

PRAIRIE-HILLS ELEMENTARY SCHOOL DISTRICT 144
CURRICULUM MAP KINDERGARTEN - SCIENCE
PHYSICAL

GRADE K SCIENCE

REVISED 2016

Next Generation Science Standard Performance Expectations	Performance Outcomes	Instructional Resources	Assessments
<p>K-PS2 Motion and Stability: Forces and Interactions</p> <p>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.]</p> <p>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.]</p>	<p style="text-align: center;">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)</p> <p style="text-align: center;">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)</p> <p style="text-align: center;">Connections to Nature of Science Scientific Investigations Use a Variety of Methods Scientists use different ways to study the world. (K-PS2-1)</p> <p style="text-align: center;">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)</p> <p style="text-align: center;">PS2.B: Types of Interactions When objects touch or collide, they push on one another and can change motion. (K-PS2-1)</p> <p style="text-align: center;">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)</p> <p style="text-align: center;">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)</p> <p style="text-align: center;">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)</p>	<ul style="list-style-type: none"> ● HSP Science Teacher Manual ch. 9 pg. 330-371 ● Lab Explorations pg. 348-349, 354-355, 346-365 ● Big Books pg. 112-118, 119-122 ● Leveled Readers ● Songs on CD Track 17 ● Activity book pg. AB21-AB22 ● HSP Science Teacher Manual Ch. 5 Lesson 2 pg. 190-195 ● Big Book pg. 64-65 ● Leveled Reader ● Lab exploration pg. 190-191 ● Vocab activities ● vocab cards ● Group discussions ● Internet ● Manipulatives 	<p style="text-align: center;">Performance Assessments</p> <p style="text-align: center;">Hands on Activities</p> <p style="text-align: center;">Observation</p> <p style="text-align: center;">KWL Charts</p> <p style="text-align: center;">Questioning/ Participation</p> <p style="text-align: center;">Informal/Formal Assessments</p>

K-PS3 Energy

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.]

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. (K-PS3-1)

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)

Connections to Nature of Science

Scientific Investigations Use a Variety of Methods
Scientists use different ways to study the world. (K-PS3-1)

Disciplinary Core Ideas

PS3.B: Conservation of Energy and Energy Transfer
Sunlight warms Earth's surface. (K-PS3-1),(K-PS3-2)

Crosscutting Concepts

Cause and Effect

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

PRAIRIE-HILLS ELEMENTARY SCHOOL DISTRICT 144

CURRICULUM MAP KINDERGARTEN - SCIENCE

LIFE

GRADE K SCIENCE

REVISED 2016

Next Generation Science Standard Performance Expectations	Performance Outcome	Instructional Resources	Assessments
<p>K-LS1 From Molecules to Organisms: Structures and Processes</p> <p>K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.</p> <p>[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.]</p>	<p>Science and Engineering Practices 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)</p> <p>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)</p> <p>Disciplinary Core Ideas LS1.C: 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. Plants need water and light to live and grow. (K-LS1-1)</p> <p>Crosscutting Concepts Patterns † Patterns in the natural and human designed world can be observed and used as evidence. (K-LS1-1)</p>	<ul style="list-style-type: none"> ● Pearson Reading Street ● <u>Nature Spy</u> *Outside observation *Make a Garden *Compare plants & their needs *www.njctl.org/courses (Plant and animal Needs) ● <u>Flowers</u> Non-living/Living poster (HSP Science text) ● <u>Animal Babies</u> ● <u>Animals Change as they Grow</u> (HSP Science) ● Classroom Pet ● Sorting animals with picture cards (HSP science) ● Animal coverings ● <u>Farfalina and Marcel</u> ● Animals Change ● Field trip to Zoo ● Sequence and picture sorting cards (HSP science) ● Animal Habitats ● <u>A Bed for Winter</u> ● Habitat Mobile (HSP science) ● How can you make a habitat? SF science 	<p>Performance Assessments</p> <p>Hands on Activities</p> <p>Observation</p> <p>KWL Charts</p> <p>Questioning/ Participation</p> <p>Informal/Formal Assessments</p>

PRAIRIE-HILLS ELEMENTARY SCHOOL DISTRICT 144
CURRICULUM MAP KINDERGARTEN - SCIENCE
EARTH

GRADE K SCIENCE

REVISED 2016

Next Generation Science Standard Performance Expectations	Performance Outcomes	Instructional Resources	Assessments
<p>K-ESS2 Earth's Systems</p> <p>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.]</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. [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.]</p>	<p style="text-align: center;">Science and Engineering Practices 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)</p> <p style="text-align: center;">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)</p> <p style="text-align: center;">Connections to Nature of Science Science Knowledge is Based on Empirical Evidence Scientists look for patterns and order when making observations about the world. (K-ESS2-1)</p> <p style="text-align: center;">Disciplinary Core Ideas 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)</p> <p style="text-align: center;">ESS2.E: Biogeology + Plants and animals can change their environment. (K-ESS2-2)</p> <p style="text-align: center;">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)</p> <p style="text-align: center;">Crosscutting Concepts Patterns Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (K-ESS2-1)</p>	<ul style="list-style-type: none"> ● Internet ● Library ● Videos ● Group Discussions ● Vocab Activities ● Lab Explorations ● Lab Tools ● Manipulatives ● Calendar ● Morning Meetings ● Math Board ● Pinterest ● Picture Cards ● Field trips ● Songs on CD <p>Weather Unit Study</p> <ul style="list-style-type: none"> ● Harcourt Unit C Chapter 5 ● Harcourt Chapter 5 Lesson Planner Teacher's Edition P. 174 (Lessons 1-4) ● Differentiated Big Books/ Leveled Readers (Red, Blue, and Green) 	<p>KWL Chart</p> <p>Agree/Disagree Chart</p> <p>Rubrics</p> <p>Performance Assessments</p> <p>Project Based Learning Assessments</p> <p>Hands on Activities</p> <p>Informal/Formal Assessments</p> <p>Weather Unit Study Harcourt Unit C Chapter 5 Assessment</p> <p>Plants and Animals Unit of Study Harcourt Unit A Chapter 1 Assessment</p>

	<p style="text-align: center;">Systems and System Models Systems in the natural and designed world have parts that work together. (K-ESS2-2)</p>	<ul style="list-style-type: none">● Big Book of Science, Songs, and Rhymes● Teacher's Flip Book <p>Plants and Animals Unit of Study</p> <ul style="list-style-type: none">● Harcourt Unit A Chapter 1● Harcourt Chapter 1 Lesson Planner Teacher's Edition P.30 (Lessons 1-4)● Differentiated Big Books/ Leveled Readers (Red, Blue, and Green)● Big Book of Science, Songs, and Rhymes● Teacher's Flip Book	
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PRAIRIE-HILLS ELEMENTARY SCHOOL DISTRICT 144
CURRICULUM MAP KINDERGARTEN - SCIENCE
ECOLOGY

GRADE K SCIENCE

REVISED 2016

Next Generation Science Standard Performance Expectations	Performance Outcomes	Instructional Resources	Assessments
<p style="text-align: center;">K-ESS3 Earth and Human Activity</p> <p style="text-align: center;">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.]</p> <p style="text-align: center;">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.]</p> <p style="text-align: center;">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.* [Clarification Statement: Examples of human impact on the land 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.]</p>	<p style="text-align: center;">Science and Engineering Practices</p> <p style="text-align: center;">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)</p> <p style="text-align: center;">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, storyboard) that represent concrete events or design solutions. Use a model to represent relationships in the natural world. (K-ESS3-1)</p> <p style="text-align: center;">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. (K-ESS3-2) Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas. (K-ESS3-3)</p> <p style="text-align: center;">Disciplinary Core Ideas</p> <p style="text-align: center;">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)</p> <p style="text-align: center;">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)</p> <p style="text-align: center;">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. (K-ESS3-3)</p> <p style="text-align: center;">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)</p> <p style="text-align: center;">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)</p>	<ul style="list-style-type: none"> ● Internet ● Library ● Videos ● Group Discussions ● Vocab Activities ● Lab Explorations ● Lab Tools ● Periodicals ● Manipulatives 	<p>Pre/Post Assessments -Agree/Disagree Chart</p> <p style="text-align: center;">Rubrics</p> <p style="text-align: center;">Performance Assessments</p> <p style="text-align: center;">Project Based Learning Assessments</p> <p style="text-align: center;">Hands on Activities</p> <p style="text-align: center;">Evaluation of Lab Skills</p> <p style="text-align: center;">Common Assessments</p> <p style="text-align: center;">Formative/Summative Assessments</p> <p style="text-align: center;">Informal/Formal Assessments</p>

	<p style="text-align: center;">Crosscutting Concepts Cause and Effect Events have causes that generate observable patterns. (K-ESS3-2),(K-ESS3-3)</p> <p style="text-align: center;">Systems and System Models Systems in the natural and designed world have parts that work together. (K-ESS3-1)</p> <p style="text-align: center;">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)</p> <p style="text-align: center;">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)</p>		
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