component in a mixture/solution (e.g., oil and vinegar <i>do not</i> form solutions; salt and water <i>do</i> form solutions).
			ME 2.4 Identify ways to separate the components of a mixture by physical property (e.g., filtration and/or evaporation).	ME 2.4 Identify ways to separate the components of a mixture by physical property (e.g., filtration and/or evaporation).

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	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
D.	ME 3.1 Explore the states of matter (solid, liquid, and gas).	ME 3.1 Explore the states of matter (solid, liquid, and gas).	ME 3.1 Explore the states of matter (solid, liquid, and gas).	ME 3.1 Explore the states of matter (solid, liquid, and gas).
Physical changes in the state of matter that result from thermal changes can be explained by the kinetic theory of matter.		ME 3.2 Identify states of matter (solid, liquid, and gas) based on observations.	ME 3.2 Identify states of matter (solid, liquid, and gas) based on observations.	ME 3.2 Identify states of matter (solid, liquid, and gas) based on observations.
			ME 3.3 Compare different states of matter.	ME 3.3 Compare different states of matter.
		ME 3.5 Engage in an activity in which matter changes from one state to another (e.g., solid to liquid when ice melts or liquid to gas when heat raises the temperature of water).	ME 3.5 Engage in an activity in which matter changes from one state to another (e.g., solid to liquid when ice melts or liquid to gas when heat raises the temperature of water).	ME 3.5 Engage in an activity in which matter changes from one state to another (e.g., solid to liquid when ice melts or liquid to gas when heat raises the temperature of water).
			ME 3.6 Identify that matter changes from one state to another.	ME 3.6 Identify that matter changes from one state to another.
		ME 3.7 Identify everyday examples of matter changing state within the water cycle.	ME 3.7 Identify everyday examples of matter changing state within the water cycle.	ME 3.7 Identify everyday examples of matter changing state within the water cycle.
				ME 3.8 Compare changes in the physical properties of water (i.e., shape, volume) when frozen and/or melted.
				ME 3.9 Predict the effect of heat and temperature on objects and materials through observation.

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Strand 1: Properties and Principles of Matter and Energy (ME)

2. Energy has a source, can be transferred, and can be transformed into various forms but is conserved between and within systems.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
A.	ME 4.1 Explore sound energy.	ME 4.1 Explore sound energy.	ME 4.1 Explore sound energy.	ME 4.1 Explore sound energy.
Forms of energy have a source, a means of transfer (work and heat), and a receiver.	ME 4.2 Explore sounds in everyday life.	ME 4.2 Explore sounds in everyday life.	ME 4.2 Explore sounds in everyday life.	ME 4.2 Explore sounds in everyday life.
		ME 4.3 Explore sound as vibrations. ME 4.4 Engage in an activity involving vibrations and sources of sound in everyday life (e.g., sprinkling rice on a plate and placing it atop a speaker playing music; using a tuning fork in a glass of water).	ME 4.3 Explore sound as vibrations. ME 4.4 Engage in an activity involving vibrations and sources of sound in everyday life (e.g., sprinkling rice on a plate and placing it atop a speaker playing music; using a tuning fork in a glass of water).	ME 4.3 Explore sound as vibrations. ME 4.4 Engage in an activity involving vibrations and sources of sound in everyday life (e.g., sprinkling rice on a plate and placing it atop a speaker playing music; using a tuning fork in a glass of water). ME 4.5 Describe sounds and their source(s) of vibrations in everyday life.
		ME 4.6 Explore differences in sound volume, pitch, and rhythm.	ME 4.6 Explore differences in sound volume, pitch, and rhythm.	ME 4.6 Explore differences in sound volume, pitch, and rhythm.
			ME 4.7 Identify differences in sound volume, pitch, and rhythm.	ME 4.7 Identify differences in sound volume, pitch, and rhythm.
				ME 4.8 Demonstrate ways to change sound volume.
				ME 4.9 Demonstrate ways to change sound pitch.
				ME 1.10 Identify the concept that matter takes up space and may have weight.
	ME 4.11 Explore the ear as a sound receiver.	ME 4.11 Explore the ear as a sound receiver.	ME 4.11 Explore the ear as a sound receiver.	ME 4.11 Explore the ear as a sound receiver.

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Strand 1: Properties and Principles of Matter and Energy (ME)

2. Energy has a source, can be transferred, and can be transformed into various forms but is conserved between and within systems.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
A.		ME 4.12 Compare the temperature of objects (i.e. cooler, warmer) by touch.	ME 4.12 Compare the temperature of objects (i.e. cooler, warmer) by touch.	ME 4.12 Compare the temperature of objects (i.e. cooler, warmer) by touch.
		ME 4.14 Identify sources of heat energy.	ME 4.13 Compare the temperature of objects using a simple thermometer. ME 4.14 Identify sources of heat energy. ME 4.15 Identify materials as heat conductors (e.g., metals). ME 4.16 Identify materials as heat insulators. ME 4.17 Investigate the source of energy that causes an increase in an object’s temperature. ME 4.19 Engage in activities that involve static electricity (e.g., using dryer sheets to prevent static electricity; rubbing feet on carpet). ME 4.25 Investigate light reflection and the visible light of various surfaces.	ME 4.13 Compare the temperature of objects using a simple thermometer. ME 4.14 Identify sources of heat energy. ME 4.15 Identify materials as heat conductors (e.g., metals). ME 4.16 Identify materials as heat insulators. ME 4.17 Investigate the source of energy that causes an increase in an object’s temperature. ME 4.18 Classify materials as conductors or insulators of heat. ME 4.19 Engage in activities that involve static electricity (e.g., using dryer sheets to prevent static electricity; rubbing feet on carpet). ME 4.20 Investigate static electricity. ME 4.21 Identify materials as electrical conductors. ME 4.22 Identify materials as electrical insulators. ME 4.23 Investigate and identify sources of light energy. ME 4.24 Compare light intensity (i.e., brighter, dimmer). ME 4.25 Investigate light reflection and the visible light of various surfaces.
Forms of energy have a source, a means of transfer (work and heat), and a receiver.				

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Strand 1: Properties and Principles of Matter and Energy (ME)

2. Energy has a source, can be transferred, and can be transformed into various forms but is conserved between and within systems.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
C.		<p>ME 5.1 Identify light from the Sun as a basic need of most plants.</p>	<p>ME 5.1 Identify light from the Sun as a basic need of most plants.</p> <p>ME 5.2 Identify the Sun as the primary source of light and food energy on Earth.</p>	<p>ME 5.1 Identify light from the Sun as a basic need of most plants.</p> <p>ME 5.2 Identify the Sun as the primary source of light and food energy on Earth.</p> <p>ME 5.3 Identify the Sun as the primary source of energy for temperature change on Earth.</p>
Electromagnetic energy from the Sun (solar radiation) is a major source of energy on Earth.				

MAP-A Science

Strand 2: Properties and Principles of Force and Motion (FM)

1. The motion of an object is described by its change in position relative to another object or point.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
A.	<p>FM 1.1 Engage in an activity involving the position of an object relative to another object.</p> <p>FM 1.2 Identify the position of an object relative to another object (e.g., next to, in front of, behind, above, below, to the left, or to the right).</p> <p>FM 1.4 Explore an object’s motion.</p> <p>FM 1.5 Identify when an object is moving (in motion) and/or not moving (at rest).</p>	<p>FM 1.1 Engage in an activity involving the position of an object relative to another object.</p> <p>FM 1.2 Identify the position of an object relative to another object (e.g., next to, in front of, behind, above, below, to the left, or to the right).</p> <p>FM 1.3 Compare the distance between two objects (e.g., Suzie is closer to the door).</p> <p>FM 1.4 Explore an object’s motion.</p> <p>FM 1.5 Identify when an object is moving (in motion) and/or not moving (at rest).</p> <p>FM 1.6 Engage in an activity involving starting and stopping a moving object (e.g., rolling a ball).</p>	<p>FM 1.1 Engage in an activity involving the position of an object relative to another object.</p> <p>FM 1.2 Identify the position of an object relative to another object (e.g., next to, in front of, behind, above, below, to the left, or to the right).</p> <p>FM 1.3 Compare the distance between two objects (e.g., Suzie is closer to the door).</p> <p>FM 1.4 Explore an object’s motion.</p> <p>FM 1.5 Identify when an object is moving (in motion) and/or not moving (at rest).</p> <p>FM 1.6 Engage in an activity involving starting and stopping a moving object (e.g., rolling a ball).</p> <p>FM 1.7 Investigate an object moving in different directions (e.g., forward, backward, sideways, up, down, in a circular motion).</p> <p>FM 1.8 Investigate ways to change the motion of an object (e.g., change an incline’s slope to make an object go slower, faster, farther).</p> <p>FM 1.10 Identify the initial and final positions of an object’s motion (e.g., the start and finish lines of a race track).</p>	<p>FM 1.1 Engage in an activity involving the position of an object relative to another object.</p> <p>FM 1.2 Identify the position of an object relative to another object (e.g., next to, in front of, behind, above, below, to the left, or to the right).</p> <p>FM 1.3 Compare the distance between two objects (e.g., Suzie is closer to the door).</p> <p>FM 1.4 Explore an object’s motion.</p> <p>FM 1.5 Identify when an object is moving (in motion) and/or not moving (at rest).</p> <p>FM 1.6 Engage in an activity involving starting and stopping a moving object (e.g., rolling a ball).</p> <p>FM 1.7 Investigate an object moving in different directions (e.g., forward, backward, sideways, up, down, in a circular motion).</p> <p>FM 1.8 Investigate ways to change the motion of an object (e.g., change an incline’s slope to make an object go slower, faster, farther).</p> <p>FM 1.9. Describe an object’s motion (e.g. beating a drum, walking in a zigzag motion, turning a wheelchair).</p> <p>FM 1.10 Identify the initial and final positions of an object’s motion (e.g., the start and finish lines of a race track).</p>
	<p>The motion of an object is described as a change in position, direction, and speed relative to another object (frame of reference)</p>			

MAP-A Science

Strand 2: Properties and Principles of Force and Motion (FM)

1. The motion of an object is described by its change in position relative to another object or point.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
A.				<p>FM 1.11 Identify the initial and final time of an object’s motion (e.g., using a stopwatch or timer).</p> <p>FM 1.12 Compare objects moving at different speeds (e.g., fast, slow, faster, slower).</p>
The motion of an object is described as a change in position, direction, and speed relative to another object (frame of reference)				<p>FM 2.1 Investigate one or more of the following: an object going faster (e.g., walking to jogging to running; being pushed on a swing; increasing a ramp’s incline as marbles roll down), slower (e.g., feeling force on one’s body as a car slows to a stop; reducing a ramp’s incline as marbles roll down), and changing directions (e.g., bouncing a ball, flying a kite).</p>

MAP-A Science

Strand 2: Properties and Principles of Force and Motion (FM)

2. Forces affect motion.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
A.	<p>FM 3.1 Explore ways to cause an object to move (e.g., push and/or pull).</p>	<p>FM 3.1 Explore ways to cause an object to move (e.g., push and/or pull).</p>	<p>FM 3.1 Explore ways to cause an object to move (e.g., push and/or pull).</p>	<p>FM 3.1 Explore ways to cause an object to move (e.g., push and/or pull).</p>
	<p>FM 3.2 Identify ways to cause an object to move by applying force (e.g., push and/or pull).</p>	<p>FM 3.2 Identify ways to cause an object to move by applying force (e.g., push and/or pull).</p>	<p>FM 3.2 Identify ways to cause an object to move by applying force (e.g., push and/or pull).</p>	<p>FM 3.2 Identify ways to cause an object to move by applying force (e.g., push and/or pull).</p>
Forces are classified as either contact (pushes, pulls, friction, and/or buoyancy) or noncontact forces (gravity, magnetism) that can be described in terms of direction and magnitude.		<p>FM 3.3 Explore how different amounts of force and/or direction of force will act on the same object (e.g., the harder the push, the faster the object will move; the harder the push, the farther the object will travel).</p>	<p>FM 3.3 Explore how different amounts of force and/or direction of force will act on the same object (e.g., the harder the push, the faster the object will move; the harder the push, the farther the object will travel).</p>	<p>FM 3.3 Explore how different amounts of force and/or direction of force will act on the same object (e.g., the harder the push, the faster the object will move; the harder the push, the farther the object will travel).</p>
		<p>FM 3.4 Identify the distance an object traveled using its initial and final positions.</p>		<p>FM 3.4 Identify the distance an object traveled using its initial and final positions.</p>
		<p>FM 3.5 Engage in an activity demonstrating that two magnets can push or pull each other and other objects without touching.</p>	<p>FM 3.5 Engage in an activity demonstrating that two magnets can push or pull each other and other objects without touching.</p>	<p>FM 3.5 Engage in an activity demonstrating that two magnets can push or pull each other and other objects without touching.</p>
		<p>FM 3.6 Explore magnetic force in reaction to different surfaces (e.g. metal, wood, cork, Styrofoam, plastic).</p>	<p>FM 3.6 Explore magnetic force in reaction to different surfaces (e.g. metal, wood, cork, Styrofoam, plastic).</p>	<p>FM 3.6 Explore magnetic force in reaction to different surfaces (e.g. metal, wood, cork, Styrofoam, plastic).</p>
		<p>FM 3.7 Identify surfaces that have magnetic attraction (e.g. refrigerator, filing cabinet, whiteboard).</p>	<p>FM 3.7 Identify surfaces that have magnetic attraction (e.g. refrigerator, filing cabinet, whiteboard).</p>	<p>FM 3.7 Identify surfaces that have magnetic attraction (e.g. refrigerator, filing cabinet, whiteboard).</p>
		<p>FM 3.8 Explore friction (e.g., rubbing one’s hands together or rolling a ball over different surfaces such as carpet, tile, wax paper, and/or grass).</p>	<p>FM 3.8 Explore friction (e.g., rubbing one’s hands together or rolling a ball over different surfaces such as carpet, tile, wax paper, and/or grass).</p>	<p>FM 3.8 Explore friction (e.g., rubbing one’s hands together or rolling a ball over different surfaces such as carpet, tile, wax paper, and/or grass).</p>

MAP-A Science

Strand 2: Properties and Principles of Force and Motion (FM)

2. Forces affect motion.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
A.		<p>FM 3.9 Engage in an activity involving friction (e.g., rubbing one’s hands together or rolling a ball over different surfaces such as carpet, tile, wax paper, and/or grass).</p>	<p>FM 3.9 Engage in an activity involving friction (e.g., rubbing one’s hands together or rolling a ball over different surfaces such as carpet, tile, wax paper, and/or grass).</p>	<p>FM 3.9 Engage in an activity involving friction (e.g., rubbing one’s hands together or rolling a ball over different surfaces such as carpet, tile, wax paper, and/or grass).</p>
	<p>Forces are classified as either contact (pushes, pulls, friction, and/or buoyancy) or noncontact forces (gravity, magnetism) that can be described in terms of direction and magnitude.</p>	<p>FM 3.12 Explore how gravity affects objects (e.g., show gravity is a force that pulls objects to the ground by demonstrating how a ball falls when dropped).</p>	<p>FM 3.10 Investigate friction as a force that slows down an object by comparing an object’s motion over different surfaces (e.g., rolling a ball across different surfaces such as carpet, tile, grass, and/or wax paper).</p> <p>FM 3.12 Explore how gravity affects objects (e.g., show gravity is a force that pulls objects to the ground by demonstrating how a ball falls when dropped).</p> <p>FM 3.13 Engage in an activity that compares the weight of two items of the same size (e.g., bag of chips and bag of flour; full glass or empty glass).</p>	<p>FM 3.10 Investigate friction as a force that slows down an object by comparing an object’s motion over different surfaces (e.g., rolling a ball across different surfaces such as carpet, tile, grass, and/or wax paper).</p> <p>FM 3.11 Identify that force is required to overcome friction in order to move an object (e.g., moving a wheelchair or a grocery cart across different surfaces).</p> <p>FM 3.12 Explore how gravity affects objects (e.g., show gravity is a force that pulls objects to the ground by demonstrating how a ball falls when dropped).</p> <p>FM 3.13 Engage in an activity that compares the weight of two items of the same size (e.g., bag of chips and bag of flour; full glass or empty glass).</p> <p>FM 3.14 Measure the weight of different objects using a scale (e.g., measuring/weighing produce).</p>

MAP-A Science

Strand 2: Properties and Principles of Force and Motion (FM)

2. Forces affect motion.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
D.		FM 4.1 Identify distances traveled by objects of varying weights when different amounts of force are applied.	FM 4.1 Identify distances traveled by objects of varying weights when different amounts of force are applied.	FM 4.1 Identify distances traveled by objects of varying weights when different amounts of force are applied.
Newton’s Laws of Motion explain the interaction of weight and forces, and these laws are used to predict changes in motion.				<p>FM 4.2 Investigate how the weight of an object affects the motion of that object (e.g., pushing an empty versus a full shopping cart; bowling with a light versus a heavy bowling ball).</p> <p>FM 4.3 Investigate how increasing and decreasing the amount of force on an object affects the motion of that object.</p>

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Strand 2: Properties and Principles of Force and Motion (FM)

2. Forces affect motion.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
F.	FM 5.1 Explore simple machines (e.g., inclined planes, levers, pulleys, wheels, and axles).	FM 5.1 Explore simple machines (e.g., inclined planes, levers, pulleys, wheels, and axles).	FM 5.1 Explore simple machines (e.g., inclined planes, levers, pulleys, wheels, and axles).	FM 5.1 Explore simple machines (e.g., inclined planes, levers, pulleys, wheels, and axles).
Simple machines (levers, inclined planes, wheels and axels, and pulleys) affect the force applied to an object and/or direction of an object's movement as work is completed.		FM 5.2 Engage in activities using simple machines.	FM 5.2 Engage in activities using simple machines.	FM 5.2 Engage in activities using simple machines.
			<p>FM 5.3 Identify one or more of the following: inclined planes, levers, pulleys, wheels and/or axles.</p> <p>FM 5.4 Explore that simple machines can decrease the amount of effort and can change the direction of force (e.g., using a pulley takes less effort when lifting a heavy object versus lifting the object without a pulley; using a pulley requires one to pull down to lift an object instead of lifting it up).</p> <p>FM 5.5 Identify simple machines in common tools and household items (e.g., inclined plane and wheelchair ramp; wheel and axel, and shopping cart wheel; lever and wrench; pulley and flagpole).</p>	<p>FM 5.3 Identify one or more of the following: inclined planes, levers, pulleys, wheels and/or axles.</p> <p>FM 5.4 Explore that simple machines can decrease the amount of effort and can change the direction of force (e.g., using a pulley takes less effort when lifting a heavy object versus lifting the object without a pulley; using a pulley requires one to pull down to lift an object instead of lifting it up).</p> <p>FM 5.5 Identify simple machines in common tools and household items (e.g., inclined plane and wheelchair ramp; wheel and axel, and shopping cart wheel; lever and wrench; pulley and flagpole).</p> <p>FM 5.6 Identify how simple machines are used in real life situations (e.g., using a wheelchair ramp; moving a heavy object with a dolly/cart; using a wrench to fix something).</p>

MAP-A Science

Strand 3: Characteristics and Interactions of Living Organisms (LO)

1. There is a fundamental unity underlying the diversity of all living organisms.				
	Grades K-2	Grades 3-5	Grades 6-8	Grades 9-12
A.	LO 1.1 Explore non-living things (e.g., rocks, soil, and water).	LO 1.1 Explore non-living things (e.g., rocks, soil, and water).	LO 1.1 Explore non-living things (e.g., rocks, soil, and water).	LO 1.1 Explore non-living things (e.g., rocks, soil, and water).
Organisms have basic needs for survival	LO 1.2 Explore living things (e.g., animals, plants, and people).	LO 1.2 Explore living things (e.g., animals, plants, and people).	LO 1.2 Explore living things (e.g., animals, plants, and people).	LO 1.2 Explore living things (e.g., animals, plants, and people).
	LO 1.3 Identify living and non-living things (e.g., identify living things among a group of living and non-living things; sort things into living and non-living groups).	LO 1.3 Identify living and non-living things (e.g., identify living things among a group of living and non-living things; sort things into living and non-living groups).	LO 1.3 Identify living and non-living things (e.g., identify living things among a group of living and non-living things; sort things into living and non-living groups).	LO 1.3 Identify living and non-living things (e.g., identify living things among a group of living and non-living things; sort things into living and non-living groups).
	LO 1.4 Identify one or more basic needs for animals (e.g., air, water, food, and/or shelter).	LO 1.4 Identify one or more basic needs for animals (e.g., air, water, food, and/or shelter).	LO 1.4 Identify one or more basic needs for animals (e.g., air, water, food, and/or shelter).	LO 1.4 Identify one or more basic needs for animals (e.g., air, water, food, and/or shelter).
	LO 1.5 Identify one or more basic needs for plants (e.g., air, water, and/or light).	LO 1.5 Identify one or more basic needs for plants (e.g., air, water, and/or light).	LO 1.5 Identify one or more basic needs for plants (e.g., air, water, and/or light).	LO 1.5 Identify one or more basic needs for plants (e.g., air, water, and/or light).
		LO 1.6 Investigate what happens when a plant's growing conditions are changed (e.g., dark versus light; water versus no water).	LO 1.6 Investigate what happens when a plant's growing conditions are changed (e.g., dark versus light; water versus no water).	LO 1.6 Investigate what happens when a plant's growing conditions are changed (e.g., dark versus light; water versus no water).
		LO 1.7 Identify the common life processes required for organism survival (e.g., growth, reproduction, life span, stimuli response, energy use, gas exchanges, water use, and/or waste elimination).	LO 1.7 Identify the common life processes required for organism survival (e.g., growth, reproduction, life span, stimuli response, energy use, gas exchanges, water use, and/or waste elimination).	LO 1.7 Identify the common life processes required for organism survival (e.g., growth, reproduction, life span, stimuli response, energy use, gas exchanges, water use, and/or waste elimination).
		LO 1.8 Investigate common life processes required for organism survival (e.g., growth, reproduction, life span, stimuli response, energy use, gas exchanges, water use, and/or waste elimination).	LO 1.8 Investigate common life processes required for organism survival (e.g., growth, reproduction, life span, stimuli response, energy use, gas exchanges, water use, and/or waste elimination).	LO 1.8 Investigate common life processes required for organism survival (e.g., growth, reproduction, life span, stimuli response, energy use, gas exchanges, water use, and/or waste elimination).
		LO 1.9 Identify that most plants and animals require food and oxygen to carry out life processes.	LO 1.9 Identify that most plants and animals require food and oxygen to carry out life processes.	LO 1.9 Identify that most plants and animals require food and oxygen to carry out life processes.

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Strand 3: Characteristics and Interactions of Living Organisms (LO)

1. There is a fundamental unity underlying the diversity of all living organisms.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
B.	LO 2.1 Explore one or more aspects of the life cycle of an animal (e.g., birth, growth, reproduction, and/or death).	LO 2.1 Explore one or more aspects of the life cycle of an animal (e.g., birth, growth, reproduction, and/or death).	LO 2.1 Explore one or more aspects of the life cycle of an animal (e.g., birth, growth, reproduction, and/or death).	LO 2.1 Explore one or more aspects of the life cycle of an animal (e.g., birth, growth, reproduction, and/or death).
Organisms progress through life cycles unique to different types of organisms	LO 2.2 Engage in a plant life cycle activity (e.g., watching a seedling grow into a mature plant).	LO 2.2 Engage in a plant life cycle activity (e.g., watching a seedling grow into a mature plant).	LO 2.2 Engage in a plant life cycle activity (e.g., watching a seedling grow into a mature plant).	LO 2.2 Engage in a plant life cycle activity (e.g., watching a seedling grow into a mature plant).
		LO 2.4 Identify life stages of common organisms (e.g., seedling and tree; duckling and duck; and human baby and human adult).	LO 2.3 Identify the plant life cycle (e.g., seed germination, growth, reproduction, and/or death).	LO 2.3 Identify the plant life cycle (e.g., seed germination, growth, reproduction, and/or death).
			LO 2.4 Identify life stages of common organisms (e.g., seedling and tree; duckling and duck; and human baby and human adult).	LO 2.4 Identify life stages of common organisms (e.g., seedling and tree; duckling and duck; and human baby and human adult).
			LO 2.5 Match offspring with parent (e.g., puppy and dog; kitten and cat; chick and hen; and cub and bear).	LO 2.5 Match offspring with parent (e.g., puppy and dog; kitten and cat; chick and hen; and cub and bear).
			LO 2.6 Identify the correct sequence of stages in the life cycle of familiar animals (cat, dog, frogs, and/or butterflies).	LO 2.6 Identify the correct sequence of stages in the life cycle of familiar animals (cat, dog, frogs, and/or butterflies).
			LO 2.7 Identify the similarities between parent and offspring.	LO 2.7 Identify the similarities between parent and offspring.
			LO 2.8 Match offspring with parent (e.g., puppy and dog; kitten and cat; chick and hen; and cub and bear).	LO 2.8 Match offspring with parent (e.g., puppy and dog; kitten and cat; chick and hen; and cub and bear).
				LO 2.9 Compare physical characteristics that distinguish parent and offspring (e.g., feet, noses, tails, and/or wings).

MAP-A Science

Strand 3: Characteristics and Interactions of Living Organisms (LO)

1. There is a fundamental unity underlying the diversity of all living organisms.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
D.			<p>LO 3.1 Identify the functions of one or more of the following parts: sensory organs, appendages, or other major organs (e.g., hands pick things up, eyes see, and/or ears hear).</p>	<p>LO 3.1 Identify the functions of one or more of the following parts: sensory organs, appendages, or other major organs (e.g., hands pick things up, eyes see, and/or ears hear).</p>
Plants and animals have different structures that serve similar functions necessary for the survival of the organism.	<p>LO 3.3 Explore common plants (e.g., grass, flowers, and/or trees).</p>	<p>LO 3.3 Explore common plants (e.g., grass, flowers, and/or trees).</p>	<p>LO 3.3 Explore common plants (e.g., grass, flowers, and/or trees).</p>	<p>LO 3.2 Compare physical structures that serve basic needs in different animals (e.g., the ability to move, such as wings versus legs or fins; the ability to protect and keep warm, such as a turtle shell versus human skin, duck feathers, or dog hair; and/or the ability to breathe, such as lungs versus gills).</p> <p>LO 3.3 Explore common plants (e.g., grass, flowers, and/or trees).</p>
		<p>LO 3.4 Identify one or more physical structures of common plants (e.g., stems, leaves, flowers, seeds, roots, and/or fruits).</p>	<p>LO 3.4 Identify one or more physical structures of common plants (e.g., stems, leaves, flowers, seeds, roots, and/or fruits).</p>	<p>LO 3.4 Identify one or more physical structures of common plants (e.g., stems, leaves, flowers, seeds, roots, and/or fruits).</p>
			<p>LO 3.5 Identify the function of one or more of the following plant structures: roots, stems, leaves, flowers, seeds and/or fruits (e.g., roots hold plants in place and bring nutrients and water from soil to the plant; stems provide plants support and let water and nutrients move throughout the plant; plants use leaves to make food; and/or flowers, seeds, and fruits are related to the reproduction of flowering plants).</p>	<p>LO 3.5 Identify the function of one or more of the following plant structures: roots, stems, leaves, flowers, seeds and/or fruits (e.g., roots hold plants in place and bring nutrients and water from soil to the plant; stems provide plants support and let water and nutrients move throughout the plant; plants use leaves to make food; and/or flowers, seeds, and fruits are related to the reproduction of flowering plants).</p>

MAP-A Science

Strand 3: Characteristics and Interactions of Living Organisms (LO)

1. There is a fundamental unity underlying the diversity of all living organisms.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
E.			<p>LO 4.1 Identify how some plants and animals protect themselves (e.g., roses with thorns, cacti with needles, poison ivy, camouflage, claws, and/or teeth).</p>	<p>LO 4.1 Identify how some plants and animals protect themselves (e.g., roses with thorns, cacti with needles, poison ivy, camouflage, claws, and/or teeth).</p>
Biological classifications are based on how organisms are related		<p>LO 4.2 Compare how plants and animals take in water.</p>	<p>LO 4.2 Compare how plants and animals take in water.</p>	<p>LO 4.2 Compare how plants and animals take in water.</p>
		<p>LO 4.3 Compare how plants and animals use oxygen.</p>	<p>LO 4.3 Compare how plants and animals use oxygen.</p>	<p>LO 4.3 Compare how plants and animals use oxygen.</p>
			<p>LO 4.4 Compare how plants and animals support themselves (e.g., some plants use stems, trunks, and/or roots for support; some animals use an exoskeleton or endoskeleton for support).</p> <p>LO 4.5 Compare how plants and animals obtain energy (e.g., plants make their own food; animals acquire food).</p>	<p>LO 4.4 Compare how plants and animals support themselves (e.g., some plants use stems, trunks, and/or roots for support; some animals use an exoskeleton or endoskeleton for support).</p> <p>LO 4.5 Compare how plants and animals obtain energy (e.g., plants make their own food; animals acquire food).</p> <p>LO 4.6 Compare how plants and animals respond to changes in conditions.</p> <p>LO 4.7 Compare how plants and animals protect themselves.</p>

MAP-A Science

Strand 3: Characteristics and Interactions of Living Organisms (LO)

2. Living organisms carry out life processes in order to survive.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
B.	LO 5.1 Engage in an activity pertaining to a plant’s need for sunlight and water to grow.	LO 5.1 Engage in an activity pertaining to a plant’s need for sunlight and water to grow.	LO 5.1 Engage in an activity pertaining to a plant’s need for sunlight and water to grow.	LO 5.1 Engage in an activity pertaining to a plant’s need for sunlight and water to grow.
Photosynthesis and cellular respiration are complementary processes necessary to the survival of most organisms on Earth.		LO 5.2 Investigate a plant’s need for sunlight and water to grow.	LO 5.2 Investigate a plant’s need for sunlight and water to grow.	LO 5.2 Investigate a plant’s need for sunlight and water to grow.

MAP-A Science

Strand 3: Characteristics and Interactions of Living Organisms (LO)

2. Living organisms carry out life processes in order to survive.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
C.		<p>LO 6.1 Engage in an activity that demonstrates water’s path as it moves through a plant (e.g., dip a white carnation or celery stalk into different colors of food coloring and observe the plant’s color change).</p> <p>LO 6.2 Explore the human body’s major organs.</p>	<p>LO 6.1 Engage in an activity that demonstrates water’s path as it moves through a plant (e.g., dip a white carnation or celery stalk into different colors of food coloring and observe the plant’s color change).</p> <p>LO 6.2 Explore the human body’s major organs.</p> <p>LO 6.3 Identify the human body’s major organs.</p> <p>LO 6.4 Explore the functions of the human body’s major organs.</p>	<p>LO 6.1 Engage in an activity that demonstrates water’s path as it moves through a plant (e.g., dip a white carnation or celery stalk into different colors of food coloring and observe the plant’s color change).</p> <p>LO 6.2 Explore the human body’s major organs.</p> <p>LO 6.3 Identify the human body’s major organs.</p> <p>LO 6.4 Explore the functions of the human body’s major organs.</p> <p>LO 6.5 Identify the human body’s major organs and their functions.</p>
Complex multicellular organisms have systems that interact to carry out life processes through physical and chemical means.				

MAP-A Science

Strand 3: Characteristics and Interactions of Living Organisms (LO)

3. There is a genetic basis for the transfer of biological characteristics from one generation to the next through reproductive processes.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
A.			<p>LO 7.1 Identify reproduction as a process whereby new individuals (offspring) are produced by parent(s).</p> <p>LO 7.2 Identify that physical characteristics of parent(s) are passed to new offspring (e.g., hair color, skin color, eye color, height, petals, flowers, fruits, and/or seeds).</p>	<p>LO 7.1 Identify reproduction as a process whereby new individuals (offspring) are produced by parent(s).</p> <p>LO 7.2 Identify that physical characteristics of parent(s) are passed to new offspring (e.g., hair color, skin color, eye color, height, petals, flowers, fruits, and/or seeds).</p>
Reproduction can occur both asexually and sexually.				

MAP-A Science

Strand 3: Characteristics and Interactions of Living Organisms (LO)

3. There is a genetic basis for the transfer of biological characteristics from one generation to the next through reproductive processes.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
D.	LO 8.1 Identify that living things have offspring (e.g., pairing a puppy to a dog).	LO 8.1 Identify that living things have offspring (e.g., pairing a puppy to a dog).	LO 8.1 Identify that living things have offspring (e.g., pairing a puppy to a dog).	LO 8.1 Identify that living things have offspring (e.g., pairing a puppy to a dog).
There is heritable variation within every organism species.		LO 8.2 Explore similarities and differences between animal parents and their offspring (e.g., eye color, hair/fur color, height, and/or markings). LO 8.4 Explore similarities and differences between mature plants and their seedlings.	LO 8.2 Explore similarities and differences between animal parents and their offspring (e.g., eye color, hair/fur color, height, and/or markings). LO 8.4 Explore similarities and differences between mature plants and their seedlings.	LO 8.2 Explore similarities and differences between animal parents and their offspring (e.g., eye color, hair/fur color, height, and/or markings). LO 8.3 Identify similarities and differences between animal parents and their offspring (e.g., eye color, hair/fur color, height, and/or markings). LO 8.4 Explore similarities and differences between mature plants and their seedlings. LO 8.5 Identify similarities and differences between mature plants and their seedlings.

MAP-A Science

Strand 4: Changes in Ecosystems and Interactions of Organisms with Their Environments (EC)

1. Organisms are interdependent with one another and with their environment.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
A. All populations living together within a community interact with one another and with their environment in order to survive and maintain a balanced ecosystem.	EC 1.1 Explore one or more ways in which seasons affect plants or animals (e.g., animals gather/store food in the fall, animals hibernate in the winter, plants bud in the spring, and/or plants bear fruit in the summer).	EC 1.1 Explore one or more ways in which seasons affect plants or animals (e.g., animals gather/store food in the fall, animals hibernate in the winter, plants bud in the spring, and/or plants bear fruit in the summer).	EC 1.1 Explore one or more ways in which seasons affect plants or animals (e.g., animals gather/store food in the fall, animals hibernate in the winter, plants bud in the spring, and/or plants bear fruit in the summer).	EC 1.1 Explore one or more ways in which seasons affect plants or animals (e.g., animals gather/store food in the fall, animals hibernate in the winter, plants bud in the spring, and/or plants bear fruit in the summer).
	EC 1.2 Identify one or more ways in which seasons affect plant and animal behavior.	EC 1.2 Identify one or more ways in which seasons affect plant and animal behavior.	EC 1.2 Identify one or more ways in which seasons affect plant and animal behavior.	EC 1.2 Identify one or more ways in which seasons affect plant and animal behavior.
	EC 1.3 Describe one or more ways in which seasons affect plant and animal behavior.	EC 1.3 Describe one or more ways in which seasons affect plant and animal behavior.	EC 1.3 Describe one or more ways in which seasons affect plant and animal behavior.	EC 1.3 Describe one or more ways in which seasons affect plant and animal behavior.
	EC 1.4 Explore one or more ways weather affects the everyday life of humans (e.g., clothing, transportation, and/or outdoor activities).	EC 1.4 Explore one or more ways weather affects the everyday life of humans (e.g., clothing, transportation, and/or outdoor activities).	EC 1.4 Explore one or more ways weather affects the everyday life of humans (e.g., clothing, transportation, and/or outdoor activities).	EC 1.4 Explore one or more ways weather affects the everyday life of humans (e.g., clothing, transportation, and/or outdoor activities).
	EC 1.5 Identify one or more ways weather affects the everyday life of humans (e.g., clothing, transportation, and/or outdoor activities).	EC 1.5 Identify one or more ways weather affects the everyday life of humans (e.g., clothing, transportation, and/or outdoor activities).	EC 1.5 Identify one or more ways weather affects the everyday life of humans (e.g., clothing, transportation, and/or outdoor activities).	EC 1.5 Identify one or more ways weather affects the everyday life of humans (e.g., clothing, transportation, and/or outdoor activities).
	EC 1.6 Describe one or more ways seasons or weather affect the everyday life of humans.	EC 1.6 Describe one or more ways seasons or weather affect the everyday life of humans.	EC 1.6 Describe one or more ways seasons or weather affect the everyday life of humans.	EC 1.6 Describe one or more ways seasons or weather affect the everyday life of humans.
	EC 1.7 Explore one or more ways humans depend on plants and animals (e.g., food, clothing, and/or shelter).	EC 1.7 Explore one or more ways humans depend on plants and animals (e.g., food, clothing, and/or shelter).	EC 1.7 Explore one or more ways humans depend on plants and animals (e.g., food, clothing, and/or shelter).	EC 1.7 Explore one or more ways humans depend on plants and animals (e.g., food, clothing, and/or shelter).
	EC 1.8 Identify one or more ways humans depend on plants and animals (e.g., food, clothing, and/or shelter).	EC 1.8 Identify one or more ways humans depend on plants and animals (e.g., food, clothing, and/or shelter).	EC 1.8 Identify one or more ways humans depend on plants and animals (e.g., food, clothing, and/or shelter).	EC 1.8 Identify one or more ways humans depend on plants and animals (e.g., food, clothing, and/or shelter).

MAP-A Science

Strand 4: Changes in Ecosystems and Interactions of Organisms with Their Environments (EC)

1. Organisms are interdependent with one another and with their environment.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
A.			<p>EC 1.9 Describe one or more ways humans depend on plants and animals.</p> <p>EC 1.10 Explore one or more ways a specific organism may interact with other organisms and the environment (e.g., a bee’s interaction with a flower and the resulting pollination; brown deer blend into trees; and/or dandelion seeds spread by wind).</p>	<p>EC 1.9 Describe one or more ways humans depend on plants and animals.</p> <p>EC 1.10 Explore one or more ways a specific organism may interact with other organisms and the environment (e.g., a bee’s interaction with a flower and the resulting pollination; brown deer blend into trees; and/or dandelion seeds spread by wind).</p> <p>EC 1.11 Identify how different environments support the life of different types of plants and animals.</p>
All populations living together within a community interact with one another and with their environment in order to survive and maintain a balanced ecosystem.				

MAP-A Science

Strand 4: Changes in Ecosystems and Interactions of Organisms with Their Environments (EC)

1. Organisms are interdependent with one another and with their environment.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
C.			<p>EC 2.1 Identify one or more human activities that are harmful to ecosystems (e.g., waste disposal, pollution, logging, mining, building roads, building dams, burning fossil fuels, waste disposal, and/or habitat destruction).</p>	<p>EC 2.1 Identify one or more human activities that are harmful to ecosystems (e.g., waste disposal, pollution, logging, mining, building roads, building dams, burning fossil fuels, waste disposal, and/or habitat destruction).</p>
All organisms, including humans, and their activities cause changes in their environment that affect the ecosystem.		<p>EC 2.3 Engage in one or more human activities that are beneficial to ecosystems (e.g., planting gardens and trees, restoring natural habitats, recycling, and/or carpooling).</p>	<p>EC 2.3 Engage in one or more human activities that are beneficial to ecosystems (e.g., planting gardens and trees, restoring natural habitats, recycling, and/or carpooling).</p> <p>EC 2.4 Identify one or more human activities that are beneficial to ecosystems (e.g., reintroduction of species, planting gardens and trees, restoring natural habitats, recycling, alternate energy and/or carpooling).</p>	<p>EC 2.2 Describe one or more human activities that are harmful to ecosystems (e.g., waste disposal, pollution, logging, mining, building roads, building dams, burning fossil fuels, waste disposal, and/or habitat destruction).</p> <p>EC 2.3 Engage in one or more human activities that are beneficial to ecosystems (e.g., planting gardens and trees, restoring natural habitats, recycling, and/or carpooling).</p> <p>EC 2.4 Identify one or more human activities that are beneficial to ecosystems (e.g., reintroduction of species, planting gardens and trees, restoring natural habitats, recycling, alternate energy and/or carpooling).</p>

MAP-A Science

Strand 4: Changes in Ecosystems and Interactions of Organisms with Their Environments (EC)

1. Organisms are interdependent with one another and with their environment.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
D.		<p>EC 3.1 Explore one or more examples in Missouri where human activity has a positive effect on other organisms (e.g., planting trees, picking up trash, and/or recycling).</p> <p>EC 3.2 Explore one or more examples in Missouri where human activity has a negative effect on other organisms (e.g., littering, construction, and/or habitat destruction).</p>	<p>EC 3.1 Explore one or more examples in Missouri where human activity has a positive effect on other organisms (e.g., planting trees, picking up trash, and/or recycling).</p> <p>EC 3.2 Explore one or more examples in Missouri where human activity has a negative effect on other organisms (e.g., littering, construction, and/or habitat destruction).</p>	<p>EC 3.1 Explore one or more examples in Missouri where human activity has a positive effect on other organisms (e.g., planting trees, picking up trash, and/or recycling).</p> <p>EC 3.2 Explore one or more examples in Missouri where human activity has a negative effect on other organisms (e.g., littering, construction, and/or habitat destruction).</p> <p>EC 3.3 Engage in a project wherein human activity has a positive effect on other organism(s) (e.g., a community service project).</p>
The diversity of species within an ecosystem is affected by changes in the environment which can be caused by other organisms or outside processes.				

MAP-A Science

Strand 4: Changes in Ecosystems and Interactions of Organisms with Their Environments (EC)

2. Matter and energy flow through an ecosystem.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
A.		<p>EC 4.1 Identify sunlight as the primary source of energy plants use to produce their own food.</p> <p>EC 4.2 Explore producers (e.g., plants), consumers (e.g., herbivores, carnivores, and omnivores) or decomposers (e.g., bacteria and some animals).</p> <p>EC 4.6 Identify predators and prey (e.g., fox and rabbit; hawk and chicken; and wolf and deer).</p>	<p>EC 4.1 Identify sunlight as the primary source of energy plants use to produce their own food.</p> <p>EC 4.2 Explore producers (e.g., plants), consumers (e.g., herbivores, carnivores, and omnivores) or decomposers (e.g., bacteria and some animals).</p> <p>EC 4.3 Identify producers (e.g., plants), consumers (e.g., herbivores, carnivores, and omnivores) or decomposers (e.g., bacteria and some animals).</p> <p>EC 4.4 Explore the flow of energy through a food chain (e.g., sun > plants > rabbits > hawks).</p> <p>EC 4.6 Identify predators and prey (e.g., fox and rabbit; hawk and chicken; and wolf and deer).</p>	<p>EC 4.1 Identify sunlight as the primary source of energy plants use to produce their own food.</p> <p>EC 4.2 Explore producers (e.g., plants), consumers (e.g., herbivores, carnivores, and omnivores) or decomposers (e.g., bacteria and some animals).</p> <p>EC 4.3 Identify producers (e.g., plants), consumers (e.g., herbivores, carnivores, and omnivores) or decomposers (e.g., bacteria and some animals).</p> <p>EC 4.4 Explore the flow of energy through a food chain (e.g., sun > plants > rabbits > hawks).</p> <p>EC 4.5 Identify one or more possible effects of removing an organism from a food chain.</p> <p>EC 4.6 Identify predators and prey (e.g., fox and rabbit; hawk and chicken; and wolf and deer).</p>
<p>As energy flows through the ecosystem, all organisms capture a portion of that energy and transform it into a form they can use.</p>				

MAP-A Science

Strand 4: Changes in Ecosystems and Interactions of Organisms with Their Environments (EC)

3. Genetic variation sorted by the natural selection process explains evidence of biological evolution.					
		Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
Evidence for the nature and rates of evolution can be found in anatomical and molecular characteristics of organisms and in the fossil record.	A.		<p>EC 5.1 Explore one or more adaptations that help plants survive in their environment (e.g., roots, winged seed, waxy leaves, and/or the fact that flowers and plants grow toward the direction of sunlight).</p>	<p>EC 5.1 Explore one or more adaptations that help plants survive in their environment (e.g., roots, winged seed, waxy leaves, and/or the fact that flowers and plants grow toward the direction of sunlight).</p>	<p>EC 5.1 Explore one or more adaptations that help plants survive in their environment (e.g., roots, winged seed, waxy leaves, and/or the fact that flowers and plants grow toward the direction of sunlight).</p>
			<p>EC 5.3 Explore one or more adaptations that help animals survive in their environments (e.g., thick fur, camouflage, hibernation, seasonal migration, and/or remaining motionless).</p>	<p>EC 5.3 Explore one or more adaptations that help animals survive in their environments (e.g., thick fur, camouflage, hibernation, seasonal migration, and/or remaining motionless).</p>	<p>EC 5.2 Identify whether a common plant would be able to survive in a specific environment based on its structural or behavioral characteristics (e.g., “Would waxy leaf plants survive in a desert?” and/or “Would palm trees survive in the arctic?”).</p> <p>EC 5.3 Explore one or more adaptations that help animals survive in their environments (e.g., thick fur, camouflage, hibernation, seasonal migration, and/or remaining motionless).</p> <p>EC 5.4 Identify if a common animal would be able to survive in a specific environment based on its structural or behavioral characteristics (e.g., “Would frogs and snakes survive in the arctic?”).</p>

MAP-A Science

Strand 5: Processes and Interactions of the Earth’s Systems (Geosphere, Atmosphere, and Hydrosphere) (ES)

1. The Earth’s systems (geosphere, atmosphere, and hydrosphere) have both common components and unique structures.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
A.	<p>ES 1.1 Explore one or more physical properties of soil (e.g., odor, color, and/or appearance).</p>	<p>ES 1.1 Explore one or more physical properties of soil (e.g., odor, color, and/or appearance).</p>	<p>ES 1.1 Explore one or more physical properties of soil (e.g., odor, color, and/or appearance).</p>	<p>ES 1.1 Explore one or more physical properties of soil (e.g., odor, color, and/or appearance).</p>
Earth’s crust is composed of various materials, including soil, minerals, and rocks with characteristic properties.		<p>ES 1.2 Explore one or more soil components (e.g., plant roots, leaves, grass, worms, and/or rocks).</p>	<p>ES 1.2 Explore one or more soil components (e.g., plant roots, leaves, grass, worms, and/or rocks).</p>	<p>ES 1.2 Explore one or more soil components (e.g., plant roots, leaves, grass, worms, and/or rocks).</p>
	<p>ES 1.4 Explore one or more physical properties of rocks (e.g., size, shape, and/or color).</p>	<p>ES 1.4 Explore one or more physical properties of rocks (e.g., size, shape, and/or color).</p>	<p>ES 1.3 Compare the different types of soil (e.g., sand, pebbles, rock, and/or clay).</p> <p>ES 1.4 Explore one or more physical properties of rocks (e.g., size, shape, and/or color).</p> <p>ES 1.5 Identify one or more physical properties (i.e., size, shape, color, texture, layering, and/or fossil presence) of rocks (e.g., touch rocks; use a microscope to examine and describe rocks; draw pictures of rocks; weigh and compare rocks; do a rock hardness test; scratch rocks for color; and/or hammer on rocks to determine hardness).</p>	<p>ES 1.3 Compare the different types of soil (e.g., sand, pebbles, rock, and/or clay).</p> <p>ES 1.4 Explore one or more physical properties of rocks (e.g., size, shape, and/or color).</p> <p>ES 1.5 Identify one or more physical properties (i.e., size, shape, color, texture, layering, and/or fossil presence) of rocks (e.g., touch rocks; use a microscope to examine and describe rocks; draw pictures of rocks; weigh and compare rocks; do a rock hardness test; scratch rocks for color; and/or hammer on rocks to determine hardness).</p>

MAP-A Science

Strand 5: Processes and Interactions of the Earth’s Systems (Geosphere, Atmosphere, and Hydrosphere) (ES)

1. The Earth’s systems (geosphere, atmosphere, and hydrosphere) have both common components and unique structures.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
B.		ES 2.1 Explore one or more major bodies of surface water (e.g., rivers, lakes, oceans, and/or glaciers).	ES 2.1 Explore one or more major bodies of surface water (e.g., rivers, lakes, oceans, and/or glaciers).	ES 2.1 Explore one or more major bodies of surface water (e.g., rivers, lakes, oceans, and/or glaciers).
The hydrosphere is composed of water (a material with unique properties) and other minerals.			ES 2.2 Explore bodies of fresh and salt water.	ES 2.2 Explore bodies of fresh and salt water.
			ES 2.3 Explore bodies of flowing and stationary water.	ES 2.3 Explore bodies of flowing and stationary water.
			ES 2.4 Explore bodies of solid and liquid water.	ES 2.4 Explore bodies of solid and liquid water.
				ES 2.5 Identify one or more bodies of water.
				ES 2.6 Identify that water is an essential component of the Earth’s systems.

MAP-A Science

Strand 5: Processes and Interactions of the Earth’s Systems (Geosphere, Atmosphere, and Hydrosphere) (ES)

1. The Earth’s systems (geosphere, atmosphere, and hydrosphere) have both common components and unique structures.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
C.	ES 3.1 Explore wind as moving air (e.g., a fan and/or a pinwheel).	ES 3.1 Explore wind as moving air (e.g., a fan and/or a pinwheel).	ES 3.1 Explore wind as moving air (e.g., a fan and/or a pinwheel).	ES 3.1 Explore wind as moving air (e.g., a fan and/or a pinwheel).
The atmosphere (air) is composed of a mixture of gases, including water vapor, and minute particles.		ES 3.2 Engage in an activity that demonstrates wind is moving air.	ES 3.2 Engage in an activity that demonstrates wind is moving air.	ES 3.2 Engage in an activity that demonstrates wind is moving air.
		ES 3.3 Describe the effects of wind as moving air (e.g. hairdryer; flag blowing in the wind; and/or wind chimes).	ES 3.3 Describe the effects of wind as moving air (e.g. hairdryer; flag blowing in the wind; and/or wind chimes).	ES 3.3 Describe the effects of wind as moving air (e.g. hairdryer; flag blowing in the wind; and/or wind chimes).
		ES 3.4 Explore water changing into a gas (e.g., observe a water puddle’s size at different times and/or observe a humidifier).	ES 3.4 Explore water changing into a gas (e.g., observe a water puddle’s size at different times and/or observe a humidifier).	ES 3.4 Explore water changing into a gas (e.g., observe a water puddle’s size at different times and/or observe a humidifier).
			ES 3.5 Investigate water changing into a gas (e.g., observe a water puddle’s size at different times and/or observe a humidifier).	ES 3.5 Investigate water changing into a gas (e.g., observe a water puddle’s size at different times and/or observe a humidifier).
			ES 3.6 Identify liquid water changing into a gas.	ES 3.6 Identify liquid water changing into a gas.
			ES 3.7 Engage in an activity that demonstrates clouds are made of tiny water droplets (e.g., cloud in a bottle).	ES 3.7 Engage in an activity that demonstrates clouds are made of tiny water droplets (e.g., cloud in a bottle).
			ES 3.8 Identify that clouds are made of tiny water droplets.	ES 3.8 Identify that clouds are made of tiny water droplets.
		ES 3.9 Explore air as an invisible substance taking up space (e.g., observe a balloon growing as more air is added).	ES 3.9 Explore air as an invisible substance taking up space (e.g., observe a balloon growing as more air is added).	ES 3.9 Explore air as an invisible substance taking up space (e.g., observe a balloon growing as more air is added).
			ES 3.10 Identify air as an invisible substance taking up space.	ES 3.10 Identify air as an invisible substance taking up space.

MAP-A Science

Strand 5: Processes and Interactions of the Earth’s Systems (Geosphere, Atmosphere, and Hydrosphere) (ES)

1. The Earth’s systems (geosphere, atmosphere, and hydrosphere) have both common components and unique structures.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
D.			<p>ES 4.1 Identify one or more aspects of weather and its impact on people to include precipitation (e.g., rain, snow, sleet, and/or hail); air temperature (e.g., Celsius/Fahrenheit, cold, warm, and/or hot); wind (e.g., flying a kite and/or a flag blowing on a pole); storms (e.g., thunderstorms, tornadoes, and/or hurricanes); and humidity (e.g., dry and/or humid).</p>	<p>ES 4.1 Identify one or more aspects of weather and its impact on people to include precipitation (e.g., rain, snow, sleet, and/or hail); air temperature (e.g., Celsius/Fahrenheit, cold, warm, and/or hot); wind (e.g., flying a kite and/or a flag blowing on a pole); storms (e.g., thunderstorms, tornadoes, and/or hurricanes); and humidity (e.g., dry and/or humid).</p>
Climate is a description of average weather conditions in a given area over time.			<p>ES 4.2 Identify how climate affects people (e.g., hot and dry climates make growing plants difficult; and/or people need to wear warmer clothing and heat their homes in cold climates).</p>	<p>ES 4.2 Identify how climate affects people (e.g., hot and dry climates make growing plants difficult; and/or people need to wear warmer clothing and heat their homes in cold climates).</p>

MAP-A Science

Strand 5: Processes and Interactions of the Earth’s Systems (Geosphere, Atmosphere, and Hydrosphere) (ES)

2. Earth’s systems (geosphere, atmosphere, and hydrosphere) interact with one another as they undergo change by common processes.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
A.		<p>ES 5.1 Explore the breakdown of plant material into soil through decomposition processes (e.g., decay, rotting, and composting).</p> <p>ES 5.2 Explore one or more of the major landforms on Earth (e.g., mountains, plains, peninsulas, coastlines, canyons, delta, and/or plateaus).</p> <p>ES 5.4 Explore how the Earth’s surface can change abruptly (e.g., flooding, rock/mudslides, volcano eruptions, earthquakes, and/or storms).</p>	<p>ES 5.1 Explore the breakdown of plant material into soil through decomposition processes (e.g., decay, rotting, and composting).</p> <p>ES 5.2 Explore one or more of the major landforms on Earth (e.g., mountains, plains, peninsulas, coastlines, canyons, delta, and/or plateaus).</p> <p>ES 5.3 Identify one or more major landforms on Earth (e.g., mountains, plains, peninsulas, coastlines, canyons, delta, and/or plateaus).</p> <p>ES 5.4 Explore how the Earth’s surface can change abruptly (e.g., flooding, rock/mudslides, volcano eruptions, earthquakes, and/or storms).</p> <p>ES 5.5 Identify how the Earth’s surface can change abruptly (e.g., flooding, rock/mudslides, volcano eruptions, earthquakes, and/or storms).</p>	<p>ES 5.1 Explore the breakdown of plant material into soil through decomposition processes (e.g., decay, rotting, and composting).</p> <p>ES 5.2 Explore one or more of the major landforms on Earth (e.g., mountains, plains, peninsulas, coastlines, canyons, delta, and/or plateaus).</p> <p>ES 5.3 Identify one or more major landforms on Earth (e.g., mountains, plains, peninsulas, coastlines, canyons, delta, and/or plateaus).</p> <p>ES 5.4 Explore how the Earth’s surface can change abruptly (e.g., flooding, rock/mudslides, volcano eruptions, earthquakes, and/or storms).</p> <p>ES 5.5 Identify how the Earth’s surface can change abruptly (e.g., flooding, rock/mudslides, volcano eruptions, earthquakes, and/or storms).</p>
Earth’s systems (geosphere, atmosphere, and hydrosphere) interact with one another as they undergo change by common processes.				

MAP-A Science

Strand 5: Processes and Interactions of the Earth’s Systems (Geosphere, Atmosphere, and Hydrosphere) (ES)

2. Earth’s systems (geosphere, atmosphere, and hydrosphere) interact with one another as they undergo change by common processes.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
E.			ES 6.1 Explore the components and sequence of the water cycle (e.g., evaporation as water vapor; condensation as dew and the formation of clouds; and precipitation as water falling in the form of rain, snow, sleet, and hail).	ES 6.1 Explore the components and sequence of the water cycle (e.g., evaporation as water vapor; condensation as dew and the formation of clouds; and precipitation as water falling in the form of rain, snow, sleet, and hail).
Changes in the form of water as it moves through the Earth’s systems are described as the water cycle.				

MAP-A Science

Strand 5: Processes and Interactions of the Earth’s Systems (Geosphere, Atmosphere, and Hydrosphere) (ES)

2. Earth’s systems (geosphere, atmosphere, and hydrosphere) interact with one another as they undergo change by common processes.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
F.	ES 7.1. Explore daily weather (e.g., precipitation, wind, cloud cover, and/or temperature).	ES 7.1. Explore daily weather (e.g., precipitation, wind, cloud cover, and/or temperature).	ES 7.1. Explore daily weather (e.g., precipitation, wind, cloud cover, and/or temperature).	ES 7.1. Explore daily weather (e.g., precipitation, wind, cloud cover, and/or temperature).
Constantly changing properties of the atmosphere occur in patterns which are described as weather.				

MAP-A Science

Strand 5: Processes and Interactions of the Earth’s Systems (Geosphere, Atmosphere, and Hydrosphere) (ES)

3. Human activity is dependent upon and affects the Earth’s resources and systems.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
A.	ES 8.1 Explore one or more ways humans use Earth’s materials (e.g., soil and/or rock) in daily life.	ES 8.1 Explore one or more ways humans use Earth’s materials (e.g., soil and/or rock) in daily life.	ES 8.1 Explore one or more ways humans use Earth’s materials (e.g., soil and/or rock) in daily life.	ES 8.1 Explore one or more ways humans use Earth’s materials (e.g., soil and/or rock) in daily life.
Human activity is dependent upon and affects Earth’s resources and systems.		ES 8.2 Explore one or more ways to solve simple environmental problems (e.g., recycling to reduce trash, composting to create natural fertilizers, and/or planting vegetation to reduce soil erosion).	ES 8.2 Explore one or more ways to solve simple environmental problems (e.g., recycling to reduce trash, composting to create natural fertilizers, and/or planting vegetation to reduce soil erosion).	ES 8.2 Explore one or more ways to solve simple environmental problems (e.g., recycling to reduce trash, composting to create natural fertilizers, and/or planting vegetation to reduce soil erosion).
		ES 8.3 Engage in an activity involving one or more ways to solve simple environmental problems (e.g., recycling to reduce trash, composting to create natural fertilizers, and/or planting vegetation to reduce soil erosion).	ES 8.3 Engage in an activity involving one or more ways to solve simple environmental problems (e.g., recycling to reduce trash, composting to create natural fertilizers, and/or planting vegetation to reduce soil erosion).	ES 8.3 Engage in an activity involving one or more ways to solve simple environmental problems (e.g., recycling to reduce trash, composting to create natural fertilizers, and/or planting vegetation to reduce soil erosion).
	ES 8.4 Explore ways water, as a solid and/or liquid, is used in everyday activities (e.g., drinking, cooking, making ice cubes, bathing, swimming, and/or building snowmen).	ES 8.4 Explore ways water, as a solid and/or liquid, is used in everyday activities (e.g., drinking, cooking, making ice cubes, bathing, swimming, and/or building snowmen).	ES 8.4 Explore ways water, as a solid and/or liquid, is used in everyday activities (e.g., drinking, cooking, making ice cubes, bathing, swimming, and/or building snowmen).	ES 8.4 Explore ways water, as a solid and/or liquid, is used in everyday activities (e.g., drinking, cooking, making ice cubes, bathing, swimming, and/or building snowmen).
		ES 8.5 Engage in an activity using water, as a solid and/or liquid, is used in everyday activities (e.g., drinking, cooking, making ice cubes, bathing, swimming, and/or building snowmen).	ES 8.5 Engage in an activity using water, as a solid and/or liquid, is used in everyday activities (e.g., drinking, cooking, making ice cubes, bathing, swimming, and/or building snowmen).	ES 8.5 Engage in an activity using water, as a solid and/or liquid, is used in everyday activities (e.g., drinking, cooking, making ice cubes, bathing, swimming, and/or building snowmen).
		ES 8.6 Identify water as an important natural resource for human activity (e.g., food, recreation, habitat, irrigation, cleaning, and/or transportation).	ES 8.6 Identify water as an important natural resource for human activity (e.g., food, recreation, habitat, irrigation, cleaning, and/or transportation).	ES 8.6 Identify water as an important natural resource for human activity (e.g., food, recreation, habitat, irrigation, cleaning, and/or transportation).
		ES 8.7 Explore how human needs and activities impact water quality (e.g., irrigation, damming of rivers, waste treatment, drinking water sources, landfills, fertilizer and pesticide use, farms, and/or sewage).	ES 8.7 Explore how human needs and activities impact water quality (e.g., irrigation, damming of rivers, waste treatment, drinking water sources, landfills, fertilizer and pesticide use, farms, and/or sewage).	ES 8.7 Explore how human needs and activities impact water quality (e.g., irrigation, damming of rivers, waste treatment, drinking water sources, landfills, fertilizer and pesticide use, farms, and/or sewage).
				ES 8.8 Explore renewable and non-renewable energy source types (e.g., solar, wind, geothermal, hydroelectric, petroleum, and/or coal).

MAP-A Science

Strand 6: Composition and Structure of the Universe and the Motion of the Objects within It (UN)

1. The universe has observable properties and structure.				
	Grades K-2	Grades 3-5	Grades 6-8	Grades 9-12
A.	UN 1.1 Explore one or more objects in the sky (e.g., the Sun, Moon, and/or stars).	UN 1.1 Explore one or more objects in the sky (e.g., the Sun, Moon, and/or stars).	UN 1.1 Explore one or more objects in the sky (e.g., the Sun, Moon, and/or stars).	UN 1.1 Explore one or more objects in the sky (e.g., the Sun, Moon, and/or stars).
		UN 1.2 Identify one or more objects in the sky (e.g., the Sun, Moon, and/or stars).	UN 1.2 Identify one or more objects in the sky (e.g., the Sun, Moon, and/or stars).	UN 1.2 Identify one or more objects in the sky (e.g., the Sun, Moon, and/or stars).
The Earth, Sun, and Moon are part of a larger system that includes other planets and smaller celestial bodies.		UN 1.3 Explore one or more objects within the solar system (e.g., the Sun, planets, moons, asteroids, comets, and/or meteors).	UN 1.3 Explore one or more objects within the solar system (e.g., the Sun, planets, moons, asteroids, comets, and/or meteors).	UN 1.3 Explore one or more objects within the solar system (e.g., the Sun, planets, moons, asteroids, comets, and/or meteors).
			UN 1.4. Identify one or more objects within the solar system (e.g., the Sun, planets, moons, asteroids, comets, and/or meteors).	UN 1.4. Identify one or more objects within the solar system (e.g., the Sun, planets, moons, asteroids, comets, and/or meteors).
				UN 1.5 Identify the position of objects in the solar system (i.e., Sun, moon, planet order, comets and meteors, and other stars).
				UN 1.6 Identify that the Moon orbits the Earth.

MAP-A Science

Strand 6: Composition and Structure of the Universe and the Motion of the Objects within It (UN)

2. Regular and predictable motions of objects in the universe can be described and explained as the result of gravitational forces.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
A.	UN 2.1 Distinguish the Sun from other objects in the sky.	UN 2.1 Distinguish the Sun from other objects in the sky.	UN 2.1 Distinguish the Sun from other objects in the sky.	UN 2.1 Distinguish the Sun from other objects in the sky.
	UN 2.2 Identify that the Sun can be seen only during the daytime.	UN 2.2 Identify that the Sun can be seen only during the daytime.	UN 2.2 Identify that the Sun can be seen only during the daytime.	UN 2.2 Identify that the Sun can be seen only during the daytime.
The apparent position of the Sun and other stars, as seen from Earth, changes in observable patterns.		UN 2.4 Explore the pattern of daylight hours throughout the year (e.g., days are shorter during winter months and days are longer during summer months).	UN 2.4 Explore the pattern of daylight hours throughout the year (e.g., days are shorter during winter months and days are longer during summer months).	UN 2.4 Explore the pattern of daylight hours throughout the year (e.g., days are shorter during winter months and days are longer during summer months).
				UN 2.3 Explore the apparent east-to-west movement of the Sun, stars, and other planets in the sky.

MAP-A Science

Strand 6: Composition and Structure of the Universe and the Motion of the Objects within It (UN)

2. Regular and predictable motions of objects in the universe can be described and explained as the result of gravitational forces.				
	Grades K-2	Grades 3-5	Grades 6-8	Grades 9-12
B.		UN 3.1 Explore the Moon's phases.	UN 3.1 Explore the Moon's phases.	UN 3.1 Explore the Moon's phases.
The apparent position of the Moon, as seen from Earth, and its actual position relative to Earth change in observable patterns.		UN 3.2 Identify the Moon's phases.	UN 3.2 Identify the Moon's phases.	UN 3.2 Identify the Moon's phases.

MAP-A Science

Strand 6: Composition and Structure of the Universe and the Motion of the Objects within It (UN)

2. Regular and predictable motions of objects in the universe can be described and explained as the result of gravitational forces.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
C.	<p>UN 4.1 Explore the characteristics of the seasons in your region (e.g., warm, long days; leaves falling; cold short days; and/or flowers blooming).</p>	<p>UN 4.1 Explore the characteristics of the seasons in your region (e.g., warm, long days; leaves falling; cold short days; and/or flowers blooming).</p>	<p>UN 4.1 Explore the characteristics of the seasons in your region (e.g., warm, long days; leaves falling; cold short days; and/or flowers blooming).</p>	<p>UN 4.1 Explore the characteristics of the seasons in your region (e.g., warm, long days; leaves falling; cold short days; and/or flowers blooming).</p>
	<p>UN 4.2 Identify the characteristics of the seasons in your region (e.g., warm, long days; leaves falling; cold short days; and/or flowers blooming).</p>	<p>UN 4.2 Identify the characteristics of the seasons in your region (e.g., warm, long days; leaves falling; cold short days; and/or flowers blooming).</p>	<p>UN 4.2 Identify the characteristics of the seasons in your region (e.g., warm, long days; leaves falling; cold short days; and/or flowers blooming).</p>	<p>UN 4.2 Identify the characteristics of the seasons in your region (e.g., warm, long days; leaves falling; cold short days; and/or flowers blooming).</p>
The regular and predictable motions of Earth and the Moon, relative to the Sun, explain natural phenomena on Earth, such as days, months, years, shadows, Moon phases, eclipses, tides and seasons.	<p>UN 4.3 Explore the day/night cycle.</p>	<p>UN 4.3 Explore the day/night cycle.</p>	<p>UN 4.3 Explore the day/night cycle.</p>	<p>UN 4.3 Explore the day/night cycle.</p>
	<p>UN 4.4 Identify the day/night cycle.</p>	<p>UN 4.4 Identify the day/night cycle.</p>	<p>UN 4.4 Identify the day/night cycle.</p>	<p>UN 4.4 Identify the day/night cycle.</p>
	<p>UN 4.5 Explore the changes in length and/or position (direction) of shadows during the day.</p>	<p>UN 4.5 Explore the changes in length and/or position (direction) of shadows during the day.</p>	<p>UN 4.5 Explore the changes in length and/or position (direction) of shadows during the day.</p>	<p>UN 4.5 Explore the changes in length and/or position (direction) of shadows during the day.</p>
	<p>UN 4.6 Engage in an activity that demonstrates the relationship between the Sun’s position in the sky and the changes in length and position of shadows.</p>	<p>UN 4.6 Engage in an activity that demonstrates the relationship between the Sun’s position in the sky and the changes in length and position of shadows.</p>	<p>UN 4.6 Engage in an activity that demonstrates the relationship between the Sun’s position in the sky and the changes in length and position of shadows.</p>	<p>UN 4.6 Engage in an activity that demonstrates the relationship between the Sun’s position in the sky and the changes in length and position of shadows.</p>
	<p>UN 4.7 Identify a day as the time it takes Earth to make a full rotation about its axis.</p>			<p>UN 4.7 Identify a day as the time it takes Earth to make a full rotation about its axis.</p>
	<p>UN 4.8 Identify a year as the time it takes Earth to go around the Sun once.</p>			<p>UN 4.8 Identify a year as the time it takes Earth to go around the Sun once.</p>
	<p>UN 4.9 Engage in an activity using a class calendar that displays the Moon’s phases.</p>		<p>UN 4.9 Engage in an activity using a class calendar that displays the Moon’s phases.</p>	<p>UN 4.9 Engage in an activity using a class calendar that displays the Moon’s phases.</p>

MAP-A Science

Strand 7: Scientific Inquiry (IN)

1. Scientific understanding is developed through the use of scientific process skills, scientific knowledge, scientific investigation, reasoning, and critical thinking.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
A.	<p>IN 1.1 Indicate interest in objects, materials, and/or the environment via touching, looking, and/or pointing.</p> <p>IN 1.2 Explore one or more science-related topics.</p>	<p>IN 1.1 Indicate interest in objects, materials, and/or the environment via touching, looking, and/or pointing.</p> <p>IN 1.2 Explore one or more science-related topics.</p> <p>IN 1.3 Identify an appropriate, science-related question (i.e., teacher generates a list of science-related questions and a student chooses one).</p>	<p>IN 1.1 Indicate interest in objects, materials, and/or the environment via touching, looking, and/or pointing.</p> <p>IN 1.2 Explore one or more science-related topics.</p> <p>IN 1.3 Identify an appropriate, science-related question (i.e., teacher generates a list of science-related questions and a student chooses one).</p> <p>IN 1.4 Student asks a science-related question (e.g., teacher prompts for a science-related question with “What questions do you have about the topic?”).</p> <p>IN 1.5 Student identifies a testable, science-related question from a given list (e.g., Testable: “Which ball is heavier?”; Non-Testable: “Which color ball is the best?”).</p>	<p>IN 1.1 Indicate interest in objects, materials, and/or the environment via touching, looking, and/or pointing.</p> <p>IN 1.2 Explore one or more science-related topics.</p> <p>IN 1.3 Identify an appropriate, science-related question (i.e., teacher generates a list of science-related questions and a student chooses one).</p> <p>IN 1.4 Student asks a science-related question (e.g., teacher prompts for a science-related question with “What questions do you have about the topic?”).</p> <p>IN 1.5 Student identifies a testable, science-related question from a given list (e.g., Testable: “Which ball is heavier?”; Non-Testable: “Which color ball is the best?”).</p> <p>IN 1.6 Student asks a testable, science-related question (e.g., “Which car rolls faster?”)</p>
<p>Scientific inquiry includes student ability to formulate a testable question and explanation and to select appropriate investigative methods in order to obtain evidence relevant to the explanation.</p>	<p>IN 1.7 Explore a simple investigation to answer a question (e.g., “Upon which ramp the marble go will faster?” or “Which material is magnetic?”).</p>	<p>IN 1.7 Explore a simple investigation to answer a question (e.g., “Upon which ramp the marble go will faster?” or “Which material is magnetic?”).</p> <p>IN 1.8 Engage in a simple investigation by following one or more simple steps to answer a question.</p>	<p>IN 1.7 Explore a simple investigation to answer a question (e.g., “Upon which ramp the marble go will faster?” or “Which material is magnetic?”).</p> <p>IN 1.8 Engage in a simple investigation by following one or more simple steps to answer a question.</p> <p>IN 1.9 Conduct a simple investigation to answer a question.</p>	<p>IN 1.7 Explore a simple investigation to answer a question (e.g., “Upon which ramp the marble go will faster?” or “Which material is magnetic?”).</p> <p>IN 1.8 Engage in a simple investigation by following one or more simple steps to answer a question.</p> <p>IN 1.9 Conduct a simple investigation to answer a question.</p> <p>IN 1.10 Plan a simple investigation to answer a question.</p>

MAP-A Science

Strand 7: Scientific Inquiry (IN)

1. Scientific understanding is developed through the use of scientific process skills, scientific knowledge, scientific investigation, reasoning, and critical thinking.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
B.	IN 2.1 Explore objects in order to make qualitative observations (e.g., the ball is big; ice is cold; and/or the bus is yellow).	IN 2.1 Explore objects in order to make qualitative observations (e.g., the ball is big; ice is cold; and/or the bus is yellow).	IN 2.1 Explore objects in order to make qualitative observations (e.g., the ball is big; ice is cold; and/or the bus is yellow).	IN 2.1 Explore objects in order to make qualitative observations (e.g., the ball is big; ice is cold; and/or the bus is yellow).
Scientific inquiry relies upon gathering evidence from qualitative and quantitative observations.	IN 2.2 Explore simple tools and equipment (e.g., magnifiers/hand lenses, magnets, and/or equal arm balances).	IN 2.2 Explore simple tools and equipment (e.g., magnifiers/hand lenses, magnets, and/or equal arm balances).	IN 2.2 Explore simple tools and equipment (e.g., magnifiers/hand lenses, magnets, and/or equal arm balances).	IN 2.2 Explore simple tools and equipment (e.g., magnifiers/hand lenses, magnets, and/or equal arm balances).
	IN 2.6 Engage in an activity to measure with non-standard units (e.g., lining paperclips end to end, and/or using hands or feet as units of measure).	IN 2.3 Engage in scientific observations using simple tools, equipment, and/or techniques (e.g., magnifiers/hand lenses, magnets, and/or equal arm balances).	IN 2.3 Engage in scientific observations using simple tools, equipment, and/or techniques (e.g., magnifiers/hand lenses, magnets, and/or equal arm balances).	IN 2.3 Engage in scientific observations using simple tools, equipment, and/or techniques (e.g., magnifiers/hand lenses, magnets, and/or equal arm balances).
		IN 2.4 Identify the appropriate tools to collect data (e.g., ruler, scale, thermometer, and/or measuring cup).	IN 2.4 Identify the appropriate tools to collect data (e.g., ruler, scale, thermometer, and/or measuring cup).	IN 2.4 Identify the appropriate tools to collect data (e.g., ruler, scale, thermometer, and/or measuring cup).
		IN 2.5 Use the appropriate tools to collect data (e.g., using a thermometer to correctly identify the temperature).	IN 2.5 Use the appropriate tools to collect data (e.g., using a thermometer to correctly identify the temperature).	IN 2.5 Use the appropriate tools to collect data (e.g., using a thermometer to correctly identify the temperature).
		IN 2.6 Engage in an activity to measure with non-standard units (e.g., lining paperclips end to end, and/or using hands or feet as units of measure).	IN 2.6 Engage in an activity to measure with non-standard units (e.g., lining paperclips end to end, and/or using hands or feet as units of measure).	IN 2.6 Engage in an activity to measure with non-standard units (e.g., lining paperclips end to end, and/or using hands or feet as units of measure).
		IN 2.7 Measure with non-standard units (e.g., lining paperclips end to end; using hands or feet as units of measure; and/or using marbles as weight units with an equal arm balance and varying size containers).	IN 2.7 Measure with non-standard units (e.g., lining paperclips end to end; using hands or feet as units of measure; and/or using marbles as weight units with an equal arm balance and varying size containers).	IN 2.7 Measure with non-standard units (e.g., lining paperclips end to end; using hands or feet as units of measure; and/or using marbles as weight units with an equal arm balance and varying size containers).
		IN 2.8 Measure one or more of the following with the appropriate unit: length, weight, temperature, and/or volume.	IN 2.8 Measure one or more of the following with the appropriate unit: length, weight, temperature, and/or volume.	IN 2.8 Measure one or more of the following with the appropriate unit: length, weight, temperature, and/or volume.
		IN 2.9 Identify whether measurements and quantities are reasonable.	IN 2.9 Identify whether measurements and quantities are reasonable.	IN 2.9 Identify whether measurements and quantities are reasonable.

MAP-A Science

Strand 7: Scientific Inquiry (IN)

1. Scientific understanding is developed through the use of scientific process skills, scientific knowledge, scientific investigation, reasoning, and critical thinking.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
C.	<p>IN 3.1 Explore observations as support for reasonable explanation (e.g., Teacher states, “We have three students absent today. How do we know how many students are absent?”).</p>	<p>IN 3.1 Explore observations as support for reasonable explanation (e.g., Teacher states, “We have three students absent today. How do we know how many students are absent?”).</p> <p>IN 3.2 Identify observations as support for reasonable explanation (e.g., Teacher prompts “Why is it warmer today?” and the student chooses from a list of responses.).</p>	<p>IN 3.1 Explore observations as support for reasonable explanation (e.g., Teacher states, “We have three students absent today. How do we know how many students are absent?”).</p> <p>IN 3.2 Identify observations as support for reasonable explanation (e.g., Teacher prompts “Why is it warmer today?” and the student chooses from a list of responses.).</p> <p>IN 3.3 Use data as support for reasonable explanation (e.g., Wearing a coat is necessary when it is cold outside.).</p> <p>IN 3.4 Use observations and data to describe relationships and/or patterns (e.g., The steeper the hill, the faster a car will roll down it.).</p>	<p>IN 3.1 Explore observations as support for reasonable explanation (e.g., Teacher states, “We have three students absent today. How do we know how many students are absent?”).</p> <p>IN 3.2 Identify observations as support for reasonable explanation (e.g., Teacher prompts “Why is it warmer today?” and the student chooses from a list of responses.).</p> <p>IN 3.3 Use data as support for reasonable explanation (e.g., Wearing a coat is necessary when it is cold outside.).</p> <p>IN 3.4 Use observations and data to describe relationships and/or patterns (e.g., The steeper the hill, the faster a car will roll down it.).</p> <p>IN 3.5 Use observations and data to make predictions.</p>
Evidence is used to formulate explanations.				

MAP-A Science

Strand 7: Scientific Inquiry (IN)

1. Scientific understanding is developed through the use of scientific process skills, scientific knowledge, scientific investigation, reasoning, and critical thinking.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
D.		<p>IN 4.1 Identify explanations using prior knowledge (e.g., Using personal experiences, the teacher says “recess is cancelled,” and the student chooses the reason “Because it’s raining.”).</p>	<p>IN 4.1 Identify explanations using prior knowledge (e.g., Using personal experiences, the teacher says “recess is cancelled,” and the student chooses the reason “Because it’s raining.”).</p> <p>IN 4.2 Make explanations using prior knowledge (e.g., Using personal experiences, the teacher says “It’s time to change classes,” and the student responds with a reason, “Because the bell rang.”).</p>	<p>IN 4.1 Identify explanations using prior knowledge (e.g., Using personal experiences, the teacher says “recess is cancelled,” and the student chooses the reason “Because it’s raining.”).</p> <p>IN 4.2 Make explanations using prior knowledge (e.g., Using personal experiences, the teacher says “It’s time to change classes,” and the student responds with a reason, “Because the bell rang.”).</p> <p>IN 4.3 Identify the reasonableness of an explanation (e.g., “Is it reasonable that it would snow when it is 100 degrees outside?”).</p>
Scientific inquiry includes evaluation of explanations (hypotheses, laws, and theories) in light of scientific principles (understandings).				

MAP-A Science

Strand 7: Scientific Inquiry (IN)

1. Scientific understanding is developed through the use of scientific process skills, scientific knowledge, scientific investigation, reasoning, and critical thinking.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
E.	IN 5.1 Communicate observations and/or events using words, symbols, pictures, objects, and/or actions (e.g., describing the weather as sunny, cloudy, rainy, and windy; or drawing a landscape as a mountain, river, trees, rocks, and/or soil).	IN 5.1 Communicate observations and/or events using words, symbols, pictures, objects, and/or actions (e.g., describing the weather as sunny, cloudy, rainy, and windy; or drawing a landscape as a mountain, river, trees, rocks, and/or soil). IN 5.2 Communicate simple procedures using words, symbols, pictures, objects, and/or actions (e.g., separating the nuts from the trail mix due to food allergies).	IN 5.1 Communicate observations and/or events using words, symbols, pictures, objects, and/or actions (e.g., describing the weather as sunny, cloudy, rainy, and windy; or drawing a landscape as a mountain, river, trees, rocks, and/or soil). IN 5.2 Communicate simple procedures using words, symbols, pictures, objects, and/or actions (e.g., separating the nuts from the trail mix due to food allergies). IN 5.3 Communicate the results of an investigation using words, symbols, pictures, objects, and/or actions (e.g., using data tables and/or graphs).	IN 5.1 Communicate observations and/or events using words, symbols, pictures, objects, and/or actions (e.g., describing the weather as sunny, cloudy, rainy, and windy; or drawing a landscape as a mountain, river, trees, rocks, and/or soil). IN 5.2 Communicate simple procedures using words, symbols, pictures, objects, and/or actions (e.g., separating the nuts from the trail mix due to food allergies). IN 5.3 Communicate the results of an investigation using words, symbols, pictures, objects, and/or actions (e.g., using data tables and/or graphs). IN 5.4 Communicate explanations using words, symbols, pictures, objects, and/or actions.
The nature of science relies upon communication of results and justification of explanations.				

MAP-A Science

Strand 8: Impacts of Science, Technology, and Human Activity (ST)

1. The nature of technology can advance, and is advanced by, science as it seeks to apply scientific knowledge in ways that meet human needs.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
A.	ST 1.1 Explore objects that occur in nature in their natural environments (e.g., soil, rock, trees, and/or water).	ST 1.1 Explore objects that occur in nature in their natural environments (e.g., soil, rock, trees, and/or water).	ST 1.1 Explore objects that occur in nature in their natural environments (e.g., soil, rock, trees, and/or water).	ST 1.1 Explore objects that occur in nature in their natural environments (e.g., soil, rock, trees, and/or water).
Designed objects are used to do things better or more easily and to do some things that, otherwise, could not be done at all.	ST 1.2 Explore objects that have been designed and made by people (e.g., houses, cars, airplanes, pencils, and/or telephones).	ST 1.2 Explore objects that have been designed and made by people (e.g., houses, cars, airplanes, pencils, and/or telephones).	ST 1.2 Explore objects that have been designed and made by people (e.g., houses, cars, airplanes, pencils, and/or telephones).	ST 1.2 Explore objects that have been designed and made by people (e.g., houses, cars, airplanes, pencils, and/or telephones).
		ST1.3 Engage in an activity with objects that occur in nature and are made by man (e.g., putting bird seed in a manmade bird feeder).	ST1.3 Engage in an activity with objects that occur in nature and are made by man (e.g., putting bird seed in a manmade bird feeder).	ST1.3 Engage in an activity with objects that occur in nature and are made by man (e.g., putting bird seed in a manmade bird feeder).
			ST 1.4 Identify objects that occur in nature.	ST 1.4 Identify objects that occur in nature.
			ST 1.5 Identify objects that have been designed and/or made by people to solve human problems (e.g., wheels and books) and/or to enhance quality of life (e.g., wheelchairs and elevators).	ST 1.5 Identify objects that have been designed and/or made by people to solve human problems (e.g., wheels and books) and/or to enhance quality of life (e.g., wheelchairs and elevators).
				ST 1.6 Explore how technological improvements lead to changes in everyday life (e.g., microwaves are faster than conventional ovens; transportation; assistive technology; computers; and/or Velcro on sneakers).

MAP-A Science

Strand 8: Impacts of Science, Technology, and Human Activity (ST)

1. The nature of technology can advance, and is advanced by, science as it seeks to apply scientific knowledge in ways that meet human needs.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
B.			<p>ST 2.1 Identify positive and/or negative effects of communication technologies (e.g., Positive: mobile phones can be used during an emergency in remote areas; Negative: using a mobile phone while driving a car can be dangerous).</p> <p>ST 2.2 Identify positive and/or negative effects of transportation technologies (e.g., Positive: cars, trains, and airplanes can reduce travel and shipping time; Negative: types of transportation can increase noise and air pollution).</p> <p>ST 2.3 Identify the effects in the advances of weather observation and prediction (e.g., Doppler radar offers early warning of potential storms; satellite images contribute to the forecast to help farmers plant and harvest crops).</p>	<p>ST 2.1 Identify positive and/or negative effects of communication technologies (e.g., Positive: mobile phones can be used during an emergency in remote areas; Negative: using a mobile phone while driving a car can be dangerous).</p> <p>ST 2.2 Identify positive and/or negative effects of transportation technologies (e.g., Positive: cars, trains, and airplanes can reduce travel and shipping time; Negative: types of transportation can increase noise and air pollution).</p> <p>ST 2.3 Identify the effects in the advances of weather observation and prediction (e.g., Doppler radar offers early warning of potential storms; satellite images contribute to the forecast to help farmers plant and harvest crops).</p>
Technological solutions to problems often have drawbacks as well as benefits.				

MAP-A Science

Strand 8: Impacts of Science, Technology, and Human Activity (ST)

3. Science and technology affect, and are affected by, society.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
A.	ST 3.1 Engage in an activity that uses scientific discoveries and technological advances which enhance the quality of human life (e.g., wheelchairs, switches, and/or assistive technologies).	ST 3.1 Engage in an activity that uses scientific discoveries and technological advances which enhance the quality of human life (e.g., wheelchairs, switches, and/or assistive technologies).	ST 3.1 Engage in an activity that uses scientific discoveries and technological advances which enhance the quality of human life (e.g., wheelchairs, switches, and/or assistive technologies).	ST 3.1 Engage in an activity that uses scientific discoveries and technological advances which enhance the quality of human life (e.g., wheelchairs, switches, and/or assistive technologies).
	People, alone or in groups, are always making discoveries about nature and inventing new ways to solve problems and get work done.		ST 3.2 Identify scientific discoveries and technological advances which enhance the quality of human life (e.g., wheelchairs, switches, and/or assistive technologies).	ST 3.2 Identify scientific discoveries and technological advances which enhance the quality of human life (e.g., wheelchairs, switches, and/or assistive technologies).

MAP-A Science

Strand 8: Impacts of Science, Technology, and Human Activity (ST)

3. Science and technology affect, and are affected by, society.				
	Grades K–2	Grades 3–5	Grades 6–8	Grades 9–12
B.		<p>ST 4.1 Explore science and technology as it pertains to improving the environment (e.g., can crushers and/or refillable dispensers).</p>	<p>ST 4.1 Explore science and technology as it pertains to improving the environment (e.g., can crushers and/or refillable dispensers).</p> <p>ST4.2 Identify the scientific technology used to overcome physical limitations (e.g., wheelchairs, restroom handrails, adaptive utensils, and/or touch screen computers).</p> <p>ST 4.3 Identify solutions to environmental problems using scientific technology (e.g., rechargeable batteries, recycling, and/or composting).</p>	<p>ST 4.1 Explore science and technology as it pertains to improving the environment (e.g., can crushers and/or refillable dispensers).</p> <p>ST4.2 Identify the scientific technology used to overcome physical limitations (e.g., wheelchairs, restroom handrails, adaptive utensils, and/or touch screen computers).</p> <p>ST 4.3 Identify solutions to environmental problems using scientific technology (e.g., rechargeable batteries, recycling, and/or composting).</p>
Social, political, economic, ethical, and environmental factors strongly influence, and are influenced by, the direction and progress of science and technology.				

MAP-A Science

Science and Technology

GLOSSARY

- **Abiotic:** pertaining to the non-living part of the environment.
- **Adaptation:** the development of physical and behavioral characteristics that allow organisms to survive and reproduce in their habitats.
- **Asexual reproduction:** reproduction that does not include the union of sex cells and in which one parent produces offspring that are genetically identical to the parent.
- **Atmosphere (air):** consists of all the gaseous matter enveloping and surrounding Earth.
- **Balance:** an instrument used to measure the mass of an object.
- **Biodiversity:** the number and variety of organisms found in a particular habitat or ecosystem.
- **Biotic:** pertaining to the living part of the environment.
- **Carnivores:** meat eaters.
- **Cell:** the basic building block for all organisms.
- **Chemical change:** when one or more substances are changed into new substance(s) with new and different properties.
- **Circulatory system:** a collection of organs (e.g., heart, arteries, veins) that move blood throughout an organism.
- **Community:** a group of plants and animals living and interacting with one another in the same ecosystem.
- **Condensation:** the physical change of matter going from a gaseous state to a liquid state.
- **Consumer:** an organism that feeds on other organisms or on material derived from them.
- **Crescent moon:** as being observed on Earth less than half of the Moon is reflecting light.
- **Decomposer:** an organism, especially a bacterium or fungus that causes organic matter to rot or decay.
- **Deposition:** when transported earth materials are dropped in another location.
- **Displacement:** the weight or volume of fluid displaced by a floating or submerged body.
- **Ecosystem:** a localized group of interdependent organisms together with the environment that they inhabit and depend on.
- **Electromagnetic spectrum:** energy in wave form that can be transmitted through a vacuum or different medium.
- **Erosion:** movement of weathered rock and soil.
- **Evaporation:** the process by which a liquid becomes a gas (vapor).
- **Fission:** an asexual reproductive process in which a unicellular organism divides into two or more independently maturing daughter cells.
- **Food chain:** a hierarchy of different living things, each of which feeds on the one below.
- **Food web:** the interlinking food chains within an ecological community.
- **Force:** a quantity that produces an acceleration in the direction of its application; it is directly proportional to mass and acceleration ($F = M \times A$).
- **Fossil:** the traces or remains of an animal or plant preserved from an earlier era inside a rock or other geological deposit, often as an impression or in a petrified state.
- **Friction:** a force that resists the relative motion or tendency to such motion of two bodies in contact.
- **Full moon:** the entire face of the Moon is reflecting light as being observed on Earth.
- **Gas:** matter that has no definite shape or volume.
- **Genetic information:** hereditary information that is unique to an organism and is stored in sequences within DNA molecules.
- **Geosphere (land):** also known as lithosphere, the outer part of the Earth that is solid, consisting of the crust and upper mantle.
- **Gibbous moon:** more than half of the Moon as being observed on Earth is reflecting light.

- **Gravity:** a force that acts to pull objects together.
- **Habitat:** part of an ecosystem where organisms get food and shelter.
- **Herbivores:** plant eaters.

MAP-A Science

- **Hibernation:** a sleeplike dormant state over the winter during which an organism lives off reserves of body fat, with a decrease in body temperature and pulse rate and slower metabolism.
- **Humidity:** amount of water vapor in the atmosphere.
- **Hydrosphere (water):** consists of all the water (solid, liquid, and gas) on Earth.
- **Igneous rock:** a rock that forms when melted rock (lava or magma) cools and crystallizes.
- **Life cycle:** the complete process of change and development during an organism's lifetime.
- **Liquid:** matter that has a definite volume but takes the shape of the container holding it.
- **Living:** anything that utilizes energy to grow, respond to stimuli, move, respire, and eliminate waste.
- **Lunar eclipse:** the Moon appears dark when sunlight is blocked by Earth.
- **Mass:** the amount of matter in something.
- **Matter:** anything that has mass and takes up space.
- **Metamorphic rock:** a rock that forms when other rocks are changed by intense heat and pressure.
- **Metamorphosis:** to undergo a complete or marked change of bodily form while developing into an adult animal.
- **Migration:** the seasonal movement of organisms from one location to another.
- **Mixture:** a combination of two or more substances that are not combined chemically but can be separated by physical means (e.g., beach sand, peas and carrots).
- **Moon phases:** shapes of the light-reflecting part of the Moon as being observed on Earth.
- **Natural selection:** changes in a population as a response to changes in their environment over time.
- **Non-living:** anything that does not (or never did) exhibit the characteristics of living things.
- **Offspring:** the descendants of organisms.
- **Omnivores:** organisms that consume both plants and meat.
- **Orbiting:** an object travels around another object in a circular or an elliptical path.
- **Organ system:** a system, such as circulatory, digestive, or respiratory, that consists of a collection of organs to perform a specific function.
- **Organ:** a differentiated part of an organism, such as an eye, heart, or leaf that performs a specific function.
- **Organism:** a living thing.
- **Photosynthesis:** a process by which green plants and other organisms produce simple sugars and oxygen from carbon dioxide and water, using energy that chlorophyll or other pigments absorb from the Sun.
- **Photovoltaic cell:** a semiconductor that transforms light energy directly to electrical energy.
- **Physical change:** a change of matter from one form to another without a change in chemical properties.
- **Physical property:** a characteristic of matter that does not involve a chemical change, such as density, color, or hardness.
- **Population:** organisms of the same species in a specified habitat.

- **Precipitation:** any form of water that falls to earth from a cloud.
- **Producer:** an organism that provides (makes) its own food (e.g., plants).
- **Quarter moon:** half of the Moon's face as observed from Earth is reflecting light.
- **Reproduce:** to produce offspring or new individuals through a sexual or an asexual process.
- **Revolve:** going around an object in a circular or an elliptical path.
- **Rotate:** spinning around an axis.
- **Runoff:** water that flows over the land surface outside of a channel.
- **Satellite (natural and artificial):** a smaller object that orbits a larger, more massive object.
- **Scale:** an instrument used to measure the weight or force of an object (e.g., a spring scale).

MAP-A Science

- **Seasons:** a period of time characterized by weather and other natural events caused by the tilt of Earth's axis as it is orbiting the Sun.
- **Sediment:** pieces of rocks.
- **Sedimentary rock:** a rock that forms through cementation of sediments or through processes such as evaporation and compaction.
- **Sexual reproduction:** reproduction that involves the union of male and female reproductive cells, each contributing half of the genetic makeup of the resulting offspring.
- **Simple machine:** a simple device, such as a lever, pulley, inclined plane, or a wheel and axle.
- **Skeletal system:** a collection of organs (e.g., bones, hard outer shells for insects) that provide structural support for an organism.
- **Solar eclipse:** the Sun appears dark when sunlight is blocked by the Moon.
- **Solution:** a homogenous mixture in which one substance dissolves into another.
- **Speed:** distance traveled per unit time.
- **Survival:** to manage to stay alive or continue to exist, especially in difficult situations.
- **Waning:** the light-reflecting part of the Moon is shrinking.
- **Water cycle:** a model describing the movement of water in, on, and above the earth.
- **Waxing:** the light-reflecting part of the Moon is getting larger.
- **Weathering:** a slow and continuous process of breaking down rocks chemically or mechanically.
- **Weight:** measure of the force of gravity on an object or the amount of matter (mass) as weighed on Earth.
- **Work:** the transfer of energy to a body by the application of a force that moves the body in the direction of the force ($W = F \times d$).