

# 3<sup>rd</sup> Grade Science Curriculum Map 2014-2015

*\*Cycles include time for the investigation, integrated English/Language Arts connections, formative assessment and discourse.*

## Assessment Cycle 1: Weeks 1 - 8

### NGSS: 3. [Inheritance and Variation of Traits: Life Cycles and Traits](#)

**NGSS Science and Engineering Practices:** As indicated by research and the Framework for NGSS, students must have multiple experiences with all 8 practices throughout their learning. During this instructional unit, however, emphasis will be placed on the following practices: develop models, analyze and interpret data, and use evidence to support/construct an explanation.

[Click Here to access NGSS Appendix F: Science and Engineering Practices.](#)

**NGSS Crosscutting Concepts:** As indicated by the Framework for NGSS, intentional crosscutting connections throughout students' learning experiences help to deepen understanding. During this instructional unit emphasis will be placed on the following crosscutting concepts: patterns and cause and effect.

[Click Here to access NGSS Appendix G: Crosscutting Concepts.](#)

**Focus Topic 1: Plant Life Cycles**

**Focus Topic 2: Animal Life Cycles**

**Focus Topic 3: Inherited and Learned Traits**

Next Generation Science Standards (NGSS): Disciplinary Core Ideas (DCI)	Instructional Unit Lessons and Module Resources	Instructional Notes
<p style="text-align: center;"><a href="#">NGSS Life Science Disciplinary Core Ideas</a> (Chap. 6)</p> <p><b>LS1.B: Growth and Development of Organisms</b> Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. (3-LS1-1) <b>Learning Targets:</b></p> <ul style="list-style-type: none"> <li>• I can use evidence to support an explanation that reproduction is essential to the continued existence of every kind of organism.</li> <li>• I can describe the unique and diverse life cycles of plants and animals</li> </ul> <p><b>LS3.A: Inheritance of Traits</b> Many characteristics of organisms are inherited from their parents. (3-LS3-1)</p>	<p>See document for lessons designed to support the transition to the Next Generation Science Standards (NGSS).</p> <div style="border: 1px dashed black; padding: 10px; text-align: center;"> <p><b>Important!</b> The linked unit below is from 2013-14. This summer edits will be made to all units– be sure to check back in late July to access revised or additional resources.</p> </div> <p style="text-align: center;"><a href="#">NGSS Instructional Unit 1</a></p>	<p>Begin preparation of the module by obtaining needed supplies during the last week of August. See Instructional Unit #1 for specific setup and care.</p> <p>Several literary and informational tradebooks have been recommended throughout the instructional unit.</p>

## 3<sup>rd</sup> Grade Science Curriculum Map 2014-2015

<p>Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment. (3-LS3-2) (Addressed in Instructional Unit #2)</p> <p><b>Learning Target:</b></p> <ul style="list-style-type: none"> <li>I can explain that plants and animals have traits inherited from parents.</li> </ul> <p><b>LS3.B: Variation of Traits</b> Different organisms vary in how they look and function because they have different inherited information. (3-LS3-1) The environment also affects the traits that an organism develops. (3-LS3-2) (Addressed in Instructional Unit #2)</p> <p><b>Learning Target:</b></p> <ul style="list-style-type: none"> <li>I can explain how individuals of the same species can vary in how they look and function.</li> </ul> <p><b>LS4.B: Natural Selection</b> Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing. (3-LS4-2)</p> <p><b>Learning Target:</b></p> <ul style="list-style-type: none"> <li>I can provide evidence that the differences in characteristics between individuals of the same species provide advantages in surviving and reproducing.</li> </ul>	<p><b>Instructional Unit Resources:</b> <b>FOSS <i>Insects</i> Teacher's Guide</b> <b>and</b> <b>FOSS <i>Structures of Life</i> Teacher's Guide</b></p> <p><b>Critter Delivery:</b> <b>Waxworms – Aug. 27<sup>th</sup></b> <b>Milkweed Bugs – Sept. 3<sup>rd</sup></b></p>	<p><b>Safety alert:</b> <i>Be sure students wash their hands before and after handling the critters.</i></p> <p>By the end of this life science unit, students should be using the following vocabulary in their speaking and writing.</p> <ul style="list-style-type: none"> <li>environment</li> <li>germination</li> <li>inherited trait</li> <li>learned trait</li> <li>life cycle</li> <li>offspring</li> <li>organism</li> <li>parent</li> <li>reproduction</li> </ul> <p>Vocabulary is best learned when students have experiences that connect to the new words. Therefore, introduce words AFTER EXPLORE during EXPLAIN or ELABORATE.</p>
<p><b>NGSS Performance Expectations</b></p> <p>Students who demonstrate understanding can:</p> <p><b>3-LS1-1.</b> Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.</p> <p><b>3-LS3-1.</b> 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><b>3-LS3-2.</b> Use evidence to support the explanation that traits can be influenced by the environment.</p>		

# 3<sup>rd</sup> Grade Science Curriculum Map 2014-2015

**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.

<b>Assessment Cycle 1 Key Focus Topics:</b> <ul style="list-style-type: none"><li>• Plant Life Cycles</li><li>• Animal Life Cycles</li><li>• Inherited and Learned Traits</li></ul>	<b>Science Proficiency Assessment 1</b>	<b>Download Proficiency 1 from CASCADE upon release</b>
---	---	---

# 3<sup>rd</sup> Grade Science Curriculum Map 2014-2015

*\*Cycles include time for the investigation, integrated English/Language Arts connections, formative assessment and discourse.*

## Assessment Cycle 2: Weeks 9 - 17

### NGSS: 3. [Interdependent Relationships in Ecosystems](#)

**NGSS Science and Engineering Practices:** Students should experience science through all 8 practices all the time. During this instructional unit, however, emphasis will be placed on the following practices: analyzing and interpreting data and engaging in argument from evidence.

[Click Here to access NGSS Appendix F: Science and Engineering Practices](#)

**NGSS Crosscutting Concepts:** During this instructional unit emphasis will be placed on the following crosscutting concepts: cause and effect; scale, proportion and quantity; and systems/systems models.

[Click Here to access NGSS Appendix G Crosscutting Concepts](#)

**Focus Topic 1: Environment’s Effect on Organisms**

**Focus Topic 2: Plant and Animal Adaptations**

**Focus Topic 3: Fossils and Evidence of Environments Long Ago**

Next Generation Science Standards (NGSS): Disciplinary Core Ideas (DCI)	Instructional Unit Lessons and Module Resources	Instructional Notes
<p style="text-align: center;"><a href="#">NGSS Life Science Disciplinary Core Ideas</a> (Chap. 5)</p> <p><b>LS2.C: Ecosystem Dynamics, Functioning, and Resilience</b> When the environment changes in ways that affect a place’s physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die.</p>	<p>See document for lessons designed to support the transition to the Next Generation Science Standards (NGSS).</p> <p><b>NGSS Instructional Unit 2</b></p>	<p>Instructional Unit 2 references the <b>NEW FOSS 3<sup>rd</sup> Ed. <i>Environments Teacher’s Guide</i></b>. Contact your school’s Goal Clarity Coach or Science Teacher Leader for more information.</p>

# 3<sup>rd</sup> Grade Science Curriculum Map 2014-2015

<p>(secondary to 3-LS4-4) <b>Learning Target:</b></p> <ul style="list-style-type: none"> <li>I can explain what happens to an ecosystem when the environment changes.</li> </ul> <p><b>LS2.D: Social Interactions and Group Behavior</b> Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size. (Note: Moved from K–2) (3-LS2-1) <b>Learning Target:</b></p> <ul style="list-style-type: none"> <li>I can describe how organisms interact in groups to benefit individuals.</li> </ul> <p><b>LS4.A: Evidence of Common Ancestry and Diversity</b> Some kinds of plants and animals that once lived on Earth are no longer found anywhere. (Note: Moved from K–2) (3-LS4-1) Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments. (3-LS4-1) <b>Learning Target:</b></p> <ul style="list-style-type: none"> <li>I can provide evidence about the type of organisms that lived long ago and also about the nature of their environment.</li> </ul> <p><b>LS4.C: Adaptation</b> For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3) <b>Learning Target:</b></p> <ul style="list-style-type: none"> <li>I can provide evidence to explain that for any particular environment some organisms survive well, some less well, and some cannot survive one day.</li> </ul> <p><b>LS4.D: Biodiversity and Humans</b> Populations live in a variety of habitats, and change in those habitats affects the organisms living there. (3-LS4-4) <b>Learning Target:</b></p> <ul style="list-style-type: none"> <li>I can describe how populations live in a variety of habitats and change in those habitats affects the organisms living there.</li> </ul>	<p><b>Instructional Unit Resources:</b> <b>FOSS 3<sup>rd</sup> Edition <i>Environments</i> Teacher’s Guide</b></p> <p><b>Critter Delivery:</b> <b>Mealworms</b> <b>Isopods</b> <b>Goldfish/Guppies</b> <b>Gammarus (crustacean)</b> <b>Sept. 24<sup>th</sup></b></p>	<p><b>Safety alert:</b> <i>Be sure students wash their hands before and after handling the critters.</i></p> <p>By the end of this life science unit, students should be using the following vocabulary in their speaking and writing.</p> <p style="text-align: center;">         adaptation          aquatic environment          brine          conditions          controlled experiment          ecosystem          environment          environmental factor          freshwater environment          inherited trait          interaction          learned trait          life cycle          living          nonliving          preferred environment          salinity          tolerance          variations       </p> <p>Vocabulary is best learned when students have experiences that connect to the new words.</p>
---	--	---

## 3<sup>rd</sup> Grade Science Curriculum Map 2014-2015

<p><b>LS3.A: Inheritance of Traits</b>          Many characteristics of organisms are inherited from their parents. (3-LS3-1)          Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment. (3-LS3-2) (Addressed in Instructional Unit #2)  <u><b>Learning Target:</b></u></p> <ul style="list-style-type: none"> <li>I can explain how characteristics of organisms could result from interactions with the environment which can range from diet and learning.</li> </ul> <p><b>LS3.B: Variation of Traits</b>          Different organisms vary in how they look and function because they have different inherited information. (3-LS3-1)          The environment also affects the traits that an organism develops. (3-LS3-2) (Addressed in Instructional Unit #2)  <u><b>Learning Target:</b></u></p> <ul style="list-style-type: none"> <li>I can give examples of how the environment can affect the traits that an organism develops.</li> </ul>		<p>Therefore, introduce words AFTER EXPLORE during EXPLAIN or ELABORATE.</p>
<b>NGSS Performance Expectations</b>		
<p>Students who demonstrate understanding can:</p> <p><b>3-LS2-1.</b> Construct an argument that some animals form groups that help members survive.</p> <p><b>3-LS4-1.</b> Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.</p> <p><b>3-LS4-3.</b> 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><b>3-LS4-4.</b> 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><b>Assessment Cycle 2 Key Focus Topics:</b></p> <ul style="list-style-type: none"> <li><b>Environment's Effect on Organisms</b></li> <li><b>Plant and Animal Adaptations</b></li> <li><b>Fossils and Evidence of Environments Long Ago</b></li> </ul>	<p><b>Science Proficiency Assessment 2</b></p>	<p><b>Download Proficiency 2 from CASCADE upon release</b></p>

# 3<sup>rd</sup> Grade Science Curriculum Map 2014-2015

*\*Cycles include time for the investigation, integrated English/Language Arts connections, formative assessment and discourse.*

## Assessment Cycle 3: Weeks 18 - 23

### NGSS: 3.[Weather and Climate](#)

**NGSS Science and Engineering Practices:** As indicated by research and the Framework for NGSS, students must have multiple experiences with all 8 practices throughout their learning. During this instructional unit, however, emphasis will be placed on the following practices: analyzing and interpreting data; engaging in argument from evidence; and obtaining, evaluating, and communicating information.

[Click Here to access NGSS Appendix F: Science and Engineering Practices.](#)

**NGSS Crosscutting Concepts:** As indicated by the Framework for NGSS, intentional crosscutting connections throughout students' learning experiences help to deepen understanding. During this instructional unit emphasis will be placed on the following crosscutting concepts: patterns and cause and effect.

[Click Here to access NGSS Appendix G: Crosscutting Concepts.](#)

**Focus Topic 1: Weather Patterns**

**Focus Topic 2: Regional Climates**

**Focus Topic 3: Weather-related Hazards**

Next Generation Science Standards (NGSS): Disciplinary Core Ideas (DCI)	Instructional Unit Lessons and Module Resources	Instructional Notes
<p style="text-align: center;"><a href="#">NGSS Earth and Space Science Disciplinary Core Ideas</a> (Chap. 7)</p> <p><b>ESS2.D: Weather and Climate</b> Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next. (3-ESS2-1) Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years. (3-ESS2-2) <b>Learning Targets:</b></p> <ul style="list-style-type: none"> <li>• I can record weather patterns across different times and areas.</li> <li>• I can make predictions about the weather based on observed patterns.</li> <li>• I can use information from media and text to describe climates in different regions of the world.</li> </ul>	<p style="text-align: center;">See document for lessons designed to support the transition to the Next Generation Science Standards (NGSS).</p> <p style="text-align: center;"><a href="#">Click Here to access NGSS Instructional Unit 3</a></p>	<p>Several literary and informational tradebooks have been recommended throughout the instructional unit.</p> <p>By the end of this earth science unit, students should be using the following vocabulary in their speaking and writing.</p> <p style="text-align: center;">compass Fahrenheit humidity</p>

## 3<sup>rd</sup> Grade Science Curriculum Map 2014-2015

<p><b>ESS3.B: Natural Hazards</b> A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts. (3-ESS3-1)</p> <p><b>Learning Targets:</b></p> <ul style="list-style-type: none"> <li>• I can describe a variety of weather related hazards.</li> <li>• I can describe ways humans can take steps to reduce the impact of weather-related hazards.</li> </ul>	<p><b>Instructional Unit Resource: Instructional Unit Only (No Teacher’s Guide)</b></p>	<p>meteorologist precipitation rain gauge regions temperature thermometer weather weather forecast weather report weather-related hazard wind direction wind speed wind vane</p> <p>Vocabulary is best learned when students have experiences that connect to the new words. Therefore, introduce words AFTER EXPLORE during EXPLAIN or ELABORATE.</p>
<p><b>NGSS Performance Expectations</b></p> <p>Students who demonstrate understanding can:</p> <p><b>3-ESS2-1</b> - Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.</p> <p><b>3-ESS2-2</b> - Obtain and combine information to describe climates in different regions of the world.</p> <p><b>3-ESS3-1</b> - Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.</p>		
<p><b>Assessment Cycle 3 Key Focus Topics:</b></p> <ul style="list-style-type: none"> <li>• <b>Weather Patterns</b></li> <li>• <b>Regional Climates</b></li> <li>• <b>Weather-related Hazards</b></li> </ul>	<p><b>Science Proficiency Assessment 3</b></p>	<p><b>Download Proficiency 3 from CASCADE upon release</b></p>



# 3<sup>rd</sup> Grade Science Curriculum Map 2014-2015

## Assessment Cycle 4: Weeks 24 - 36

### NGSS: 3. [Forces and Interactions](#)

**NGSS Science and Engineering Practices:** As indicated by research and the Framework for NGSS, students must have multiple experiences with all 8 practices throughout their learning. During this instructional unit, however, emphasis will be placed on the following practices: Asking questions and Planning and conducting investigations.

*Click Here to access [NGSS Appendix F: Science and Engineering Practices](#).*

**NGSS Crosscutting Concepts:** As indicated by the Framework for NGSS, intentional crosscutting connections throughout students' learning experiences help to deepen understanding. During this instructional unit emphasis will be placed on the following crosscutting concepts: patterns and cause and effect.

*Click Here to access [NGSS Appendix G: Crosscutting Concepts](#).*

**Focus Topic 1: Balanced and Unbalanced Forces**

**Focus Topic 2: Patterns of an Object's Motion**

**Focus Topic 3: Electric and Magnetic Interactions**

Next Generation Science Standards (NGSS): Disciplinary Core Ideas (DCI)	Instructional Unit Lessons and Module Resources	Instructional Notes
<p style="text-align: center;"><a href="#">NGSS Physical Science Disciplinary Core Ideas</a> (Chap. 5)</p> <p><b>PS2.A: Forces and Motion</b> Each force acts on one particular object and has both strength and a direction. An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object's speed or direction of motion. (Boundary: Qualitative and conceptual, but not quantitative, addition of forces are used at this level.) (3-PS2-1)</p>	<p>See document for lessons designed to support the transition to the Next Generation Science Standards (NGSS).</p> <p style="text-align: center;"><i>Click Here to access</i> <b>Instructional Unit 4</b> <b>COMING SOON</b></p>	<p>By the end of this physical science unit, students should be using the following vocabulary in their speaking and writing. (Coming Soon)</p>

## 3<sup>rd</sup> Grade Science Curriculum Map 2014-2015

<p><b><u>Learning Targets:</u></b></p> <ul style="list-style-type: none"> <li>• I can describe an object’s position relative to another object or background.</li> <li>• I can describe an object’s change in motion.</li> <li>• I can explain the difference between balanced and unbalanced forces acting on an object.</li> <li>• I can explain how balanced and unbalanced forces affect an object’s motion.</li> <li>• I can predict changes in an object’s position and motion based on the forces acting on it.</li> </ul> <p>The patterns of an object’s motion in various situations can be observed and measured; when that past motion exhibits a regular pattern, future motion can be predicted from it. (Boundary: Technical terms, such as magnitude, velocity, momentum, and vector quantity, are not introduced at this level, but the concept that some quantities need both size and direction to be described is developed.) (3-PS2-2)</p> <p><b><u>Learning Targets:</u></b></p> <ul style="list-style-type: none"> <li>• I can observe and measure an object’s motion.</li> <li>• I can analyze data of an object’s motion to recognize patterns.</li> <li>• I can predict an object’s future motion based on patterns of past motion.</li> </ul> <p><b>PS2.B: Types of Interactions</b> Objects in contact exert forces on each other. (3-PS2-1)</p> <p><b><u>Learning Targets:</u></b></p> <ul style="list-style-type: none"> <li>• I can provide evidence that two objects not in contact exert forces on each other.</li> </ul> <p>Electric (<i>static</i>) and magnetic forces between a pair of objects do not require that the objects be in contact. The sizes of the forces in each situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other. (3-PS2-3),(3-PS2-4)</p> <p><b><u>Learning Targets:</u></b></p> <ul style="list-style-type: none"> <li>• I can identify materials that are magnetic and non-magnetic.</li> <li>• I can observe and provide evidence that magnets can make some things move without touching them.</li> <li>• I can observe and provide evidence that electric (static) forces can make some</li> </ul>	<p><b>Instructional Unit Resource:</b> <b>Instructional Unit Only</b> <b>(No Teacher’s Guide)</b></p>	<p>Vocabulary is best learned when students have experiences that connect to the new words. Therefore, introduce words AFTER EXPLORE during EXPLAIN or ELABORATE.</p>
--	---	---

### 3<sup>rd</sup> Grade Science Curriculum Map 2014-2015

<p>things move without touching them.</p> <ul style="list-style-type: none"> <li>• I can describe what happens to the magnetic force when the distance increases between two magnets.</li> <li>• I can describe what happens to the electric (static) force when the distance increases between two objects.</li> </ul>		
<b>NGSS Performance Expectations</b>		
<p>Students who demonstrate understanding can:</p> <p><b>3-PS2-1.</b> Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.</p> <p><b>3-PS2-2.</b> 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><b>3-PS2-3.</b> Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.</p> <p><b>3-PS2-4.</b> Define a simple design problem that can be solved by applying scientific ideas about magnets.*</p>		
<p><b>Assessment Cycle 4 Key Focus Topics:</b></p> <ul style="list-style-type: none"> <li>• <b>Balanced and Unbalanced Forces</b></li> <li>• <b>Patterns of an Object’s Motion</b></li> <li>• <b>Electric and Magnetic Interactions</b></li> </ul>	<p><b>Science Proficiency Assessment 4</b></p>	<p><b>Download Proficiency 4 from CASCADE upon release</b></p>