cognia™

Formative Assessments

Formative Item Sets Overview

STEM

Grades 3–8

COGNIA ASSESSMENTS

Table of Contents

Formative Item Sets—STEM 1

Purpose 1

Item Set Components 1

Design Specifications 2

Items 2

STEM Item Set Index 3

Grade 3 | Formative Item Sets 4

Grade 4 | Formative Item Sets 13

Grade 5 | Formative Item Sets 22

Grades 6–8 | Formative Item Sets 30

Revised 08/20

Formative Item Sets—STEM

Purpose

Cognia formative item sets are designed to help teachers quickly gauge students' understanding of key concepts and skills that are emphasized by the Next Generation Science Standards (NGSS). The item sets support formative assessment practices and provide evidence of student understanding. Educators may administer the items (questions) as frequently as they like to engage students in the learning and quickly generate data that can be used to inform instruction.

Number of Item Sets per Grade Level					
Grade	3	4	5	6–8	Total
Sets	15	14	13	55	97

Item Set Components

Each formative item set includes the following three components:

- **Blueprints**—Outline the specifications of each item set and include the following elements for each item:
  - Next Generation Science Standards
  - The domain, topic, and perfomance expectation
  - Learning targets, to clarify learning expectations for students
  - DOK (depth of knowledge) level for each item
  - Item type
  - Position of the item within the item set
- **Scoring Guide**—Materials for the teacher to score student responses. Elements of the scoring guide include:
  - Answer key
  - Distractor rationales that describe the misconception associated with the answer option
  - Scoring rubric
  - Scoring notes
- **Student Item Set**—Printable forms that can be downloaded from the Formative Content Library for students to record their responses.

Design Specifications

Each STEM item set aligns to an NGSS performance expectation. STEM item sets are designed to help educators integrate formative assessment into instruction while learning is still occurring.

Each STEM item set assesses a range of cognitive complexities and encourages students to apply their understanding of key skills and concepts.

Items

Each STEM item set consists of multiple-choice, constructed-response, and/or extended-response items.

Item Details

The following table provides the approximate administration time for each item type.

Item Type	Number of Points	Administration Time (minutes)
Multiple Choice (MC)	1	1–2
Constructed Response (CR)	2	8-10
Extended Response (ER)	3	10–12

Depth of Knowledge

Each item is coded to a depth of knowledge level, from level 1 through level 4. A description of an example of the expectations at each level is provided below.

DOK	Description
Level 4	Using extended thinking to synthesize information or apply it to real-world applications.
Level 3	Employing strategic thinking through the use of reasoning or decision making.
Level 2	Conceptual knowledge, or the ability to put facts into context.
Level 1	The ability to recall facts.

STEM
Item Set Index

The following tables provide domain, topic, number of items and item types, Depth of Knowledge and learning targets for each item set by grade level.

Grade 3 | Formative Item Sets

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Forces and Interactions 3-PS2-1	Physical Science	Forces and Interactions	1	MC	2	I can identify that the results of an investigation provide information about how balanced and unbalanced forces affect the motion of an object.
			2	MC	2	I can use the results of an investigation to explain why the forces on an object are unbalanced.
			3	CR	2	I can predict the motion of an object when the forces on the object are balanced and describe how to do an investigation to get information about how unbalanced forces affect the motion of the object.
			4	ER	2	I can use the results of an investigation to make a claim about whether the forces on an object are balanced and unbalanced. I can plan an investigation to get information about how changing the forces on an object affects the motion of an object.
			5	ER	2	I can identify when forces are balanced and use the results of an investigation to describe how unbalanced forces affect the motion of an object. I can plan an investigation to see how balanced and unbalanced forces affect the motion of an object.
			6	ER	3	I can plan an investigation to test a claim about how unbalanced forces affect the motion of an object and explain how the investigation tests the claim.
			7	ER	3	I can plan an investigation to get information about how different forces affect the motion of an object and use the results of the investigation to support the claim that different forces affect motion.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Forces and Interactions 3-PS2-2	Physical Science	Forces and Interactions	1	MC	2	I can use patterns in the measurements of objects' motion to predict how the objects will move.
			2	MC	2	I can use patterns in the measurements of objects' motion to predict how the objects will move.
			3	MC	2	I can use patterns in the measurements of objects' motion to predict how the objects will move.
			4	CR	3	I can decide how to make measurements of objects' motion and explain how to use the pattern in the measurements to predict how the objects will move.
			5	CR	3	I can use measurements of objects' motion to predict how the objects will move and explain the pattern in the measurements that supports the prediction.
			6	CR	3	I can use measurements of objects' motion to predict how the objects will move and explain the pattern in the measurements that supports the prediction.
Forces and Interactions 3-PS2-3	Physical Science	Forces and Interactions	1	MC	2	I can ask a question to find out how cause and effect relates to electric forces between two objects that are not touching.
			2	MC	2	I can ask a question to find out how cause and effect relates to electric forces between two objects that are not touching.
			3	CR	2	I can ask a question to find out how cause and effect relates to magnetic forces between two objects that are not touching and about factors that affect the force between the magnets.
			4	CR	2	I can ask a question to find out how cause and effect relates to electric forces between two objects that are not touching and about factors that affect the electric force between the charged objects.
			5	CR	2	I can ask questions to find out how cause and effect relates to magnetic forces between two objects that are not touching and about a factor that affects the force between the objects.
			6	CR	2	I can ask a question to find out how cause and effect relates to magnetic forces between two objects that are not touching.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Forces and Interactions 3-PS2-4	Physical Science	Forces and Interactions	1	MC	2	I can identify a design problem that can be solved by using the properties of magnets.
			2	MC	2	I can identify a design problem that can be solved by using the properties of magnets.
			3	CR	2	I can describe how to improve the solution to a design problem by using properties of magnets.
			4	CR	3	I can identify magnets as the solution to a design problem and explain how properties of magnets could solve the problem.
			5	CR	3	I can describe how to solve a design problem by using properties of magnets and explain how magnets could solve the problem.
			6	ER	3	I can identify a design problem that can be solved by using properties of magnets, explain how magnets could solve the problem, and describe a constraint on possible solutions to the problem.
Inheritance Variation Traits 3-LS1-1	Life Science	Inheritance and Variation of Traits	1	MC	2	I can use a model to show that all living things grow and reproduce.
			2	MC	2	I can use models to describe that all living things grow.
			3	CR	2	I can make and use models to describe a life cycle and predict what would happen to a life cycle if reproduction does not occur.
			4	CR	2	I can make and use a model to describe a life cycle and predict what would happen to a life cycle if reproduction does not occur.
			5	ER	2	I can make and use models to describe a life cycle and explain how living things continue to be born, grow, and reproduce over time.
			6	ER	2	I can make and use models to describe a life cycle and predict what would happen to a life cycle if reproduction does not occur.
			7	CR	2	I can make and use models to describe how a life cycle model should be changed to make it complete and explain what would happen to a life cycle if reproduction does not occur.
			8	MC	2	I can use models to describe similarities between the life cycles of different organisms.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Inheritance Variation Traits 3-LS3-1	Life Science	Inheritance and Variation of Traits	1	MC	2	I can find patterns in data to show that plants inherit traits and describe how a group of similar living things may show many different forms of the same traits.
			2	MC	2	I can find patterns in data to show that animals inherit traits from parents and describe that similar living things can inherit traits that are different from the traits of both parents.
			3	CR	2	I can find patterns in data to show animals inherit from parents and that a group of similar living things may show different forms of the same traits.
			4	CR	2	I can find patterns in data to show animals inherit from parents and that a group of similar living things may show different forms of the same traits.
			5	CR	2	I can find patterns in data to determine that a trait is inherited and describe that living things may look different than both parents.
			6	ER	2	I can find patterns in data to describe what traits animals inherit from parents and explain that animals inherit traits from parents.
Inheritance Variation Trait 3-LS3-2	Life Science	Inheritance and Variation of Traits	1	MC	2	I can use information to explain that a trait is inherited and can be affected by the environment.
			2	CR	2	I can use information to explain that the environment can cause an effect on a trait.
			3	CR	2	I can use information to explain that the environment can cause an effect on a trait.
			4	CR	2	I can use information to make and explain a claim about how the environment can affect a trait.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Inheritance Variation Traits 3-LS4-2	Life Science	Inheritance and Variation of Traits	1	CR	2	I can use information to identify why some living things have certain traits and explain what would happen without these traits because they make it more likely that a living thing will survive and reproduce than others of the same kind.
			2	MC	3	I can use information to explain how differences in traits make it harder or easier for some living things to survive, find mates, and reproduce than others of the same kind.
			3	CR	3	I can use information to explain how certain traits make it easier for some living things to survive and reproduce than others of the same kind.
			4	ER	3	I can use information to explain how differences in traits make it harder or easier for some living things to survive more than others of the same kind.
			5	ER	3	I can represent information graphically and explain how differences in traits make it harder or easier for some living things to survive more than others of the same kind.
Interdependent Rel Ecosystems 3-LS2-1	Life Science	Interdependent Relationships in Ecosystems	1	MC	2	I can use evidence to support a claim that being part of a group helps animals survive.
			2	MC	2	I can use evidence to support a claim that being part of a group helps animals survive.
			3	CR	2	I can identify and provide evidence to support a claim that being part of a group helps animals survive.
			4	CR	2	I can identify and explain evidence to support a claim that being part of a group helps animals survive.
			5	ER	3	I can use evidence to make and support a claim that being part of a group helps animals survive.
			6	ER	3	I can use and provide evidence to make and support a claim that being part of a group helps animals survive.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Interdependent Rel Ecosystems 3-LS4-1	Life Science	Interdependent Relationships in Ecosystems	1	MC	2	I can study and use information to help describe the environments where organisms lived long ago.
			2	MC	2	I can study and use information about fossils to support a claim to help describe the environments where organisms lived long ago.
			3	CR	2	I can study and use information about fossils to help describe the environment where organisms lived long ago.
			4	ER	3	I can study and use information about fossils to help describe an organism that lived long ago.
			5	ER	3	I can study and use information about fossils to help describe the environment where an organism lived long ago and support a claim to help describe an organism.
			6	ER	3	I can study and use information about fossils to help describe an organism that lived long ago and the environment where it lived.
Interdependent Rel Ecosystems 3-LS4-3	Life Science	Interdependent Relationships in Ecosystems	1	MC	2	I can use evidence to support a claim that in a certain habitat some organisms can survive well, some organisms survive less well, and some organisms cannot survive at all.
			2	MC	2	I can use evidence to identify information that does not support a claim that in a certain habitat some organisms can survive well, some organisms survive less well, and some organisms cannot survive at all.
			3	CR	2	I can use evidence to make and support a claim that in a certain habitat some organisms survive well and some organisms survive less well.
			4	ER	2	I can use evidence to make and support a claim that in a certain habitat an organism can survive well.
			5	ER	3	I can use evidence to support a claim that in a certain habitat some organisms can survive well, some organisms survive less well, and some organisms cannot survive at all.
			6	ER	3	I can use evidence to make and support a claim that in a certain habitat some organisms can survive well and some organisms survive less well.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Interdependent Rel Ecosystems 3-LS4-4	Life Science	Interdependent Relationships in Ecosystems	1	MC	2	I can support a claim about how well an answer fixes a problem caused by a change in the environment that may change the types of plants and animals that live there.
			2	MC	2	I can support a claim about how well an answer fixes a problem caused by a change in the environment that may change the types of animals that live there.
			3	ER	2	I can make and support a claim about how well an answer fixes a problem caused by a change in the environment that may change the types of animals that live there.
			4	ER	2	I can make and support a claim about how well an answer fixes a problem caused by a change in the environment that may change the types of plants and animals that live there.
			5	ER	3	I can make and support a claim about how well an answer fixes a problem caused by a change in the environment that may change the types of animals that live there.
Weather and Climate 3-ESS2-1	Earth Science	Weather and Climate	1	MC	2	I can use data about rainfall during a month to make a picture graph that predicts rainfall during that month next year.
			2	MC	2	I can use a table of high and low temperatures for one day to predict high temperature on that day next year.
			3	MC	2	I can use bar graphs of high and low temperatures for each month to describe temperature patterns during a year.
			4	MC	2	I can identify the rainfall data needed to predict rainfall during one month of the year.
			5	CR	2	I can use a graph to identify the seasons and tell about common weather conditions to expect during different seasons.
			6	CR	3	I can make a picture graph of rainfall in each month and explain how to use the graph to predict the total rainfall during these months next year.
			7	ER	3	I can make and use a graph to tell about common weather conditions to expect during a particular season.
			8	ER	3	I can make and use a graph to tell about common weather conditions to expect during a particular season.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Weather and Climate 3-ESS2-2	Earth Science	Weather and Climate	1	MC	2	I can use information about temperatures and rainfall in different parts of the world to describe climate patterns in different parts of the world.
			2	CR	3	I can use information about one type of climate to describe how summer weather is alike in two different parts of the world with the same climate and explain how the information supports that description of summer weather.
			3	CR	3	I can use information about two types of climates to identify one way the climates are alike and predict the weather in one of the climates during a specific season.
			4	CR	3	I can use information about temperatures and rainfall/snowfall in one city during each season to describe the climate in that city and to predict the weather in a city with the same climate during a specific season.
			5	CR	3	I can use information about temperatures and rainfall in two cities with the same climate to describe that climate and to predict which city will have more rainfall next year.
			6	CR	3	I can use information about high and low temperatures in one town during each season to describe the climate in that town and to predict temperatures in that town during specific seasons.
			7	ER	3	I can put together information to tell about climate and predict specific seasonal weather conditions in a different part of the world.
			8	ER	3	I can put together information to tell about climates in different parts of the world.
			9	ER	3	I can put together information to tell about the climate in a different part of the world and explain how weather conditions are affected by a specific weather event.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Weather and Climate 3-ESS3-1	Earth Science	Weather and Climate	1	MC	2	I can identify evidence that would support the claim that shutters keep a house safer during a storm.
			2	MC	2	I can describe how evidence supports a claim about how well metal pipes solve the problem of flooding.
			3	CR	2	I can identify which building should have a lightning rod and explain why that building is the best place to put a lightning rod.
			4	CR	2	I can explain how growing a cover crop keeps dry topsoil from blowing off farm fields and whether farmers should grow cover crops.
			5	ER	3	I can describe dangerous problems caused by a weather event and make a claim about how well an idea works to decrease the problems caused by the weather.
			6	ER	3	I can describe a problem large storms could cause for houses near the ocean and use information to make and support a claim about how well seawalls could solve that problem.
			7	ER	3	I can identify and explain which idea best meets goals to decrease a dangerous problem caused by weather.
			8	ER	3	I can explain why a design idea decreases a dangerous problem caused by weather and explain why one design is better than others.

Grade 4 | Formative Item Sets

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Earth's Systems 4-ESS1-1	Earth Science	Earth's Systems	1	MC	2	I can use evidence from patterns of rock layers to support an explanation for changes in Earth's surface over time.
			2	CR	2	I can identify evidence from patterns of rock layers to support a claim about changes in Earth's surface over time and explain why the evidence supports the claim.
			3	CR	2	I can identify evidence from patterns of rock layers to support a claim that Earth's surface has changed over time and explain why the evidence supports the claim.
			4	CR	3	I can identify and use evidence from patterns of rock layers to describe changes in Earth's surface over time.
			5	CR	3	I can identify and use evidence from patterns of rock layers to support an explanation for changes in Earth's surface over time.
			6	ER	3	I can identify evidence from fossil patterns in rock layers to support an explanation for changes in Earth's surface over time and explain why fossil patterns can be used to describe such changes.
Earth's Systems 4-ESS2-1	Earth Science	Earth's Systems	1	MC	2	I can identify a measurement that depends on how quickly land is eroded by wind.
			2	MC	2	I can identify observations that provide evidence of weathering by vegetation.
			3	CR	2	I can make measurements to provide evidence of how quickly land is eroded by water and describe how to identify factors that affect the rate of erosion.
			4	CR	3	I can make observations to provide evidence of weathering by water and explain how the water causes weathering.
			5	CR	3	I can make measurements to provide evidence of how quickly land is eroded by water and identify and explain factors that affect the rate of erosion.
			6	CR	3	I can describe observations that provide evidence of weathering by water and ice and explain how to use those observations to describe changes in Earth's surface.
			7	ER	3	I can make observations to provide evidence of weathering by water and ice and explain how those observations support a claim.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Earth's Systems 4-ESS2-2	Earth Science	Earth's Systems	1	MC	2	I can describe how patterns in data from a map can support an explanation about an Earth feature.
			2	MC	2	I can use data from a map to describe a pattern of Earth's features.
			3	MC	2	I can use data from a map to describe a pattern of Earth's features.
			4	CR	2	I can use data from a map to describe a pattern of Earth's features and explain why observing those features is important.
			5	CR	2	I can use data from a map to describe a pattern of Earth's features and explain how the data can be used to predict that pattern.
			6	CR	2	I can describe how patterns in data from a map can be used to explain Earth's features.
Earth's Systems 4-ESS3-2	Earth Science	Earth's Systems	1	CR	2	I can compare different ways to keep people safer during a natural Earth event and think of and compare constraints on each way.
			2	CR	2	I can explain a constraint on ways to keep people safer during a natural Earth event and compare how well different ways meet that constraint.
			3	ER	2	I can explain how rain can cause a landslide and I can think of and compare different ways to keep people safer during a natural Earth event.
			4	CR	2	I can think of two ways to improve one tool that keeps people safer during a natural Earth event and explain how to find out which of the ways works better.
			5	ER	2	I can explain how predicting during a natural Earth event could keep people safer during the event, how scientists know that measurements can be used to predict the event, and I can think of criteria for making those measurements.
			6	ER	3	I can explain how melting snow can cause flooding and I can think of and compare different ways to keep people safer during a natural Earth event.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Energy 4-ESS3-1	Earth Science	Energy	1	ER	2	I can combine information to describe why something is a renewable energy resource and that uses of energy sources affect the environment.
			2	ER	2	I can combine information to describe that energy and fuels come from natural resources and how uses of energy and fuels affect the environment.
			3	ER	2	I can combine information to describe that uses of energy and fuels affect the environment and describe how people are limiting environmental damage.
			4	ER	2	I can combine information to describe that energy and fuels come from natural resources and how uses of energy and fuels affect the environment.
			5	ER	3	I can combine information to describe that energy and fuels come from natural resources and how uses of energy and fuels affect the environment.
			6	ER	3	I can combine information to describe that energy comes from natural resources and how to limit the affect of capturing energy on the environment.
			7	ER	3	I can combine information to describe that energy and fuels come from natural resources and how uses of energy and fuels affect the environment.
Energy 4-PS3-1	Physical Science	Energy	1	CR	3	I can use evidence to conclude and explain that one object was moving faster than another object.
			2	CR	3	I can describe and explain evidence that would support a claim that a faster moving object has more energy than a slower moving object.
			3	ER	3	I can use evidence to conclude and explain that a faster moving object has more energy than a slower moving object.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Energy 4-PS3-2	Physical Science	Energy	1	CR	2	I can identify and explain observations that provide evidence that energy can be transferred from place to place.
			2	CR	2	I can predict the direction of energy transfer by heat between two objects and describe evidence that would support the prediction.
			3	ER	2	I can identify and explain observations that provide evidence that electric currents transfer energy from place to place.
			4	CR	2	I can identify and explain observations that provide evidence that light transfers energy from place to place.
			5	MC	3	I can make observations to provide evidence that light transfers energy from place to place.
Energy 4-PS3-3	Physical Science	Energy	1	ER	2	I can predict the results of objects hitting each other (colliding) and explain in terms of changes in energy.
			2	ER	2	I can ask and answer questions about how energy will change when two objects hit each other (collide).
			3	ER	2	I can predict the results and describe transfers of energy when two objects hit each other (collide).
			4	CR	2	I can describe and explain evidence that would support a claim that energy is transferred when two objects collide.
			5	CR	3	I can ask questions and make predictions about how energy will change when two objects hit each other (collide).
Energy 4-PS3-4	Physical Science	Energy	1	ER	2	I can describe the change in form of energy that takes place in a device and improve the design of the device by using scientific ideas about energy.
			2	ER	3	I can explain whether a device that changes energy from one form to another meets design criteria and improve the device by using scientific ideas about energy.
			3	ER	3	I can design and describe a device that changes energy from one form to another to solve a problem and identify and explain a constraint to solving the problem.
			4	ER	3	I can test and describe a device that changes energy from one form to another and describe a criteria for the design of the device.
			5	ER	3	I can describe the conversion of energy that takes place in a device, describe a constraint to the design, and improve the device by using scientific ideas about energy.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Structure Function Info Processing 4-LS1-1	Life Science	Structure, Function, and Information Processing	1	MC	2	I can use evidence to support the claim that animals have body parts that help them survive.
			2	MC	2	I can use evidence to support the claim that plants have parts that help them survive.
			3	ER	2	I can use evidence and data to make and support claims that animals have body parts that help them survive.
			4	ER	2	I can use evidence to make and support claims that animals have body parts that help them survive.
			5	CR	2	I can use data to make and support the claim that plants have parts that help them reproduce.
			6	CR	2	I can use a model to support the claim that plants have parts that help them survive.
			7	CR	2	I can use evidence to make and support the claim that plants have parts that help them survive.
			8	CR	2	I can use evidence to make and support the claim that animals have body parts that help them survive.
			9	CR	2	I can use evidence to make and support the claim that animals have body parts that help them survive.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Structure Function Info Processing 4-LS1-2	Life Science	Structure, Function, and Information Processing	1	MC	2	I can choose a model to describe that animals use their senses to get information and that senses send information to the brain, which tells the body what to do.
			2	MC	2	I can complete a model to describe that senses send information to the brain, which tells the body what to do.
			3	MC	2	I can use a model to describe that each animal may behave differently as a result of the same information sent to the brain from the senses.
			4	CR	2	I can use a model to describe that animals use their senses to get information.
			5	CR	2	I can use a model to describe that animals use their senses to get information and that senses send information to the brain, which tells the body what to do.
			6	ER	2	I can use a model to describe that animals use their senses to get information; senses send information to the brain, which tells the body what to do; animals may behave differently as a result of the same information sent to the brain from the senses.
			7	CR	2	I can use a model to describe that animals use their senses to get information and that senses send information to the brain, which tells the body what to do.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Structure Function Info Processing 4-PS4-2	Physical Science	Structure, Function, and Information Processing	1	MC	2	I can use a model of why the moon is normally visible because light reflected by the moon enters the eye to explain why people cannot see the moon during a lunar eclipse, when there is not a direct path of light from the sun to the moon.
			2	MC	2	I can identify which model correctly shows that people can see objects only if light that hits the object enters the eye after reflecting off of a mirror.
			3	CR	2	I can make a model to describe that people can see the moon only if light reflects from the moon and enters the eye and use the model to explain why the moon is visible at night.
			4	CR	2	I can make a model with a mirror to describe that we can see objects only if light that hits the object enters the eye, and explain that light reflected off of a mirror is needed for seeing objects that do not have a direct path of light to the eye.
			5	ER	2	I can review a model and make a better, correct model to describe that people can see objects only if light reflects from the objects and enters the eye.
			6	ER	2	I can make a model to describe that people can see objects only if light reflects from the objects and enters the eye and can use the model to explain why various actions would affect a person seeing the object.
			7	ER	2	I can make a model to describe that people can see objects only if light reflects from the objects and enters the eye and can use the model to explain what might stop a person from seeing the object.
			8	ER	2	I can make a model to describe that people can only see color if that colored light reflects off of an object and enters the eye, and use this information to explain why a source of light is important to see that color.
			9	CR	2	I can make a model to show that people can only see color if that colored light reflects off of an object and enters the eye, and that all other colors are absorbed or scattered by that object.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Waves 4-PS4-1	Physical Science	Waves	1	MC	2	I can use models of waves to describe wave patterns by using the words amplitude and wavelength.
			2	MC	2	I can make and use a model of a wave to describe how a wave can cause an object to move.
			3	CR	2	I can describe how a wave can cause an object to move and how waves with different amplitudes cause an object to move.
			4	MC	2	I can use information about changes in wave speed to describe how amplitude and wavelength change.
			5	CR	2	I can use a model of a wave to describe wave patterns by using the words amplitude and wavelength.
			6	CR	2	I can explain how a wave can cause an object to move and I can make a model to show how waves with different amplitudes cause an object to move.
			7	CR	2	I can describe how a wave can cause an object to move and I can make a model to explain how a wave causes an object to move and use the model to describe how waves with different amplitudes cause an object to move.
			8	ER	2	I can use a model of a wave to describe wave patterns by using the words amplitude and wavelength and to explain how waves with different wavelengths cause an object to move.
			9	ER	2	I can use a model of a wave to describe wave patterns by using the words amplitude and wavelength and to describe patterns with different wavelengths.
			10	ER	2	I can make a model to describe wave patterns with different wavelengths and amplitudes and make a model of a sound wave to explain why sound is heard.
			11	ER	2	I can use a model of a wave to describe wave patterns by using the words amplitude and wavelength and to describe how waves with different amplitudes cause an object to move.
			12	ER	3	I can use a model to describe wave patterns with different amplitudes and to describe how waves with different amplitudes cause an object to move.
			13	CR	3	I can use a model of a wave to describe wave patterns by using the words amplitude and wavelength and to explain how a wave can cause an object to move.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Waves 4-PS4-3	Physical Science	Waves	1	MC	2	I can compare different ways to solve a problem that all use patterns to transfer information.
			2	CR	2	I can identify a criterion for solving a problem that uses patterns to transfer information and compare different ways to solve the problem.
			3	CR	2	I can identify a pattern as digital and compare different ways to solve a problem that all use patterns to transfer information.
			4	CR	2	I can compare different ways to solve a problem that all use patterns to transfer information.
			5	ER	2	I can compare different ways to solve a problem that all use patterns to transfer information and describe conditions under which one way works better or less well than other ways.
			6	ER	2	I can solve a problem by coming up with a different way to use patterns to transfer information and explaining a constraint on that way.
			7	ER	2	I can compare different ways to solve a problem that both use patterns to transfer information and explain why one way works well for a specific problem.
			8	ER	2	I can solve a problem by coming up with different ways to transfer information and describe conditions under which one way works better than the other.
			9	ER	2	I can use a code to write a message, explain why the code is a digital code, and identify a constraint on using analog codes to transfer information that is not a constraint for digital codes.
			10	ER	2	I can solve a problem by coming up with different ways to use patterns to transfer information, describe criteria for the patterns, and explain why the patterns meet one of the criteria.
			11	CR	3	I can explain how to change an analog signal into a digital signal and how to add information to an analog signal.

Grade 5 | Formative Item Sets

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Earth's Systems 5-ESS2-1	Earth Science	Earth's Systems	1	MC	2	I can use a model to identify how the biosphere affects the hydrosphere.
			2	CR	2	I can use a model to identify and explain the interactions of Earth systems.
			3	CR	2	I can use a model to explain how the hydrosphere affects the biosphere and geosphere.
			4	ER	2	I can make a model using an example of a particular phenomenon to describe how the hydrosphere affects the geosphere and how the geosphere affects the biosphere.
			5	CR	3	I can use a model to explain how the biosphere is affected by other Earth systems.
			6	ER	3	I can complete and use a model to compare interactions between the hydrosphere and atmosphere.
			7	CR	2	I can use this model to describe interactions between the hydrosphere and another Earth system.
			8	ER	3	I can make a model using an example of a particular phenomenon to show and describe ways the geosphere, atmosphere, and biosphere affect each other.
			9	ER	3	I can make a model using an example of a particular phenomenon to describe how the hydrosphere affects the geosphere.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Earth's Systems 5-ESS2-2	Earth Science	Earth's Systems	1	MC	2	I can compare the amounts of water in different locations.
			2	MC	2	I can use a graph to describe the locations where different types of water are found on Earth.
			3	CR	2	I can use a graph to describe the locations of fresh water on Earth and apply that to explain why freshwater should be conserved.
			4	CR	2	I can use a graph to explain sources of fresh water used by plants and animals.
			5	CR	2	I can describe and graph the amounts of water in different locations on Earth to show where water is stored.
			6	CR	2	I can describe and graph the amounts of water in different locations on Earth to show where water is stored.
			7	ER	2	I can use a graph of the amount of freshwater in different locations on Earth to make a claim about how the amount of freshwater relates to the total amount of water on Earth.
			8	ER	2	I can describe and graph the amounts of water in different locations on Earth to show where water is stored.
Earth's Systems 5-ESS3-1	Earth Science	Earth's Systems	1	CR	2	I can put together information about ways communities can use science ideas to help protect Earth's resources and the environment.
			2	CR	2	I can put together information about ways communities can use science ideas to help protect Earth's resources and the environment.
			3	CR	2	I can put together information about ways communities can use science ideas to help protect Earth's resources and the environment.
			4	ER	2	I can put together information about ways communities can use science ideas to help protect Earth's resources and the environment.
			5	ER	2	I can put together information about ways communities can use science ideas to help protect Earth's resources and the environment.
			6	CR	2	I can find and put together information about ways communities can use science ideas to help protect Earth's resources and the environment.
			7	ER	2	I can put together information about ways communities can use science ideas to help protect Earth's resources and the environment.
			8	MC	3	I can put together information about ways communities can use science ideas to help protect Earth's resources and the environment.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Matter Energy Organisms Ecosystems 5-LS1-1	Life Science	Matter and Energy in Organisms and Ecosystems	1	MC	2	I can support a claim using data to show that plants get the materials they need to grow mostly from air and water.
			2	MC	2	I can support a claim using information to show that plants get the materials they need to grow mostly from air and water.
			3	MC	2	I can support a claim using information to show that plants get the materials they need to grow mostly from air and water.
			4	CR	2	I can support a claim that plants get materials they need to grow mostly from air and water by analyzing data.
			5	CR	3	I can make and support a claim to show that plants get the materials they need to grow mostly from air and water.
			6	ER	3	I can support a claim to show that plants get the materials they need to grow mostly from air and water.
			7	ER	3	I can support a claim to show that plants get the materials they need to grow mostly from air and water.
			8	ER	3	I can support a claim with evidence to show that plants get the materials they need to grow mostly from air and water.
Matter Energy Organisms Ecosystems 5-LS2-1	Life Science	Matter and Energy in Organisms and Ecosystems	1	MC	2	I can use a model to support a statement that describes how matter moves among plants, animals, decomposers, and the environment.
			2	CR	2	I can complete a model to describe how matter moves among plants, animals, decomposers, and the environment.
			3	CR	2	I can complete a model to describe how matter moves among plants, animals, decomposers, and the environment.
			4	CR	2	I can make a model to describe how matter moves among plants, decomposers, and the environment.
			5	CR	2	I can make a model to describe how matter moves among plants, animals, decomposers, and the environment.
			6	ER	2	I can use a model to describe how matter moves among plants, animals, decomposers, and the environment.
			7	ER	2	I can make a model to describe how matter moves among plants, animals, decomposers, and the environment.
			8	CR	2	I can complete a model to describe how matter moves among plants, animals, and decomposers.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Matter Energy Organisms Ecosystems 5-PS3-1	Physical Science	Matter and Energy in Organisms and Ecosystems	1	MC	2	I can use a model to support a claim that energy in animals' food began as energy from the sun.
			2	MC	2	I can use a model to describe that living things' food began as energy from the sun.
			3	MC	2	I can use a model to describe that energy in plants began as energy from the sun.
			4	CR	2	I can use a model to describe that energy in animals' food began as energy from the sun.
			5	CR	2	I can use a model to describe that energy in animals' food began as energy from the sun; the sun's energy, obtained by animals in their food and obtained directly by plants, is used for repair and growth, and for animals only, motion.
			6	CR	2	I can use a model to explain that the sun's energy, obtained by animals in their food, is necessary for animals to live.
			7	CR	2	I can use models to describe that the sun's energy is obtained by animals in food and used for repair, growth, motion, and to maintain body heat, and to explain that the sun's energy is obtained directly by plants to use to make food, repair, and grow.
			8	CR	2	I can use a model to describe that the sun's energy, obtained by animals in their food, is used for body repair, growth, motion, and to maintain body warmth.
			9	ER	2	I can use a model to describe that energy in animals' food began as energy from the sun; the sun's energy, obtained by animals in their food and obtained directly by plants, is used for repair and growth, and for animals only, motion.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Space Systems 5-ESS1-1	Earth Science	Space Systems	1	CR	2	I can identify and use evidence from a model to support a claim that the distance from Earth affects how bright a star appears.
			2	ER	2	I can use data to make and support a claim about the effect of distance from Earth on how bright a star appears.
			3	CR	2	I can use data to support a claim that the distance from Earth affects how bright a star appears.
			4	CR	2	I can use data about star brightness to make a claim that the distance from Earth affects how bright a star appears.
			5	CR	2	I can use data to support a claim that the distance from Earth affects how bright a star appears.
			6	CR	3	I can use data to make a model to support a claim that the distance from Earth affects how bright a star appears and explain how the model supports the claim.
			7	ER	3	I can use evidence to make a claim about what causes different brightness in stars and describe an investigation about why the Sun is brighter than other stars and how data from that investigation could explain why the Sun is brighter than other stars.
Space Systems 5-ESS1-2	Earth Science	Space Systems	1	MC	2	I can identify bar graphs that show the pattern of daily changes in the length of a shadow.
			2	CR	2	I can explain the pattern of daily changes in the Sun's location in the sky and explain how a model of the Sun's location during a different season would be different from a given model.
			3	ER	2	I can use observations to describe and explain patterns of DAILY changes in how some stars in the night sky appear.
			4	ER	2	I can make and use a bar graph to show the pattern of daily changes in the length of shadows and explain the reason for the pattern.
			5	ER	2	I can make and use a bar graph to show the pattern of seasonal changes in the length of day and explain how the pattern supports a prediction.
			6	ER	2	I can use the direction of shadows to identify the location of the Sun and time of day and I can use data to explain daily changes in the length of shadows.
			7	ER	2	I can make and use a bar graph to show the pattern of daily changes in the direction of shadows and explain how the pattern supports a prediction.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Space Systems 5-PS2-1	Physical Science	Space Systems	1	MC	2	I can use evidence to support a (not included) claim about the direction of Earth's gravitational force.
			2	MC	2	I can describe how to collect evidence to support a (not included) claim about the direction of Earth's gravitational force.
			3	MC	2	I can describe how to collect evidence to support a (not included) claim about the direction of Earth's gravitational force.
			4	CR	2	I can identify and use evidence to support a claim that Earth's gravitational force pulls objects toward Earth's center.
			5	CR	2	I can use evidence to make and support a claim that Earth's gravitational force pulls objects toward Earth's center.
			6	CR	2	I can use evidence to make and support a claim about the direction of Earth's gravitational force.
			7	CR	2	I can identify evidence that does not support the claim that Earth's gravitational force pulls objects toward Earth's center.
			8	CR	2	I can use evidence to make and support a claim about the direction of Earth's gravitational force.
			9	ER	3	I can identify and use evidence to support a claim that Earth's gravitational force pulls objects toward Earth's center.
Structure Properties Matter 5-PS1-1	Physical Science	Structure and Properties of Matter	1	CR	2	I can make and explain a model of a substance showing that it is made up of particles too small to be seen.
			2	CR	2	I can describe a model that can be used to explain what happens to a solid substance when it dissolves in a liquid.
			3	CR	2	I can describe a model that can be used to explain what happens to a solid substance when it dissolves in a liquid.
			4	CR	2	I can describe a model that can be used to explain why air can cause objects to move.
			5	ER	2	I can make a model and explain why the model supports the claim that matter is made of particles that are too small to be seen.
			6	ER	2	I can make a model to explain the results of an investigation and support the claim that matter is made of particles that are too small to be seen.
			7	ER	2	I can use a model to explain why solid and liquid water can be seen, but not water vapor.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Structure Properties Matter 5-PS1-2	Physical Science	Structure and Properties of Matter	1	MC	2	I can predict the weight of an object that has undergone a change in state of matter.
			2	CR	2	I can predict the weight of some substances to support the claim that the total weight of matter is conserved no matter what type of change occurs when substances are mixed together.
			3	CR	2	I can predict the amount of a substance after the substance has undergone a change.
			4	ER	2	I can predict and graph the weight of a mixture and graph the weights of its components to support the claim that the total weight of matter is conserved when materials are mixed together.
			5	ER	2	I can predict and graph weights of some substances to support the claim that the total weight of matter is conserved no matter what type of change occurs during heating, cooling, or mixing materials.
			6	ER	2	I can predict and graph weights of some substances to support the claim that the total weight of matter is conserved no matter what type of change occurs during heating and cooling.
Structure Properties Matter 5-PS1-3	Physical Science	Structure and Properties of Matter	1	CR	2	I can identify the property of a material that can be observed by an investigation and describe results of the investigation that would support the material having that property.
			2	CR	2	I can use measurements of properties to explain how the measurements can be used to identify a material.
			3	ER	2	I can use observations of properties to choose the best test for identifying a substance.
			4	ER	2	I can use observations of properties to describe tests that can be used to identify materials.
			5	ER	2	I can identify the property of a material that can be observed by an investigation, plan an investigation, and identify appropriate units of measure for the investigation.
			6	ER	3	I can use measurements of properties to identify materials and explain why measurements of properties can be used to identify materials.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Structure Properties Matter 5-PS1-4	Physical Science	Structure and Properties of Matter	1	MC	2	I can identify evidence from an investigation that would support the claim that the mixing of two substances resulted in a new substance.
			2	CR	2	I can use evidence from an investigation to make a claim about whether mixing two substances resulted in a new substance.
			3	CR	2	I can use evidence from an investigation to make a claim about whether mixing two substances resulted in a new substance.
			4	ER	2	I can explain the reason for the steps in an investigation and explain why an observation during the investigation is evidence of a new substance forming.
			5	ER	2	I can describe variables that should be kept the same during each trial in an investigation and explain why; and describe evidence that would support a new substance forming during the investigation.
			6	ER	2	I can make a data table used to record observations during an investigation and describe how observations made during the investigation can be used to find out if mixing two substances resulted in new substances.

Grades 6–8 | Formative Item Sets

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Chemical Reactions MS-PS1-2	Physical Science	Chemical Reactions	1	MC	2	I can analyze and interpret data before and after substances interact to support a claim with evidence that a chemical reaction took place.
			2	MC	2	I can analyze and interpret data before and after substances interact to determine whether or not a chemical reaction took place and support my claim with evidence.
			3	CR	2	I can analyze and interpret data before and after substances interact to determine whether or not a chemical reaction took place and support my claim with evidence.
			4	CR	2	I can analyze and interpret data before and after substances interact to determine whether or not a chemical reaction took place, support my claim with evidence, and describe additional evidence that would support my claim.
			5	CR	2	I can analyze and interpret data before and after substances interact to determine whether or not a chemical reaction took place and support my claim with evidence.
			6	CR	2	I can analyze and interpret data before and after substances interact to support a claim with evidence that a chemical reaction took place.
			7	ER	2	I can analyze and interpret data to determine whether or not a chemical reaction took place during heating.
			8	ER	2	I can analyze and interpret data before and after substances interact to determine whether or not a chemical reaction took place and support my claim with evidence.
			9	ER	2	I can analyze and interpret data before and after substances interact to determine whether or not a chemical reaction took place and support my claim with evidence.
			10	ER	3	I can analyze and interpret data to determine whether or not a chemical reaction took place when two substances were added together.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Chemical Reactions MS-PS1-5	Physical Science	Chemical Reactions	1	MC	2	I can correct a model to represent the conservation of mass during a chemical reaction.
			2	MC	2	I can identify a model that represents the conservation of mass during a chemical reaction.
			3	MC	2	I can describe a model that represents the conservation of mass during a chemical reaction.
			4	CR	2	I can complete a model to describe the conservation of mass during a chemical reaction.
			5	CR	2	I can use a model to describe conservation of mass during a chemical reaction.
			6	CR	2	I can use a model to describe evidence that would support the conservation of mass during a chemical reaction.
			7	ER	3	I can develop a model to describe the conservation of mass during a chemical reaction.
Chemical Reactions MS-PS1-6	Physical Science	Chemical Reactions	1	MC	2	I can modify a device that releases energy by chemical processes to solve a problem.
			2	CR	2	I can describe the function of a device that releases heat energy by chemical processes and describe a limitation for the device.
			3	CR	2	I can modify a device that releases energy by chemical processes to solve a problem.
			4	ER	2	I can describe criteria for a device that releases heat energy by chemical processes.
			5	ER	2	I can describe the function of a device that releases heat energy by chemical processes and explain how to improve the device.
			6	ER	2	I can analyze and interpret data collected during testing of a device that releases heat energy by chemical processes to describe and explain possible solutions for a problem.
			7	MC	3	I can analyze and interpret data collected during testing of a device that releases heat energy by chemical processes to describe problems that could be solved using the device.
			8	ER	3	I can describe and explain criteria for a device that releases heat energy by chemical processes.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Earth's Systems MS-ESS2-1	Earth Science	Earth's Systems	1	MC	2	I can describe a model that represents the formation of metamorphic rocks.
			2	MC	2	I can explain what process would best model precipitation of sediments out of water.
			3	MC	2	I can describe what process is similar to igneous rock formation.
			4	CR	2	I can use a model to demonstrate the cycling of earth material and explain how this can be used to explain the formation of different types of rocks.
			5	CR	2	I can make a model which shows how mountains decrease in size and use it to explain the earth processes which cause this.
			6	CR	2	I can explain what happens when weathering occurs and explain my reasoning as to why that happens.
			7	CR	2	I can explain how energy flow causes the formation of igneous rocks from magma and describe how the igneous rock changes in this process.
			8	ER	2	I can consider how physical materials can be used to model earth processes, and describe how they can be used to show how sedimentary rocks are recycled into metamorphic rocks.
			9	ER	3	I can make a model to show where minerals are recycled into different types of rocks and use the model to explain how these different rocks form.
			10	ER	3	I can use a model to explain how energy causes the flow of material and compare this model to a process in the earth.
			11	ER	3	I can modify a model to show how minerals are recycled and use it to describe how sedimentary rocks form.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Earth's Systems MS-ESS2-4	Earth Science	Earth's Systems	1	MC	2	I can modify a model of the water cycle, and show how surface runoff interacts with the water cycle.
			2	MC	2	I can identify which component of a model would represent the effect of gravity on earth.
			3	CR	2	I can add information to a model of a terrarium in order to show the natural processes that water goes through within a closed system when heat is added.
			4	CR	2	I can describe how to build a model that can investigate the water cycle and explain how each part of the model represents in the real world.
			5	CR	2	I can identify observations of water cycling within a closed system and explain why this is evidence of a cycle.
			6	CR	2	I can modify a model to show how water is cycled in natural systems and explain how sunlight and plants are a part of this cycling.
			7	ER	2	I can create a model showing the movement of water on the earth and describe what energy causes this movement.
			8	ER	2	I can create a model showing the movement of water on the earth and describe how plants and sunlight are related to this movement.
			9	ER	2	I can produce a model representing deforestation and describe how this might affect the water cycle.
Earth's Systems MS-ESS3-1	Earth Science	Earth's Systems	1	MC	2	I can use evidence to explain the processes which form diamonds.
			2	CR	2	I can explain the future of valuable metals based on the present utilization for cell phone technology.
			3	CR	2	I can identify how energy resources are currently used in the US and make a prediction about how they will be used in the future.
			4	ER	3	I can explain how the groundwater resources of the earth are distributed and explain why this resource is becoming more rare.
			5	ER	3	I can describe where copper resources are over the earth and explain what processes lead to this distribution, explain why this resource is recycled, and what economic impact this will have on the supply and demand of copper.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Energy MS-PS3-1	Physical Science	Energy	1	MC	2	I can interpret a graphical display to describe the relationship between kinetic energy and the mass of an object.
			2	CR	2	I can interpret a graphical display to describe the relationship between distance moved and speed of an object.
			3	ER	2	I can interpret a graphical display to describe the relationship between kinetic energy and the mass and speed of an object.
			4	ER	2	I can make a graphical display to describe the relationship between kinetic energy and speed of an object.
			5	CR	3	I can interpret a graphical display to describe the relationship between distance moved and speed of an object.
Energy MS-PS3-2	Physical Science	Energy	1	MC	2	I can make a model to show that when objects within a system are arranged in different ways, different amounts of potential energy are stored in the system.
			2	CR	2	I can make a model to show that when objects within a system are arranged in different ways, different amounts of potential energy are stored in the system.
			3	ER	3	I can make a model to show that when objects within a system are arranged in different ways, different amounts of potential energy are stored in the system.
Energy MS-PS3-3	Physical Science	Energy	1	MC	2	I can use scientific principles to test a device that either greatly decreases or greatly increases the transfer of heat energy.
			2	CR	2	I can use scientific principles to design, make, and test a device that either greatly decreases or greatly increases the transfer of heat energy.
			3	ER	2	I can use scientific principles to design a device that either greatly decreases or greatly increases the transfer of heat energy.
			4	ER	3	I can use scientific principles and test data to describe how a device either greatly decreases or greatly increases the transfer of heat energy.
			5	ER	3	I can use scientific principles to improve the design of a device that either greatly decreases or greatly increases the transfer of heat energy.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Energy MS-PS3-4	Physical Science	Energy	1	MC	2	I can plan an investigation to collect temperature measurements of a sample in order to determine the relationship between the energy transferred and the mass of the sample.
			2	CR	2	I can plan an investigation to collect temperature measurements of a sample in order to determine the relationship between the energy transferred and the mass of the sample.
			3	CR	2	I can plan an investigation to collect temperature measurements of a sample in order to determine the relationship between the energy transferred and the change in average kinetic energy of the sample's particles.
			4	ER	3	I can plan an investigation to collect temperature measurements of a sample in order to determine the relationship between the energy transferred and the temperature of the sample.
			5	ER	3	I can plan an investigation to collect temperature measurements of a sample in order to determine the relationship between the energy transferred and the type of matter.
Energy MS-PS3-5	Physical Science	Energy	1	MC	2	I can use data to support the claim that when the motion energy of an object changes, energy is transferred to or from the object.
			2	CR	2	I can make and support a claim that when the motion energy of an object changes, energy is transferred to or from the object.
			3	CR	2	I can make an argument to support the claim that when the motion energy of an object changes, energy is transferred to or from the object.
			4	ER	2	I can make an argument to support the claim that when the motion energy of an object changes, energy is transferred to or from the object.
			5	ER	3	I can make an argument to support the claim that when the motion energy of an object changes, energy is transferred to or from the object.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Forces and Interactions MS-PS2-1	Physical Science	Forces and Interactions	1	MC	2	I can use the idea that for every action there is an equal and opposite reaction to explain the sizes of forces on objects during a collision.
			2	CR	2	I can describe how I used the idea that for every action there is an equal and opposite reaction to compare forces on objects during a collision.
			3	CR	2	I can describe how I used the idea that for every action there is an equal and opposite reaction to compare forces on objects during a collision.
			4	CR	2	I can describe how I used the idea that for every action there is an equal and opposite reaction to explain the sizes of forces on objects during a collision.
			5	CR	2	I can describe how I used the idea that for every action there is an equal and opposite reaction to explain that increasing the force on one object increases the force on the other object.
Forces and Interactions MS-PS2-2	Physical Science	Forces and Interactions	1	MC	2	I can use the description of an investigation to identify the independent variable in the investigation.
			2	CR	2	I can plan an investigation to provide evidence that a change in an object's motion depends on all the forces acting on the object.
			3	CR	2	I can describe an investigation to collect evidence that a change in an object's motion depends on the mass of the object and explain how the investigation provides such evidence.
			4	ER	2	I can use data from an investigation as evidence to support the claim that a change in an object's motion depends on all the forces acting on the object.
			5	ER	3	I can plan an investigation to provide evidence that a change in an object's motion depends on all the forces acting on the object.
			6	ER	3	I can use data from an investigation as evidence to make and support a claim that a change in an object's motion depends on all the forces acting on the object.
Forces and Interactions MS-PS2-3	Physical Science	Forces and Interactions	1	MC	2	I can figure out which factors affect the strength of magnetic forces by asking questions about data.
			2	MC	2	I can predict a factor that affects the strength of magnetic forces.
			3	ER	2	I can figure out which factors affect the strength of magnetic forces by asking questions about data.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Forces and Interactions MS-PS2-4	Physical Science	Forces and Interactions	1	CR	2	I can use evidence to support the claim that gravitational interactions between objects depend on the masses of those objects.
			2	ER	2	I can use evidence to support the claim that the gravitational force between objects depends on the masses of the objects and to predict the force of gravity between other objects.
			3	ER	2	I can use evidence to support the claim that gravitational interactions between objects are forces that attract each other and depend on the masses of those objects.
			4	ER	2	I can use evidence to support the claim that gravitational interactions between objects depend on the masses of those objects and the distance between those objects.
			5	MC	3	I can use data as evidence to support the claim that gravitational interactions between objects depend on the masses of those objects.
			6	ER	3	I can use evidence to support the claim that gravitational interactions between objects are forces that attract each other and depend on the masses of those objects.
Forces and Interactions MS-PS2-5	Physical Science	Forces and Interactions	1	MC	2	I can use data from an investigation as evidence that magnetic fields exist between objects even if the objects are not touching.
			2	ER	2	I can evaluate the design of an investigation that provides evidence that electric fields exist between objects even if the objects are not touching.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Growth Development and Reproduction MS-LS1-4	Life Science	Growth, Development, and Reproduction of Organisms	1	MC	2	I can choose a claim based on observations to explain how specialized plant structures and animal behaviors affect the probability of plants reproducing successfully.
			2	MC	2	I can choose an argument based on observations to explain how certain animal behaviors affect the probability of animals reproducing successfully.
			3	CR	2	I can support a claim based on observations to explain how specialized plant structures affect the probability of plants reproducing successfully.
			4	CR	2	I can support a claim based on observations to explain how certain animal behaviors affect the probability of animals surviving and reproducing successfully.
			5	ER	3	I can make and evaluate a claim based on observations to explain how certain animal behaviors affect the probability of animals reproducing successfully.
			6	ER	3	I can make and support a claim to explain how certain animal behaviors and specialized plant structures affect the probability of plants reproducing successfully.
Growth Development and Reproduction MS-LS1-5	Life Science	Growth, Development, and Reproduction of Organisms	1	MC	2	I can use evidence to explain how environmental factors and genetic factors affect how organisms grow.
			2	CR	2	I can use and identify evidence to explain how environmental factors and genetic factors affect how organisms grow.
			3	ER	2	I can use evidence to explain how environmental factors and genetic factors affect how organisms grow.
			4	CR	3	I can use evidence to explain how environmental and genetic factors affect how organisms grow.
			5	ER	3	I can use evidence to explain how environmental factors and genetic factors affect how organisms grow.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Growth Development and Reproduction MS-LS3-1	Life Science	Growth, Development, and Reproduction of Organisms	1	MC	2	I can make and use a model to describe how gene mutations may affect proteins and may result in harmful effects to an organism's structure and function.
			2	CR	2	I can make and use a model to describe how genes produce proteins and affect an organism's structure and function.
			3	CR	3	I can make and use a model to describe how genes produce proteins and how gene mutations may affect proteins and result in beneficial or neutral effects to an organism's structure and function.
			4	ER	3	I can use a model to describe how genes produce proteins and how gene mutations may affect proteins and may result in neutral effects to an organism's structure and function.
Growth Development and Reproduction MS-LS3-2	Life Science	Growth, Development, and Reproduction of Organisms	1	MC	2	I can complete and use a model to describe why asexual reproduction results in offspring that are genetically identical to the parent.
			2	CR	2	I can evaluate a claim using a model to describe why asexual reproduction results in offspring that are genetically identical to the parent.
			3	CR	2	I can use a model to describe why asexual reproduction results in offspring that are genetically identical to the parent and why sexual reproduction results in offspring with genetic variation.
			4	ER	2	I can make and use a model to describe why asexual reproduction results in offspring that are genetically identical to the parent and why sexual reproduction results in offspring with genetic variation.
			5	ER	2	I can make and use a model to describe why asexual reproduction results in offspring that are genetically identical to the parent and why sexual reproduction results in offspring with genetic variation.
			6	CR	3	I can make and use a model to describe why asexual reproduction results in offspring that are genetically identical to the parent and why sexual reproduction results in offspring with genetic variation.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Growth Development and Reproduction MS-LS4-5	Life Science	Growth, Development, and Reproduction of Organisms	1	MC	2	I can understand and analyze information about technologies that have changed how humans affect the inheritance of desired traits in organisms.
			2	CR	2	I can evaluate and understand information about technologies that have changed how humans affect the inheritance of desired traits in organisms.
			3	ER	3	I can evaluate, understand, and use information about technologies that have changed how humans affect the inheritance of desired traits in organisms.
			4	ER	3	I can evaluate, use, and understand information about technologies that have changed how humans affect the inheritance of desired traits in organisms.
History of Earth MS-ESS1-4	Earth Science	History of Earth	1	MC	2	I can use evidence from rock layers to explain the history of rock layers in an area based on the principles of relative dating.
			2	MC	2	I can use evidence from rock layers to explain the history of rock layers in an area based on the principles of relative dating.
			3	MC	2	I can use evidence from rock layers to explain the history of rock layers in an area based on the principles of relative dating.
			4	MC	2	I can use evidence from rock layers to explain Earth's history based on the geologic time scale.
			5	CR	2	I can use evidence from rock layers to explain the history of rock layers in an area based on the principles of relative dating.
			6	CR	2	I can use evidence from rock layers to explain the history of rock layers in an area based on the principles of relative dating.
			7	CR	2	I can use evidence from rock layers to explain the history of rock layers in an area based on the principles of relative dating.
			8	ER	2	I can use evidence from rock layers to explain the history of rock layers in an area based on the principles of relative dating.
			9	ER	2	I can use evidence from rock layers to explain the history of rock layers in an area based on the principles of relative dating.
			10	ER	2	I can use evidence from rock layers to explain the history of rock layers in an area based on the principles of relative dating.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
History of Earth MS-ESS2-2	Earth Science	History of Earth	1	MC	2	I can use evidence to explain changes in Earth's surface as a result of geoscience processes.
			2	CR	2	I can explain that geoscience processes affect Earth's surface over different lengths of time and over areas of different sizes.
			3	CR	2	I can use evidence to explain changes in Earth's surface as a result of geoscience processes. I can explain that geoscience processes affect Earth's surface over different lengths of time and over areas of different sizes.
			4	CR	2	I can use evidence to explain changes in Earth's surface as a result of geoscience processes.
			5	ER	2	I can use evidence to explain changes in Earth's surface as a result of geoscience processes.
			6	ER	2	I can explain that geoscience processes affect Earth's surface over different lengths of time and over areas of different sizes.
			7	ER	2	I can use evidence to explain changes in Earth's surface as a result of geoscience processes. I can explain that geoscience processes affect Earth's surface over different lengths of time and over areas of different sizes.
			8	MC	3	I can use evidence to explain changes in Earth's surface as a result of geoscience processes.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
History of Earth MS-ESS2-3	Earth Science	History of Earth	1	MC	2	I can use data that I have analyzed about the locations of rocks to provide evidence of how plates moved in the past.
			2	MC	2	I can use data that I have analyzed about the locations of fossils to provide evidence of how plates moved in the past.
			3	CR	2	I can use data that I have analyzed about the locations of similarly-shaped continents and seafloor structures to provide evidence of how plates moved in the past.
			4	CR	2	I can use data that I have analyzed about the locations of rocks and seafloor structures to provide evidence of how plates moved in the past.
			5	ER	2	I can use data that I have analyzed about the locations of seafloor structures to provide evidence of how plates moved in the past.
			6	ER	2	I can use data that I have analyzed about the locations of fossils, similarly-shaped continents, and seafloor structures to provide evidence of how plates moved in the past.
			7	ER	2	I can use data that I have analyzed about the locations of fossils to provide evidence of how plates moved in the past.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Human Impacts MS-ESS3-2	Earth Science	Human Impacts	1	MC	2	I can forecast future catastrophic events by analyzing and interpreting data.
			2	MC	2	I can forecast future catastrophic events by analyzing and interpreting data.
			3	MC	2	I can forecast future catastrophic events by analyzing and interpreting data.
			4	CR	2	I can explain why patterns found in data are useful in predicting catastrophic events.
			5	CR	2	I can describe the usefulness of technology in presenting patterns of data that can be analyzed to predict catastrophic events.
			6	CR	2	I can describe the usefulness of technology in presenting patterns of data that can be analyzed to predict catastrophic events.
			7	ER	2	I can describe the usefulness of technology in presenting patterns of data that can be analyzed to predict catastrophic events.
			8	ER	2	I can forecast future catastrophic events by analyzing and interpreting data.
			9	MC	3	I can describe the usefulness of technology in presenting patterns of data that can be analyzed to predict catastrophic events.
			10	ER	3	I can forecast future catastrophic events by analyzing and interpreting data.
Human Impacts MS-ESS3-3	Earth Science	Human Impacts	1	MC	2	I can use scientific principles to describe a method for decreasing human impact on the environment.
			2	MC	2	I can use scientific principles to describe a method for decreasing human impact on the environment.
			3	CR	2	I can use scientific principles to design a method for decreasing human impact on the environment.
			4	ER	3	I can use scientific principles to evaluate the impact of a human-made design on the environment.
			5	ER	3	I can use scientific principles to design a method for decreasing human impact on the environment.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Human Impacts ME-ESS3-4	Earth Science	Human Impacts	1	MC	2	I can use evidence to make an argument for how increases in human population impact Earth's systems.
			2	MC	2	I can use evidence to make an argument for how increases by each person in using natural resources impact Earth's systems.
			3	CR	2	I can use evidence to make an argument for how increases by each person in using natural resources impact Earth's systems.
			4	CR	2	I can use evidence to make an argument for how increases by each person in using natural resources impact Earth's systems.
			5	ER	3	I can use evidence to make an argument for how increases in human population impact Earth's systems.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Interdependent Relationships In Ecosystems MS-LS2-2	Life Science	Interdependent Relationships In Ecosystems	1	MC	2	I can use historical evidence to predict what is likely to happen to host species when parasites are introduced into their ecosystem.
			2	CR	2	I can identify and describe how organisms interact in similar ways across different ecosystems.
			3	CR	2	I can describe evidence which would support an argument about competition in an ecosystem after its top predator is removed.
			4	CR	2	I can identify and describe the pattern of interaction between two organisms, and provide evidence that this interaction occurs between other organisms in other ecosystems.
			5	CR	2	I can describe patterns in data of predator and prey populations, and predict how predation affects population levels across ecosystems.
			6	CR	2	I can describe the interaction of species when a common resource is limited and predict what effect this will have on ecosystems.
			7	ER	2	I can identify and describe the interaction of similar species in the same ecosystem, and can explain a prediction of this interaction of other organisms in other ecosystems using evidence from provided ecosystems.
			8	MC	3	I can identify the relationship between organisms and predict what would happen if one of the organisms died.
			9	ER	3	I can identify interactions in two ecosystems and provide an example of each, can predict what would happen to each ecosystem if consumers are impacted, and explain my prediction with evidence from each ecosystem.
			10	ER	3	I can identify the interaction that all top consumers participate in, describe the impacts of predator removal with evidence from text, and predict the impacts of predator removal on organisms that are not described in the text.
			11	ER	3	I can describe how organisms in a food chain interact using population data, and can explain a possible cause of patterns observed in two different ecosystems, and explain how this pattern can be used to predict interactions in any given ecosystem.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Interdependent Relationships in Ecosystems MS-LS2-5	Life Science	Interdependent Relationships in Ecosystems	1	MC	2	I can identify which questions are best for assessing the impact of a control method on an ecosystem.
			2	MC	2	I can identify a process which will slow or prevent soil erosion.
			3	CR	2	I can describe how different elements of an ecosystem interact to promote ecosystem health, and state whether observing organisms can help monitor an ecosystem's health.
			4	CR	2	I can identify information that conservationists need to consider before proposing a solution, and ask questions about possible design solutions.
			5	ER	2	I can identify the benefits of natural aquatic systems, and choose the best shoreline protection method while considering cost, human benefit, and biodiversity.
			6	CR	3	I can identify the strengths and weaknesses of different methods of controlling an invasive species.
			7	CR	3	I can identify different control methods and explain how they can help the problem of invasive species.
			8	ER	3	I can describe the impact of an invasive species on an ecosystem, identify criteria for effective control, and then describe two methods of control considering those criteria.
			9	ER	3	I can describe how fire can help some species grow and can increase biodiversity, can identify additional information to consider when managing forest fires, and evaluate benefits and drawbacks of two design solutions to fire management.
			10	ER	3	I can identify how invasive species affect ecosystem health, and consider and defend two possible solutions to this invasive species.
			11	ER	3	I can describe how oil spills threaten biodiversity, and identify and provide examples of challenges and constraints of oil spill cleanup.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Matter Energy MS-LS1-6	Life Science	Matter and Energy	1	MC	2	I can identify how the chemical energy in the reactants of cellular respiration is delivered to all tree cells.
			2	MC	2	I can explain why photosynthesis cannot occur in the deepest regions of a lake.
			3	CR	2	I can describe how bubbles indicate a chemical reaction where matter is cycled, and explain how the number of bubbles relates to the energy in the form of light required to undergo photosynthesis.
			4	ER	2	I can explain how photosynthesis decreases the amount of carbon in the atmosphere, and use evidence from two sources to explain how and when this carbon removal takes place.
			5	ER	2	I can describe the process of photosynthesis as it relates to oxygen moving through different organisms in a closed system, identify factors which might reduce the oxygen in a closed system, and offer a solution to this problem from a design perspective.
Matter Energy MS-LS1-7	Life Science	Matter and Energy	1	MC	2	I can identify the steps of the digestion of molecules for use in release of energy during cellular respiration.
			2	CR	2	I can identify and describe the inputs and outputs of cellular respiration.
			3	ER	2	I can make a model that shows how animals digest, absorb, and release energy from food, and explain why these processes are important for survival.
Matter Energy MS-LS2-1	Life Science	Matter and Energy	1	MC	2	I can use data to identify a decrease in a population.
			2	MC	2	I can describe how population density has an effect on resource availability.
			3	CR	2	I can explain and provide evidence for how more food resources cause an increase in a population, and explain how the removal of a food resource affects a population.
			4	ER	2	I can use a graph to describe how resource limitation limits population growth, and make a prediction about what will happen to a population if no further food resources are made available.
			5	ER	2	I can use a graph to describe how populations grow when there is food, space, and time, and predict how competition affects population growth.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Matter Energy MS-LS2-3	Life Science	Matter and Energy	1	MC	2	I can create a food web from descriptions of food sources, identify and correctly relate the organisms that require sunlight for energy to the other organisms, and describe how matter and energy flow within the ecosystem.
			2	CR	2	I can create a model that shows how carbon moves between the atmosphere and living things in an ecosystem.
			3	ER	2	I can modify a model to show that energy is lost to the environment as energy moves through organisms in an ecosystem.
			4	CR	3	I can make a model that shows how energy and matter move in an ocean ecosystem, and identify energy flows into and out of this model.
			5	ER	3	I can modify a model to show energy inputs and outputs to a food web, and explain how matter is cycled within the food web at the same time.
Matter Energy MS-LS2-4	Life Science	Matter and Energy	1	MC	2	I can consider multiple sources of evidence and construct a prediction of population change over time based on past observations and scientific principles.
			2	MC	2	I can use data to make an argument about the relationship between an introduced species and a native species.
			3	CR	3	I can predict how a change in populations of beetles and trees will affect other organisms in the ecosystem.
			4	CR	3	I can identify evidence that is useful in supporting an argument for what makes an organism most likely to become invasive.
			5	ER	3	I can use evidence to argue how populations of birds and animals changed immediately after a fire and in the years since, and argue what the most likely impact of the fire was on a species of tree that relies on wildfire to reproduce.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Natural Selection and Adaptation MS-LS4-1	Life Science	Natural Selection and Adaptation	1	MC	2	I can analyze and identify patterns in the fossil record that record the existence, diversity, extinction, and change of life forms throughout Earth's history under the assumption that natural laws operate today as in the past.
			2	MC	2	I can analyze and identify patterns in the fossil record that record the existence, diversity, extinction, and change of life forms throughout Earth's history under the assumption that natural laws operate today as in the past.
			3	CR	2	I can order fossils by relative age and analyze patterns in the fossil record that record the existence, diversity, extinction, and change of life forms throughout Earth's history under the assumption that natural laws operate today as in the past.
			4	CR	2	I can analyze and identify patterns in the fossil record that record the existence, diversity, extinction, and change of life forms throughout Earth's history under the assumption that natural laws operate today as in the past.
			5	ER	3	I can analyze and identify patterns in the fossil record that record the existence, diversity, and change of life forms throughout Earth's history under the assumption that natural laws operate today as in the past.
Natural Selection and Adaptation MS-LS4-2	Life Science	Natural Selection and Adaptation	1	MC	2	I can use a scientific diagram to explain similarities in body structure among modern organisms to infer evolutionary relationships.
			2	CR	2	I can use scientific diagrams to explain similarities and differences in body structure among both modern and fossil organisms to support a claim about evolutionary relationships.
			3	CR	2	I can use a scientific diagram to identify similarities and differences in body structure among modern organisms to infer evolutionary relationships.
			4	ER	3	I can evaluate scientific claims to explain similarities and differences in body structure among both modern and fossil organisms to infer evolutionary relationships.
			5	ER	3	I can use scientific diagrams to explain similarities and differences in body structure among modern and fossil organisms to infer evolutionary relationships.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Natural Selection and Adaptation MS-LS4-3	Life Science	Natural Selection and Adaptation	1	MC	2	I can analyze and compare diagrams of developing embryos from different species to identify patterns of similarities that provide evidence of common ancestry.
			2	MC	2	I can analyze and compare diagrams of developing embryos from different species to support a claim that provides evidence of a relationship, such as a common ancestor, not seen in adults.
			3	MC	2	I can analyze and compare diagrams of developing embryos from different species to identify patterns of similarities that provide evidence of a relationship, such as a common ancestor, not seen in adults.
			4	CR	2	I can analyze and compare diagrams of developing embryos from different species to identify patterns of similarities not seen in adults.
			5	ER	2	I can analyze and compare diagrams of developing embryos from different species to identify patterns of similarities that provide evidence of a relationship, such as a common ancestor, not seen in adults.
Natural Selection and Adaptation MS-LS4-4	Life Science	Natural Selection and Adaptation	1	MC	2	I can use evidence to explain how genetic variations within a population can increase the chances for some individuals to survive and reproduce within a specific environment.
			2	MC	2	I can use evidence to explain how genetic variations within a population can increase the chances for some individuals to survive and reproduce within a specific environment.
			3	ER	2	I can use evidence to explain how genetic variations within a population can increase the chances for some individuals to survive and reproduce within a specific environment.
			4	CR	3	I can use evidence to explain how genetic variations within a population can increase the chances for some individuals to survive and reproduce within a specific environment.
			5	ER	3	I can use evidence to explain how genetic variations within a population can increase the chances for some individuals to survive and reproduce within a specific environment.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Natural Selection and Adaptation MS-LS4-6	Life Science	Natural Selection and Adaptation	1	MC	2	I can use math to support an explanation of how natural selection may change the number of individuals with specific traits in a population over time.
			2	ER	3	I can use math to support an explanation of how natural selection may change the number of individuals with specific traits in a population over time.
			3	ER	3	I can use math to support an explanation of how natural selection may change the number of individuals with specific traits in a population over time.
Space Systems MS-ESS1-1	Earth Science	Space Systems	1	MC	2	I can make and use a model to describe the patterns of the Moon's phases.
			2	MC	2	I can use a model to describe the patterns of the Moon's phases.
			3	CR	2	I can use a model to describe the patterns of the seasons.
			4	CR	2	I can use a model to describe the patterns of the seasons.
			5	CR	3	I can make and use a model to describe the patterns of eclipses of the Moon.
			6	ER	3	I can make and use a model to describe the patterns of the Moon's phases.
			7	ER	3	I can use a model to describe the patterns of eclipses of the Moon.
			8	ER	3	I can make and use a model to describe the patterns of the hours of daylight during the seasons.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Space Systems MS-ESS1-2	Earth Science	Space Systems	1	MC	2	I can make and use a model to describe how gravity affects motions within the galaxy.
			2	MC	2	I can make and use a model to describe how gravity affects sizes of planets within the solar system.
			3	CR	2	I can make and use a model to describe how gravity affects motions within the solar system.
			4	ER	2	I can use a model to describe how gravity affects motions within the solar system.
			5	ER	2	I can make and use a model to describe how gravity affects motions within the solar system.
			6	ER	2	I can make and use a model to describe how gravity affects motions within the solar system.
			7	ER	2	I can make and use a model to describe how gravity affects motions within the solar system.
Space Systems MS-ESS1-3	Earth Science	Space Systems	1	MC	2	I can draw conclusions about the properties of objects in the solar system by analyzing data from both near and far away from the objects.
			2	CR	2	I can draw conclusions about the properties of objects in the solar system by analyzing data from both near and far away from the objects.
			3	ER	2	I can draw conclusions about the properties of objects in the solar system by analyzing data from both near and far away from the objects.
			4	ER	2	I can draw conclusions about the properties of objects in the solar system by analyzing data from both near and far away from the objects.
			5	ER	2	I can use revolution data to create a diagram that shows planets' orbits around the Sun and the relative distances from the Sun.
			6	CR	3	I can draw conclusions about the properties of objects in the solar system by analyzing data from far away from the objects.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Structure and Properties of Matter MS-PS1-1	Physical Science	Structure and Properties of Matter	1	MC	2	I can use a model that shows the arrangement of atoms in a simple molecule to describe its atomic composition.
			2	CR	2	I can use a model that shows the arrangement of atoms in an extended structure to explain why the model represents a specific substance.
			3	CR	2	I can plan how to make a model that shows the arrangement of atoms in a simple molecule.
			4	CR	2	I can make models that show the arrangement of atoms in simple molecules.
			5	CR	2	I can use models that show the arrangement of atoms in simple molecules to describe atomic compositions and make a model that shows the arrangement of atoms in a simple molecule.
			6	ER	3	I can use models that show the arrangement of atoms in simple molecules to compare two substances.
			7	ER	3	I can use models that show the arrangement of atoms in simple molecules to identify and describe atomic compositions and make a model that shows the arrangement of atoms in a simple molecule.
Structure and Properties of Matter MS-PS1-3	Physical Science	Structure and Properties of Matter	1	MC	2	I can use information to explain the impact of making synthetic materials on society.
			2	MC	2	I can use information to explain the impact of making synthetic materials on society.
			3	CR	2	I can use information to explain why some manmade materials are useful to society and to describe characteristics of the natural resource that changed after processing.
			4	CR	2	I can use information to explain why some manmade materials are useful to society.
			5	ER	3	I can use information to describe manmade materials and explain why manmade materials are developed.
			6	ER	3	I can use information to explain how some synthetic materials are made and to explain why society selects certain materials for specific applications.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Structure and Properties of Matter MS-PS1-4	Physical Science	Structure and Properties of Matter	1	MC	2	I can identify a model that best represents the effect of adding thermal energy on particle motion and state of matter.
			2	MC	2	I can describe how to modify a model to explain the effect of a change in temperature on particle motion.
			3	CR	2	I can use a model to describe and explain the motion of particles during heating and the result of heating a substance.
			4	CR	2	I can describe how to use a model to explain changes in particle motion.
			5	ER	2	I can use models to predict and show changes in the motion of particles when heat is added or taken away.
			6	ER	2	I can explain how a model can be used to represent particle motion for three states of matter and compare the kinetic energy of particles in the three states of matter.
			7	ER	3	I can make and use models to identify states of matter.
Structure Function Info Processing MS-LS1-1	Life Science	Structure, Function, and Information Processing	1	MC	2	I can identify an investigation that provides evidence that all living things are made of cells—either one cell or many different numbers and types of cells.
			2	MC	2	I can identify an investigation that provides evidence that all living things are made of cells—either one cell or many different numbers and types of cells.
			3	CR	2	I can investigate to provide evidence that all living things are made of cells—either one cell or many different numbers and types of cells.
			4	CR	2	I can investigate to provide evidence that all living things are made of cells—either one cell or many different numbers and types of cells.
			5	ER	2	I can investigate to provide evidence that all living things are made of cells—either one cell or many different numbers and types of cells.
			6	ER	2	I can investigate to provide evidence that all living things are made of cells—either one cell or many different numbers and types of cells.
			7	ER	3	I can investigate to provide evidence that all living things are made of cells—either one cell or many different numbers and types of cells.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Structure Function Info Processing MS-LS1-2	Life Science	Structure, Function, and Information Processing	1	MC	2	I can use a model to describe how a cell part contributes to the function of the whole cell.
			2	MC	2	I can use a model to describe how a cell part contributes to the function of the whole cell.
			3	MC	2	I can develop and use a model to describe how different cell parts contribute to the function of the whole cell.
			4	CR	2	I can develop and use a model to describe how different cell parts contribute to the function of the whole cell.
			5	CR	2	I can use a model to describe how a cell part contributes to the function of the whole cell.
			6	ER	3	I can develop and use a model to describe how different cell parts contribute to the function of the whole cell.
Structure Function Info Processing MS-LS1-3	Life Science	Structure, Function, and Information Processing	1	MC	2	I can use evidence to support an argument that the body is a system of interacting subsystems made up of groups of cells.
			2	CR	2	I can use evidence to refute an argument that the body is not a system of interacting subsystems made up of groups of cells.
			3	ER	2	I can use evidence to support an argument that the body is a system of interacting subsystems made up of groups of cells.
			4	CR	3	I can use evidence to support an argument that the body is a system of interacting subsystems made up of groups of cells.
			5	CR	3	I can use evidence to support an argument that the body is a system of interacting subsystems made up of groups of cells.
			6	ER	3	I can use evidence to support an argument that the body is a system of interacting subsystems made up of groups of cells.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Structure Function Info Processing MS-LS1-8	Life Science	Structure, Function, and Information Processing	1	MC	2	I can analyze information to understand that sensory receptors (special nerve cells) respond to stimuli by sending messages to the brain that may result in immediate behaviors or in storage as memories.
			2	CR	2	I can analyze information to understand that sensory receptors (special nerve cells) respond to stimuli by sending messages to the brain that may result in immediate behaviors or in storage as memories.
			3	ER	2	I can analyze information to understand that sensory receptors (special nerve cells) respond to stimuli by sending messages to the brain that may result in immediate behaviors or in storage as memories.
			4	ER	3	I can analyze information to understand that sensory receptors (special nerve cells) respond to stimuli by sending messages to the brain that may result in immediate behaviors or in storage as memories.
Waves and Electromagnetic Radiation MS-PS4-1	Physical Science	Waves and Electromagnetic Radiation	1	MC	2	I can use math to describe a simple model for waves.
			2	MC	2	I can use math to describe how the amplitude of a wave is related to the wave's energy in a simple wave model.
			3	MC	2	I can use math to describe how the amplitude of a wave is related to the wave's energy in a simple wave model.
			4	CR	2	I can use math to describe how the amplitude of a wave is related to the wave's energy in a simple wave model.
			5	CR	2	I can use math to describe how the amplitude of a wave is related to the wave's energy.
			6	CR	2	I can use math to describe how the amplitude of a wave is related to the wave's energy in a simple wave model.
			7	ER	2	I can use math to describe how the amplitude of a wave is related to the wave's energy in a simple wave model.
			8	ER	2	I can describe a simple model for waves. I can describe how the amplitude of a wave is related to the wave's energy in a simple wave model.
			9	ER	2	I can compare wavelength, amplitude, and frequency of waves using a simple wave model, and can describe how the amplitude of a wave is related to the wave's energy.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Waves and Electromagnetic Radiation MS-PS4-2	Physical Science	Waves and Electromagnetic Radiation	1	MC	2	I can calculate the amount of a wave transmitted through various materials.
			2	MC	2	I can use a model to describe that waves are reflected and absorbed by various materials.
			3	CR	2	I can make and use a model to describe that waves are reflected by various materials.
			4	CR	2	I can make and use a model to describe that waves are reflected or absorbed through various materials.
			5	CR	2	I can use a model to describe that waves are absorbed by various materials.
			6	CR	2	I can make and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.
			7	ER	2	I can describe a simple model for waves.
			8	ER	2	I can make and use a model to describe that waves are reflected by various materials.
			9	CR	3	I can make and use a model to describe that waves are transmitted through various materials.
			10	ER	3	I can use a model to describe that waves are transmitted through various materials.
Waves and Electromagnetic Radiation MS-PS4-3	Physical Science	Waves and Electromagnetic Radiation	1	CR	2	I can explain why digitized signals are a more reliable way to encode and transmit information than analog signals.
			2	CR	2	I can identify whether a signal is digital or analog.
			3	CR	2	I can explain why digitized signals are a more reliable way to encode and transmit information than analog signals.
			4	ER	2	I can identify whether a signal is digital or analog.
			5	ER	3	I can describe the information in a digitized signal.
			6	ER	3	I can use information from a variety of different types of scientific sources (texts, graphs, video, digital, etc.) to support the claim that digitized signals can transmit information.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Weather and Climate MS-ESS2-5	Earth Science	Weather and Climate	1	MC	2	I can use data to predict how changes in weather conditions are caused by the motions and complex interactions of air masses.
			2	MC	2	I can use data to predict how changes in weather conditions are caused by the motions and complex interactions of air masses.
			3	MC	2	I can collect data to provide evidence for how changes in weather conditions are caused by the motions and complex interactions of air masses.
			4	CR	2	I can use data to predict how changes in weather conditions are caused by the motions and complex interactions of air masses.
			5	CR	2	I can collect data to provide evidence for changes in weather conditions.
			6	CR	2	I can collect data to provide evidence for how changes in weather conditions are caused by the motions and complex interactions of air masses.
			7	CR	2	I can collect data to provide evidence of weather conditions caused by the motions and complex interactions of air masses.
			8	ER	2	I can collect data to provide evidence of weather conditions caused by the motions and complex interactions of air masses.
			9	ER	3	I can collect data to provide evidence for how changes in weather conditions are caused by the motions and complex interactions of air masses.
Weather and Climate MS-ESS2-6	Earth Science	Weather and Climate	1	MC	2	I can make a model to describe how unequal heating of the Earth by the Sun causes patterns of circulation in the ocean.
			2	MC	2	I can make a model to describe how the Sun heats Earth unequally.
			3	MC	2	I can make a model to describe how unequal heating of the Earth by the Sun causes patterns of circulation in the ocean.
			4	CR	2	I can make and use a model to describe how unequal heating of the Earth by the Sun causes patterns of circulation in the ocean.
			5	ER	2	I can make and use a model to describe how unequal heating of the Earth by the Sun causes patterns of circulation in the ocean.
			6	ER	3	I can use a model to describe how patterns of circulation in the atmosphere determine regional climates.

Name/Item Set	Domain	Topic	Item Position	Item Type	DOK	Learning Target
Weather and Climate MS-ESS3-5	Earth Science	Weather and Climate	1	MC	2	I can ask questions that, when answered, will point to evidence of factors that have caused the rise in global temperatures over the past century.
			2	MC	2	I can ask questions that, when answered, will point to evidence of factors that have caused the rise in global temperatures over the past century.
			3	CR	2	I can ask questions that, when answered, will point to evidence of factors that have caused the rise in global temperatures over the past century.
			4	CR	2	I can ask questions that, when answered, will point to evidence of factors that have caused the rise in global temperatures over the past century.
			5	ER	2	I can ask questions that, when answered, will point to evidence of factors that have caused the rise in global temperatures over the past century.
			6	ER	3	I can ask questions that, when answered, will point to evidence of factors that have caused the rise in global temperatures over the past century.