New York State P-12 Science Learning Standards

P. Physical Sciences

Students who demonstrate understanding can:

P-PS1-1. **Ask questions and use observations to test the claim that different kinds of matter exist as either solid or liquid.** [Clarification Statement: Emphasis should be on observing and describing similarities and differences between solids and liquids based on their physical properties. Solids and liquids can be compared and categorized (sorted) based on those properties.]

P-PS2-1. **Use tools and materials to design and build a device that causes an object to move faster with a push or a pull.*** [Clarification Statement: Emphasis should be on developing an interest in investigating forces (pushes or pulls). Examples of forces could include a string attached to an object being pulled or a ramp to increase the speed of an object.] [Assessment Boundary: Assessment is limited to relative measures of speed (slower, faster)]

P-PS4-1. **Plan and conduct investigations to provide evidence that sound is produced by vibrating materials.** [Clarification Statement: Examples of vibrating materials could include percussion instruments (e.g. drum, triangle), string instruments (e.g. guitar, piano), wind instruments (e.g. recorder, whistle), and audio speakers.]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*

Science and Engineering Practices

Asking Questions and Defining Problems

Asking questions and defining problems in grades PK–2 builds on prior experiences and progresses to simple descriptive questions that can be tested.

- Ask questions based on observations to find more information about the designed world. (P-PS1-1)

Planning and Carrying Out Investigations

Planning and carrying out investigations to answer questions or test solutions to problems in PK–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.

- With guidance, plan and conduct an investigation in collaboration with peers. (P-PS2-1),(P-PS4-1)

Analyzing and Interpreting Data

Analyzing data in PK–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.

- Record information (observations, thoughts, and ideas). (P-PS1-1)
- Analyze data from tests of an object or tool to determine if it works as intended. (P-PS2-1)

Connections to Nature of Science

Scientific Investigations Use a Variety of Methods

- Scientists use different ways to study the world. (P-PS2-1),(P-PS4-1)

Disciplinary Core Ideas

PS1.A: Structure and Properties of Matter

- (NYSED) Different kinds of matter exist and many of them can be either solid or liquid. Matter can be described, categorized, and sorted by its observable properties. (P-PS1-1)

PS2.A: Forces and Motion

- Pushes and pulls can have different strengths and directions. (P-PS2-1)
- Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. (P-PS2-1)

PS3.C: Relationship Between Energy and Forces

- (NYSED) A push or a pull may cause stationary objects to move, and a stronger push or pull in the same or opposite direction makes an object in motion speed up or slow down more quickly. (secondary to P-PS2-1)

PS4.A: Wave Properties

- Sound can make matter vibrate, and vibrating matter can make sound. (P-PS4-1)

ETS1.A: Defining Engineering Problems

- A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions. (P-PS2-1)

Crosscutting Concepts

Patterns

- Patterns in the natural and human designed world can be observed and used as evidence. (P-PS1-1),(P-PS4-1)

Cause and Effect

- Simple tests can be designed to gather evidence to support or refute student ideas about causes. (P-PS2-1),(P-PS4-1)

Connections to other DCIs in prekindergarten: **P.LS1.A** (P-PS2-1); **P.LS1.D** (P-PS4-1)

Articulation of DCIs across grades K-1: **K.PS1.A** (P-PS1-1); **K.PS2.A** (P-PS2-1); **K.PS2.B** (P-PS2-1); **K.PS3.C** (P-PS2-1); **1.PS4.A** (P-PS4-1)

New York State Next Generation Learning Standards Connections:

ELA/Literacy –

PKR1	Participate in discussions about a text. (P-PS1-1),(P-PS2-1),(P-PS4-1)
PKR4	Exhibit an interest in learning new vocabulary. (P-PS1-1),(P-PS2-1),(P-PS4-1)
PKW2	Use a combination of drawing, dictating, oral expression, and/or emergent writing to name a familiar topic and supply information in child-centered, authentic, play-based learning. (P-PS1-1),(P-PS2-1),(P-PS4-1)
PKW3	Use a combination of drawing, dictating, oral expression, and/or emergent writing to narrate an event or events in a sequence. (P-PS1-1),(P-PS2-1),(P-PS4-1)
PKW7	Engage in a discussion using gathered information from experiences or provided resources. (P-PS1-1),(P-PS2-1),(P-PS4-1)
PKSL2	Interact with diverse formats and texts. (P-PS1-1),(P-PS2-1),(P-PS4-1)
PKSL3	Identify the speaker. (P-PS1-1),(P-PS2-1),(P-PS4-1)
PKSL5	Create a visual display. (P-PS1-1),(P-PS2-1),(P-PS4-1)

Mathematics –

MP.4	Model with mathematics. (P-PS2-1)
MP.5	Use appropriate tools strategically. (P-PS1-1),(P-PS2-1),(P-PS4-1)
MP.6	Attend to precision. (P-PS2-1)
NY-PK.MD.1	Identify measurable attributes of objects, such as length or weight, and describe them using appropriate vocabulary. (P-PS2-1)
NY-PK.MD.2	Sort objects and shapes into categories; count the objects in each category. 1 (limit category counts to be less than or equal to 10) (P-PS1-1)
NY-PK.G.3	Explore two- and three-dimensional objects and use informal language to describe their similarities, differences, and other attributes. (P-PS1-1)
NY-PK.G.4	Create and build shapes from components (e.g., sticks and clay balls). (P-PS2-1)

*Connection boxes updated as of September 2018

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The text in the "Disciplinary Core Ideas" section is reproduced verbatim from A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas unless it is preceded by (NYSED).

New York State P-12 Science Learning Standards

P. Life Sciences

Students who demonstrate understanding can:

P-LS1-1. **Observe familiar plants and animals (including humans) and describe what they need to survive.** [Clarification Statement: Emphasis should be on determining what a variety of living organisms need to live and grow.]

P-LS1-2. **Plan and conduct an investigation to determine how familiar plants and/or animals use their external parts to help them survive in the environment.** [Clarification Statement: Emphasis should be on the relationships between the physical and living environment. Examples of external parts could include roots, stems, leaves for plants and eyes, ears, mouth, arms, legs for animals.]

P-LS3-1. **Develop a model to describe that some young plants and animals are similar to, but not exactly like, their parents.** [Clarification Statement: Emphasis is on observation and pictorial representations of familiar plants and animals.]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Developing and Using Models

Modeling in PK–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.

- Compare models to identify common features and differences. (P-LS3-1)
- Develop a simple model based on evidence to represent a proposed object or tool. (P-LS3-1)

Planning and Carrying Out Investigations

Planning and carrying out investigations to answer questions or test solutions to problems in PK–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.

- With guidance, plan and conduct an investigation in collaboration with peers. (P-LS1-2)

Analyzing and Interpreting Data

Analyzing data in PK–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.

- Record information (observations, thoughts, and ideas). (P-LS1- 1)
- Analyze data from tests of an object or tool to determine if it works as intended. (P-PS2-1)

Obtaining, Evaluating, and Communicating Information

Obtaining, evaluating, and communicating information in PK–2 builds on prior experiences and uses observations and texts to communicate new information.

- Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas. (P-LS1-1)

Connections to Nature of Science

Scientific Investigations Use a Variety of Methods

- Scientists use different ways to study the world. (P-LS1-2)

Disciplinary Core Ideas

LS1.A: Structure and Function

- All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (P-LS1-2)

LS1.C: Organization for Matter and Energy Flow in Organisms

- (NYSED) All animals need food, air, and water in order to live, grow, and thrive. Animals obtain food from plants or from other animals. Plants need water, air, and light to live, grow, and thrive. (P-LS1-1)

LS1.D: Information Processing

- Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs. (P-LS1-2)

LS3.A: Inheritance of Traits

- (NYSED) Some young animals are similar to, but not exactly, like their parents. Some young plants are also similar to, but not exactly, like their parents. (P-LS3-1)

LS3.B: Variation of Traits

- Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways. (P-LS3-1)

Crosscutting Concepts

Patterns

- Patterns in the natural and human designed world can be observed and used as evidence. (P-LS1-1),(P-LS3-1)

Cause and Effect

- Events have causes that generate observable patterns. (P-LS1-2)

Systems and System Models

- Systems in the natural and designed world have parts that work together. (P-LS1-2)

Structure and Function

- The shape and stability of structures of natural and designed objects are related to their function(s). (P-LS1-2)

Connections to other DCIs in prekindergarten: **P.ESS2.D** (P-LS1-1); **P.PS3.B** (P-LS1-2)

Articulation of DCIs across grades K-1: **K.LS1.C** (P-LS1-1); **K.ESS3.C** (P-LS1-1); **1.LS1.A** (P-LS1-1); **1.LS1.D** (P-LS1-2); **1.LS3.A** (P-LS3-1); **1.LS3.B** (P-LS3-1)

New York State Next Generation Learning Standards Connections:

ELA/Literacy –

PKR1 Participate in discussions about a text. (P-LS1-1),(P-LS2-1),(P-LS3-1)

PKR4 Exhibit an interest in learning new vocabulary. (P-LS1-1),(P-LS1-2),(P-LS3-1)

PKW1 Use a combination of drawing, dictating, oral expression, and/or emergent writing to state an opinion about a familiar topic in child-centered, authentic, play-based learning. (P-LS1-1),(P-LS1-2),(P-LS3-1)

PKW2 Use a combination of drawing, dictating, oral expression, and/or emergent writing to name a familiar topic and supply information in child-centered, authentic, play-based learning. (P-LS1-1),(P-LS1-2),(P-LS3-1)

PKW3 Use a combination of drawing, dictating, oral expression, and/or emergent writing to narrate an event or events in a sequence. (P-PS1-1),(P-PS2-1),(P-PS4-1)

PKW7 Engage in a discussion using gathered information from experiences or provided resources. (P-LS1-1),(P-LS1-2),(P-LS3-1)

PKSL2 Interact with diverse formats and texts. (P-LS1-1),(P-LS1-2),(P-LS3-1)

PKSL3 Identify the speaker. (P-LS1-1),(P-LS1-2),(P-LS3-1)

PKSL5 Create a visual display. (P-LS1-1),(P-LS1-2),(P-LS3-1)

Mathematics –

MP.1 Make sense of problems and persevere in solving them. (P-LS1-1),(P-LS3-1)

MP.5 Use appropriate tools strategically. (P-LS1-1),(P-LS1-2),(P-LS3-1)

NY-PK.OA.2 Duplicate and extend (eg., What comes next?) simple patterns using concrete objects. (P-LS1-2),(P-LS3-1)

NY-PK.MD.1 Identify measurable attributes of objects, such as length, and weight. Describe them using correct vocabulary (e.g., small, big, short, tall, empty, full, heavy, and light). (P-LS1-1),(P-LS1-2),(P-LS3-1)

NY-PK.MD.2 Sort objects into categories; count the numbers of objects in each category. 1 (limit category counts to be less than or equal to 10) (P-LS3-1)

*Connection boxes updated as of September 2018

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The text in the "Disciplinary Core Ideas" section is reproduced verbatim from A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas unless it is preceded by (NYSED).

New York State P-12 Science Learning Standards

P. Earth and Space Sciences

Students who demonstrate understanding can:

P-ESS1-1. **Observe and describe the apparent motions of the Sun, moon, and stars to recognize predictable patterns.** [Clarification Statement: Examples of patterns could include that the Sun and moon appear to move across the sky in a predictable pathway; day and night follow predictable patterns; seasons change in a cyclical pattern (e.g. summer follows spring, autumn follows summer); the moon's shape appears to change in a cyclical pattern; and stars other than our Sun can be visible at night depending on local weather conditions.]

P-ESS2-1. **Ask questions, make observations, and collect and record data using simple instruments to recognize patterns about how local weather conditions change daily and seasonally.** [Clarification Statement: Emphasis is on daily weather conditions recorded over a period of time and how those conditions impact student activities and what clothes they wear. Examples of local weather conditions could include cloud cover (sunny, partly cloudy, cloudy, foggy), precipitation (no precipitation, snow, hail, rain), wind (no wind, some wind, strong wind), and temperature (cold, cool, warm, hot).] [Assessment Boundary: Assessment is limited to qualitative measures of local weather conditions.]

P-PS3-1. **Plan and conduct an investigation to determine the effect of sunlight on Earth's surface.** [Clarification Statement: Examples of effects could include illumination, shadows casted, and the warming effect on living organisms and nonliving things.] [Assessment Boundary: Assessment of effects is limited to relative measures: e.g. warm/cool, bright/dark.]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Asking Questions and Defining Problems

Asking questions and defining problems in grades PK–2 builds on prior experiences and progresses to simple descriptive questions that can be tested.

- Ask questions based on observations to find more information about the designed world. (P-ESS2-1)

Planning and Carrying Out Investigations

Planning and carrying out investigations to answer questions or test solutions to problems in PK–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.

- With guidance, plan and conduct an investigation in collaboration with peers. (P-PS3-1)
- Make observations (firsthand or from media) to collect data that can be used to make comparisons. (P-ESS2-1)

Analyzing and Interpreting Data

Analyzing data in PK–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.

- Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (P-ESS1-1)
- Analyze data from tests of an object or tool to determine if it works as intended. (P-PS3-1),(P-ESS2-1)

Connections to Nature of Science

Scientific Investigations Use a Variety of Methods

- Scientists use different ways to study the world. (P-ESS1-1),(P-ESS2-1),(P-PS3-1)

Disciplinary Core Ideas

PS3.B: Conservation of Energy and Energy Transfer

- Sunlight warms Earth's surface. (P-PS3-1)

PS4.B: Electromagnetic Radiation

- Objects can be seen if light is available to illuminate them or if they give off their own light. (P-PS3-1)

ESS1.A: The Universe and its Stars

- Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. (P-ESS1-1)

ESS1.B: Earth and the Solar System

- Seasonal patterns of sunrise and sunset can be observed, described, and predicted. (P-ESS1-2)

ESS2.D: Weather and Climate

- Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time. (P-ESS2-1)

ESS3.B: Natural Hazards

- Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events. (P-ESS2-1)

Crosscutting Concepts

Patterns

- Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (P-ESS1-1),(P-ESS2-1)

Cause and Effect

- Simple tests can be designed to gather evidence to support or refute student ideas about causes. (P-ESS2-1),(P-PS3-1)

Connections to Engineering, Technology, and Applications of Science

Interdependence of Science, Engineering, and Technology

- People encounter questions about the natural world every day. (P-ESS2-1)

Influence of Engineering, Technology, and Science on Society and the Natural World

- People depend on various technologies in their lives; human life would be very different without technology. (P-ESS2-1)

Scientific Knowledge Assumes an Order and Consistency in Natural Systems

- Science assumes natural events happen today as they happened in the past. (P-ESS1-1)
- Many events are repeated. (P-ESS1-1)

Connections to other DCIs in prekindergarten: **P.PS2.A** (P-ESS1-1)

Articulation of DCIs across grades K-1: **K.PS3.B** (P-ESS3-1); **K.ESS2.D** (P-ESS2-1); **K.ESS3.B** (P-ESS2-1); **1.ESS1.A** (P-ESS1-1); **1.ESS1.B** (P-ESS1-1);

New York State Next Generation Learning Standards Connections:

ELA/Literacy –

PKR1	Participate in discussions about a text. (P-ESS1-1),(P-ESS2-1),(P-PS3-1)
PKR4	Exhibit an interest in learning new vocabulary. (P-ESS1-1),(P-ESS2-1),(P-PS3-1)
PKW2	Use a combination of drawing, dictating, oral expression, and/or emergent writing to name a familiar topic and supply information in child-centered, authentic, play-based learning. (P-ESS1-1),(P-ESS2-1),(P-PS3-1)
PKW3	Use a combination of drawing, dictating, oral expression, and/or emergent writing to narrate an event or events in a sequence. (P-ESS1-1),(P-ESS2-1),(P-PS3-1)
PKW7	Engage in a discussion using gathered information from experiences or provided resources. (P-ESS1-1),(P-ESS2-1),(P-PS3-1)
PKSL2	Interact with diverse formats and texts. (P-ESS1-1),(P-ESS2-1),(P-PS3-1)
PKSL3	Identify the speaker. (P-ESS1-1),(P-ESS2-1),(P-PS3-1)
PKSL5	Create a visual display. (P-ESS1-1),(P-ESS2-1),(P-PS3-1)

Mathematics –

MP.1	Make sense of problems and persevere in solving them. (P-ESS1-1).(P-ESS2-1)
MP.5	Use appropriate tools strategically. (P-ESS2-1)
NY-PK.CC.5	Identify whether the number of objects in one group is more, less, greater than, fewer, and/or equal to the number of objects in another group, e.g., by using matching and counting strategies. 1:1 (up to 5 objects) (P-ESS2-1)
NY-PK.G.1	Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as top, bottom, up, down, in front of, behind, over, under, and next to. (P-ESS1-1)
NY-PK.OA.2	Duplicate and extend (eg., What comes next?) simple patterns using concrete objects. (P-ESS1-1),(P-ESS2-1)
NY-PK.G.3	Analyze, compare, and sort two- and three-dimensional shapes and objects, in different sizes, using informal language to describe their similarities, differences, and other attributes (e.g., color, size, and shape). (P-PS3-1)
NY-PK.G.4	Create and build shapes from components (e.g., sticks and clay balls). (P-ESS1-1),(P-PS3-1)

*Connection boxes updated as of September 2018

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The text in the "Disciplinary Core Ideas" section is reproduced verbatim from A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas unless it is preceded by (NYSED).

New York State P-12 Science Learning Standards

K. Matter and Its Interactions

Students who demonstrate understanding can:

K-PS1-1. **Plan and conduct an investigation to test the claim that different kinds of matter exist as either solid or liquid, depending on temperature.** [Clarification Statement: Emphasis should be on solids and liquids at a given temperature and that a solid may be a liquid at higher temperature and a liquid may be a solid at a lower temperature.] [Assessment Boundary: Only a qualitative description of temperature, such as hot, warm, and cool, is expected]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Planning and Carrying Out Investigations

Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.

- With guidance, plan and conduct an investigation in collaboration with peers. (K-PS1-1)

Analyzing and Interpreting Data

Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.

- Record information (observations, thoughts, and ideas). (K-PS1-1)
- Analyze data from tests of an object or tool to determine if it works as intended. (K-PS1-1)

Connections to Nature of Science

Scientific Investigations Use a Variety of Methods

- Scientists use different ways to study the world. (K-PS1-1)

Disciplinary Core Ideas

PS1.A: Structure and Properties of Matter

- Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties. (K-PS1-1)

Crosscutting Concepts

Cause and Effect

- Simple tests can be designed to gather evidence to support or refute student ideas about causes. (K-PS1-1)

Energy and Matter

- Students observe objects may break into smaller pieces, be put together into larger pieces, or change shapes. (K-PS1-1)

Connections to other DCIs in kindergarten: **K.ETS1.A** (K-PS2-2); **K.ETS1.B** (K-PS2-2)

Articulation of DCIs across grade-levels: **2.ETS1.B** (K-PS2-2); **3.PS2.A** (K-PS2-1),(K-PS2-2); **3.PS2.B** (K-PS2-1); **4.PS3.A** (K-PS2-1); **4.ETS1.A** (K-PS2-2)

New York State Next Generation Learning Standards

Connections: ELA/Literacy –

KR1 Develop and answer questions about a text. (K-PS1-1)

KW6 Develop questions and participate in shared research and exploration to answer questions and to build and share knowledge. (K-PS1-1)

KSL3 Develop and answer questions to clarify what the speaker says. (K-PS1-1)

Mathematics –

MP.2 Reason abstractly and quantitatively. (K-PS1-1)

NY-K.MD.1 Describe measurable attributes of object(s), such as length or weight, using appropriate vocabulary. (K-PS1-1)

NY-K.MD.2 Directly compare two objects with a common measurable attribute and describe the difference. (K-PS1-1)

*Connection boxes updated as of September 2018

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The text in the "Disciplinary Core Ideas" section is reproduced verbatim from A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas unless it is preceded by (NYSED).

New York State P-12 Science Learning Standards

K. Forces and Interactions: Pushes and Pulls

Students who demonstrate understanding can:

K-PS2-1. Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object. [Clarification Statement: Examples of pushes or pulls could include a string attached to an object being pulled, a person pushing an object, a person stopping a rolling ball, and two objects colliding and pushing on each other.] [Assessment Boundary: Assessment is limited to different relative strengths or different directions, but not both at the same time. Assessment does not include non-contact pushes or pulls such as those produced by magnets.]

K-PS2-2. Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.* [Clarification Statement: Examples of problems requiring a solution could include having a marble or other object move a certain distance, follow a particular path, and knock down other objects. Examples of solutions could include tools such as a ramp to increase the speed of the object and a structure that would cause an object such as a marble or ball to turn.] [Assessment Boundary: Assessment does not include friction as a mechanism for change in speed.]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Planning and Carrying Out Investigations
Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.

- With guidance, plan and conduct an investigation in collaboration with peers. (K-PS2-1)

Analyzing and Interpreting Data
Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.

- Analyze data from tests of an object or tool to determine if it works as intended. (K-PS2-2)

Connections to Nature of Science

Scientific Investigations Use a Variety of Methods

- Scientists use different ways to study the world. (K-PS2-1)

Disciplinary Core Ideas

PS2.A: Forces and Motion

- Pushes and pulls can have different strengths and directions. (K-PS2-1),(K-PS2-2)
- Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. (K-PS2-1),(K-PS2-2)

PS2.B: Types of Interactions

- When objects touch or collide, they push on one another and can change motion. (K-PS2-1)

PS3.C: Relationship Between Energy and Forces

- A bigger push or pull makes things speed up or slow down more quickly. (secondary to K-PS2-1)

ETS1.A: Defining Engineering Problems

- A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions. (secondary to K-PS2-2)

Crosscutting Concepts

Cause and Effect

- Simple tests can be designed to gather evidence to support or refute student ideas about causes. (K-PS2-1),(K-PS2-2)

Connections to other DCIs in kindergarten: **K.ETS1.A** (K-PS2-2); **K.ETS1.B** (K-PS2-2)

Articulation of DCIs across grade-levels: **2.ETS1.B** (K-PS2-2); **3.PS2.A** (K-PS2-1),(K-PS2-2); **3.PS2.B** (K-PS2-1); **4.PS3.A** (K-PS2-1); **4.ETS1.A** (K-PS2-2)

New York State Next Generation Learning Standards Connections:

ELA/Literacy –

KR1 Develop and answer questions about a text. (K-PS2-2)
KW6 Develop questions and participate in shared research and exploration to answer questions and to build and share knowledge. (K-PS2-1)
KSL3 Develop and answer questions to clarify what the speaker says. (K-PS2-2)

Mathematics –

MP.2 Reason abstractly and quantitatively. (K-PS2-1)
NY-K.MD.1 Describe measurable attributes of object(s), such as length or weight, using appropriate vocabulary. (K-PS2-1)
NY-K.MD.2 Directly compare two objects with a common measurable attribute and describe the difference. (K-PS2-1)

*Connection boxes updated as of September 2018

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The text in the "Disciplinary Core Ideas" section is reproduced verbatim from A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas unless it is preceded by (NYSED).

New York State P-12 Science Learning Standards

K. Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment

Students who demonstrate understanding can:

K-LS1-1. **Use observations to describe patterns of what plants and animals (including humans) need to survive.** [Clarification Statement: Examples of patterns could include that animals need to take in food but plants do not; the different kinds of food needed by different types of animals; the requirement of plants to have light; and that all living things need water and other materials to live, grow, and thrive.]

K-ESS2-2. **Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.** [Clarification Statement: Examples of plants and animals changing their environment could include a squirrel digs in the ground to hide its food and tree roots can break concrete.]

K-ESS3-1. **Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.** [Clarification Statement: Examples of relationships could include that deer eat buds and leaves, therefore, they usually live in forested areas, and grasses need sunlight so they often grow in meadows. Plants, animals, and their surroundings make up a system.]

K-ESS3-3. **Communicate solutions that will reduce the impact of humans on living organisms and non-living things in the local environment. *** [Clarification Statement: Examples of human impact on the environment (land, water, air, plants, and animals) could include cutting trees to produce paper and using resources to produce bottles. Examples of solutions could include reusing paper and recycling cans and bottles.]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Developing and Using Models
Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.
- Use a model to represent relationships in the natural world. (K-ESS3-1)

Analyzing and Interpreting Data
Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.
- Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-LS1-1)

Engaging in Argument from Evidence
Engaging in argument from evidence in K–2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(s).
- Construct an argument with evidence to support a claim. (K-ESS2-2)

Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information.
- Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas. (K-ESS3-3)

Connections to Nature of Science

Scientific Knowledge is Based on Empirical Evidence
- Scientists look for patterns and order when making observations about the world. (K-LS1-1)

Disciplinary Core Ideas

LS1.C: Organization for Matter and Energy Flow in Organisms
- (NYSED) All animals need food, air, and water in order to live, grow, and thrive. Animals obtain food from plants or from other animals. Plants need water, air, and light to live, grow, and thrive. (K-LS1-1)

ESS2.E: Biogeology
- Plants and animals can change their environment. (K-ESS2-2)

ESS3.A: Natural Resources
- Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. (K-ESS3-1)

ESS3.C: Human Impacts on Earth Systems
- Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (secondary to K-ESS2-2),(K-ESS3-3)

ETS1.B: Developing Possible Solutions
- Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. (secondary to K-ESS3-3)

Crosscutting Concepts

Patterns
- Patterns in the natural and human designed world can be observed and used as evidence. (K-LS1-1)

Cause and Effect
- Events have causes that generate observable patterns. (K-ESS3-3)

Systems and System Models
- Systems in the natural and designed world have parts that work together. (K-ESS2-2),(K-ESS3-1)

Connections to other DCIs in kindergarten: **K.ETS1.A** (K-ESS3-3)

Articulation of DCIs across grade-levels: **1.LS1.A** (K-LS1-1),(K-ESS3-1); **2.LS2.A** (K-LS1-1); **2.ETS1.B** (K-ESS3-3); **3.LS2.C** (K-LS1-1); **3.LS4.B** (K-LS1-1); **4.ESS2.E** (K-ESS2-2);

New York State Next Generation Learning Standards Connections:

ELA/Literacy –

KR1	Develop and answer questions about a text. (K-ESS2-2)
KW1	Use a combination of drawing, dictating, oral expression and/or emergent writing to state an opinion pieces about a familiar topic, personal experience and state a reason to support that topic. (K-ESS2-2)
KW2	Use a combination of drawing, dictating, oral expression, and/or emergent writing to name a familiar topic and supply information. (K-ESS2-2),(K-ESS2-3)
KW7	Develop questions and participate in shared research and exploration to answer questions and to build and share knowledge. (K-LS1-1)
KSL5	Create and/or utilize existing visual displays to support descriptions. (K-ESS3-1)

Mathematics –

MP.2	Reason abstractly and quantitatively. (K-ESS3-1)
MP.4	Model with mathematics. (K-ESS3-1)
NY-K.CC	Counting and Cardinality (K-ESS3-1)
NY-K.MD.2	Directly compare two objects with a common measurable attribute and describe the difference. (K-LS1-1)

*Connection boxes updated as of September 2018

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The text in the "Disciplinary Core Ideas" section is reproduced verbatim from A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas unless it is preceded by (NYSED).

New York State P-12 Science Learning Standards

K. Weather and Climate

Students who demonstrate understanding can:

K-ESS2-1. Use and share observations of local weather conditions to describe patterns over time. [Clarification Statement: Examples of qualitative observations could include descriptions of the weather (such as sunny, cloudy, rainy, and warm); examples of quantitative observations could include numbers of sunny, windy, and rainy days in a month. Examples of patterns could include that it is usually cooler in the morning than in the afternoon and the number of sunny days versus cloudy days in different months.] [Assessment Boundary: Assessment of quantitative observations limited to whole numbers and relative measures such as warmer/cooler.]

K-ESS3-2. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.* [Clarification Statement: Emphasis is on local forms of severe weather and local resources available for preparedness measures.]

K-PS3-1. Make observations to determine the effect of sunlight on Earth's surface. [Clarification Statement: Examples of Earth's surface could include sand, soil, rocks, and water] [Assessment Boundary: Assessment of temperature is limited to relative measures such as warmer/cooler.]

K-PS3-2. Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.* [Clarification Statement: Examples of structures could include umbrellas, canopies, and tents that minimize the warming effect of the sun.]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Asking Questions and Defining Problems
Asking questions and defining problems in grades K–2 builds on prior experiences and progresses to simple descriptive questions that can be tested.

- Ask questions based on observations to find more information about the designed world. (K-ESS3-2)

Planning and Carrying Out Investigations
Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.

- Make observations (firsthand or from media) to collect data that can be used to make comparisons. (K-PS3-1)

Analyzing and Interpreting Data
Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.

- Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-ESS2-1)

Constructing Explanations and Designing Solutions
Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.

- Use tools and materials provided to design and build a device that solves a specific problem or a solution to a specific problem. (K-PS3- 2)

Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information.

- Read grade-appropriate texts and/or use media to obtain scientific information to describe patterns in the natural world.

----Connections to Nature of Science

Scientific Investigations Use a Variety of Methods

- Scientists use different ways to study the world. (K-PS3-1)

Science Knowledge is Based on Empirical Evidence

- Scientists look for patterns and order when making observations about the world. (K-ESS2-1)

Disciplinary Core Ideas

PS3.B: Conservation of Energy and Energy Transfer

- Sunlight warms Earth's surface. (K-PS3-1),(K-PS3-2)

ESS2.D: Weather and Climate

- Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time. (K-ESS2-1)

ESS3.B: Natural Hazards

- Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events. (K-ESS3-2)

ETS1.A: Defining and Delimiting an Engineering Problem

- Asking questions, making observations, and gathering information are helpful in thinking about problems. (secondary to K-ESS3-2)

Crosscutting Concepts

Patterns

- Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (K-ESS2-1)

Cause and Effect

- Events have causes that generate observable patterns. (K-PS3-1),(K-PS3-2),(K-ESS3-2)

Connections to Engineering, Technology and Applications of Science

Interdependence of Science, Engineering, and Technology

- People encounter questions about the natural world every day. (K-ESS3-2)

Influence of Engineering, Technology, and Science on Society and the Natural World

- People depend on various technologies in their lives; human life would be very different without technology. (K-ESS3-2)

Connections to other DCIs in kindergarten: **K.ETS1.A** (K-PS3-2),(K-ESS3-2); **K.ETS1.B** (K-PS3-2)

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The text in the "Disciplinary Core Ideas" section is reproduced verbatim from A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas unless it is preceded by (NYSED).

Articulation of DCIs across grade-levels: **1.PS4.B** (K-PS3-1),(K-PS3-2); **2.ESS1.C** (K-ESS3-2); **2.ESS2.A** (K-ESS2-1); **2.ETS1.B** (K-PS3-2); **3.ESS2.D** (K-PS3-1),(K-ESS2-1); **3.ESS3.B**

New York State Next Generation Learning Standards Connections:

ELA/Literacy –

KR1 Develop and answer questions about a text. (K-ESS3-2)

KW6 Develop questions and participate in shared research and exploration to answer questions and to build and share knowledge. (K-PS3-1),(K-PS3-2),(K-ESS2-1)

KSL3 Develop and answer questions to clarify what the speaker says. (K-ESS3-2)

Mathematics –

MP.2 Reason abstractly and quantitatively. (K-ESS2-1)

MP.4 Model with mathematics. (K-ESS2-1),(K-ESS3-2)

NY-K.CC Counting and Cardinality (K-ESS2-1),(K-ESS3-2)

NY-K.MD.1 Describe measurable attributes of objects, such as length or weight, using appropriate vocabulary. (K-ESS2-1)

NY-K.MD.2 Directly compare two objects with a common measurable attribute and describe the difference. (K-PS3-1),(K-PS3-2)

NY-K.MD.3 Classify objects into given categories; count the objects in each category and sort the categories by count. (K-ESS2-1)

*Connection boxes updated as of September 2018

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The text in the "Disciplinary Core Ideas" section is reproduced verbatim from A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas unless it is preceded by (NYSED).

New York State P-12 Science Learning Standards

1. Waves: Light and Sound

Students who demonstrate understanding can:

1-PS4-1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. [Clarification Statement: Examples of vibrating materials that make sound could include tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork.]

1-PS4-2. Make observations (firsthand or from media) to construct an evidence-based account that objects can be seen only when illuminated. [Clarification Statement: Examples of observations could include those made in a completely dark room, a pinhole box, and a video of a cave explorer with a flashlight. Illumination could be from an external light source or by an object giving off its own light.]

1-PS4-3. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light. [Clarification Statement: Examples of materials could include those that are transparent (such as clear plastic), translucent (such as wax paper), opaque (such as cardboard), and reflective (such as a mirror).] [Assessment Boundary: Assessment does not include the speed of light.]

1-PS4-4. Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.* [Clarification Statement: Examples of devices could include a light source to send signals, paper cup and string "telephones," and a pattern of drum beats.] [Assessment Boundary: Assessment does not include technological details for how communication devices work.]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Planning and Carrying Out Investigations
Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.

- Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question. (1-PS4-1),(1-PS4-3)

Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.

- Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena (1-PS4- 2)
- Use tools and materials provided to design a device that solves a specific problem. (1-PS4-4)

Connections to Nature of Science

Scientific Investigations Use a Variety of Methods

- Science investigations begin with a question. (1-PS4-1)
- Scientists use different ways to study the world. (1-PS4-1)

Disciplinary Core Ideas

PS4.A: Wave Properties

- Sound can make matter vibrate, and vibrating matter can make sound. (1-PS4-1)

PS4.B: Electromagnetic Radiation

- Objects can be seen if light is available to illuminate them or if they give off their own light. (1-PS4-2)
- Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam. (Boundary: The idea that light travels from place to place is developed through experiences with light sources, mirrors, and shadows, but no attempt is made to discuss the speed of light.) (1-PS4-3)

PS4.C: Information Technologies and Instrumentation

- People also use a variety of devices to communicate (send and receive information) over long distances. (1-PS4-4)

Crosscutting Concepts

Cause and Effect

- Simple tests can be designed to gather evidence to support or refute student ideas about causes. (1-PS4-1),(1-PS4-2),(1-PS4-3)

Connections to Engineering, Technology, and Applications of Science

Influence of Engineering, Technology, and Science, on Society and the Natural World

- People depend on various technologies in their lives; human life would be very different without technology. (1-PS4-4)

Connections to other DCIs in first grade: N/A

Articulation of DCIs across grade-levels: **K.ETS1.A** (1-PS4-4); **2.PS1.A** (1-PS4-3); **2.ETS1.B** (1-PS4-4); **4.PS4.C** (1-PS4-4); **4.PS4.B** (1-PS4-2); **4.ETS1.A** (1-PS4-4)

New York State Next Generation Learning Standards Connections:

ELA/Literacy –

1W2	Write an informative/explanatory text to introduce a topic, supplying some facts to develop points, and provide some sense of closure. (1-PS4-2),(1-PS4-1),(1-PS4-2),(1-PS4-3),(1-PS4-4)
1W6	Develop questions and participate in shared research and explorations to answer questions and to build knowledge. (1-PS4-1),(1-PS4-2),(1-PS4-3)
1W7	Recall and represent relevant information from experiences or gather information from provided sources to answer a question in a variety of ways. (1-PS4-1),(1-PS4-2),(1-PS4-3)
1SL1	Participate in collaborative conversations with diverse peers and adults (e.g., in small and large groups and during play). (1-PS4-1),(1-PS4-2),(1-PS4-3)

Mathematics –

MP.5	Use appropriate tools strategically. (1-PS4-4)
NY-1.MD.1	Order three objects by length; compare the lengths of two objects indirectly by using a third object. (1-PS4-4)
NY-1.MD.2	Measure the length of an object using same-size "length units" placed end to end with no gaps or overlaps. Express the length of an object as a whole number of "length units". (1-PS4-4)

*Connection boxes updated as of September 2018

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The text in the "Disciplinary Core Ideas" section is reproduced verbatim from A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas unless it is preceded by (NYSED).

New York State P-12 Science Learning Standards

1. Structure, Function, and Information Processing

Students who demonstrate understanding can:

1-LS1-1. **Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.*** [Clarification Statement: Examples of human problems that can be solved by mimicking plant or animal solutions could include designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells, and animal scales; stabilizing structures by mimicking animal tails and roots on plants; keeping out intruders by mimicking thorns on branches and animal quills; and, detecting intruders by mimicking eyes and ears.]

1-LS1-2. **Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.** [Clarification Statement: Examples of patterns of behaviors could include the signals that offspring make (such as crying, cheeping, and other vocalizations) and the responses of the parents (such as feeding, comforting, and protecting the offspring).]

1-LS3-1. **Make observations to construct an evidence-based account that some young plants and animals are similar to, but not exactly like, their parents.** [Clarification Statement: Examples of patterns could include features plants or animals share. Examples of observations could include leaves from the same kind of plant are the same shape but can differ in size; and, a particular breed of dog looks like its parents but is not exactly the same.] [Assessment Boundary: Assessment does not include inheritance or animals that undergo metamorphosis or hybrids.]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Constructing Explanations and Designing Solutions
Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.

- Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (1-LS3-1)
- Use materials to design a device that solves a specific problem or a solution to a specific problem. (1-LS1-1)

Obtaining, Evaluating, and Communicating Information
Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information.

- Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world. (1-LS1-2)

Connections to Nature of Science

Science Knowledge is Based on Empirical Evidence

- Scientists look for patterns and order when making observations about the world. (1-LS1-2)

Disciplinary Core Ideas

LS1.A: Structure and Function

- All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)

LS1.B: Growth and Development of Organisms

- Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. (1-LS1-2)

LS1.D: Information Processing

- Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs. (1-LS1-1)

LS3.A: Inheritance of Traits

- (NYSED) Some young animals are similar to, but not exactly, like their parents. Some young plants are also similar to, but not exactly, like their parents. (1-LS3-1)

LS3.B: Variation of Traits

- Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways. (1-LS3-1)

Crosscutting Concepts

Patterns

- Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-LS1-2),(1-LS3- 1)

Structure and Function

- The shape and stability of structures of natural and designed objects are related to their function(s). (1-LS1-1)

Connections to Engineering, Technology and Applications of Science

Influence of Engineering, Technology, and Science on Society and the Natural World

- Every human-made product is designed by applying some knowledge of the natural world and is built by using materials derived from the natural world. (1-LS1-1)

Connections to other DCIs in first grade: N/A

Articulation of DCIs across grade-levels: **K.ETS1.A** (1-LS1-1); **3.LS2.D** (1-LS1-2) **3.LS3.A** (1-LS3-1); **3.LS3.B** (1-LS3-1); **4.LS1.A** (1-LS1-1); **4.LS1.D** (1-LS1-1); **4.ETS1.A** (1-LS1-1)

New York State Next Generation Learning Standards Connections:

ELA/Literacy –

1R1 Develop and answer questions about key ideas and details in a text. (1-LS1-2),(1-LS3-1)
1R2 Identify a main topic or idea in a text and retell important details. (1-LS1-2)
1W6 Develop questions and participate in shared research and explorations to answer questions and to build knowledge. (1-PS4-1),(1-PS4-2),(1-PS4-3),(1-PS4-4)
1W7 Recall and represent information from experiences or gather information from provided sources to answer a question. (1-LS3-1)

Mathematics –

MP.2 Reason abstractly and quantitatively. (1-LS3-1)
MP.5 Use appropriate tools strategically. (1-LS3-1)
NY-1.NBT.3 Compare two two-digit numbers based on the meanings of the tens and one digits, recording the results of comparisons with the symbols >, =, and <. (1-LS1-2)
NY-1.NBT.4 Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10. Use concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten. Relate the strategy to a written method and explain the reasoning uses. (1-LS1-2)
NY-1.NBT.5 Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used. (1-LS1-2)
NY-1.NBT.6 Subtract multiples of 10 from the range 10-90 from multiples of 10 in the range 10-90 using concrete models or drawings, and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. Relate the strategy to a written method and explain the reasoning used. (1-LS1-2)
NY-1.MD.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object. (1-LS3-1)

*Connection boxes updated as of September 2018

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The text in the "Disciplinary Core Ideas" section is reproduced verbatim from A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas unless it is preceded by (NYSED).

New York State P-12 Science Learning Standards

1. Space Systems: Patterns and Cycles

Students who demonstrate understanding can:

1-ESS1-1. Use observations of the Sun, moon, and stars to describe patterns that can be predicted. [Clarification Statement: Examples of patterns could include that the Sun and moon appear to rise along the eastern horizon, move in a predictable pathway across the sky, and set along the western horizon; and stars other than our Sun are visible at night depending on weather and other conditions such as light pollution but not visible during the day.] [Assessment Boundary: Assessment of star patterns is limited to stars being seen at night and not during the day.]

1-ESS1-2. Make observations at different times of year to relate the amount of daylight to the time of year. [Clarification Statement: Emphasis is on relative comparisons of the amount of daylight in the winter to the amount in the spring or fall.] [Assessment Boundary: Assessment is limited to relative amounts of daylight, not quantifying the hours or time of daylight.]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Planning and Carrying Out Investigations

Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.

- Make observations (firsthand or from media) to collect data that can be used to make comparisons. (1-ESS1-2)

Analyzing and Interpreting Data

Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.

- Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (1-ESS1-1)

Disciplinary Core Ideas

ESS1.A: The Universe and its Stars

- Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. (1-ESS1-1)

ESS1.B: Earth and the Solar System

- Seasonal patterns of sunrise and sunset can be observed, described, and predicted. (1-ESS1-2)

Crosscutting Concepts

Patterns

- Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-ESS1-1),(1-ESS1-2)

Connections to Nature of Science

Scientific Knowledge Assumes an Order and Consistency in Natural Systems

- Science assumes natural events happen today as they happened in the past. (1-ESS1-1)
- Many events are repeated. (1-ESS1-1)

Connections to other DCIs in first grade: N/A

Articulation of DCIs across grade-levels: **3.PS2.A** (1-ESS1-1); **5.PS2.B** (1-ESS1-1),(1-ESS1-2) **5-ESS1.B** (1-ESS1-1),(1-ESS1-2)

New York State Next Generation Learning Standards Connections:

ELA/Literacy –

1W6	Develop questions and participate in shared research and explorations to answer questions and to build knowledge. (1-ESS1-1),(1-ESS1-2)
1W7	Recall and represent relevant information from experiences or gather information from provided sources to answer a question in a variety of ways. (1-ESS1-1),(1-ESS1-2)

Mathematics –

MP.2	Reason abstractly and quantitatively. (1-ESS1-2)
MP.4	Model with mathematics. (1-ESS1-2)
MP.5	Use appropriate tools strategically. (1-ESS1-2)
NY-1.OA.1	Use addition and subtraction within 20 to solve one step word problems involving situations of adding to, taking from, putting together, taking apart, and/or comparing, with unknowns in all positions. (1-ESS1-2)
NY-1.MD.4	Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another. (1-ESS1-2)

*Connection boxes updated as of September 2018

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The text in the "Disciplinary Core Ideas" section is reproduced verbatim from A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas unless it is preceded by (NYSED).

New York State P-12 Science Learning Standards

2. Structure and Properties of Matter

Students who demonstrate understanding can:

2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. [Clarification Statement: Observations could include color, texture, hardness, and flexibility. Patterns could include the similar properties that different materials share.]

2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.* [Clarification Statement: Examples of properties could include, strength, flexibility, hardness, texture, and absorbency.] [Assessment Boundary: Assessment of quantitative measurements is limited to length.]

2-PS1-3. Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object. [Clarification Statement: Examples of pieces could include blocks, building bricks, or other assorted small objects.]

2-PS1-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. [Clarification Statement: An example of a reversible change could include freezing and melting. An example of an irreversible change could include cooking an egg.]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Planning and Carrying Out Investigations

Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.

- Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. (2-PS1-1)

Analyzing and Interpreting Data

Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.

- Analyze data from tests of an object or tool to determine if it works as intended. (2-PS1-2)

Constructing Explanations and Designing Solutions

Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.

- Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (2-PS1-3)

Engaging in Argument from Evidence

Engaging in argument from evidence in K–2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(s).

- Construct an argument with evidence to support a claim. (2-PS1-4)

Connections to Nature of Science

Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena

- Scientists search for cause and effect relationships to explain natural events. (2-PS1-4)

Disciplinary Core Ideas

PS1.A: Structure and Properties of Matter

- Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties. (2-PS1-1)
- Different properties are suited to different purposes. (2-PS1-2),(2-PS1-3)
- A great variety of objects can be built up from a small set of pieces. (2-PS1-3)

PS1.B: Chemical Reactions

- Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not. (2-PS1-4)

Crosscutting Concepts

Patterns

- Patterns in the natural and human designed world can be observed. (2-PS1-1)

Cause and Effect

- Events have causes that generate observable patterns. (2-PS1-4)
- Simple tests can be designed to gather evidence to support or refute student ideas about causes. (2-PS1-2)

Energy and Matter

- Objects may break into smaller pieces and be put together into larger pieces, or change shapes. (2-PS1-3)

Connections to Engineering, Technology, and Applications of Science

Influence of Engineering, Technology, and Science on Society and the Natural World

- Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural

Connections to other DCIs in second grade: N/A

Articulation of DCIs across grade-levels: **4.ESS2.A** (2-PS1-3); **5.PS1.A** (2-PS1-1),(2-PS1-2),(2-PS1-3); **5.PS1.B** (2-PS1-4); **5.LS2.A** (2-PS1-3)

New York State Next Generation Learning Standards Connections:

ELA/Literacy –

2R1	Develop and answer questions to demonstrate an understanding of key ideas and details in a text. (2-PS1-4)
2R3	In informational texts, describe the connections among ideas, concepts, or a series of events. (2-PS1-4)
2R8	Explain how specific points the author or illustrator makes in a text are supported by relevant reasons. (2-PS1-2),(2-PS1-4)
2W1	Write an opinion about a topic or personal experience, using clear reasons and relevant evidence. Please note: Students in 2nd grade should understand the difference between opinions and arguments and begin to learn how to write arguments with claims and supporting reasons. (2-PS1-4)
2W6	Develop questions and participate in shared research and explorations to answer questions and to build knowledge. (2-PS1-1),(2-PS1-2),(2-PS1-3)
2W7	Recall and represent relevant information from experiences or gather information from provided sources to answer a question. (2-PS1-1),(2-PS1-2),(2-PS1-3)

Mathematics –

MP.2	Reason abstractly and quantitatively. (2-PS1-2)
MP.4	Model with mathematics. (2-PS1-1),(2-PS1-2)
MP.5	Use appropriate tools strategically. (2-PS1-2)
NY-2.MD.10	Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a picture graph or a bar graph. (2-PS1-1),(2-PS1-2)

*Connection boxes updated as of September 2018

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The text in the "Disciplinary Core Ideas" section is reproduced verbatim from A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas unless it is preceded by (NYSED).

2. Interdependent Relationships in Ecosystems

Students who demonstrate understanding can:

2-LS2-1. **Plan and conduct an investigation to determine if plants need sunlight and water to grow.** [Assessment Boundary: Assessment is limited to testing one variable at a time.]

2-LS2-2. **Develop a simple model that illustrates how plants and animals depend on each other for survival.*** [Clarification Statement: Examples could include animals dispersing seeds or pollinating plants, and plants providing food, shelter, and other materials for animals.]

2-LS4-1. **Make observations of plants and animals to compare the diversity of life in different habitats.** [Clarification Statement: Emphasis is on the diversity of living things in each of a variety of different habitats.] [Assessment Boundary: Assessment does not include specific animal and plant names in specific habitats.]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Developing and Using Models

Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.

- Develop a simple model based on evidence to represent a proposed object or tool. (2-LS2-2)

Planning and Carrying Out Investigations

Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.

- Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. (2-LS2-1)
- Make observations (firsthand or from media) to collect data that can be used to make comparisons. (2-LS4-1)

Connections to Nature of Science

Scientific Knowledge is Based on Empirical Evidence

- Scientists look for patterns and order when making observations about the world. (2-LS4-1)

Disciplinary Core Ideas

LS2.A: Interdependent Relationships in Ecosystems

- Animals depend on plants or other animals for food. (2-LS2-2)
- (NYSED) Plants depend on water, light and air to grow. (2-LS2-1)
- (NYSED) Some plants depend on animals for pollination and for dispersal of seeds from one location to another. (2-LS2-2)

LS4.D: Biodiversity and Humans

- There are many different kinds of living things in any area, and they exist in different places on land and in water. (2-LS4-1)

ETS1.B: Developing Possible Solutions

- (NYSED) Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas to other people (secondary to 2-LS2-2)

Crosscutting Concepts

Cause and Effect

- Events have causes that generate observable patterns. (2-LS2-1)

Structure and Function

- The shape and stability of structures of natural and designed objects are related to their function(s). (2-LS2-2)

Patterns

- Similarities and differences in patterns can be used to sort and classify organisms. (2-LS4-1)

Connections to other DCIs in second grade: N/A

Articulation of DCIs across grade-levels: **K.LS1.C** (2-LS2-1); **K-ESS3.A** (2-LS2-1); **K.ETS1.A** (2-LS2-2); **3.LS4.C** (2-LS4-1); **3.LS4.D** (2-LS4-1); **5.LS1.C** (2-LS2-1); **5.LS2.A** (2-LS2-2),(2-LS4-1)

New York State Next Generation Learning Standards Connections:

ELA/Literacy –

2W6 Develop questions and participate in shared research and explorations to answer questions and to build knowledge. (2-LS2-1),(2-LS4-1)

2W7 Recall and represent relevant information from experiences or gather information from provided sources to answer a question. (2-LS2-1),(2-LS4-1)

2SL5 Include digital media and/or visual displays in presentations to clarify or support ideas, thoughts, and feelings. (2-LS2-2)

Mathematics –

MP.2 Reason abstractly and quantitatively. (2-LS2-1),(2LS4-1)

MP.4 Model with mathematics. (2-LS2-1),(2-LS2-2),(2-LS4-1)

MP.5 Use appropriate tools strategically. (2-LS2-1)

NY-2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a picture graph or a bar graph. (2-LS2-2),(2-LS4-1)

*Connection boxes updated as of September 2018

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The text in the "Disciplinary Core Ideas" section is reproduced verbatim from A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas unless it is preceded by (NYSED).

New York State P-12 Science Learning Standards

2. Earth's Systems: Processes that Shape the Earth

Students who demonstrate understanding can:

2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly. [Clarification Statement: Examples of events and timescales could include volcanic explosions and earthquakes, which happen quickly and weathering and erosion of rocks, which may occur slowly.] [Assessment Boundary: Assessment does not include quantitative measurements of timescales.]

2-ESS2-1. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.* [Clarification Statement: Examples of solutions could include different designs for using rocks, shrubs, grass, and trees to hold back wind, water, and land.]

2-ESS2-2. Develop a model to represent the shapes and kinds of land and bodies of water in an area. [Assessment Boundary: Assessment does not include quantitative scaling in models.]

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

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Developing and Using Models
Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.

- Develop a model to represent patterns in the natural world. (2-ESS2-2)

Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.

- Make observations from several sources to construct an evidence-based account for natural phenomena. (2-ESS1-1)
- Compare multiple solutions to a problem. (2-ESS2- 1)

Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information.

- Obtain information using various texts, text features (e.g., headings, tables of contents, glossaries, electronic menus, icons), and other media that will be useful in answering a scientific question. (2-ESS2-3)

Disciplinary Core Ideas

ESS1.C: The History of Planet Earth

- Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. (2-ESS1-1)

ESS2.A: Earth Materials and Systems

- Wind and water can change the shape of the land. (2-ESS2-1)

ESS2.B: Plate Tectonics and Large-Scale System Interactions

- Maps show where things are located. One can map the shapes and kinds of land and water in any area. (2-ESS2-2)

ESS2.C: The Roles of Water in Earth's Surface Processes

- Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form. (2-ESS2-3)

ETS1.C: Optimizing the Design Solution

- Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (secondary to 2-ESS2-1)

Crosscutting Concepts

Patterns

- Patterns in the natural world can be observed. (2-ESS2-2),(2-ESS2-3)

Stability and Change

- Things may change slowly or rapidly. (2-ESS1-1),(2-ESS2-1)

Connections to Engineering, Technology, and Applications of Science

Influence of Engineering, Technology, and Science on Society and the Natural World

- Developing and using technology has impacts on the natural world. (2-ESS2-1)

Connections to Nature of Science

Science Addresses Questions About the Natural and Material World

- Scientists study the natural and material world. (2-ESS2-1)

Connections to other DCIs in second grade: **2.PS1.A** (2-ESS2-3)

Articulation of DCIs across grade-levels: **K.ETS1.A** (2-ESS2-1); **3.LS2.C** (2-ESS1-1); **4.ESS1.C** (2-ESS1-1); **4.ESS2.A** (2-ESS1-1),(2-ESS2-1); **4.ESS2.B** (2-ESS2-2); **4.ETS1.A** (2-ESS2-1); **4.ETS1.B** (2-ESS2-1); **4.ETS1.C** (2-ESS2-1); **5.ESS2.A** (2-ESS2-1); **5.ESS2.C** (2-ESS2-2);(2-ESS2-1)

New York State Next Generation Learning Standards Connections:

ELA/Literacy –

2RI	Develop and answer such questions to demonstrate understanding of key ideas and details in a text. (2-ESS1-1)
2R3	In literary texts, describe how characters respond to major events and challenges. (2-ESS1-1),(2-ESS2-1)
2W6	Develop questions and participate in shared research and explorations to answer questions and to build knowledge. (2-ESS1-1), (2-ESS1-1)
2W7	Recall and represent relevant information from experiences or gather information from provided sources to answer a question. (2-ESS1-1),(2-ESS2-3)
2SL2	Recount or describe key ideas or details of diverse texts and formats. (2-ESS1-1)
2SL5	Include digital media and/or visual displays in presentations to clarify or support ideas, thoughts, and feelings. (2-ESS2-2)

Mathematics –

MP.2	Reason abstractly and quantitatively. (2-ESS2-1),(2-ESS2-1),(2-ESS2-2)
MP.4	Model with mathematics. (2-ESS1-1),(2-ESS2-1),(2-ESS2-2)
MP.5	Use appropriate tools strategically. (2-ESS2-1)
NY-2.NBT	Understand place value. (2-ESS1-1)
NY-2.NBT.3	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. (2-ESS2-2)
NY-2.MD.5	Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., using drawings and equations with a symbol for the unknown number to represent the problem. (2-ESS2-1)

*Connection boxes updated as of September 2018

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The text in the "Disciplinary Core Ideas" section is reproduced verbatim from A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas unless it is preceded by (NYSED).

New York State P-12 Science Learning Standards

K-2.Engineering Design

Students who demonstrate understanding can:

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

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

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

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices

Asking Questions and Defining Problems

Asking questions and defining problems in K–2 builds on prior experiences and progresses to simple descriptive questions.

- Ask questions based on observations to find more information about the natural and/or designed world. (K-2-ETS1-1)
- Define a simple problem that can be solved through the development of a new or improved object or tool. (K-2-ETS1-1)

Developing and Using Models

Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.

- Develop a simple model based on evidence to represent a proposed object or tool. (K-2-ETS1-2)

Analyzing and Interpreting Data

Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.

- Analyze data from tests of an object or tool to determine if it works as intended. (K-2-ETS1-3)

Disciplinary Core Ideas

ETS1.A: Defining and Delimiting Engineering Problems

- A situation that people want to change or create can be approached as a problem to be solved through engineering. (K-2-ETS1-1)
- Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1)
- Before beginning to design a solution, it is important to clearly understand the problem. (K-2-ETS1-1)

ETS1.B: Developing Possible Solutions

- Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. (K-2-ETS1-2)

ETS1.C: Optimizing the Design Solution

- Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (K-2-ETS1-3)

Crosscutting Concepts

Structure and Function

- The shape and stability of structures of natural and designed objects are related to their function(s). (K-2-ETS1-2)

Connections to K-2-ETS1.A: Defining and Delimiting Engineering Problems include:
Kindergarten: K-PS2-2, K-ESS3-2

Connections to K-2-ETS1.B: Developing Possible Solutions to Problems include:
Kindergarten: K-ESS3-3, **First Grade:** 1-PS4-4, **Second Grade:** 2-LS2-2

Connections to K-2-ETS1.C: Optimizing the Design Solution include:
Second Grade: 2-ESS2-1

Articulation of DCIs across grade-bands: **3-5.ETS1.A** (K-2-ETS1-1),(K-2-ETS1-2),(K-2 -ETS1-3); **3-5.ETS1.B** (K-2-ETS1-2),(K-2-ETS1-3); **3-5.ETS1.C** (K-2-ETS1-1),(K-2-ETS1-2),(K-2-ETS1-3)

New York State Next Generation Learning Standards Connections:

ELA/Literacy –

2R1 Develop and answer to demonstrate understanding of key ideas and details in a text. (K-2-ETS1-1)
2W7 Recall and represent information from experiences or gather information from provided sources to answer a question. (K-2-ETS1-1),(K-2-ETS1-3)
2SL5 Include digital media and/or visual displays in presentations to clarify ideas, thoughts, and feelings. (K-2-ETS1-2)

Mathematics –

MP.2 Reason abstractly and quantitatively. (K-2-ETS1-1),(K-2-ETS1-3)
MP.4 Model with mathematics. (K-2-ETS1-1),(K-2-ETS1-3)
MP.5 Use appropriate tools strategically. (K-2-ETS1-1),(K-2-ETS1-3)
NY-2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (K-2-ETS1-1),(K-2-ETS1-3)

*Connection boxes updated as of September 2018

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea. The text in the "Disciplinary Core Ideas" section is reproduced verbatim from A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas unless it is preceded by (NYSED).