

# Next Generation Science Standards



Aligned to Rourke Dual Language Science Titles  
Grade K



## Rourke Science Titles Aligned to the Next Generation Science Standards (Grade K)

### **Introduction**

#### **Elementary Standards**

Students in kindergarten through fifth grade begin to develop an understanding of the four disciplinary core ideas: physical sciences; life sciences; earth and space sciences; and engineering, technology, and applications of science. In the earlier grades, students begin by recognizing patterns and formulating answers to questions about the world around them. By the end of fifth grade, students are able to demonstrate grade-appropriate proficiency in gathering, describing, and using information about the natural and designed world(s). The performance expectations in elementary school grade bands develop ideas and skills that will allow students to explain more complex phenomena in the four disciplines as they progress to middle school and high school. While the performance expectations shown in kindergarten through fifth grade couple particular practices with specific disciplinary core ideas, instructional decisions should include use of many practices that lead to the performance expectations.

#### **Kindergarten**

The performance expectations in kindergarten help students formulate answers to questions such as:

- What happens if you push or pull an object harder?
- Where do animals live and why do they live there?
- What is the weather like today and how is it different from yesterday?

Kindergarten performance expectations include PS2, PS3, LS1, ESS2, ESS3, and ETS1 Disciplinary Core Ideas from the NRC Framework. Students are expected to develop understanding of patterns and variations in local weather and the purpose of weather forecasting to prepare for, and respond to, severe weather. Students are able to apply an understanding of the effects of different strengths or different directions of pushes and pulls on the motion of an object to analyze a design solution.

Students are also expected to develop understanding of what plants and animals (including humans) need to survive and the relationship between their needs and where they live. The crosscutting concepts of patterns; cause and effect; systems and system models; interdependence of science, engineering, and technology; and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. In the kindergarten performance expectations, students are expected to demonstrate grade-appropriate proficiency in asking questions, developing and using models, planning and carrying out investigations, analyzing and interpreting data, designing solutions, engaging in argument from evidence, and obtaining, evaluating, and communicating information. Students are expected to use these practices to demonstrate understanding of the core ideas.

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**Forces and Interactions: Pushes and Pulls**

Science Next Generation Standards	Book Title	ISBN Number	Comparative Measure Level
<p><b>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.</b></p> <p>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.</p> <p>Assessment does not include non-contact pushes or pulls such as those produced by magnets.</p>	<p><i>Get Moving Muevete</i></p> <ul style="list-style-type: none"> <li>This book stresses the importance of staying active to feel better and keep their bodies healthy.</li> </ul> <p><i>I Use Simple Machines Utilizo máquinas simples</i></p> <ul style="list-style-type: none"> <li><i>This book</i> describes simple machines that we use every day. Real world examples are given for each simple machine.</li> </ul>	<p>9781627172363 9781627172363</p> <p>9781612369051 9781612369051</p>	<p>BR</p> <p>100 150</p>

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**Forces and Interactions (Continuation)**

Science Next Generation Standards	Book Title	ISBN Number	Comparative Measure Level
<p><b>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.</b></p> <p>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.</p> <p>Assessment Boundary: Assessment does not include friction as a mechanism for change in speed.</p>	<p><i>What is Science?</i></p>	9781595152510	75
	<p><i>¿Qué es la ciencia?</i></p>	9781600448645	100
	<ul style="list-style-type: none"> <li>Explores the concepts involved in the study of science.</li> </ul>		
	<p><i>I Know a Scientist</i></p>	9781615902071	N/A
	<p><i>Conozco a un científico</i></p>	9781617416439	
	<ul style="list-style-type: none"> <li>Sing along with Dr. Jean and Dr. Holly to learn about science.</li> </ul>		
	<p><i>Stop and Go Fast and Slow</i></p>	9781617419294	100
<p><i>Dentente y sigue, rápido y lento</i></p>	9781612369044	150	
<ul style="list-style-type: none"> <li>Emergent readers observe the way things move in different directions and speeds.</li> </ul>			
<p><i>Playground Science</i></p>	9781627172356	700	
<p><i>Parque de recreo de ciencias</i></p>	9781627172417	725	
<ul style="list-style-type: none"> <li><i>Playground Science</i> introduces the concept of forces and interactions in the playground.</li> </ul>			

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**Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment**

Science Next Generation Standards	Book Title	ISBN Number	Comparative Measure Level
<p><b>K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.</b></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><i>Basic Needs</i> <i>Necesidades básicas</i></p> <ul style="list-style-type: none"> <li>• <i>Basic Needs</i> explores the basic survival needs of humans and animals.</li> </ul> <p><i>How Do Plants Grow?</i> <i>¿Cómo crecen las plantas?</i></p> <ul style="list-style-type: none"> <li>• Emergent readers explore basic plants parts and what plants need to grow.</li> </ul> <p><i>Animals Together</i> <i>Animales que andan juntos</i></p> <ul style="list-style-type: none"> <li>• <i>Animals Together</i> compares how some animals depend on each other for survival while others remain solitary.</li> </ul>	<p>9781615902132 9781617416446</p> <p>9781617419232 9781612368986</p> <p>9781595152558 9781600448683</p>	<p>75 100</p> <p>250 300</p>

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**Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment (Cont.)**

Science Next Generation Standards	Book Title	ISBN Number	Comparative Measure Level
<p><b>K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.</b></p> <p>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><i>Ants</i> <i>Hormigas</i></p> <ul style="list-style-type: none"> <li>Explores ants as insects, how they live, what they eat and where they lay their eggs.</li> </ul> <p><i>Animal Habitats</i> <i>Habitats de animales</i></p> <ul style="list-style-type: none"> <li><i>Animal Habitats</i> defines habitat and describes various animal habitats in our world.</li> </ul>	<p>9781595157386 978160044922</p> <p>9781617419348 9781612369082</p>	<p>100 150</p> <p>300 350</p>
<p><b>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.</b></p> <p>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><i>Habitat Homes</i> <i>¿Dónde quieres vivir?</i></p> <ul style="list-style-type: none"> <li><i>Sing along to learn about animals and their homes.</i></li> </ul> <p><i>Helping Habitats</i> <i>Ayudamos a preservar habitats</i></p> <ul style="list-style-type: none"> <li>This book describes animals and how they adapt to their habitats.</li> </ul>	<p>9781615901838 9781617416699</p> <p>9781617419720 9781627172370</p>	<p>N/A</p> <p>450 500</p>

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**Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment (Cont.)**

Science Next Generation Standards	Book Title	ISBN Number	Comparative Measure Level
<p><b>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.</b></p> <p>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><i>Growing Up Green</i></p>	<p>9781615905409</p>	<p>400</p>
	<p><i>Creciendo verde</i></p>	<p>9781627172387</p>	<p>450</p>
	<ul style="list-style-type: none"> <li>• Young readers will discover what they can do to make greener choices as they grow up.</li> </ul>		
	<p><i>My Green Lunch</i></p>	<p>9781615905416</p>	<p>400</p>
	<p><i>Mi almuerzo verde</i></p>	<p>9781627172394</p>	<p>450</p>
	<ul style="list-style-type: none"> <li>• Young readers will discover that it's easy to pack a lunch that is eco-friendly and yummy too.</li> </ul>		
<p><i>Cleaning Up the Earth</i></p>	<p>9781617419706</p>	<p>400</p>	
<p><i>Limpiando la Tierra</i></p>	<p>9781627172400</p>	<p>450</p>	
<ul style="list-style-type: none"> <li>• Young readers explore various forms of pollution and how people are cleaning up the environment.</li> </ul>			

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**Weather and Climate**

Science Next Generation Standards	Book Title	ISBN Number	Comparative Measure Level
<p><b>K-PS3-1. Make observations to determine the effect of sunlight on Earth’s surface.</b></p> <p>Clarification Statement: Examples of Earth’s surface could include sand, soil, rocks, and water.</p> <p>Assessment Boundary: Assessment of temperature is limited to relative measures such as warmer/cooler.</p>	<p><i>Our Sun Brings Life</i> <i>Nuestro Sol produce vida</i></p> <ul style="list-style-type: none"> <li>Readers learn facts about the sun and the important role it plays for our planet.</li> </ul> <p><i>Day and Night</i> <i>El día y la noche</i></p> <ul style="list-style-type: none"> <li>Students learn about the cycle of day and night.</li> </ul>	<p>9781617419256 9781612369006</p> <p>9781617419263 9781612369013</p>	<p>100 150</p> <p>150 100</p>
<p><b>K-PS3-2. Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.</b></p> <p>Clarification Statement: Examples of structures could include umbrellas, canopies, and tents that minimize the warming effect of the sun.</p>	<p><i>Earth Day</i> <i>El día de la Tierra</i></p> <ul style="list-style-type: none"> <li>Sing along and learn how we can all work together to take care of the Earth.</li> </ul> <p><i>I Use Science Tools</i> <i>Utilizo instrumentos científicos</i></p> <ul style="list-style-type: none"> <li>Students will explore various scientific tools such as a microscope, magnifying glass, and ruler.</li> </ul>	<p>9781615902194 9781617416750</p> <p>9781617419317 9781612369068</p>	<p>N/A</p> <p>150 200</p>

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<p><b>K-ESS2-1. Use and share observations of local weather conditions to describe patterns over time.</b></p> <p>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.</p> <p>Assessment Boundary: Assessment of quantitative observations limited to whole numbers and relative measures such as warmer/cooler.</p>	<p><i>My Calendar: Seasons</i> <i>Mi calendario: Las estaciones</i></p> <ul style="list-style-type: none"> <li>Fun facts about the seasons of the year and weather related information.</li> </ul> <p><i>Air Around Us</i> <i>El aire que nos rodea</i></p> <ul style="list-style-type: none"> <li>Introduces young readers to the importance of air for breathing, how it can move things, and its effect on the weather.</li> </ul>	<p>9781604729443 9781615903399</p> <p>9781595152534 9781600448669</p>	<p>150 200</p> <p>250 300</p>
<p><b>K-ESS3-2. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.</b></p> <p>Clarification Statement: Emphasis is on local forms of severe weather.</p>	<p><i>When It Rains</i> <i>Qué pasa cuando llueve</i></p> <ul style="list-style-type: none"> <li>This book explores aspects of weather and introduces young readers to the effects of rain on their environment.</li> </ul> <p><i>What is the Weather Like Today?</i> <i>¿Cómo está el clima hoy?</i></p> <ul style="list-style-type: none"> <li>Early readers explore different weather conditions and what causes them.</li> </ul>	<p>9781604720129 9781600448652</p> <p>9781617419393 9781612369136</p>	<p>150 200</p> <p>450 500</p>