

<b>Kindergarten</b>				
<b>K-PS2</b>		<b>Motion and Stability: Forces and Interactions</b>		
<b>Learning Standard</b>	<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Resources</b>	<b>Assessments</b>
<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.</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.</p>	<p>*With guidance, plan and conduct an investigation in collaboration with peers.</p> <p>*Analyze data from tests of an object or tool to determine if it works as intended.</p>	<p>*Pushes and pulls can have different strengths and directions.</p> <p>*Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it.</p> <p>*When objects touch or collide, they push on one another and can change motion.</p> <p>*A bigger push or pull makes things speed up or slow down more quickly. (secondary)</p> <p>*A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems can have acceptable solutions.</p>	<p><a href="https://www.weareteachers.com/simple-physics-experiments-for-kids-pushing-and-pulling/">https://www.weareteachers.com/simple-physics-experiments-for-kids-pushing-and-pulling/</a></p> <p><a href="http://www.chem.ucsb.edu/scsp/sites/secure.lsit.ucsb.edu.chem.d7_scsp/files/sitefiles/lessons/Kindergarten%20PS2%20Push%20Pull%20Lesson%20Plans.pdf">http://www.chem.ucsb.edu/scsp/sites/secure.lsit.ucsb.edu.chem.d7_scsp/files/sitefiles/lessons/Kindergarten%20PS2%20Push%20Pull%20Lesson%20Plans.pdf</a></p> <p><a href="https://s3.wp.wsu.edu/uploads/sites/731/2015/04/Kindergarten-Force-Motion-Lessons.pdf">https://s3.wp.wsu.edu/uploads/sites/731/2015/04/Kindergarten-Force-Motion-Lessons.pdf</a></p> <p><a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/46608">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/46608</a></p> <p><a href="https://www.nextgenscience.org/sites/default/files/K%20Topics%20Model%20Bundle%201.pdf">https://www.nextgenscience.org/sites/default/files/K%20Topics%20Model%20Bundle%201.pdf</a></p>	<p>Ask questions</p> <p>Define problems</p> <p>Develop and use models</p> <p>Plan and carry out investigations</p> <p>Analyze and interpret data</p> <p>Formative assessment</p> <p>Teacher observation</p> <p>Class discussion</p> <p>Venn diagram</p>
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>
<p>RI.K.1 With prompting and support, ask and answer questions about key details in a text.</p> <p>W.K.7 Participate in shared research and writing projects</p> <p>SL.K.3 Ask and answer questions in order to seek help, get information, or clarify something that is not understood.</p>	<p>MP.2 Reason abstractly and quantitatively</p> <p>K.MD.A.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.</p> <p>K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has “more of” or “less of” the attribute, and describe the difference.</p>	<p>9.2.4.A.1 Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals.</p>	<p><a href="https://www.learningliftoff.com/kindergarten-science-learning-game-push-pull/">https://www.learningliftoff.com/kindergarten-science-learning-game-push-pull/</a></p> <p>BrainPop Jr.</p> <p><a href="https://jr.brainpop.com/science/forces/pushesandpulls/">https://jr.brainpop.com/science/forces/pushesandpulls/</a></p> <p><a href="https://sites.google.com/a/richmond.k12.wi.us/k-5-technology-integration/kindergarten-science">https://sites.google.com/a/richmond.k12.wi.us/k-5-technology-integration/kindergarten-science</a></p> <p><a href="https://pbskids.org/fetch/games/coaster/index.html">https://pbskids.org/fetch/games/coaster/index.html</a></p>	<p>Materials and Motion</p>

<b>Kindergarten</b>				
<b>K-PS3</b>		<b>Energy</b>		
<b>Learning Standard</b>	<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Resources</b>	<b>Assessments</b>
K-PS3-1. Make observations to determine the effect of sunlight on Earth's surface.	*Make observations (firsthand or from media) to collect data that can be used to make comparisons.	*Sunlight warms Earth's surface.	<a href="http://www.learnplayimagine.com/2014/05/sun-activities-for-kindergarten.html">http://www.learnplayimagine.com/2014/05/sun-activities-for-kindergarten.html</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram
K-PS3-2. Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.	*Use tools and materials provided to design and build a device that solves a specific problem or a solution to a specific problem.		<a href="http://redtri.com/sun-science-experiments/slide/5">http://redtri.com/sun-science-experiments/slide/5</a>  <a href="https://buggyandbuddy.com/sun-shelter/">https://buggyandbuddy.com/sun-shelter/</a>	
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>
W.K.7 Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). (K-PS3-1),(K-PS3-2)	K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference. (K-PS3-1),(KPS3-2)	9.2.4.A.1 Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals.	<a href="https://www.enchantedlearning.com/subjects/astronomy/sun/sun.shtml">https://www.enchantedlearning.com/subjects/astronomy/sun/sun.shtml</a>	Trees and Weather Kit

<b>Kindergarten</b>	
<b>K-LS1-1</b>	<b>From Molecules to Organisms: Structures and Processes</b>

Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.	*Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.	*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.	<a href="https://betterlesson.com/lesson/640647/what-do-plants-need-part-i">https://betterlesson.com/lesson/640647/what-do-plants-need-part-i</a> <a href="https://betterlesson.com/lesson/641203/comparing-needs-of-plants-and-humans">https://betterlesson.com/lesson/641203/comparing-needs-of-plants-and-humans</a>  <a href="https://www.chester-nj.org/cms/lib/NJ02209113/Centricity/Domain/42/K%20-%20Animals%20and%20Plant%20Needs.pdf">https://www.chester-nj.org/cms/lib/NJ02209113/Centricity/Domain/42/K%20-%20Animals%20and%20Plant%20Needs.pdf</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram
Interdisciplinary ELA	Interdisciplinary Mathematics	21st Century and Career Integration	Technology Integration	Core and Supplemental Instructional Materials
W.K.7 Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them).	K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has “more of”/”less of” the attribute, and describe the difference.	9.2.4.A.3 Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes.	<a href="https://pbskids.org/caillou/immersivesgames/?gameID=5">https://pbskids.org/caillou/immersivesgames/?gameID=5</a>  <a href="https://pbskids.org/plumlanding/games/ecosystem/jungle_jeopardy.html">https://pbskids.org/plumlanding/games/ecosystem/jungle_jeopardy.html</a>  <a href="https://pbskids.org/wildkratts/games/aardvark-town/">https://pbskids.org/wildkratts/games/aardvark-town/</a>	Animals Two by Two Kit

**Kindergarten****K-ESS2****Earth's Systems**

Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
<p>K-ESS2-1. Use and share observations of local weather conditions to describe patterns over time.</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>*Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.</p> <p>*Construct an argument with evidence to support a claim.</p>	<p>*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.</p> <p>*Plants and animals can change their environment.</p> <p>*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.</p>	<p><a href="https://rampages.us/mitchellkj3/2015/04/22/kindergarten-weather-unit-lesson-plans/">https://rampages.us/mitchellkj3/2015/04/22/kindergarten-weather-unit-lesson-plans/</a></p> <p><a href="https://www.pinterest.com/valwhit/weather-kindergarten/?lp=true">https://www.pinterest.com/valwhit/weather-kindergarten/?lp=true</a></p>	<p>Ask questions</p> <p>Define problems</p> <p>Develop and use models</p> <p>Plan and carry out investigations</p> <p>Analyze and interpret data</p> <p>Formative assessment</p> <p>Teacher observation</p> <p>Class discussion</p> <p>Venn diagram</p>
Interdisciplinary ELA	Interdisciplinary Mathematics	21st Century and Career Integration	Technology Integration	Core and Supplemental Instructional Materials
<p>RI.K.1 With prompting and support, ask and answer questions about key details in a text.</p> <p>W.K.1 Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book.</p> <p>W.K.2 Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.</p> <p>W.K.7 Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them)</p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p> <p>K.CC.A Know number names and the count sequence.</p> <p>K.MD.A.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.</p> <p>K.MD.B.3 Classify objects into given categories; count the number of objects in each category and sort the categories by count.</p>	<p>9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community.</p>	<p><a href="https://pbskids.org/sid/fablab_wethersurprise.html">https://pbskids.org/sid/fablab_wethersurprise.html</a></p> <p><a href="https://pbskids.org/sesame/games/seasons-spinner/">https://pbskids.org/sesame/games/seasons-spinner/</a></p>	<p>Trees and Weather Kit</p>

<b>K-ESS3</b>		<b>Earth and Human Activity</b>		
<b>Learning Standard</b>	<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Resources</b>	<b>Assessments</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.	*Ask questions based on observations to find more information about the designed world. *Use a model to represent relationships in the natural world. *Read grade-appropriate texts and/or use media to obtain scientific information to describe patterns in the natural world. *Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas.	*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. *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. *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. *Asking questions, making observations, and gathering information are helpful in thinking about problems. 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.	<a href="https://www.chester-nj.org/cms/lib/NJ02209113/Centricity/Domain/42/K%20-%20Animals%20and%20Plant%20Needs.pdf">https://www.chester-nj.org/cms/lib/NJ02209113/Centricity/Domain/42/K%20-%20Animals%20and%20Plant%20Needs.pdf</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram
K-ESS3-2. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.				
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.			<a href="https://betterlesson.com/lesson/636813/severe-weather-hurricanes-tropical-storms-run-amok?from=cc_lesson">https://betterlesson.com/lesson/636813/severe-weather-hurricanes-tropical-storms-run-amok?from=cc_lesson</a>  <a href="https://betterlesson.com/browse/common_core/standard/2063/ngss-k-ess3-2-ask-questions-to-obtain-information-about-the-purpose-of-weather-forecasting-to-prepare-for-and-respond-to-severe">https://betterlesson.com/browse/common_core/standard/2063/ngss-k-ess3-2-ask-questions-to-obtain-information-about-the-purpose-of-weather-forecasting-to-prepare-for-and-respond-to-severe</a>	
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>
RI.K.1 With prompting and support, ask and answer questions about key details in a text. W.K.2 Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic. SL.K.3 Ask and answer questions in order to seek help, get information, or clarify something that is not understood. SL.K.5 Add drawings or other visual displays to descriptions as	MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. K.CC Counting and Cardinality	9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community.	<a href="https://pbskids.org/sid/fablab_weathersurprise.html">https://pbskids.org/sid/fablab_weathersurprise.html</a>  <a href="https://pbskids.org/sesame/games/seasons-spinner/">https://pbskids.org/sesame/games/seasons-spinner/</a>  <a href="https://pbskids.org/caillou/immersivgames/?gameID=5">https://pbskids.org/caillou/immersivgames/?gameID=5</a>  <a href="https://pbskids.org/plumlanding/games/ecosystem/jungle_jeopardy.html">https://pbskids.org/plumlanding/games/ecosystem/jungle_jeopardy.html</a>  <a href="https://pbskids.org/wildkratts/games/aardvark-town/">https://pbskids.org/wildkratts/games/aardvark-town/</a>	Animals two by Two Kit Trees and Weather Kit

desired to provide additional detail.				
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Kindergarten				
K-2-ETS1		Engineering Design		
Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define	*Ask questions based on observations to find more information about the natural and/or designed world(s).	*A situation that people want to change or create can be approached as a problem to be solved through engineering. *Asking questions, making observations, and gathering information are helpful in thinking about problems.	<a href="https://fun-a-day.com/14-fun-engineering-activities-for-kids/">https://fun-a-day.com/14-fun-engineering-activities-for-kids/</a>	Ask questions Define problems Develop and use models Plan and carry out investigations

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a simple problem that can be solved through the development of a new or improved object or tool.	*Define a simple problem that can be solved through the development of a new or improved object or tool.	*Before beginning to design a solution, it is important to clearly understand the problem. *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. * Because there is always more than one possible solution to a problem, it is useful to compare and test designs.	<a href="https://thekindergartenconnection.com/awesome-engineering-activities-kids/">https://thekindergartenconnection.com/awesome-engineering-activities-kids/</a>  <a href="https://thestemlaboratory.com/kindergarten-stem-activities/">https://thestemlaboratory.com/kindergarten-stem-activities/</a>	Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram
K-2-ETS1-2. 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.	*Develop a simple model based on evidence to represent a proposed object or tool.			
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.	*Analyze data from tests of an object or tool to determine if it works as intended.			
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>
RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. W.2.6 With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. W.2.8 Recall information from experiences or gather information from provided sources to answer a question. SL.2.5 Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.	MP.2 Reason abstractly and quantitatively. (K-2-ETS1-1),(K-2-ETS1-3) MP.4 Model with mathematics. (K-2-ETS1-1),(K-2-ETS1-3) MP.5 Use appropriate tools strategically. (K-2-ETS1-1),(K-2-ETS1-3) 2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set	9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.	<a href="https://pbskids.org/games/engineering/">https://pbskids.org/games/engineering/</a>	Mystery Science

## Grade 1

## 1-PS4

## Waves and Their Applications in Technologies for Information Transfers



Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
1-PS4-1 Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.	<b>Planning and Carrying Out Investigations</b> 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. <ul style="list-style-type: none"> <li>Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question. (1-PS4-1),(1-PS4-3)</li> </ul> <b>Constructing Explanations and Designing Solutions</b> 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. <ul style="list-style-type: none"> <li>Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (1- PS4-2)</li> <li>Use tools and materials provided to design a device that solves a specific problem. (1- PS4-4)</li> </ul>	<b>PS4.A: Wave Properties</b> <ul style="list-style-type: none"> <li>Sound can make matter vibrate, and vibrating matter can make sound. (1-PS4-1)</li> </ul> <b>PS4.B: Electromagnetic Radiation</b> <ul style="list-style-type: none"> <li>Objects can be seen if light is available to illuminate them or if they give off their own light. (1-PS4-2)</li> <li>Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam. (Boundary: The idea that light travels from place to place is developed through experiences with light sources, mirrors, and shadows, but no attempt is made to discuss the speed of light.) (1- PS4-3)</li> </ul> <b>PS4.C: Information Technologies and Instrumentation</b> <ul style="list-style-type: none"> <li>People also use a variety of devices to communicate (send and receive information) over long distances. (1- PS4-4)</li> </ul>	<a href="https://www.state.nj.us/education/model-curriculum/sci/video/">https://www.state.nj.us/education/model-curriculum/sci/video/</a>  <a href="https://www.state.nj.us/education/aps/cc/cs/science/resources/QRk2.pdf">https://www.state.nj.us/education/aps/cc/cs/science/resources/QRk2.pdf</a>  <a href="http://nstahosted.org/pdfs/ngss/resources/MatrixForK-12ProgressionOfScienceAndEngineeringPracticesInNGSS.8.14.14.pdf">http://nstahosted.org/pdfs/ngss/resources/MatrixForK-12ProgressionOfScienceAndEngineeringPracticesInNGSS.8.14.14.pdf</a>	3-D Formative Assessment Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram  <a href="https://ngss-assessment.portal.concord.org/ngsa-collections">https://ngss-assessment.portal.concord.org/ngsa-collections</a>
1-PS4-2 Make observations to construct an evidence-based account that objects can be seen only when illuminated.				
1-PS4-3 Plan and conduct an Investigation to determine the effect of placing objects made with different materials in the path of a beam of light.				
1-PS4-4 Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.				
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>



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<p>W.1.2 Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure. (1-PS4-2)</p> <p>W.1.7 Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions). (1-PS4-1), (1-PS4-2), (1-PS4-3), (1-PS4-4)</p> <p>W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. (1-PS4-1), (1-PS4-2), (1-PS4-3)</p> <p>SL.1.1 Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups. (1-PS4-1),(1-PS4-2),(1-PS4-3)</p>	<p>MP.5 Use appropriate tools strategically. (1-PS4-4)</p> <p>1.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object. (1-PS4-4)</p> <p>1.MD.A.2 Express the length of an object as a whole number of length units, by layering multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size units that span it with no gaps or overlaps. (1-PS4-4).</p>	<p><b>Cause and Effect</b></p> <p>Simple tests can be designed to gather evidence to support or refute student ideas about causes. (1-PS4-1),(1-PS4-2),(1-PS4-3)</p>	<p><b>Influence of Engineering, Technology, and Science, on Society and the Natural World</b></p> <ul style="list-style-type: none"> <li>• People depend on various technologies in their lives; human life would be very different without technology. (1-PS4-4)</li> </ul> <p>Instructional Videos</p> <p>Instructional Online Components</p>	<p>Inspire Science</p> <p>Instructional Kits</p> <p>Mystery Science</p>
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Grade 1				
1-LS1-1		From Molecules to Organisms: Structures and Processes		
Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
<p>1-LS1-1. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.</p> <p>1-LS1-2. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.</p>	<p><b>Constructing Explanations and Designing Solutions</b> 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.</p> <ul style="list-style-type: none"> <li>Use materials to design a device that solves a specific problem or a solution to a specific problem. (1-LS1-1)</li> </ul> <p><b>Obtaining, Evaluating, and Communicating Information</b> Obtaining, evaluating, and communicating information in K– 2 builds on prior experiences and uses observations and texts to communicate new information.</p> <ul style="list-style-type: none"> <li>Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world. (1-LS1-2)</li> </ul>	<p><b>LS1.A: Structure and Function</b> All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)</p> <p><b>LS1.B: Growth and Development of Organisms</b> Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. (1-LS1-2)</p> <p><b>LS1.D: Information Processing</b> Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs. (1-LS1-1)</p>	<p><a href="https://www.nj.gov/education/aps/cccs/science/resources.htm">https://www.nj.gov/education/aps/cccs/science/resources.htm</a></p>	<p>3-D Formative Assessment</p> <p>Ask questions</p> <p>Define problems</p> <p>Develop and use models</p> <p>Plan and carry out investigations</p> <p>Analyze and interpret data</p> <p>Formative assessment</p> <p>Teacher observation</p> <p>Class discussion</p> <p>Venn diagram</p> <p><a href="https://ngss-assessment.portal.concord.org/ngsa-collections">https://ngss-assessment.portal.concord.org/ngsa-collections</a></p>
Interdisciplinary ELA	Interdisciplinary Mathematics	21st Century and Career Integration	Technology Integration	Core and Supplemental

				<b>Instructional Materials</b>
<p>RI.1.1 Ask and answer questions about key details in a text. (1-LS1-2)</p> <p>RI.1.2 Identify the main topic and retell key details of a text. (1-LS1-2)</p> <p>RI.1.10 With prompting and support, read informational texts appropriately complex for grade. (1-LS1-2)</p> <p>W.1.7 Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions). (1-LS1-1)</p>	<p>1.NBT.B.3 Compare two two-digit numbers based on the meanings of the tens and one digits, recording the results of comparisons with the symbols <math>&gt;</math>, <math>=</math>, and <math>&lt;</math>. (1-LS1-2)</p> <p>1.NBT.C.4 Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning uses. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten. (1-LS1-2)</p> <p>1.NBT.C.5 Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used. (1-LS1-2)</p> <p>1.NBT.C.6 Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. (1-LS1-2)</p>	<p><b>Patterns</b> Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-LS1-2)</p> <p><b>Structure and Function</b> The shape and stability of structures of natural and designed objects are related to their function(s). (1-LS1-1)</p>	<p><b>Influence of Engineering, Technology, and Science on Society and the Natural World</b> Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world. (1-LS1-1)</p> <p>Instructional Videos</p> <p>Instructional Online Components</p>	<p>Inspire Science</p> <p>Instructional Kits</p> <p>Mystery Science</p>

Grade 1				
1-LS3		Heredity: Inheritance and Variation of Traits		
Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
1-LS3-1. Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.	<b>Constructing Explanations and Designing Solutions</b> 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. <ul style="list-style-type: none"> <li>Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (1-LS3-1)</li> </ul>	<b>LS3.A: Inheritance of Traits</b> Young animals are very much, but not exactly like, their parents. Plants also are very much, but not exactly, like their parents. (1-LS3-1)  <b>LS3.B: Variation of Traits</b> Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways. (1-LS3-1)	<a href="https://www.state.nj.us/education/modelcurriculum/sci/videos/">https://www.state.nj.us/education/modelcurriculum/sci/videos/</a>  <a href="https://www.state.nj.us/education/aps/cccs/science/resources/QRk2.pdf">https://www.state.nj.us/education/aps/cccs/science/resources/QRk2.pdf</a>	3-D Formative Assessment Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram  <a href="https://ngss-assessment.portal.concord.org/ngsa-collections">https://ngss-assessment.portal.concord.org/ngsa-collections</a>
Interdisciplinary ELA	Interdisciplinary Mathematics	21st Century and Career Integration	Technology Integration	Core and Supplemental Instructional Materials
RI.1.1 Ask and answer questions about key details in a text. (1-LS3-1) W.1.7 Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions). (1-LS3-1) W.1.8 With guidance and support from adults, recall information from	MP.2 Reason abstractly and quantitatively. (1-LS3-1) MP.5 Use appropriate tools strategically. (1-LS3-1) 1.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object. (1-LS3-1)	<b>Patterns</b> Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-LS3-1)	Instructional Videos  Instructional Online Components	Inspire Science Instructional Kits Mystery Science

experiences or gather information from provided sources to answer a question. (1-LS3-1)				
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**Grade 1**

<b>1-ESS1</b>		<b>Earth's Place in the Universe</b>		
<b>Learning Standard</b>	<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Resources</b>	<b>Assessments</b>
1-ESS1-1. Use observations of the sun, moon, and stars to describe patterns that can be predicted.	<b>Planning and Carrying Out Investigations</b> 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. <ul style="list-style-type: none"> <li>Make observations (firsthand or from media) to collect data that can be used to make comparisons. (1-ESS1-2)</li> </ul> <b>Analyzing and Interpreting Data</b> Analyzing data in K–2 builds on prior experiences and progresses	<b>ESS1.A: The Universe and its Stars</b> Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. (1-ESS1-1)  <b>ESS1.B: Earth and the Solar System</b> Seasonal patterns of sunrise and sunset can be observed, described, and predicted. (1-ESS1-2)	<a href="https://www.state.nj.us/education/modelcurriculum/sci/videos/">https://www.state.nj.us/education/modelcurriculum/sci/videos/</a>  <a href="https://www.state.nj.us/education/aps/cccs/science/resources/QRk2.pdf">https://www.state.nj.us/education/aps/cccs/science/resources/QRk2.pdf</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram  <a href="https://www.nj.gov/education/modelcurriculum/sci/">https://www.nj.gov/education/modelcurriculum/sci/</a>
1-ESS1-2. Make observations at different times of year to relate the amount of daylight to the time of year				

	<p>to collecting, recording, and sharing observations.</p> <ul style="list-style-type: none"> <li>Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (1-ESS1-1)</li> </ul>			
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>
<p>W.1.7 Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions). (1-ESS1-1), (1-ESS1-2)</p> <p>W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. (1-ESS1-1), (1-ESS1-2)</p>	<p>MP.2 Reason abstractly and quantitatively. (1-ESS1-2)</p> <p>MP.4 Model with mathematics. (1-ESS1-2)</p> <p>MP.5 Use appropriate tools strategically. (1-ESS1-2)</p> <p>1.OA.A.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations to represent the problem. (1-ESS1-2)</p> <p>1.MD.C.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another. (1-ESS1-2)</p>	<p><b>Patterns</b></p> <p>Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-ESS1-1), (1-ESS1-2)</p>	<p><b>Scientific Knowledge Assumes an Order and Consistency in Natural Systems</b></p> <p>Science assumes natural events happen today as they happened in the past. (1-ESS1-1)</p> <ul style="list-style-type: none"> <li>Many events are repeated. (1-ESS1-1)</li> </ul> <p>Instructional Videos</p> <p>Instructional Online Components</p>	<p>Inspire Science</p> <p>Mystery Science</p>

Grade 1				
K-2-ETS1		Engineering Design		
Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
<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-ETS1-2. 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> <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>	<p><b>Asking Questions and Defining Problems</b> Asking questions and defining problems in K–2 builds on prior experiences and progresses to simple descriptive questions.</p> <ul style="list-style-type: none"> <li>Ask questions based on observations to find more information about the natural and/or designed world(s). (K2-ETS1-1)</li> <li>Define a simple problem that can be solved through the development of a new or improved object or tool. (K-2- ETS1-1)</li> </ul> <p><b>Developing and Using Models</b> Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.</p> <ul style="list-style-type: none"> <li>Develop a simple model based on evidence to represent a proposed object or tool. (K-2-ETS1-2)</li> </ul> <p><b>Analyzing and Interpreting Data</b> Analyzing data in K–2 builds on prior experiences and progresses</p>	<p><b>ETS1.A: Defining and Delimiting Engineering Problems</b></p> <ul style="list-style-type: none"> <li>A situation that people want to change or create can be approached as a problem to be solved through engineering. (K-2-ETS1-1)</li> <li>Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1)</li> <li>Before beginning to design a solution, it is important to clearly understand the problem. (K-2-ETS1-1)</li> </ul> <p><b>ETS1.B: Developing Possible Solutions</b></p> <ul style="list-style-type: none"> <li>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. (K-2-ETS1-2)</li> </ul> <p><b>ETS1.C: Optimizing the Design Solution</b></p> <ul style="list-style-type: none"> <li>Because there is always more than one possible solution to a</li> </ul>	<p><a href="https://www.state.nj.us/education/modelcurriculum/sci/videos/">https://www.state.nj.us/education/modelcurriculum/sci/videos/</a></p> <p><a href="https://www.state.nj.us/education/aps/cccs/science/resources/QRk2.pdf">https://www.state.nj.us/education/aps/cccs/science/resources/QRk2.pdf</a></p>	<p>3-D Formative Assessment Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram</p> <p><a href="https://ngss-assessment.portal.concord.org/ngsa-collections">https://ngss-assessment.portal.concord.org/ngsa-collections</a></p> <p><a href="https://www.nj.gov/education/modelcurriculum/sci/">https://www.nj.gov/education/modelcurriculum/sci/</a></p>



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	to collecting, recording, and sharing observations. <ul style="list-style-type: none"> <li>Analyze data from tests of an object or tool to determine if it works as intended. (K-2-ETS1-3)</li> </ul>	problem, it is useful to compare and test designs. (K-2-ETS1-3)		
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>
RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (K-2-ETS1-1) W.2.6 With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. (K-2-ETS1-1), (K-2-ETS1-3) W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (K-2-ETS1-1), (K-2-ETS1-3) SL.2.5 Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings. (K-2-ETS1-2)	MP.2 Reason abstractly and quantitatively. (K-2-ETS1-1), (K-2-ETS1-3) MP.4 Model with mathematics. (K-2-ETS1-1), (K-2-ETS1-3) MP.5 Use appropriate tools strategically. (K-2-ETS1-1), (K-2-ETS1-3) 2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (K-2-ETS1-1), (K-2-ETS1-3)	<b>Structure and Function</b> The shape and stability of structures of natural and designed objects are related to their function(s). (K-2-ETS1-2)	Instructional Videos  Instructional Online Components	Inspire Science Instructional Kits Mystery Science

Second Grade				
2-PS1		Matter and Its Interactions		
Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties	*Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.	*Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties.	<a href="http://www.mccracken.kyschools.us/Downloads/2%20NGSS%20UNIT%20Matter.pdf">http://www.mccracken.kyschools.us/Downloads/2%20NGSS%20UNIT%20Matter.pdf</a>	Ask questions
2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.	*Analyze data from tests of an object or tool to determine if it works as intended.	* Different properties are suited to different purposes.	<a href="https://betterlesson.com/community/directory/second_grade/matter_and_its_properties">https://betterlesson.com/community/directory/second_grade/matter_and_its_properties</a>	Define problems
2-PS1-3. Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.	* Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.	* A great variety of objects can be built up from a small set of pieces.		Develop and use models
2-PS1-4. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.	*Construct an argument with evidence to support a claim.	* PS1.B: Chemical Reactions Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not.		Plan and carry out investigations
				Analyze and interpret data
				Formative assessment
				Teacher observation
				Class discussion
				Venn diagram
Interdisciplinary ELA	Interdisciplinary Mathematics	21st Century and Career Integration	Technology Integration	Core and Supplemental Instructional Materials

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<p>RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.</p> <p>RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.</p> <p>RI.2.8 Describe how reasons support specific points the author makes in a text.</p> <p>W.2.1 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section.</p> <p>W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).</p> <p>W.2.8 Recall information from experiences or gather information from provided sources to answer a question.</p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.</p>	<p>9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.</p>	<p><a href="https://www.youtube.com/watch?v=qYzjg5nRMOg">https://www.youtube.com/watch?v=qYzjg5nRMOg</a></p> <p><a href="https://www.turtlediary.com/games/second-grade/matter.html">https://www.turtlediary.com/games/second-grade/matter.html</a></p> <p><a href="http://www.abcy.com/states_of_matter.htm">http://www.abcy.com/states_of_matter.htm</a></p> <p><a href="https://www.learninggamesforkids.com/changes-in-matter-games.html">https://www.learninggamesforkids.com/changes-in-matter-games.html</a></p>	<p>Instructional Science</p> <p>Instructional Kits</p> <p>Mystery Science</p>
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## Second Grade

2-LS2				
Learning Standard		Ecosystems: Interactions, Energy, and Dynamics		
Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments	

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2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow.	*Develop a simple model based on evidence to represent a proposed object or tool. *Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.	*Plants depend on water and light to grow. *Plants depend on animals for pollination or to move their seeds around. *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.	<a href="https://betterlesson.com/browse/common_core/standard/2091/ngss-2-ls2-1-plan-and-conduct-an-investigation-to-determine-if-plants-need-sunlight-and-water-to-grow">https://betterlesson.com/browse/common_core/standard/2091/ngss-2-ls2-1-plan-and-conduct-an-investigation-to-determine-if-plants-need-sunlight-and-water-to-grow</a>  <a href="https://www.pinterest.com/nationalplant/science-experiments/?lp=true">https://www.pinterest.com/nationalplant/science-experiments/?lp=true</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram
2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.				
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>
W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). W.2.8 Recall information from experiences or gather information from provided sources to answer a question. SL.2.5 Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings	MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. 2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems.	9.2.4.A.1 Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals.	<a href="http://interactivesites.weebly.com/plants.html">http://interactivesites.weebly.com/plants.html</a>  <a href="https://www.turtlediary.com/game/stages-of-plant-life-cycle.html">https://www.turtlediary.com/game/stages-of-plant-life-cycle.html</a>	Instructional Science Instructional Kits Mystery Science

## Second Grade

2-LS4		Biological Evolution: Unity and Diversity		
Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
2-LS4-1. Make observations of plants and animals to compare	*Make observations (firsthand or from media) to collect data that	*There are many different kinds of living things in any area, and they exist in different places on land and in water.	<a href="https://betterlesson.com/browse/common_core/standard/2094/ngss-2-ls4-1-make-observations-of-">https://betterlesson.com/browse/common_core/standard/2094/ngss-2-ls4-1-make-observations-of-</a>	Ask questions Define problems Develop and use models

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the diversity of life in different habitats.	can be used to make comparisons.		<a href="#">plants-and-animals-to-compare-the-diversity-of-life-in-different-habitats</a>  <a href="https://educators.brainpop.com/lesson-plan/animals-lesson-plan-diversity-life/">https://educators.brainpop.com/lesson-plan/animals-lesson-plan-diversity-life/</a>	Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>
W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). W.2.8 Recall information from experiences or gather information from provided sources to answer a question.	MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. 2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems	9.2.4.A.3 Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes.	<a href="http://interactivesites.weebly.com/living-things.html">http://interactivesites.weebly.com/living-things.html</a>  <a href="https://www.scholastic.com/magicschoolbus/games/habitat/">https://www.scholastic.com/magicschoolbus/games/habitat/</a> 1	Instructional Science Instructional Kits Mystery Science

**Second Grade****2-ESS1****Earth's Place in the Universe**

<b>Learning Standard</b>	<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Resources</b>	<b>Assessments</b>
2-ESS1-1. Use information from several sources to provide	*Make observations from several sources to construct an evidence-	*Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe.	<a href="https://betterlesson.com/browse/common_core/standard/2097/ngs-2-ess1-1-use-information-">https://betterlesson.com/browse/common_core/standard/2097/ngs-2-ess1-1-use-information-</a>	Ask questions Define problems Develop and use models

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evidence that Earth events can occur quickly or slowly.	based account for natural phenomena.		<a href="#">from-several-sources-to-provide-evidence-that-earth-events-can-occur-quickly-or-slowly</a>  <a href="http://www.covington.kyschools.us/userfiles/15/My%20Files/2nd%20add%20chg/Unit%202%20rd%20gr%20unit%202%20pg1.pdf?id=5051">http://www.covington.kyschools.us/userfiles/15/My%20Files/2nd%20add%20chg/Unit%202%20rd%20gr%20unit%202%20pg1.pdf?id=5051</a>  <a href="https://ngss.nsta.org/DisplayStandard.aspx?view=pe&amp;id=30">https://ngss.nsta.org/DisplayStandard.aspx?view=pe&amp;id=30</a>	Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>
RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. W.2.6 With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). ) W.2.8 Recall information from experiences or gather information from provided sources to answer a question. SL.2.2 Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.	MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. 2.NBT.A Understand place value.	9.2.4.A.3 Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes.	<a href="https://www.brainpop.com/games/earthquakegame/">https://www.brainpop.com/games/earthquakegame/</a>  <a href="http://www.seismo.ethz.ch/en/knowledge/miscellaneous/earthquake-games/">http://www.seismo.ethz.ch/en/knowledge/miscellaneous/earthquake-games/</a>  <a href="https://scijinks.gov/menu/games/hurricanes-and-storms/">https://scijinks.gov/menu/games/hurricanes-and-storms/</a>	Instructional Science Instructional Kits Mystery Science

Second Grade				
2-ESS2		Earth's Systems		
Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
2-ESS2-1. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.*	*Develop a model to represent patterns in the natural world. *Compare multiple solutions to a problem. *Obtain information using various texts, text features (e.g., headings, tables of contents, glossaries, electronic menus, icons), and other media that will be useful in answering a scientific question.	*Wind and water can change the shape of the land. *Maps show where things are located. One can map the shapes and kinds of land and water in any area. *Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form. *Because there is always more than one possible solution to a problem, it is useful to compare and test designs.	<a href="https://betterlesson.com/browse/common_core/standard/2099/ngss-2-ess2-1-compare-multiple-solutions-designed-to-slow-or-prevent-wind-or-water-from-changing-the-shape-of-the-land">https://betterlesson.com/browse/common_core/standard/2099/ngss-2-ess2-1-compare-multiple-solutions-designed-to-slow-or-prevent-wind-or-water-from-changing-the-shape-of-the-land</a>  <a href="https://www.exploringnature.org/db/view/Grade-2-2-ESS2-Earthquos-Systems">https://www.exploringnature.org/db/view/Grade-2-2-ESS2-Earthquos-Systems</a>  <a href="https://betterlesson.com/browse/common_core/standard/2100/ngss-2-ess2-2-develop-a-model-to-represent-the-shapes-and-kinds-of-land-and-bodies-of-water-in-an-area">https://betterlesson.com/browse/common_core/standard/2100/ngss-2-ess2-2-develop-a-model-to-represent-the-shapes-and-kinds-of-land-and-bodies-of-water-in-an-area</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram
2-ESS2-2. Develop a model to represent the shapes and kinds of land and bodies of water in an area				
2-ESS2-3. Obtain information to identify where water is found on Earth and that it can be solid or liquid				
Interdisciplinary ELA	Interdisciplinary Mathematics	21st Century and Career Integration	Technology Integration	Core and Supplemental Instructional Materials
RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. RI.2.9 Compare and contrast the most important points presented by two texts on the same topic. W.2.6 With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. W.2.8 Recall information from experiences or gather information from provided sources to answer a question. SL.2.5 Create audio recordings	MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. MP.5 Use appropriate tools strategically. 2.NBT.A.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. 2.MD.B.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given	9.2.4.A.3 Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes.	<a href="https://matchthememory.com/mrpolum">https://matchthememory.com/mrpolum</a>  <a href="http://interactivesites.weebly.com/landforms.html">http://interactivesites.weebly.com/landforms.html</a>	Instructional Science Instructional Kits Mystery Science



of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings				
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**Second Grade****K-2-ETS1**

<b>Engineering Design</b>				
<b>Learning Standard</b>	<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Resources</b>	<b>Assessments</b>
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.	*Ask questions based on observations to find more information about the natural and/or designed world(s). *Define a simple problem that can be solved through the development of a new or improved object or tool.	*A situation that people want to change or create can be approached as a problem to be solved through engineering. *Asking questions, making observations, and gathering information are helpful in thinking about problems. *Before beginning to design a solution, it is important to clearly understand the problem.	<a href="https://thestemlaboratory.com/stem-activities-for-kids/">https://thestemlaboratory.com/stem-activities-for-kids/</a>  <a href="https://www.education.com/activities/second-grade/science/">https://www.education.com/activities/second-grade/science/</a>  <a href="http://detectiveosterhoff.weebly.com/stem-activities-by-grade-level.html">http://detectiveosterhoff.weebly.com/stem-activities-by-grade-level.html</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram
K-2-ETS1-2. 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.	*Develop a simple model based on evidence to represent a proposed object or tool. *Analyze data from tests of an object or tool to determine if it works as intended.	*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. * Because there is always more than one possible solution to a problem, it is useful to compare and test designs.		
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.				

Interdisciplinary ELA	Interdisciplinary Mathematics	21st Century and Career Integration	Technology Integration	Core and Supplemental Instructional Materials
<p>RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.</p> <p>W.2.6 With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.</p> <p>W.2.8 Recall information from experiences or gather information from provided sources to answer a question.</p> <p>SL.2.5 Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.</p>	<p>MP.2 Reason abstractly and quantitatively. (K-2-ETS1-1),(K-2-ETS1-3) MP.4 Model with mathematics. (K-2-ETS1-1),(K-2-ETS1-3) MP.5 Use appropriate tools strategically. (K-2-ETS1-1),(K-2-ETS1-3) 2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set</p>	<p>9.2.4.A.3 Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes.</p>	<p><a href="https://pbskids.org/games/engineering/">https://pbskids.org/games/engineering/</a></p>	<p>Instructional Science Instructional Kits Mystery Science</p>

## Grade 3

3-PS2				
Motion and Stability: Forces and Interactions				
Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
<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>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>3-PS2-3. Ask questions to determine cause and effect relationships of electric or magnetic interactions between</p>	<p><b>Asking Questions and Defining Problems</b> Asking questions and defining problems in grades 3–5 builds on grades K–2 experiences and progresses to specifying qualitative relationships.</p> <ul style="list-style-type: none"> <li>Ask questions that can be investigated based on patterns such as cause and effect relationships. (3-PS2-3)</li> <li>Define a simple problem that can be</li> </ul>	<p><b>PS2.A: Forces and Motion</b></p> <ul style="list-style-type: none"> <li>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</li> </ul>	<p><a href="https://www.state.nj.us/education/modelcurriculum/sci/videos/">https://www.state.nj.us/education/modelcurriculum/sci/videos/</a></p> <p><a href="https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf">https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf</a></p> <p><a href="http://nstahosted.org/pdfs/ngss/resources/MatrixForK-12ProgressionOfScienceAndEngineeringPracticesInNGSS.8.14.14.pdf">http://nstahosted.org/pdfs/ngss/resources/MatrixForK-12ProgressionOfScienceAndEngineeringPracticesInNGSS.8.14.14.pdf</a></p>	<p>3-D Formative Assessment Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram</p> <p><a href="https://ngss-assessment.portal.concord.org/ngsa-collections">https://ngss-assessment.portal.concord.org/ngsa-collections</a></p>

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two objects not in contact with each other.	solved through the development of a new or improved object or tool. (3-PS2-4)	<ul style="list-style-type: none"> <li>forces are used at this level.) (3-PS2-1)</li> <li>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)</li> </ul>		
3-PS2-4. Define a simple design problem that can be solved by applying scientific ideas about magnets.	<b>Planning and Carrying Out Investigations</b> Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. <ul style="list-style-type: none"> <li>Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (3-PS2-1)</li> <li>Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. (3-PS2-2)</li> </ul>	<b>PS2.B: Types of Interactions</b> <ul style="list-style-type: none"> <li>Objects in contact exert forces on each other. (3-PS2-1)</li> <li>Electric 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)</li> </ul>		
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>

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<p>RI.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. (3-PS2-1),(3-PS2-3)</p> <p>RI.3.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect. (3-PS2-3)</p> <p>RI.3.8 Describe the logical connection between particular sentences and paragraphs in a text (e.g., comparison, cause/effect, first/second/third in a sequence). (3-PS2-3)</p> <p>W.3.7 Conduct short research projects that build knowledge about a topic. (3-PS2-1),(3-PS2-2)</p> <p>W.3.8 Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories. (3-PS2-1),(3-PS2-2)</p> <p>SL.3.3 Ask and answer questions about information from a speaker, offering appropriate elaboration and detail. (3-PS2-3)</p>	<p>MP.2 Reason abstractly and quantitatively. (3-PS2-1)</p> <p>MP.5 Use appropriate tools strategically. (3-PS2-1)</p> <p>3.MD.A.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (3-PS2-1)</p>	<p><b>Patterns</b> Patterns of change can be used to make predictions. (3-PS2-2)</p> <p><b>Cause and Effect</b> Cause and effect relationships are routinely identified. (3-PS2-1) Cause and effect relationships are routinely identified, tested, and used to explain change. (3-PS2-3)</p>	<p><b>Interdependence of Science, Engineering, and Technology</b> Scientific discoveries about the natural world can often lead to new and improved technologies, which are developed through the engineering design process. (3-PS2-4)</p> <p>Instructional Videos</p>	<p>Instructional Science Instructional Kits Mystery Science</p>
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## Grade 3

3-LS1				
Learning Standard		Science and Engineering Practices	Disciplinary Core Ideas	Resources

## From Molecules to Organisms: Structures and Processes

Assessments

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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.	Developing and Using Models Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. <ul style="list-style-type: none"> <li>Develop models to describe phenomena. (3-LS1-1)</li> </ul>	<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)	<a href="https://www.state.nj.us/education/modelcurriculum/sci/videos/">https://www.state.nj.us/education/modelcurriculum/sci/videos/</a>  <a href="https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf">https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>
RI.3.7 Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur). (3-LS1-1) SL.3.5 Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details. (3-LS1-1)	MP.4 Model with mathematics. (3-LS1-1) 3.NBT Number and Operations in Base Ten (3-LS1-1) 3.NF Number and Operations—Fractions (3-LS1-1)	<b>Patterns</b> Patterns of change can be used to make predictions. (3-LS1-1)	Instructional Videos Online Components	Instructional Science Mystery Science

**Grade 3**

<b>3-LS2</b>		<b>Ecosystems: Interactions, Energy, and Dynamics</b>		
<b>Learning Standard</b>	<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Resources</b>	<b>Assessments</b>

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3-LS2-1. Construct an argument that some animals form groups that help members survive.	<b>Engaging in Argument from Evidence</b> Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). <ul style="list-style-type: none"> <li>Construct an argument with evidence, data, and/or a model. (3-LS2-1)</li> </ul>	<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)	<a href="https://www.state.nj.us/education/modelcurriculum/sci/videos/">https://www.state.nj.us/education/modelcurriculum/sci/videos/</a>  <a href="https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf">https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>
RI.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. (3-LS2-1) RI.3.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect. (3-LS2-1) W.3.1 Write opinion pieces on topics or texts, supporting a point of view with reasons. (3-LS2-1)	MP.4 Model with mathematics. (3-LS2-1)  3.NBT Number and Operations in Base Ten (3-LS2-1)	<b>Cause and Effect</b> Cause and effect relationships are routinely identified and used to explain change. (3-LS2-1)	Instructional Videos  Instructional Online Components	Instructional Science Mystery Science

## Grade 3

3-LS3		Heredity: Inheritance and Variation of Traits		
Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments

<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>3-LS3-2. Use evidence to support the explanation that traits can be influenced by the environment.</p>	<p><b>Analyzing and Interpreting Data</b> Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used.</p> <ul style="list-style-type: none"> <li>Analyze and interpret data to make sense of phenomena using logical reasoning. (3-LS3-1)</li> </ul> <p><b>Constructing Explanations and Designing Solutions</b> Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems.</p> <ul style="list-style-type: none"> <li>Use evidence (e.g., observations, patterns) to support an explanation. (3-LS3-2)</li> </ul>	<p><b>LS3.A: Inheritance of Traits</b></p> <ul style="list-style-type: none"> <li>Many characteristics of organisms are inherited from their parents. (3-LS3-1)</li> <li>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)</li> </ul> <p><b>LS3.B: Variation of Traits</b></p> <ul style="list-style-type: none"> <li>Different organisms vary in how they look and function because they have different inherited information. (3-LS3-1)</li> <li>The environment also affects the traits that an organism develops. (3-LS3-2)</li> </ul>	<p><a href="https://www.state.nj.us/education/modelcurriculum/sci/videos/">https://www.state.nj.us/education/modelcurriculum/sci/videos/</a></p> <p><a href="https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf">https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf</a></p>	<p>Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram</p>
Interdisciplinary ELA	Interdisciplinary Mathematics	21st Century and Career Integration	Technology Integration	Core and Supplemental Instructional Materials
<p>RI.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. (3-LS3-1), (3-LS3-2)</p> <p>RI.3.2 Determine the main idea of a text; recount the key details and explain how they support the main idea. (3-LS3-1), (3-LS3-2)</p> <p>RI.3.3 Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using</p>	<p>MP.2 Reason abstractly and quantitatively. (3-LS3-1), (3-LS3-2)</p> <p>MP.4 Model with mathematics. (3-LS3-1), (3-LS3-2)</p> <p>3.MD.B.4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters. (3-LS3-1), (3-LS3-2)</p>	<p><b>Patterns</b> Similarities and differences in patterns can be used to sort and classify natural phenomena. (3-LS3-1)</p> <p><b>Cause and Effect</b> Cause and effect relationships are routinely identified and used to explain change. (3-LS3-2)</p>	<p>Instructional Videos</p> <p>Instructional Online Components</p>	<p>Instructional Science Mystery Science</p>



language that pertains to time, sequence, and cause/effect. (3-LS3-1), (3-LS3-2) W.3.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly. (3-LS3-1), (3-LS3-2) SL.3.4 Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace. (3-LS3-1), (3-LS3-2)				
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## Grade 3

Grade 3				
3-LS4		Biological Evolution: Unity and Diversity		
Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
3-LS4-1. Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.	<b>Analyzing and Interpreting Data</b> Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used. <ul style="list-style-type: none"> <li>Analyze and interpret data to make sense of phenomena using logical reasoning. (3-LS4-1)</li> </ul> <b>Constructing Explanations and Designing Solutions</b> Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that	<b>LS2.C: Ecosystem Dynamics, Functioning, and Resilience</b> <ul style="list-style-type: none"> <li>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. (secondary to 3-LS4-4)</li> </ul> <b>LS4.A: Evidence of Common Ancestry and Diversity</b> <ul style="list-style-type: none"> <li>Some kinds of plants and animals that once lived on Earth are no longer found anywhere. (Note: moved from K-2) (3-LS4-1)</li> <li>Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their</li> </ul>	<a href="https://www.state.nj.us/education/modelcurriculum/sci/videos/">https://www.state.nj.us/education/modelcurriculum/sci/videos/</a>  <a href="https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf">https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram
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.				
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.				
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>specify variables that describe and predict phenomena and in designing multiple solutions to design problems.</p> <ul style="list-style-type: none"> <li>Use evidence (e.g., observations, patterns) to construct an explanation. (3-LS4-2)</li> </ul> <p><b>Engaging in Argument from Evidence</b></p> <p>Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s).</p> <ul style="list-style-type: none"> <li>Construct an argument with evidence. (3-LS4-3)</li> <li>Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem. (3-LS4-4)</li> </ul>	<p>environments. (3-LS4-1)</p> <p><b>LS4.B: Natural Selection</b></p> <ul style="list-style-type: none"> <li>Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing. (3-LS4-2)</li> </ul> <p><b>LS4.C: Adaptation</b></p> <ul style="list-style-type: none"> <li>For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)</li> </ul> <p><b>LS4.D: Biodiversity and Humans</b></p> <ul style="list-style-type: none"> <li>Populations live in a variety of habitats, and change in those habitats affects the organisms living there. (3-LS4-4)</li> </ul>		
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>
<p>RI.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. (3-LS4-1),(3-LS4-2),(3-LS4-3) (3-LS4-4)</p> <p>RI.3.2 Determine the main idea of a text; recount the key details and explain how they support the main idea. (3-LS4-1), (3-LS4-2), (3-LS4-3), (3LS4-4)</p> <p>RI.3.3 Describe the relationship between a series of historical events, scientific ideas or</p>	<p>MP.2 Reason abstractly and quantitatively. (3-LS4-1),(3-LS4-2), (3-LS4-3), (3-LS4-4)</p> <p>MP.4 Model with mathematics. (3-LS4-1), (3-LS4-2), (3-LS4-3) ,(3-LS4-4)</p> <p>MP.5 Use appropriate tools strategically. (3-LS4-1)</p> <p>3.MD.B.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using</p>	<p><b>Cause and Effect</b></p> <p>Cause and effect relationships are routinely identified and used to explain change. (3-LS4- 2),(3-LS4-3)</p> <p><b>Scale, Proportion, and Quantity</b> Observable phenomena exist from very short to very long time periods. (3-LS4-1)</p> <p><b>Systems and System Models</b></p> <p>A system can be described in terms of its components and their interactions. (3-LS4-4)</p>	<p><b>Interdependence of Science, Engineering, and Technology</b></p> <p>Knowledge of relevant scientific concepts and research findings is important in engineering. (3-LS4-4)</p> <p>Instructional Videos</p> <p>Instructional Online Components</p>	<p>Instructional Science</p> <p>Mystery Science</p>

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<p>concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect. (3-LS4-1),(3-LS4-2),(3-LS4-3), (3-LS4-4)</p> <p>W.3.1 Write opinion pieces on topics or texts, supporting a point of view with reasons. (3-LS4-1),(3-LS4-3),(3-LS4-4)</p> <p>W.3.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly. (3-LS4-1),(3-LS4-2),(3-LS4-3), (3-LS4-4)</p> <p>W.3.8 Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories. (3-LS4-1)</p> <p>SL.3.4 Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace. (3-LS4-2),(3-LS4-3),(3-LS4-4)</p>	<p>information presented in scaled bar graphs. (3-LS4-2),(3-LS4-3)</p> <p>3.MD.B.4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters. (3-LS4-1)</p>			
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## Grade 3

## 3-ESS2

## Earth's Systems

Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.	<b>Analyzing and Interpreting Data</b> Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative	<b>ESS2.D: Weather and Climate</b> <ul style="list-style-type: none"> <li>Scientists record patterns of the weather across different times and areas so that they can make predictions</li> </ul>	<a href="https://www.state.nj.us/education/modelcurriculum/sci/videos/">https://www.state.nj.us/education/modelcurriculum/sci/videos/</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data

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3-ESS2-2. Obtain and combine information to describe climates in different regions of the world.	<p>approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used.</p> <ul style="list-style-type: none"> <li>Represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships. (3-ESS2-1)</li> </ul> <p><b>Obtaining, Evaluating, and Communicating Information</b> Obtaining, evaluating, and communicating information in 3–5 builds on K–2 experiences and progresses to evaluating the merit and accuracy of ideas and methods.</p> <ul style="list-style-type: none"> <li>Obtain and combine information from books and ot</li> </ul>	<p>about what kind of weather might happen next. (3-ESS2-1)</p> <ul style="list-style-type: none"> <li>Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years. (3-ESS2-2)</li> </ul>	<a href="https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf">https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf</a>	<p>Formative assessment Teacher observation Class discussion Venn diagram</p>
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>
<p>RI.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. (3-ESS2-2)</p> <p>RI.3.9 Compare and contrast the most important points and key details presented in two texts on the same topic. (3-ESS2-2)</p> <p>W.3.8 Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories. (3- ESS2-2)</p>	<p>MP.2 Reason abstractly and quantitatively. (3-ESS2-1), (3-ESS2-2)</p> <p>MP.4 Model with mathematics. (3-ESS2-1),(3-ESS2-2)</p> <p>MP.5 Use appropriate tools strategically. (3-ESS2-1)</p> <p>3.MD.A.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (3-ESS2-1)</p>	<p><b>Patterns</b> Patterns of change can be used to make predictions. (3-ESS2-1),(3-ESS2-2)</p>	<p>Instructional Videos</p> <p>Instructional Online Components</p>	<p>Instructional Science Mystery Science</p>

	3.MD.B.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in bar graphs. (3-ESS2-1)			
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Grade 3				
3-ESS3		Earth and Human Activity		
Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
3-ESS3-1. Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.	<b>Engaging in Argument from Evidence</b> Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). Make a claim about the merit of a solution to a problem by citing relevant evidence about how it	<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) (Note: This Disciplinary Core Idea is also addressed by 4-ESS3-2.)	<a href="https://www.state.nj.us/education/modelcurriculum/sci/videos/">https://www.state.nj.us/education/modelcurriculum/sci/videos/</a>  <a href="https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf">https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram

	meets the criteria and constraints of the problem. (3-ESS3-1)			
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>
W.3.1 Write opinion pieces on topics or texts, supporting a point of view with reasons. (3-ESS3-1) W.3.7 Conduct short research projects that build knowledge about a topic. (3-ESS3-1)	MP.2 Reason abstractly and quantitatively. (3-ESS3-1) MP.4 Model with mathematics. (3-ESS3-1)	<b>Cause and Effect</b> Cause and effect relationships are routinely identified, tested, and used to explain change. (3-ESS3-1)	<b>Influence of Engineering, Technology, and Science on Society and the Natural World</b> Engineers improve existing technologies or develop new ones to increase their benefits (e.g., better artificial limbs), decrease known risks (e.g., seatbelts in cars), and meet societal demands (e.g., cell phones). (3-ESS3-1)  Instructional Videos  Instructional Online Components	Instructional Science Mystery Science

<b>Grade 3</b>				
<b>3-5-ETS1</b>		<b>Engineering Design</b>		
<b>Learning Standard</b>	<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Resources</b>	<b>Assessments</b>
3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.  3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet	<b>Asking Questions and Defining Problems</b> Asking questions and defining problems in 3–5 builds on grades K–2 experiences and progresses to specifying qualitative relationships. <ul style="list-style-type: none"><li>Define a simple design problem that can be solved through the</li></ul>	<b>ETS1.A: Defining and Delimiting Engineering Problems</b> Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for	<a href="https://www.state.nj.us/education/modelcurriculum/sci/videos/">https://www.state.nj.us/education/modelcurriculum/sci/videos/</a>  <a href="https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf">https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram

the criteria and constraints of the problem.	development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost. (3-5-ETS1-1)	success or how well each takes the constraints into account. (3-5-ETS1-1)		
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><b>Planning and Carrying Out Investigations</b></p> <p>Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.</p> <ul style="list-style-type: none"> <li>Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (3-5-ETS1-3)</li> </ul> <p><b>Constructing Explanations and Designing Solutions</b></p> <p>Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems.</p> <ul style="list-style-type: none"> <li>Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design problem. (3-5-ETS1-2)</li> </ul>	<p><b>ETS1.B: Developing Possible Solutions</b></p> <ul style="list-style-type: none"> <li>Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. (3-5-ETS1-2)</li> <li>At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. (3-5-ETS1-2)</li> <li>Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. (3-5-ETS1-3)</li> </ul> <p><b>ETS1.C: Optimizing the Design Solution</b></p> <ul style="list-style-type: none"> <li>Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. (3-5-ETS1-3)</li> </ul>		

Interdisciplinary ELA	Interdisciplinary Mathematics	21st Century and Career Integration	Technology Integration	Core and Supplemental Instructional Materials
<p>RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. (3-5-ETS1-2) RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (3-5-ETS1-2)</p> <p>RI.5.9 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably. (3-5-ETS1-2)</p> <p>W.5.7 Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic. (3-5-ETS1-1), (3-5-ETS1-3)</p> <p>W.5.8 Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources. (3-5-ETS1-1), (3-5-ETS1-3)</p> <p>W.5.9 Draw evidence from literary or informational texts to support analysis, reflection, and research. (3-5-ETS1-1), (3-5-ETS1-3)</p>	<p>MP.2 Reason abstractly and quantitatively. (3-5-ETS1-1), (3-5-ETS1-2), (3-5-ETS1-3)</p> <p>MP.4 Model with mathematics. (3-5-ETS1-1), (3-5-ETS1-2), (3-5-ETS1-3)</p> <p>MP.5 Use appropriate tools strategically. (3-5-ETS1-1), (3-5-ETS1-2), (3-5-ETS1-3)</p> <p>3-5.OA Operations and Algebraic Thinking (3-5-ETS1-1), (3-5-ETS1-2)</p>	N/A	<p><b>Influence of Engineering, Technology, and Science on Society and the Natural World</b> People's needs and wants change over time, as do their demands for new and improved technologies. (3-5-ETS1-1) Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands. (3-5-ETS1-2)</p> <p>Instructional Videos</p> <p>Instructional Online Components</p>	<p>Instructional Science</p> <p>Mystery Science</p>

## Fourth Grade

4-PS3

Energy



Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
<p>4-PS3-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object.</p> <p>4-PS3-2 Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.</p> <p>4-PS3-3 Ask questions and predict outcomes about the changes in energy that occur when objects collide. [</p> <p>4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.*</p>	<p>*Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships.</p> <p>*Make observations to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution.</p> <p>*Use evidence (e.g., measurements, observations, patterns) to construct an explanation.</p> <p>* Apply scientific ideas to solve design problems.</p>	<p>*The faster a given object is moving, the more energy it possesses.</p> <p>* Energy can be moved from place to place by moving objects or through sound, light, or electric currents.</p> <p>*Energy is present whenever there are moving objects, sound, light, or heat. When objects collide, energy can be transferred from one object to another, thereby changing their motion. In such collisions, some energy is typically also transferred to the surrounding air; as a result, the air gets heated and sound is produced.</p> <p>*Light also transfers energy from place to place.</p> <p>*Energy can also be transferred from place to place by electric currents, which can then be used locally to produce motion, sound, heat, or light. The currents may have been produced to begin with by transforming the energy of motion into electrical energy.</p> <p>*When objects collide, the contact forces transfer energy so as to change the objects' motions.</p> <p>*The expression "produce energy" typically refers to the conversion of stored energy into a desired form for practical use.</p> <p>*Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account.</p>	<p><a href="https://www.opened.com/search?descriptive=energy&amp;grade=4&amp;standard_group=next-generation-science-standards">https://www.opened.com/search?descriptive=energy&amp;grade=4&amp;standard_group=next-generation-science-standards</a></p> <p><a href="https://ngss.nsta.org/classroom-resources-results.aspx?CoreIdea=3">https://ngss.nsta.org/classroom-resources-results.aspx?CoreIdea=3</a></p> <p><a href="https://www.resa.net/curriculum/curriculum/science/professionaldvelopment/ngss-pd/lesson-plans-exploring-ngss/">https://www.resa.net/curriculum/curriculum/science/professionaldvelopment/ngss-pd/lesson-plans-exploring-ngss/</a></p> <p><a href="https://www.explorelarning.com/index.cfm?method=cResource.dspStandardCorrelation&amp;id=1889">https://www.explorelarning.com/index.cfm?method=cResource.dspStandardCorrelation&amp;id=1889</a></p> <p><a href="http://www.mccracken.kyschools.us/Downloads/4%20NGSS%20UNIT%20Energy%20Waves.pdf">http://www.mccracken.kyschools.us/Downloads/4%20NGSS%20UNIT%20Energy%20Waves.pdf</a></p> <p><a href="https://betterlesson.com/browse/next_gen_science/standard/2135/ngss-4-ps-physical-sciences?from=content_area_science">https://betterlesson.com/browse/next_gen_science/standard/2135/ngss-4-ps-physical-sciences?from=content_area_science</a></p>	<p>Ask questions</p> <p>Define problems</p> <p>Develop and use models</p> <p>Plan and carry out investigations</p> <p>Analyze and interpret data</p> <p>Formative assessment</p> <p>Teacher observation</p> <p>Class discussion</p> <p>Venn diagram</p>

Interdisciplinary ELA	Interdisciplinary Mathematics	21st Century and Career Integration	Technology Integration	Core and Supplemental Instructional Materials
<p>RI.4.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.</p> <p>RI.4.3 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.</p> <p>RI.4.9 Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.</p> <p>W.4.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly.</p> <p>W.4.7 Conduct short research projects that build knowledge through investigation of different aspects of a topic.</p> <p>W.4.8 Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.</p> <p>W.4.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.</p>	<p>4.OA.A.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p>	<p>9.1.4.A.1 Explain the difference between a career and a job, and identify various jobs in the community and the related earnings.</p> <p>9.1.4.F.1 Demonstrate an understanding of individual financial obligations and community financial obligations.</p>	<p><a href="https://energy.technoscience.ca/en/energy-games.php">https://energy.technoscience.ca/en/energy-games.php</a></p> <p><a href="https://climatekids.nasa.gov/menue/energy/">https://climatekids.nasa.gov/menue/energy/</a></p> <p><a href="http://interactivesites.weebly.com/electricity-and-energy.html">http://interactivesites.weebly.com/electricity-and-energy.html</a></p>	<p>Instructional Science</p> <p>Brain Pop Jr.</p> <p>Instructional Videos</p> <p>Mystery Science</p>

Fourth Grade				
4-PS4		Waves and Their Applications in Technologies for Information Transfer		
Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
<p>4-PS4-1. Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.</p> <p>4-PS4-2. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.</p> <p>4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information.*</p>	<p>*Develop a model using an analogy, example, or abstract representation to describe a scientific principle.</p> <p>*Develop a model to describe phenomena.</p> <p>*Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution.</p>	<p>*Waves, which are regular patterns of motion, can be made in water by disturbing the surface. When waves move across the surface of deep water, the water goes up and down in place; there is no net motion in the direction of the wave except when the water meets a beach.</p> <p>*Waves of the same type can differ in amplitude (height of the wave) and wavelength (spacing between wave peaks).</p> <p>*An object can be seen when light reflected from its surface enters the eyes.</p> <p>*Digitized information can be transmitted over long distances without significant degradation. High-tech devices, such as computers or cell phones, can receive and decode information—convert it from digitized form to voice—and vice versa.</p> <p>*Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints.</p>	<p><a href="https://betterlesson.com/lesson/628342/what-are-waves">https://betterlesson.com/lesson/628342/what-are-waves</a></p> <p><a href="https://learning-in-action.williams.edu/local-education-outreach/teaching-resources/4th-grade-waves-unit/">https://learning-in-action.williams.edu/local-education-outreach/teaching-resources/4th-grade-waves-unit/</a></p> <p><a href="https://study.com/academy/topic/4th-grade-science-waves-sound.html">https://study.com/academy/topic/4th-grade-science-waves-sound.html</a></p> <p><a href="https://missbupp2016-2017.weebly.com/waves-unit.html">https://missbupp2016-2017.weebly.com/waves-unit.html</a></p> <p><a href="https://www.whatihavelearnedteaching.com/making-waves-sound-wave-properties-fourth-grade-science-stations/">https://www.whatihavelearnedteaching.com/making-waves-sound-wave-properties-fourth-grade-science-stations/</a></p> <p><a href="http://ambitiousscience Teaching.org/wp-content/uploads/2014/09/4-Sound-Unit-All-in-One.pdf">http://ambitiousscience Teaching.org/wp-content/uploads/2014/09/4-Sound-Unit-All-in-One.pdf</a></p>	<p>Ask questions</p> <p>Define problems</p> <p>Develop and use models</p> <p>Plan and carry out investigations</p> <p>Analyze and interpret data</p> <p>Formative assessment</p> <p>Teacher observation</p> <p>Class discussion</p> <p>Venn diagram</p>
Interdisciplinary ELA	Interdisciplinary Mathematics	21st Century and Career Integration	Technology Integration	Core and Supplemental Instructional Materials

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<p>RI.4.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.</p> <p>RI.4.9 Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.</p> <p>SL.4.5 Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes</p>	<p>MP.4 Model with mathematics.</p> <p>4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.</p>	<p>9.1.4.A.1 Explain the difference between a career and a job, and identify various jobs in the community and the related earnings.</p>	<p><a href="https://www.flocabulary.com/unit/wave-properties/">https://www.flocabulary.com/unit/wave-properties/</a></p> <p><a href="https://www.brainpop.com/games/wavecombinator/">https://www.brainpop.com/games/wavecombinator/</a></p> <p><a href="https://www.brainpop.com/games/waveonastring/">https://www.brainpop.com/games/waveonastring/</a></p> <p><a href="https://www.legendsoflearning.com/learning-objectives/waves-and-their-properties/">https://www.legendsoflearning.com/learning-objectives/waves-and-their-properties/</a></p>	<p>Instructional Science</p> <p>Brain Pop</p> <p>Instructional Videos</p> <p>Brain Pop Jr.</p> <p>Mystery Science</p>
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## Fourth Grade

4-LS1		From Molecules to Organisms: Structures and Processes		
Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
<p>4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.</p> <p>4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.</p>	<p>*Use a model to test interactions concerning the functioning of a natural system.</p> <p>*Construct an argument with evidence, data, and/or a model.</p>	<p>*Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction.</p> <p>* Different sense receptors are specialized for particular kinds of information, which may be then processed by the animal's brain. Animals are able to use their percep</p>	<p><a href="https://betterlesson.com/browse/next_gen_science/standard/2147/ngss-4-ls1-1-construct-an-argument-that-plants-and-animals-have-internal-and-external-structures-that-function-to-support-surviv">https://betterlesson.com/browse/next_gen_science/standard/2147/ngss-4-ls1-1-construct-an-argument-that-plants-and-animals-have-internal-and-external-structures-that-function-to-support-surviv</a></p> <p><a href="https://www.opened.com/search?standard=4.LS1.1">https://www.opened.com/search?standard=4.LS1.1</a></p> <p><a href="http://www.covington.kyschools.us/userfiles/15/My%20Files/4th%20gr%20add%20chg/gr%204%20Unit%20%20Structure%20Fuction%20and%20Information%20Processing.pdf?id=5022">http://www.covington.kyschools.us/userfiles/15/My%20Files/4th%20gr%20add%20chg/gr%204%20Unit%20%20Structure%20F</a></p>	<p>Ask questions</p> <p>Define problems</p> <p>Develop and use models</p> <p>Plan and carry out investigations</p> <p>Analyze and interpret data</p> <p>Formative assessment</p> <p>Teacher observation</p> <p>Class discussion</p> <p>Venn diagram</p>

			<a href="#">unction%20and%20Information%20Processing.pdf?id=5022</a>	
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>
W.4.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information. SL.4.5 Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes	4.G.A.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded across the line into matching parts. Identify line symmetric figures and draw lines of symmetry.		<a href="https://pbs39.pbslearningmedia.org/resource/1050daca-32b7-4b5b-b4df-9d0825e0ffd6/life-science-for-grade-4-with-wild-kratts/">https://pbs39.pbslearningmedia.org/resource/1050daca-32b7-4b5b-b4df-9d0825e0ffd6/life-science-for-grade-4-with-wild-kratts/</a>  <a href="https://www.explorelarning.com/index.cfm?method=cResource.dspStandardCorrelation&amp;id=1889">https://www.explorelarning.com/index.cfm?method=cResource.dspStandardCorrelation&amp;id=1889</a>  <a href="http://www.projectbeak.org/adaptations/build.htm">http://www.projectbeak.org/adaptations/build.htm</a>	Instructional Science Brain Pop Jr. Instructional Videos Mystery Science

**Fourth Grade****4-ESS1****Earth's Place in the Universe**

<b>Learning Standard</b>	<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Resources</b>	<b>Assessments</b>
4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.	*Identify the evidence that supports particular points in an explanation	*Local, regional, and global patterns of rock formations reveal changes over time due to earth forces, such as earthquakes. The presence and location of certain fossil types indicate the order in which rock layers were formed.	<a href="https://www.earthsciweek.org/classroom-activities/ngss">https://www.earthsciweek.org/classroom-activities/ngss</a>  <a href="https://www.pinterest.com/jennvt67/sciencefossils-patterns-in-rock-formations-ngss-4-/?lp=true">https://www.pinterest.com/jennvt67/sciencefossils-patterns-in-rock-formations-ngss-4-/?lp=true</a>  <a href="https://mysteryscience.com/rocks/rock-cycle-earth-s-processes">https://mysteryscience.com/rocks/rock-cycle-earth-s-processes</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>

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W.4.7 Conduct short research projects that build knowledge through investigation of different aspects of a topic. W.4.8 Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources. W.4.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.	MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. 4.MD.A.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.	9.1.4.A.1 Explain the difference between a career and a job, and identify various jobs in the community and the related earnings.	<a href="https://www.uen.org/3-6interactives/science.shtml">https://www.uen.org/3-6interactives/science.shtml</a>  <a href="http://studyjams.scholastic.com/studyjams/jams/science/rocks-minerals-landforms/weathering-and-erosion.htm">http://studyjams.scholastic.com/studyjams/jams/science/rocks-minerals-landforms/weathering-and-erosion.htm</a>  BrainPop: rock cycle, types of rocks	Instructional Science Brain Pop Jr. Instructional Videos Mystery Science
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## Fourth Grade

## 4-ESS2

## Earth's Systems

Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.  4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features.	*Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon. * Analyze and interpret data to make sense of phenomena using logical reasoning.	*Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around. *The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Major mountain chains form inside continents or near their edges. Maps can help locate the different land and water features areas of Earth. *Living things affect the physical characteristics of their regions.	<a href="http://ngss-k-5-ausd.weebly.com/4-earth-systems-processes-that-shape-the-earth-part-1.html">http://ngss-k-5-ausd.weebly.com/4-earth-systems-processes-that-shape-the-earth-part-1.html</a>  <a href="http://www.whitetwpsd.org/wtsd/About%20WTSD/Curriculum%20Maps/Science/Science%20Grade%204.pdf">http://www.whitetwpsd.org/wtsd/About%20WTSD/Curriculum%20Maps/Science/Science%20Grade%204.pdf</a>  <a href="https://www.sciencea-z.com/main/NextGenerationScienceStandards">https://www.sciencea-z.com/main/NextGenerationScienceStandards</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>

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<p>RI.4.7 Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, timelines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.</p> <p>W.4.7 Conduct short research projects that build knowledge through investigation of different aspects of a topic.</p> <p>W.4.8 Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.</p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>4.MD.A.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.</p> <p>4.MD.A.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.</p>	<p>9.1.4.A.1 Explain the difference between a career and a job, and identify various jobs in the community and the related earnings.</p>	<p><a href="https://www.legendsoflearning.com/learning-objectives/weathering-and-erosion/">https://www.legendsoflearning.com/learning-objectives/weathering-and-erosion/</a></p> <p><a href="http://interactivesites.weebly.com/erosion-and-weathering.html">http://interactivesites.weebly.com/erosion-and-weathering.html</a></p> <p><a href="https://kidsgeo.com/geology-for-kids/weathering/">https://kidsgeo.com/geology-for-kids/weathering/</a></p> <p><a href="http://www.softschools.com/matching_games/science/weathering/994/">http://www.softschools.com/matching_games/science/weathering/994/</a></p>	<p>Instructional Science</p> <p>Brain Pop Jr.</p> <p>Instructional Videos</p> <p>Mystery Science</p>
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## Fourth Grade

## 4-ESS3

## Earth and Human Activity

Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
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4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.	*Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution.	*Energy and fuels that humans use are derived from natural sources, and their use affects the environment in multiple ways. Some resources are renewable over time, and others are not. *ESS3.B: Natural Hazards A variety of hazards result from natural processes (e.g., earthquakes, tsunamis, volcanic eruptions). Humans cannot eliminate the hazards but can take steps to reduce their impacts. *ETS1.B: Designing Solutions to Engineering Problems Testing a solution involves investigating how well it performs under a range of likely conditions.	<a href="https://betterlesson.com/browse/next_gen_science/standard/2157/ngss-4-ess3-2-generate-and-compare-multiple-solutions-to-reduce-the-impacts-of-natural-earth-processes-on-humans">https://betterlesson.com/browse/next_gen_science/standard/2157/ngss-4-ess3-2-generate-and-compare-multiple-solutions-to-reduce-the-impacts-of-natural-earth-processes-on-humans</a>  <a href="https://www.exploringnature.org/db/view/Grade-4-4-ESS3-Earth-and-Human-Activity">https://www.exploringnature.org/db/view/Grade-4-4-ESS3-Earth-and-Human-Activity</a>  <a href="https://www.opened.com/search?grade=4&amp;standard=4.ESS3.1">https://www.opened.com/search?grade=4&amp;standard=4.ESS3.1</a>  <a href="https://thewonderofscience.com/4ess32/">https://thewonderofscience.com/4ess32/</a>  <a href="https://www.pinterest.com/jennvt67/science-impacts-of-earth-processes-on-humans-ngss-/?lp=true">https://www.pinterest.com/jennvt67/science-impacts-of-earth-processes-on-humans-ngss-/?lp=true</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram
4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.	* Obtain and combine information from books and other reliable media to explain phenomena.			
Interdisciplinary ELA	Interdisciplinary Mathematics	21st Century and Career Integration	Technology Integration	Core and Supplemental Instructional Materials
RI.4.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. RI.4.9 Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably. W.4.7 Conduct short research projects that build knowledge through investigation of different aspects of a topic. W.4.8 Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize	MP.2 Reason abstractly and quantitatively. MP.4 Model with mathematics. 4.OA.A.1 Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.	9.1.4.A.1 Explain the difference between a career and a job, and identify various jobs in the community and the related earnings.  9.1.4.E.1 Determine factors that influence consumer decisions related to money.  9.1.4.F.1 Demonstrate an understanding of individual financial obligations and community financial obligations.	<a href="https://www.brainpop.com/games/sortifynaturalresources/">https://www.brainpop.com/games/sortifynaturalresources/</a>  <a href="https://www.flocabulary.com/unit/natural-resources/">https://www.flocabulary.com/unit/natural-resources/</a>  <a href="https://jeopardylabs.com/play/natural-resources-jeopardy-review">https://jeopardylabs.com/play/natural-resources-jeopardy-review</a>  <a href="https://www.neok12.com/Energy-Sources.htm">https://www.neok12.com/Energy-Sources.htm</a>	Instructional Science Brain Pop Jr. Instructional Videos Mystery Science



information, and provide a list of sources. W.4.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.				
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**Fourth Grade****3-5 ETS1**

<b>Engineering Design</b>				
<b>Learning Standard</b>	<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Resources</b>	<b>Assessments</b>
3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.	*Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost. *Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. *Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design problem.	*Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. *Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. * At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. *Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. * Different solutions need to be tested in order to determine	<a href="https://www.pinterest.com/teach-ersareterrific/4th-grade-stem/?lp=true">https://www.pinterest.com/teach-ersareterrific/4th-grade-stem/?lp=true</a>  <a href="https://thestemlaboratory.com/stem-activities-for-kids/">https://thestemlaboratory.com/stem-activities-for-kids/</a>  <a href="https://stemplayground.org/4th/">https://stemplayground.org/4th/</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram
3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.				
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.				

		which of them best solves the problem, given the criteria and the constraints.		
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>
<p>RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.</p> <p>RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.</p> <p>RI.5.9 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.</p> <p>W.5.7 Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.</p> <p>W.5.8 Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.</p> <p>W.5.9 Draw evidence from literary or informational texts to support analysis, reflection, and research.</p>	<p>MP.2 Reason abstractly and quantitatively.</p> <p>MP.4 Model with mathematics.</p> <p>MP.5 Use appropriate tools strategically.</p> <p>3-5.OA Operations and Algebraic Thinking</p>	<p>9.1.4.A.1 Explain the difference between a career and a job, and identify various jobs in the community and the related earnings.</p>	<p><a href="https://www.mastersindatascience.org/blog/the-ultimate-stem-guide-for-kids-239-cool-sites-about-science-technology-engineering-and-math/">https://www.mastersindatascience.org/blog/the-ultimate-stem-guide-for-kids-239-cool-sites-about-science-technology-engineering-and-math/</a></p> <p><a href="http://www.4aplus.com/stem-resources-4-students">http://www.4aplus.com/stem-resources-4-students</a></p> <p><a href="http://stem-works.com/activities">http://stem-works.com/activities</a></p>	<p>Instructional Science</p> <p>Brain Pop</p> <p>Instructional Videos</p>

**Grade 5****5-PS1****Matter and It's Interactions**

Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen.	<p><b>Developing and Using Models</b> Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.</p> <ul style="list-style-type: none"> <li>Develop a model to describe phenomena. (5-PS1-1)</li> </ul> <p><b>Planning and Carrying Out Investigations</b> Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.</p> <ul style="list-style-type: none"> <li>Conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (5-PS1-4)</li> <li>Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon. (5-PS1-3)</li> </ul> <p><b>Using Mathematics and Computational Thinking</b> Mathematical and computational thinking in 3–5 builds on K–2 experiences and progresses to extending quantitative measurements to a variety of physical properties and using</p>	<p><b>PS1.A: Structure and Properties of Matter</b></p> <ul style="list-style-type: none"> <li>Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model showing that gases are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including the inflation and shape of a balloon and the effects of air on larger particles or objects. (5-PS1-1)</li> <li>The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. (5-PS1-2)</li> <li>Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.) (5-PS1-3)</li> </ul> <p><b>PS1.B: Chemical Reactions</b></p> <ul style="list-style-type: none"> <li>When two or more different substances are mixed, a new substance with different properties may be formed. (5-PS1-4)</li> <li>No matter what reaction or change in properties occurs, the total weight of the substances does not change. (Boundary: Mass and weight are not distinguished at this grade level.) (5-PS1-2)</li> </ul>	<p><a href="https://www.state.nj.us/education/modelcurriculum/sci/videos/">https://www.state.nj.us/education/modelcurriculum/sci/videos/</a></p> <p><a href="https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf">https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf</a></p> <p><a href="http://nstahosted.org/pdfs/ngss/resources/MatrixForK-12ProgressionOfScienceAndEngineeringPracticesInNGSS.8.14.14.pdf">http://nstahosted.org/pdfs/ngss/resources/MatrixForK-12ProgressionOfScienceAndEngineeringPracticesInNGSS.8.14.14.pdf</a></p> <p><a href="https://www.state.nj.us/education/assessment/sla/science/">https://www.state.nj.us/education/assessment/sla/science/</a></p>	<p>Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram</p> <p>New Jersey Student Learning Assessment – Science (NJSLA-S)</p> <p><a href="https://ngss-assessment.portal.concord.org/ngsa-collections">https://ngss-assessment.portal.concord.org/ngsa-collections</a></p>
5-PS1-2. Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.				
5-PS1-3. Make observations and measurements to identify materials based on their properties.				
5-PS1-4. Conduct an investigation to determine whether the mixing of two or more substances results in new substances.				

	<p>computation and mathematics to analyze data and compare alternative design solutions.</p> <ul style="list-style-type: none"> <li>Measure and graph quantities such as weight to address scientific and engineering questions and problems. (5-PS1-2)</li> </ul>			
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>
<p>RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5-PS1-1)</p> <p>W.5.7 Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic. (5-PS1-2), (5-PS1-3), (5-PS1-4)</p> <p>W.5.8 Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources. (5-PS1-2), (5-PS1-3), (5-PS1-4)</p> <p>W.5.9 Draw evidence from literary or informational texts to support analysis, reflection, and research. (5-PS1-2), (5-PS1-3), (5-PS1-4)</p>	<p>MP.2 Reason abstractly and quantitatively. (5-PS1-1), (5-PS1-2), (5-PS1-3)</p> <p>MP.4 Model with mathematics. (5-PS1-1), (5-PS1-2), (5-PS1-3)</p> <p>MP.5 Use appropriate tools strategically. (5-PS1-2), (5-PS1-3)</p> <p>5.NBT.A.1 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. (5-PS1-1)</p> <p>5.NF.B.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. (5-PS1-1)</p> <p>5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real-world problems. (5-PS1-2)</p> <p>5.MD.C.3 Recognize volume as an attribute of solid figures and</p>	<p><b>Cause and Effect</b> Cause and effect relationships are routinely identified, tested, and used to explain change. (5-PS1-4)</p> <p><b>Scale, Proportion, and Quantity</b> Natural objects exist from the very small to the immensely large. (5-PS1-1) Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume. (5-PS1-2), (5-PS1-3)</p>	<p>Instructional Videos</p> <p>Textbook Online Components</p>	<p>Instructional Science</p> <p>Brain Pop</p> <p>NJSLA-S Handbook</p>

	understand concepts of volume measurement. (5-PS1-1) 5.MD.C.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units. (5-PS1-1)			
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Grade 5				
5-PS2		Motion and Stability: Forces and Interactions		
Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
5-PS2-1. Support an argument that the gravitational force exerted by Earth on objects is directed down.	<b>Engaging in Argument from Evidence</b> Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). <ul style="list-style-type: none"> <li>Support an argument with evidence, data, or a model. (5- PS2-1)</li> </ul>	<b>PS2.B: Types of Interactions</b> The gravitational force of Earth acting on an object near Earth’s surface pulls that object toward the planet’s center. (5-PS2-1)	<a href="https://www.state.nj.us/education/modelcurriculum/sci/videos/">https://www.state.nj.us/education/modelcurriculum/sci/videos/</a>  <a href="https://www.state.nj.us/education/assessment/sla/science/">https://www.state.nj.us/education/assessment/sla/science/</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram  New Jersey Student Learning Assessment – Science (NJSLA-S)
Interdisciplinary ELA	Interdisciplinary Mathematics	21st Century and Career Integration	Technology Integration	Core and Supplemental Instructional Materials
RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. (5-PS2-1) RI.5.9 Integrate information from several texts on the same topic in order to write or speak	N/A	<b>Cause and Effect</b> Cause and effect relationships are routinely identified and used to explain change. (5-PS2-1)	Instructional Videos  Textbook Online Components	Instructional Science Brain Pop NJSLA-S Handbook

about the subject knowledgeably. (5-PS2-1) W.5.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information. (5-PS2-1)				
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**Grade 5**

<b>5-PS3-1</b>		<b>Energy</b>		
<b>Learning Standard</b>	<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Resources</b>	<b>Assessments</b>
5-PS3-1. Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.	<b>Developing and Using Models</b> Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. <ul style="list-style-type: none"> <li>Use models to describe phenomena. (5-PS3-1)</li> </ul>	<b>PS3.D: Energy in Chemical Processes and Everyday Life</b> The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). (5-PS3-1) <b>LS1.C: Organization for Matter and Energy Flow in Organisms</b> Food provides animals with the materials they need for body repair and growth and the energy they need to maintain body warmth and for motion. (secondary to 5-PS3-1)	<a href="https://www.state.nj.us/education/modelcurriculum/sci/videos/">https://www.state.nj.us/education/modelcurriculum/sci/videos/</a>  <a href="https://www.state.nj.us/education/aps/cccs/science/resources/OR35.pdf">https://www.state.nj.us/education/aps/cccs/science/resources/OR35.pdf</a>  <a href="https://www.state.nj.us/education/assessment/sla/science/">https://www.state.nj.us/education/assessment/sla/science/</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram  New Jersey Student Learning Assessment – Science (NJSLA-S)
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>
RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5-PS3-1) SL.5.5 Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes. (5-PS3-1)	N/A	<b>Energy and Matter</b> Energy can be transferred in various ways and between objects. (5-PS3-1)	Instructional Videos  Textbook Online Components	Instructional Science Brain Pop NJSLA-S Handbook

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5-LS1		From Molecules to Organisms: Structures and Processes		
Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
5-LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water	<b>Engaging in Argument from Evidence</b> Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). <ul style="list-style-type: none"> <li>Support an argument with evidence, data, or a model. (5-LS1-1)</li> </ul>	<b>LS1.C: Organization for Matter and Energy Flow in Organisms</b> Plants acquire their material for growth chiefly from air and water. (5-LS1-1)	<a href="https://www.state.nj.us/education/modelcurriculum/sci/videos/">https://www.state.nj.us/education/modelcurriculum/sci/videos/</a>  <a href="https://www.state.nj.us/education/assessment/sla/science/">https://www.state.nj.us/education/assessment/sla/science/</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram  New Jersey Student Learning Assessment – Science (NJSLA-S)
Interdisciplinary ELA	Interdisciplinary Mathematics	21st Century and Career Integration	Technology Integration	Core and Supplemental Instructional Materials
RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. (5-LS1-1) RI.5.9 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably. (5-LS1-1) W.5.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information. (5-LS1-1)	MP.2 Reason abstractly and quantitatively. (5-LS1-1) MP.4 Model with mathematics. (5-LS1-1) MP.5 Use appropriate tools strategically. (5-LS1-1) 5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems. (5-LS1-1)	<b>Energy and Matter</b> Matter is transported into, out of, and within systems. (5-LS1-1)	Instructional Videos  Textbook Online Components	Instructional Science Brain Pop NJSLA-S Handbook

**Grade 5**

<b>5-LS2</b>				
<b>Ecosystems: Interactions, Energy, and Dynamics</b>				
<b>Learning Standard</b>	<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Resources</b>	<b>Assessments</b>
5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment	<p>Developing and Using Models Modeling in 3–5 builds on K–2 models and progresses to building and revising simple models and using models to represent events and design solutions.</p> <ul style="list-style-type: none"> <li>Develop a model to describe phenomena. (5-LS2-1)</li> </ul>	<p><b>LS2.A: Interdependent Relationships in Ecosystems</b> The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.” Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)</p> <p><b>LS2.B: Cycles of Matter and Energy Transfer in Ecosystems</b> Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (5-LS2-1)</p>	<p><a href="https://www.state.nj.us/education/modelcurriculum/sci/videos/">https://www.state.nj.us/education/modelcurriculum/sci/videos/</a></p> <p><a href="https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf">https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf</a></p>	<p>Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram</p> <p>New Jersey Student Learning Assessment – Science (NJSLA-S)</p>
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>
RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5-LS2- 1)	<p>MP.2 Reason abstractly and quantitatively. (5-LS2-1)</p> <p>MP.4 Model with mathematics. (5-LS2-1)</p>	<p><b>Systems and System Models</b> A system can be described in terms of its components and their interactions. (5-LS2- 1)</p>	<p>Instructional Videos</p> <p>Instructional Online Components</p>	<p>Instructional Science Brain Pop NJSLA-S Handbook</p>



SL.5.5 Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes. (5- LS2-1)				
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**Grade 5****5-ESS1****Earth's Place in the Universe**

<b>Learning Standard</b>	<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Resources</b>	<b>Assessments</b>
5-ESS1-1. Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.	<b>Analyzing and Interpreting Data</b> Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used. <ul style="list-style-type: none"> <li>Represent data in graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships. (5-ESS1-2)</li> </ul> <b>Engaging in Argument from Evidence</b> Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). <ul style="list-style-type: none"> <li>Support an argument with evidence, data, or a model. (5- ESS1-1)</li> </ul>	<b>ESS1.A: The Universe and its Stars</b> The sun is a star that appears larger and brighter than other stars because it is closer. Stars range greatly in their distance from Earth. (5-ESS1-1) <b>ESS1.B: Earth and the Solar System</b> The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the day, month, and year. (5-ESS1-2)	<a href="https://www.state.nj.us/education/modelcurriculum/sci/videos/">https://www.state.nj.us/education/modelcurriculum/sci/videos/</a>  <a href="https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf">https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf</a>  <a href="https://www.state.nj.us/education/assessment/sla/science/">https://www.state.nj.us/education/assessment/sla/science/</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram  New Jersey Student Learning Assessment – Science (NJSLA-S)
5-ESS1-2. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.				

Interdisciplinary ELA	Interdisciplinary Mathematics	21st Century and Career Integration	Technology Integration	Core and Supplemental Instructional Materials
<p>RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. (5-ESS1-1)</p> <p>RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5-ESS1-1)</p> <p>RI.5.8 Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s). (5-ESS1-1)</p> <p>RI.5.9 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably. (5-ESS1-1)</p> <p>W.5.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information. (5-ESS1-1)</p> <p>SL.5.5 Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes. (5-ESS1-2)</p>	<p>MP.2 Reason abstractly and quantitatively. (5-ESS1-1), (5-ESS1-2)</p> <p>MP.4 Model with mathematics. (5-ESS1-1), (5-ESS1-2)</p> <p>5.NBT.A.2 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. (5-ESS1-1)</p> <p>5.G.A.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. (5-ESS1-2)</p>	<p><b>Patterns</b> Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena. (5-ESS1-2)</p> <p><b>Scale, Proportion, and Quantity</b> Natural objects exist from the very small to the immensely large. (5-ESS1-1)</p>	<p><b>Systems and System Models</b> A system can be described in terms of its components and their interactions. (5-LS2-1)</p> <p>Instructional Videos</p> <p>Instructional Online Components</p>	<p>Instructional Science</p> <p>Brain Pop</p> <p>NJSLA-S Handbook</p>

**Grade 5****5-ESS2****Earth's System**

Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
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<p>5-ESS2-1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.</p> <p>5-ESS2-2. Describe and graph the amounts of saltwater and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.</p>	<p><b>Developing and Using Models</b> Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.</p> <ul style="list-style-type: none"> <li>Develop a model using an example to describe a scientific principle. (5-ESS2-1)</li> </ul> <p><b>Using Mathematics and Computational Thinking</b> Mathematical and computational thinking in 3–5 builds on K–2 experiences and progresses to extending quantitative measurements to a variety of physical properties and using computation and mathematics to analyze data and compare alternative design solutions.</p> <ul style="list-style-type: none"> <li>Describe and graph quantities such as area and volume to address scientific questions. (5-ESS2-2)</li> </ul>	<p>ESS2.A: Earth Materials and Systems Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather. (5-ESS2-1)</p> <p>ESS2.C: The Roles of Water in Earth's Surface Processes Nearly all of Earth's available water is in the ocean. Most freshwater is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. (5-ESS2-2)</p>	<p><a href="https://www.state.nj.us/education/assessment/sla/science/">https://www.state.nj.us/education/assessment/sla/science/</a></p>	<p>Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram</p> <p>New Jersey Student Learning Assessment – Science (NJSLA-S)</p> <p><a href="https://nces.ed.gov/surveys/pisa/educators.asp">https://nces.ed.gov/surveys/pisa/educators.asp</a></p>
Interdisciplinary ELA	Interdisciplinary Mathematics	21st Century and Career Integration	Technology Integration	Core and Supplemental Instructional Materials
<p>RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5-ESS2-1),(5-ESS2-2)</p> <p>W.5.8 Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources. (5-ESS2-2)</p>	<p>MP.2 Reason abstractly and quantitatively. (5-ESS2-1),(5-ESS2-2)</p> <p>MP.4 Model with mathematics. (5-ESS2-1),(5-ESS2-2)</p> <p>5.G.A.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. (5-ESS2-1)</p>	<p><b>Scale, Proportion, and Quantity</b> Standard units are used to measure and describe physical quantities such as weight and volume. (5-ESS2-2)</p> <p><b>Systems and System Models</b> A system can be described in terms of its components and their interactions. (5-ESS2-1)</p>	<p>Instructional Videos</p> <p>Instructional Online Components</p>	<p>Instructional Science Brain Pop NJSLA-S Handbook</p>

SL.5.5 Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes. (5-ESS2-1),(5-ESS2-2)				
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Grade 5				
5-ESS3		Earth and Human Activity		
Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.	Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in 3– 5 builds on K–2 experiences and progresses to evaluating the merit and accuracy of ideas and methods. <ul style="list-style-type: none"> <li>Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem. (5-ESS3-1)</li> </ul>	ESS3.C: Human Impacts on Earth Systems Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments. (5-ESS3-1)	<a href="https://www.state.nj.us/education/modelcurriculum/sci/videos/">https://www.state.nj.us/education/modelcurriculum/sci/videos/</a>  <a href="https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf">https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf</a>  <a href="https://www.state.nj.us/education/assessment/sla/science/">https://www.state.nj.us/education/assessment/sla/science/</a>	Ask questions Define problems Develop and use models Plan and carry out investigations Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram  New Jersey Student Learning Assessment – Science (NJSLA-S)

Interdisciplinary ELA	Interdisciplinary Mathematics	21st Century and Career Integration	Technology Integration	Core and Supplemental Instructional Materials
RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. (5-ESS3-1) RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5-ESS3-1) RI.5.9 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably. (5-ESS3-1) W.5.8 Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources. (5-ESS3-1) W.5.9 Draw evidence from literary or informational texts to support analysis, reflection, and research. (5-ESS3-1)	MP.2 Reason abstractly and quantitatively. (5-ESS3-1) MP.4 Model with mathematics. (5-ESS3-1)	Systems and System Models A system can be described in terms of its components and their interactions. (5-ESS3-1)	Science Addresses Questions About the Natural and Material World. <ul style="list-style-type: none"> <li>Science findings are limited to questions that can be answered with empirical evidence. (5-ESS3-1)</li> </ul> Instructional Videos  Instructional Online Components	Instructional Science Brain Pop NJSLA-S Handbook

Grade 5				
3-5-ETS1		Engineering Design		
Learning Standard	Science and Engineering Practices	Disciplinary Core Ideas	Resources	Assessments
3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and	<b>Asking Questions and Defining Problems</b> Asking questions and defining problems in 3–5 builds on grades	<b>ETS1.A: Defining and Delimiting Engineering Problems</b> <ul style="list-style-type: none"> <li>Possible solutions to a problem are limited by</li> </ul>	<a href="https://www.state.nj.us/education/modelcurriculum/sci/videos/">https://www.state.nj.us/education/modelcurriculum/sci/videos/</a>	Ask questions Define problems Develop and use models Plan and carry out investigations

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constraints on materials, time, or cost.	<p>K–2 experiences and progresses to specifying qualitative relationships.</p> <ul style="list-style-type: none"> <li>Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost. (3-5-ETS1-1)</li> </ul>	<p>available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (3-5- ETS1-1)</p>	<p><a href="https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf">https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf</a></p> <p><a href="https://www.state.nj.us/education/assessment/sla/science/">https://www.state.nj.us/education/assessment/sla/science/</a></p>	<p>Analyze and interpret data Formative assessment Teacher observation Class discussion Venn diagram</p>
3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	<p><b>Planning and Carrying Out Investigations</b> Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.</p> <ul style="list-style-type: none"> <li>Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (3-5-ETS1-3)</li> </ul>	<p><b>ETS1.B: Developing Possible Solutions</b></p> <ul style="list-style-type: none"> <li>Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. (3-5-ETS1-2)</li> <li>At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. (3-5-ETS1-2)</li> <li>Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. (3-5-ETS1-3)</li> </ul>		
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><b>Constructing Explanations and Designing Solutions</b> Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems.</p>	<p><b>ETS1.C: Optimizing the Design Solution</b></p> <ul style="list-style-type: none"> <li>Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. (3-5-ETS1-3)</li> </ul>		<p>New Jersey Student Learning Assessment – Science (NJSLA-S)</p>

	<ul style="list-style-type: none"> <li>Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design problem. (3-5-ETS1-2)</li> </ul>			
<b>Interdisciplinary ELA</b>	<b>Interdisciplinary Mathematics</b>	<b>21st Century and Career Integration</b>	<b>Technology Integration</b>	<b>Core and Supplemental Instructional Materials</b>
<p>RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. (3-5-ETS1-2)</p> <p>RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (3-5-ETS1-2)</p> <p>RI.5.9 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably. (3-5-ETS1-2)</p> <p>W.5.7 Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic. (3-5-ETS1-1), (3-5-ETS1-3)</p> <p>W.5.8 Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources. (3-5-ETS1-1), (3-5-ETS1-3)</p> <p>W.5.9 Draw evidence from literary or informational texts to support analysis, reflection, and research. (3-5-ETS1-1), (3-5-ETS1-3)</p>	<p>MP.2 Reason abstractly and quantitatively. (3-5-ETS1-1), (3-5-ETS1-2), (3-5-ETS1-3)</p> <p>MP.4 Model with mathematics. (3-5-ETS1-1), (3-5-ETS1-2), (3-5-ETS1-3)</p> <p>MP.5 Use appropriate tools strategically. (3-5-ETS1-1), (3-5-ETS1-2), (3-5-ETS1-3)</p> <p>3-5.OA Operations and Algebraic Thinking (3-5-ETS1-1), (3-5-ETS1-2)</p>	<p><b>Influence of Engineering, Technology, and Science on Society and the Natural World</b></p> <ul style="list-style-type: none"> <li>People's needs and wants change over time, as do their demands for new and improved technologies. (3-5-ETS1-1)</li> <li>Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands. (3-5-ETS1-2)</li> </ul>	<p>Instructional Videos</p> <p>Instructional Online Components</p>	<p>Instructional Science</p> <p>Brain Pop</p> <p>NJSLA-S Handbook</p>

**Modifications/Accommodations**

ELL	Alternate responses, extended time, teacher modeling, simplified directions, vocabulary banks, manipulatives, nonverbal responses, sentence frames, prompts, partner talk, advance notes
Special Education	Enlarged graph paper, small group instruction, highlighted instructions/keywords and/or computation signs, hands on activities, visual cues, number line, modified assessment, models, use of calculator, enlarged coordinate grid paper
G&T	Enrichment activities, centers, projects, flexible grouping, interest centers, learning log, extension activities, small group