Grade, Subject/Course: Kindergarten Science	
Unit: Animal Needs	**__x__ Essential _____ Important _____ Compact**
Big Ideas: ● The structures, functions, and behaviors of organisms allow them to obtain, use, transport, and remove the matter and energy needed to sustain them. ● Life and the planet's nonliving systems impact one another. ● All materials, energy, and fuels that humans use are derived from natural sources, some of which are renewable over time and others are not.	
PA STEELS (Science, Technology & Engineering, and Environmental Literacy & Sustainability) Standards: **3.1.K.A.** Use observations to describe patterns of what plants and animals (including humans) need to survive. **3.3.K.B.** Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs. **3.3.K.C.** Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live. **3.4.K-2.A** Categorize ways people harvest, redistribute, and use natural resources. **3.5.K-2.H** Explain the needs and wants of individuals and societies.	**Interdisciplinary Standards (if applicable):**
Essential Questions: ● How do organisms obtain and use the matter and energy they need to live and grow? ● How do living organisms alter Earth's processes and structures? ● How do Earth's surface processes and human activities affect each other? ● How do humans depend on Earth's resources?	**Understandings:** Students will know… ● the basic needs of animals. ● animals need things to eat. ● animals need a safe place to live. ● animals change their environment to meet those needs.

Knowledge:	**Do/Skills:** Students will be able to…
● All animals need food in order to live and grow. They obtain their food from plants or from other animals. ● Animals can change their environment. ● 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.	● obtain information through virtual observations of different animal behaviors. They use this evidence to explain that one of the basic needs of animals is food and shelter. ● obtain information through media about how different animal homes are built. ● take a nature walk to look for evidence of animal homes, food, and a water source.
Vocabulary: ● argument ● evidence ● needs ● environment ● organism ● patterns ● structure ● survive	**Core Resources:** ● Mystery Science
Common Assessment(s):	**Supplemental Resources:** ● Brainpop Jr. ● Discovery Education ● Generation Genius

Grade, Subject/Course: Kindergarten Science	
Unit: Plant Needs	**__x__ Essential _____ Important _____ Compact**
Big Ideas: ● The structures, functions, and behaviors of organisms allow them to obtain, use, transport, and remove the matter and energy needed to sustain them. ● Human activities in agriculture, industry, and everyday life have an impact on the land, rivers, ocean, and air.	
PA STEELS (Science, Technology & Engineering, and Environmental Literacy & Sustainability) Standards: **3.1.K.A** Use observations to describe patterns of what plants and animals (including humans) need to survive. **3.3.K.E** Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment. **3.5.K-2.D** Select ways to reduce, reuse, and recycle resources in daily life. **3.5.K-2.BB** Compare the natural world and human-made world.	**Interdisciplinary Standards (if applicable):**
Essential Questions: ● How do organisms obtain and use the matter and energy they need to live and grow? ● How do humans change the planet?	**Understandings:** Students will know that… ● plants have basic needs: water and sunlight. ● plants go through changes as they grow from seed to seedling.
Knowledge: ● Things that people do to live comfortably can affect the world around them. They can make choices that reduce their impacts on the land, water, air and other living things. ● Plants need water and light to live and grow.	**Do/Skills:** Students will be able to… ● make observations of plants in order to identify their needs and that they are living things. ● investigate to determine the basic needs of plants. They observe to identify ways young plants resemble the parent plant and how the plant changes as it proceeds through its life cycle. ● obtain evidence of living organisms by virtually keeping watch of a log and the living things that visit it. .

Vocabulary:	**Core Resources:**
● environment ● leaves ● organism ● patterns ● roots ● stems ● structure ● survive ● solutions ● air	● Mystery Science
Common Assessment(s):	**Supplemental Resources:** ● Brainpop Jr. ● Discovery Education ● Generation Genius

Grade, Subject/Course: Kindergarten Science	
Unit: Severe Weather	**__x__ Essential _____ Important _____ Compact**
Big Ideas: ● Natural processes can cause sudden or gradual changes to Earth's systems, some of which may adversely affect humans. ● Weather and climate are shaped by complex interactions involving sunlight, the ocean, the atmosphere, ice, landforms, and living things.	
PA STEELS (Science, Technology & Engineering, and Environmental Literacy & Sustainability) Standards: ● **3.3.K.A** Use and share observations of local weather conditions to describe patterns over time. ● **3.3.K.D** Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.	**Interdisciplinary Standards (if applicable):**
Essential Questions: ● How do natural hazards affect individuals and societies? ● What regulates weather and climate?	**Understandings:** Students will know that… ● weather forecasts provide information about weather. ● they can prepare and stay safe from storms. ● weather has characteristics: wind, clouds, temperature, and precipitation.
Knowledge: ● 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. ● 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.	**Do/Skills:** Students will be able to… ● obtain information of different types of severe weather to observe and describe how the weather changes during these events and what students can do to prepare and stay safe. ● create a simple tool that allows them to observe how hard the wind is blowing. They use this tool to observe weather changes and describe the pattern of faster wind speeds right before a storm. ● obtain information through observations of the weather. They communicate the information by acting as weather watchers and creating drawings of the weather conditions.

Vocabulary:	**Core Resources:**
● conditions ● design ● evaluate ● hazard ● natural ● natural hazard ● process ● region ● solution ● weather ● sunny ● changes ● cloudy ● cold ● cool ● describe ● foggy ● hot ● observe ● partly cloudy ● patterns ● predict ● rainy ● snowy	● Mystery Science
Common Assessment(s):	**Supplemental Resources:** ● Brainpop Jr. ● Discovery Education ● Generation Genius

Grade, Subject/Course: Kindergarten Science	
Unit: Weather Patterns	**__x__ Essential _____ Important _____ Compact**
Big Ideas: ● Weather and climate are shaped by complex interactions involving sunlight, the ocean, the atmosphere, ice, landforms, and living things. ● Life and the planet's nonliving systems impact one another.	
PA STEELS (Science, Technology & Engineering, and Environmental Literacy & Sustainability) Standards: **3.3.K.A** Use and share observations of local weather conditions to describe patterns over time. **3.3.K.B** Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.	**Interdisciplinary Standards (if applicable):**
Essential Questions: ● What regulates weather and climate? ● How do living organisms alter Earth's processes and structures?	**Understandings:** Students will know that… ● weather changes from day to day and season to season. ● there are patterns in weather.
Knowledge: ● 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. ● Plants and animals can change their environment.	**Do/Skills:** Students will be able to… ● track the weather daily and analyze the data by collecting, recording, and sharing their observations to observe patterns of weather changing throughout the day and from day-to-day. ● evaluate information in a series of unnamed drawings of each season. They use these clues to identify characteristics of each season and describe the yearly cyclical pattern. ● identify the reasons why birds lay eggs in the spring. Then, they develop a bird nest model and use this model as evidence for how animals can change the environment to meet their needs.

Vocabulary:	**Core Resources:**
● sunny ● changes ● cloudy ● cold ● cool ● describe ● foggy ● hot ● observe ● partly cloudy ● patterns ● predict ● rainy ● snowy ● needs ● environment	● Mystery Science
Common Assessment(s):	**Supplemental Resources:** ● Brainpop Jr. ● Discovery Education ● Generation Genius

Grade, Subject/Course: Kindergarten Science	
Unit: Sunlight & Warmth	**__x__ Essential _____ Important _____ Compact**
Big Ideas: ● Energy can be modeled as either motions of particles or as being stored in force fields.	
PA STEELS (Science, Technology & Engineering, and Environmental Literacy & Sustainability) Standards: **3.2.K.C.** Make observations to determine the effect of sunlight on Earth's surface. **3.2.K.D.** Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area. **3.5.K-2.BB** Compare the natural world and human-made world.	**Interdisciplinary Standards (if applicable):**
Essential Questions: ● What is energy?	**Understandings:** Students will know that… ● sunlight warms the earth's surface. ● the sun's energy heats up the pavement, keeps us warm and can melt things. ● shade and structures can reduce the warming effect of the sun.
Knowledge: ● Sunlight warms Earth's surface.	**Do/Skills:** Students will be able to… ● make observations of the pavement heating up after being warmed by the Sun. Then, they design a solution to build a shade structure that can reduce the warming effect of sunlight. ● carry out an investigation to test which materials can redirect the light and heat of sunlight. ● construct an explanation for why marshmallows melt in one car and not in another car. Then, they conduct a virtual investigation to determine that the warmth of the Sun is the cause of the melted marshmallow.

Vocabulary:	**Core Resources:**
● changes ● describe ● earth ● surface ● sunlight ● observe ● predict ● solution ● design ● tools	● Mystery Science
Common Assessment(s):	**Supplemental Resources:** ● Brainpop Jr. ● Discovery Education ● Generation Genius

Grade, Subject/Course: Kindergarten Science	
Unit: Pushes and Pulls	**__x__ Essential _____ Important _____ Compact**
Big Idea: ● A change in motion of interacting objects can be explained and predicted by forces. ● All forces between objects, regardless of size or direction, arise from only a few types of interactions.	
PA STEELS (Science, Technology & Engineering, and Environmental Literacy & Sustainability) Standards: **3.2.K.A.** 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. **3.2.K.B.** 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.	**Interdisciplinary Standards (if applicable):**
Essential Questions: ● How can one predict an object's continued motion, changes in motion, or stability? ● What underlying forces explain the variety of interactions observed?	**Understandings:** Students will know that… ● pushes and pulls affect the motion of objects. ● direction and strength effects pushes and pulls.
Knowledge: ● Pushes and pulls can have different strengths and directions. ● Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. ● When objects touch or collide, they push on one another and can change motion.	**Do/Skills:** Students will be able to… ● observe different machines and use those observations as evidence for why machines make work easier. ● observe construction equipment being used in different ways to move objects. ● carry out an investigation to determine how far back they should pull a model wrecking ball to knock down a wall, but not the houses behind it. ● play a game of bumper bowling to observe the way that objects can move in straight lines, zigzags, and back and forth. ● conduct an investigation of how to protect a town from a falling boulder. They design a solution to safely guide the direction of the boulder away from the town. ● define a problem they would like to solve and then design a solution using what they know about the locations of objects and how they can move.

Vocabulary: ● cause and effect ● explanation ● motion ● push ● pull ● speed ● direction ● collide	**Core Resources:** Mystery Science
Common Assessment(s):	**Supplemental Resources:** ● Brainpop Jr. ● Discovery Education ● Generation Genius