

Kindergarten STEM Scopes Pacing Guide 2017-2018

Quarter 1	Quarter 2	Quarter 3	Quarter 4
Pushes and Pulls August 28- September 15	Weather Conditions October 23- November 9	Animal Needs January 9- February 2	Organisms' Impact on Environments March 19- April 13
Speed and Direction September 18-29	Measurement of Weather November 13- December 1	Plant Needs February 5-23	Reducing Human Impact April 16-May 4
Energy From the Sun October 2-20	Weather Hazards December 4-21	Habitats February 26- March 16	Uses of Natural Resources May 7-May 31



Unit Title: Pushes and Pulls Quarter 1

Approximate Teaching Dates	August 28-September 15
Domain(s)	Physical Science
Performance Expectations	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.
Science and Engineering Practices	Planning and Carrying out Investigations With guidance, plan and conduct an investigation in collaboration with peers
Disciplinary Core Ideas	Forces and Motion Pushes and pulls can have different strengths and directions.
Cross Cutting Concepts	Cause and Effect Simple tests can be designed to gather evidence to support or refute student ideas about causes.
Required Investigations	Activity 1- Cross the Finish Line Activity 2- Pull
Required Summative Assessment(s)	Argue- Claim, Evidence, Reasoning (Formative) Open Ended Response Assessment (Formative) Multiple-Choice Assessment (Summative)

Unit Title: Speed and Direction

Quarter 1

Teaching Dates	September 18-September 29
Domain	Physical Science
Performance Expectations	Students who can demonstrate understanding can: 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.
Science and Engineering Practices	Analyzing and Interpreting Data Analyze data from tests of an object or tool to determine if it works as intended.
Disciplinary Core Ideas	Relationship Between Energy and Forces A bigger push or pull makes things speed up or slow down more quickly.
Cross Cutting Concepts	Cause and Effect Simple tests can be designed to gather evidence to support or refute student ideas about causes.
Required Investigations	Science Investigation 1-Collision Engineering Solutions 2 - Park the Car
Required Assessments	Argue- Claim, Evidence, Reasoning (Formative) Open Ended Response Assessment (Formative) Multiple-Choice Assessment (Summative)

Unit Title: Energy from the Sun

Quarter 1

Teaching Dates	October 2-October 20
Domain	Physical Science
Performance Expectations	<p>Students who can demonstrate understanding can:</p> <p>K-PS3-1 Make observations to determine the effect of sunlight on Earth’s surface.</p> <p>K-PS3-2 Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.</p> <p>K-ESS3-2 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.</p>
Science and Engineering Practices	<p>Planning and Carrying out Investigations Make observations (firsthand or from media) and/or measurements to collect data that can be used to make comparisons.</p> <p>Constructing Explanations and Designing Solutions Use tools and/or materials to design and/or build a device that solves a specific problem or a solution to a specific problem.</p>
Disciplinary Core Ideas	<p>Conservation of Energy and Energy Transfer K-PS3-1, K-PS3-2 Sunlight warms Earth’s surface.</p>
Cross Cutting Concepts	<p>Cause and Effect Events have causes that generate observable patterns.</p>
Required Investigations	<p>Science Investigation 1-Hang out in the Shade Activity 2 - Sammy the Snake Engineering Solutions 3 - Save the Chocolate</p>
Required Assessments	<p>Argue- Claim, Evidence, Reasoning (Formative) Open Ended Response Assessment (Formative) Multiple-Choice Assessment (Summative)</p>

Unit Title: Weather Conditions Quarter 2

Teaching Dates	October 23-November 9
Domain	Physical Science
Performance Expectations	Students who can demonstrate understanding can: K-ESS2-1 Use and share observations of local weather conditions to describe patterns over time.
Science and Engineering Practices	Analyzing and Interpreting Data Use observations (firsthand or from media) to describe patterns and/or relationships in the natural and designed world(s) in order to answer scientific questions and solve problems.
Disciplinary Core Ideas	Weather and Climate Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time.
Cross Cutting Concepts	Patterns Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.
Required Investigations	Activity 1-Weather Match Activity 2 - Weather Bingo
Required Assessments	Argue- Claim, Evidence, Reasoning (Formative) Open Ended Response Assessment (Formative) Multiple-Choice Assessment (Summative)

Unit Title: Measurement of Weather Quarter 2

Teaching Dates	November 13-December 1
Domain	Earth and Space Science
Performance Expectations	Students who can demonstrate understanding can: K-ESS2-1 Use and share observations of local weather conditions to describe patterns over time..
Science and Engineering Practices	Analyzing and Interpreting Data Use observations (firsthand or from media) to describe patterns and/or relationships in the natural and designed world(s) in order to answer scientific questions and solve problems.
Disciplinary Core Ideas	Weather and Climate People measure these conditions to describe and record the weather and to notice patterns over time.
Cross Cutting Concepts	Patterns Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.
Required Investigations	Science Investigation 1-What is a Thermometer? PBL 2 - What's My Forecast?
Required Assessments	Argue- Claim, Evidence, Reasoning (Formative) Open Ended Response Assessment (Formative) Multiple-Choice Assessment (Summative)

Unit Title: Weather Hazards Quarter 2

Teaching Dates	December 4-21
Domain	Earth and Space Science
Performance Expectations	<p>Students who can demonstrate understanding can:</p> <p>K-ESS3-2 Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.</p> <p>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.</p>
Science and Engineering Practices	<p>Analyzing and Interpreting Data Use observations (firsthand or from media) to describe patterns and/or relationships in the natural and designed world(s) in order to answer scientific questions and solve problems.</p>
Disciplinary Core Ideas	<p>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> <p>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> <p>Defining and Delimiting Engineering Problems Asking questions, making observations, and gathering information are helpful in thinking about problems.</p>
Cross Cutting Concepts	<p>Cause and Effect Events have causes that generate observable patterns.</p>
Required Investigations	<p>Do 1-Weather Icons</p> <p>Do 2 - PBL Weather Hazards</p>
Required Assessments	<p>Argue- Claim, Evidence, Reasoning (Formative)</p> <p>Open Ended Response Assessment (Formative)</p> <p>Multiple-Choice Assessment (Summative)</p>

Unit Title: Animal Needs Quarter 3

Teaching Dates	January 9-February 2
Domain	Life Science
Performance Expectations	Students who can demonstrate understanding can: K-LS1-1 Use observations to describe patterns of what plants and animals (including humans) need to survive.
Science and Engineering Practices	Analyzing and Interpreting Data Use observations (firsthand or from media) to describe patterns and/or relationships in the natural and designed world(s) in order to answer scientific questions and solve problems.
Disciplinary Core Ideas	Organization for Matter and Energy Flow in Organisms: All animals need food in order to live and grow. They obtain their food from plants or from other animals.
Cross Cutting Concepts	Patterns Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.
Required Investigations	Do 1-Scientific Investigation-Picky Eaters Do 2 - Engineering Solutions-Dinner Time!
Required Assessments	Argue- Claim, Evidence, Reasoning (Formative) Open Ended Response Assessment (Formative) Multiple-Choice Assessment (Summative)

Unit Title: Plant Needs Quarter 3

Teaching Dates	February 5-23
Domain	Life Science
Performance Expectations	<p>Students who can demonstrate understanding can:</p> <p>K-LS1-1 Use observations to describe patterns of what plants and animals (including humans) need to survive.</p> <p>K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</p>
Science and Engineering Practices	<p>Analyzing and Interpreting Data Use observations (firsthand or from media) to describe patterns and/or relationships in the natural and designed world(s) in order to answer scientific questions and solve problems.</p>
Disciplinary Core Ideas	<p>Organization for Matter and Energy Flow in Organisms Plants need water and light to live and grow</p>
Cross Cutting Concepts	<p>Patterns Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.</p>
Required Investigations	<p>Do 1 Scientific Investigation-Water Me</p> <p>Do 2 Scientific Investigation-Shine Light on Me</p>
Required Assessments	<p>Argue- Claim, Evidence, Reasoning (Formative)</p> <p>Open Ended Response Assessment (Formative)</p> <p>Multiple-Choice Assessment (Summative)</p>

Unit Title: Habitats Quarter 3

Teaching Dates	February 26-March 16
Domain	Earth and Space Science
Performance Expectations	Students who can demonstrate understanding can: 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.
Science and Engineering Practices	Developing and Using Models Develop and/or use a model to represent amounts, relationships, relative scales (bigger, smaller), and/or patterns in the natural and designed world(s).
Disciplinary Core Ideas	Natural Resources Living things need water, air, and resources from the land, and they live in places that have the things they need.
Cross Cutting Concepts	Systems and System Models Systems in the natural and designed world have parts that work together.
Required Investigations	Do 1 Activity: Home Sweet Homes Do 2 Activity: Build My Habitat!
Required Assessments	Argue- Claim, Evidence, Reasoning (Formative) Open Ended Response Assessment (Formative) Multiple-Choice Assessment (Summative)

Unit Title: Organisms' Impact on Environments Quarter 4

Teaching Dates	March 19-April 13
Domain	Earth and Space Science
Performance Expectations	<p>Students who can demonstrate understanding can:</p> <p>K-ESS2-2 Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.</p> <p>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.</p> <p>K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</p>
Science and Engineering Practices	<p>Engaging in Argument from Evidence Construct an argument with evidence to support a claim.</p>
Disciplinary Core Ideas	<p>Biogeology Plants and animals can change their environment.</p> <p>Human Impacts on Earth Systems Things that people do to live comfortably can affect the world around them.</p>
Cross Cutting Concepts	<p>Systems and System Models Systems in the natural and designed world have parts that work together.</p>
Required Investigations	<p>Do Activity 1: Things Change</p> <p>Do Engineering Solutions 2: Beaver Dam</p>
Required Assessments	<p>Argue- Claim, Evidence, Reasoning (Formative)</p> <p>Open Ended Response Assessment (Formative)</p> <p>Multiple-Choice Assessment (Summative)</p>

Unit Title: Reducing Human Impact Quarter 4

Teaching Dates	April 16-May 4
Domain	Earth and Space Science
Performance Expectations	<p>Students who can demonstrate understanding can:</p> <p>K-ESS2-2 Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.</p> <p>K-ESS3-3 Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.</p> <p>K-2-ETS1-1 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.</p>
Science and Engineering Practices	<p>Engaging in Argument from Evidence Construct an argument with evidence to support a claim.</p> <p>Obtaining, Evaluating, and Communicating Information Communicate information or design ideas and/or solutions with others in oral and/or written forms using models, drawings, writing, or numbers that provide detail about scientific ideas, practices, and/or design ideas.</p>
Disciplinary Core Ideas	<p>Human Impacts on Earth Systems Things that people do to live comfortably can affect the world around them.</p> <p>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.</p>
Cross Cutting Concepts	None noted
Required Investigations	Do 1 Scientific Investigation: Pollution Sort Do 2 Engineering Solutions: Reducing Human Impact
Required Assessments	Argue- Claim, Evidence, Reasoning (Formative) Open Ended Response Assessment (Formative) Multiple-Choice Assessment (Summative)

Unit Title: Uses of Natural Resources Quarter 4

Teaching Dates	May 7-May 31
Domain	Earth and Space Science
Performance Expectations	<p>Students who can demonstrate understanding can:</p> <p>ESS3-1 Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.</p> <p>K-2ETS1-1 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.</p>
Science and Engineering Practices	<p>Developing and Using Models Develop and/or use a model to represent amounts, relationships, relative scales (bigger, smaller), and/or patterns in the natural and designed world(s).</p>
Disciplinary Core Ideas	<p>Natural Resources Humans use natural resources for everything they do.</p>
Cross Cutting Concepts	<p>Systems and System Models Systems in the natural and designed world have parts that work together.</p>
Required Investigations	<p>Do 1 Scientific Investigation: Natural Resources Chain Do 2 Activity: What is it Made Of? Do 3 Engineering Solutions: Save our Supplies</p>
Required Assessments	<p>Argue- Claim, Evidence, Reasoning (Formative) Open Ended Response Assessment (Formative) Multiple-Choice Assessment (Summative)</p>