

Next Generation Science Standards



Aligned to Rourke Dual Language Science Titles Grade 3



Rourke Science Titles Aligned to the Science Next Generation Standards (Grade 3)

Introduction

Third Grade

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

- What is typical weather in different parts of the world and during different times of the year?
- How can the impact of weather-related hazards be reduced?
- How do organisms vary in their traits?
- How are plants, animals, and environments of the past similar or different from current plants, animals, and environments?
- What happens to organisms when their environment changes?
- How do equal and unequal forces on an object affect the object?
- How can magnets be used?

Third grade performance expectations include PS2, LS1, LS2, LS3, LS4, ESS2, and ESS3 Disciplinary Core Ideas from the NRC Framework. Students are able to organize and use data to describe typical weather conditions expected during a particular season. By applying their understanding of weather-related hazards, students are able to make a claim about the merit of a design solution that reduces the impacts of such hazards.

Students are expected to develop an understanding of the similarities and differences of organisms' life cycles. An understanding that organisms have different inherited traits, and that the environment can also affect the traits that an organism develops, is acquired by students at this level. In addition, students are able to construct an explanation using evidence for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. Students are expected to develop an understanding of types of organisms that lived long ago and also about the nature of their environments.

Third graders are expected to develop an understanding of the idea that when the environment changes some organisms survive and reproduce, some move to new locations, some move into the transformed environment, and some die. Students are able to determine the effects of balanced and unbalanced forces on the motion of an object and the cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other. They are then able to apply their understanding of magnetic interactions to define a simple design problem that can be solved with magnets. The crosscutting concepts of patterns; cause and effect; scale, proportion, and quantity; 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 third grade performance expectations, students are expected to demonstrate grade-appropriate proficiency in asking questions and defining problems; developing and using models, planning and carrying out investigations, analyzing and interpreting data, constructing explanations and 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.

Rourke Science Titles Aligned to the Science Next Generation Standards
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Forces and Interactions

Science Next Generation Standards	Book Title	ISBN Number	Comparative Measure Level
<p>3-PS2-1. Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.</p> <p>[Clarification Statement: Examples could include an unbalanced force on one side of a ball can make it start moving; and, balanced forces pushing on a box from both sides will not produce any motion at all.]</p> <p>[Assessment Boundary: Assessment is limited to one variable at a time: number, size, or direction of forces. Assessment does not include quantitative force size, only qualitative and relative. Assessment is limited to gravity being addressed as a force that pulls objects down.]</p>	<p><i>Pull It, Push It!</i> <i>¡Dale un tirón! ¡Dale un empujón!</i></p> <ul style="list-style-type: none"> • <i>Pull It, Push It!</i> explains how objects move and the force they need to speed up, slow down, change direction, or stop. 	<p>9781618102294 9781627172721</p>	<p>600 625</p>
<p>3-PS2-2. Make observations and/or measurements of an object’s motion to provide evidence that a pattern can be used to predict future motion.</p> <p>[Clarification Statement: Examples of motion with a predictable pattern could include a child swinging in a swing, a ball rolling back and forth in a bowl, and two children on a see-saw.] [</p> <p>Assessment Boundary: Assessment does not include technical terms such as period and frequency.]</p>	<p><i>How Can I Experiment with Force & Motion</i> Experimentos con la fuerza y el movimiento</p> <ul style="list-style-type: none"> • This books explores the relationship between the strength of a force and its effect on an object. 	<p>9781589520172 9781627172738</p>	<p>550 600</p>

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Forces and Interactions (Cont.)

Science Next Generation Standards	Book Title	ISBN Number	Comparative Measure Level
<p>3-PS2-3. Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other. [Clarification Statement: Examples of an electric force could include the force on hair from an electrically charged balloon and the electrical forces between a charged rod and pieces of paper; examples of a magnetic force could include the force between two permanent magnets, the force between an electromagnet and steel paperclips, and the force exerted by one magnet versus the force exerted by two magnets. Examples of cause and effect relationships could include how the distance between objects affects strength of the force and how the orientation of magnets affects the direction of the magnetic force.]</p>	<p><i>How Can I Experiment with Electricity</i> <i>¿Cómo puedo experimentar con la electricidad?</i></p>	9781589520165	550
	<ul style="list-style-type: none"> This book provides an in-depth explanation of electricity and safety issues. 	9781627172745	600
	<p><i>Zap! It's Electricity</i> <i>¡Zas! ¡Es la electricidad!</i></p>	9781617419553	500
	<ul style="list-style-type: none"> This book is about how electricity is generated and used. 	9781612369280	550

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Interdependent Relationships in Ecosystems

Science Next Generation Standards	Book Title	ISBN Number	Comparative Measure Level
<p>3-LS2-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.</p> <p>[Clarification Statement: Changes organisms go through during their life form a pattern.]</p> <p>[Assessment Boundary: Assessment of plant life cycles is limited to those of flowering plants. Assessment does not include details of human reproduction.]</p>	<p><i>How Ecosystems Work</i> <i>Cómo funcionan los ecosistemas</i></p> <ul style="list-style-type: none"> This book takes you on a journey through ecosystems big and small. In each ecosystem, you will learn about the connections between plants, animals, and nonliving things. 	<p>9781618102201 9781627172769</p>	<p>700 725</p>
	<p><i>Animal Science</i> <i>La ciencia de los animales</i></p> <ul style="list-style-type: none"> This book introduces students to the world of agriscience with in depth information on how animal science affects our daily lives. 	<p>9781618102577 9781627172820</p>	<p>800 825</p>

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Interdependent Relationships in Ecosystems (Cont.)

Science Next Generation Standards	Book Title	ISBN Number	Comparative Measure Level
<p>3-LS4-1. Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.</p> <p>[Clarification Statement: Examples of data could include type, size, and distributions of fossil organisms. Examples of fossils and environments could include marine fossils found on dry land, tropical plant fossils found in Arctic areas, and fossils of extinct organisms.] [Assessment Boundary: Assessment does not include identification of specific fossils or present plants and animals. Assessment is limited to major fossil types and relative ages.]</p>	<p><i>Fossils and Rocks</i> <i>Los fosiles y las rocas</i></p> <ul style="list-style-type: none"> How the Earth is made from rock, the three different types of rock and how they are made and where they can be found. Talks about how fossils are formed from sediment and what role that plays in helping us learn about life long ago. 	<p>9781618102362 9781627173117</p>	<p>725 775</p>

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Interdependent Relationships in Ecosystems (Cont.)

Science Next Generation Standards	Book Title	ISBN Number	Comparative Measure Level
<p>3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.</p> <p>[Clarification Statement: Examples of evidence could include needs and characteristics of the organisms and habitats involved. The organisms and their habitat make up a system in which the parts depend on each other.]</p>	<p><i>Let's Classify Organisms</i> <i>Vamos a clasificar organismos</i></p> <ul style="list-style-type: none"> Grouping things by similar characteristics is how you classify things. Filled with information and interesting facts. <p><i>Biodiversity</i> <i>La biodiversidad</i></p> <ul style="list-style-type: none"> Explains the enormous variety of life on earth and how it is all interconnected. goes into great detail about the biodiversity within biomes. 	<p>9781618102317 9781627172868</p> <p>9781618102607 9781627172806</p>	<p>700 725</p> <p>900 925</p>
<p>3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.</p> <p>[Clarification Statement: Examples of environmental changes could include changes in land characteristics, water distribution, temperature, food, and other organisms.]</p> <p>[Assessment Boundary: Assessment is limited to a single environmental change. Assessment does not include the greenhouse effect or climate change.]</p>	<p><i>Animal Invaders</i> <i>Animales invasores</i></p> <ul style="list-style-type: none"> Learn about the destructive effect non-native animals have on native plants and animals when they invade an environment. <p><i>Why Plants Become Extinct</i> <i>Por qué se extinguen las plantas</i></p> <ul style="list-style-type: none"> How plants are becoming endangered or even extinct due to changes in climate, deforestation to build new homes, or by invasive plant species that are brought from other places. 	<p>9781615905584 9781627172813</p> <p>9781618102225 9781627172776</p>	<p>775 800</p> <p>700 725</p>

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Inheritance and Variations of Traits: Life Cycles and Traits

Science Next Generation Standards	Book Title	ISBN Number	Comparative Measure Level
<p>3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.</p>	<p><i>Using Scientific Tools</i> <i>Use de instrumentos científicos</i></p> <ul style="list-style-type: none"> This book explains the variety of scientific tools used by scientists and students. Labeled diagrams illustrate tools and the jobs they do to help scientists better understand their world. 	<p>9781606945315 9781618104717</p>	<p>825 875</p>
<p>3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.</p> <p>[Clarification Statement: Changes organisms go through during their life form a pattern.] [Assessment Boundary: Assessment of plant life cycles is limited to those of flowering plants. Assessment does not include details of human reproduction.]</p>	<p><i>Life Cycle of Butterflies and Moths</i> <i>Ciclo de vida una mariposa monarca</i></p> <ul style="list-style-type: none"> This book provides in-depth detail about butterflies and moths and their characteristics. <p><i>Life Cycles: Sunflowers</i> <i>Ciclos de vida: Los girasoles</i></p> <ul style="list-style-type: none"> This book explains how every plant must have some way to make more of its kind as part of its life cycle. 	<p>9781615905478 9781600448836</p> <p>9781615905461 9781627172752</p>	<p>550 600</p> <p>600 625</p>

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<p>3-LS3-1. Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.</p> <p>[Clarification Statement: Patterns are the similarities and differences in traits shared between offspring and their parents, or among siblings. Emphasis is on organisms other than humans.]</p>	<p><i>I Look Like My Mother</i> Me parezco a mi madre</p> <ul style="list-style-type: none"> This book explains the passing of traits from parents to children, known as heredity and what exactly contributes to our looks, behavior, and health. 	<p>9781600446481 9781627172790</p>	<p>875 900</p>
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Inheritance and Variations of Traits: Life Cycles and Traits

Science Next Generation Standards	Book Title	ISBN Number	Comparative Measure Level
<p>3-LS3-2. Use evidence to support the explanation that traits can be influenced by the environment.</p> <p>[Clarification Statement: Examples of the environment affecting a trait could include normally tall plants grown with insufficient water are stunted; and, a pet dog that is given too much food and little exercise may become overweight.]</p>	<p><i>Rainforests</i> <i>Los bosques tropicales</i></p> <ul style="list-style-type: none"> Beautiful photos and text examines the issues faced by rainforest habitats and how they can be saved. 	<p>9781615905553 9781627172905</p>	<p>625 675</p>
<p>3-LS4-2. Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.</p> <p>[Clarification Statement: Examples of cause and effect relationships could be plants that have larger thorns than other plants may be less likely to be eaten by predators; and, animals that have better camouflage coloration than other animals may be more likely to</p>	<p><i>Perfect Predators</i> <i>Los mejores depredadores</i></p> <ul style="list-style-type: none"> This book discusses information and facts about small and large predators as well as the dangers that face some of these predators today. <p><i>Plants Out of Place</i> <i>Plantas fuera de lugar</i></p>	<p>9781618102515 9781627172851</p> <p>9781615905614 9781627172783</p>	<p>550 600</p> <p>725 775</p>

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survive and therefore more likely to leave offspring.]	<ul style="list-style-type: none">• This book discusses the negative impact on an ecosystem that can occur because of invasive species of plants.		
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Weather and Climate

Science Next Generation Standards	Book Title	ISBN Number	Comparative Measure Level
<p>3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.</p> <p>[Clarification Statement: Examples of data at this grade level could include average temperature, precipitation, and wind direction.] [Assessment Boundary: Assessment of graphical displays is limited to pictographs and bar graphs. Assessment does not include climate change.]</p>	<p><i>Hurricanes</i> <i>Los huracanes</i></p> <ul style="list-style-type: none"> This book describes a type of extreme weather and the effects hurricanes have on the areas they hit. It addresses how hurricanes form, the parts and potential strength of hurricanes, and gives examples of past hurricanes and their destruction. 	<p>9781606949184 9781627173957</p>	<p>625 675</p>
	<p><i>Weather</i> <i>El clima</i></p> <ul style="list-style-type: none"> This book provides a detailed explanation of the Earth's atmosphere and its weather. Different types of weather are discussed as well as the tools used to measure and predict weather. 	<p>9781606949979 9781618104694</p>	<p>700 725</p>

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Science Next Generation Standards	Book Title	ISBN Number	Comparative Measure Level
<p>3-ESS2-2. Obtain and combine information to describe climates in different regions of the world.</p>	<p><i>Climate and Weather</i> <i>El clima y el tiempo</i></p> <ul style="list-style-type: none"> This book goes on to explain violent weather conditions and how to prepare for them. 	<p>9781618102584 9781627172899</p>	<p>775 800</p>
<p>3-ESS3-1. Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.</p> <p>[Clarification Statement: Examples of design solutions to weather-related hazards could include barriers to prevent flooding, wind resistant roofs, and lightning rods.]</p>	<p><i>Floods, Dams and Levees</i> <i>Inundaciones, represas y diques</i></p> <ul style="list-style-type: none"> Learn how dams and levees are built as well as the effects they have on river systems in a region, and places downstream. 	<p>9781617419881 9781627172912</p>	<p>725 775</p>