

The grade 5 Statewide Science Assessment (SSA) is a comprehensive standardized assessment that covers content in grades 3 – 5. The elementary classroom is a busy one indeed. In order to assist with planning and time management, we have created toolkits. These toolkits are not intended to be the sole curriculum of the classroom, but they do contain important benchmarks that each grade level must cover in order for our students to be successful on the grade 5 SSA. Grades 3 and 4 are vital when it comes to science instruction as there are many concepts covered in these grades that will not be seen again until students take the SSA. The grade 3 and 4 toolkits cover these benchmarks. To get access to the progression document for grades 3 -5 science, please use appendix B within the Test Item Specs found at:

<http://www.fldoe.org/core/fileparse.php/5682/urlt/0077913-fl09g5sci.pdf>

### Grade 4 Science Instructional Focus/ Toolkit

The Grade 4 Science Instructional Focus Toolkit has been created to assist teachers in identifying activities that are well aligned to the benchmarks. This toolkit is not intended to replace your district’s curriculum or to be solely used to address the benchmarks. Care was given to identify multiple activities that could be executed via hands-on inquiry, virtually and, in some cases, infused with the literacy block. Resources have been pulled from CPALMS as well as PBS Learning Media. If you don’t already have one, you will want to create an account for use with PBS Learning Media. The account is free and gives you access to a multitude of resources. For all activities, a materials list resides on the first page once you click the link. There may be materials listed that are not accessible to you. Do not let this discourage you. There are talking points and alternative activities built within the resources. Again, the toolkit serves as a suggestion of activities that can be used to support your instruction. Nature of Science benchmarks are infused within the listed activities.

To register for a free PBS Learning Media account go to: <http://www.pbslearningmedia.org/>

Benchmark	Verbiage	Instructional Guidance and Vocabulary	Resources
SC.4.E.5.1	Observe that the patterns of stars in the sky stay the same although they appear to shift across the sky nightly, and different stars can be seen in different seasons.	Instruction does not require the identification of specific constellations.	<p><b>The Earth’s Rotation / Eyes on the Sky, Feet on the Ground. (See Topic 4: The Motions of the Stars)</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/10033">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/10033</a>                      This resource contains several teaching ideas to support instruction on the Earth's rotation and the apparent movements of the Sun, Moon and stars.</p> <p><b>Create a Star Wheel (Manipulative)</b>  <a href="http://www.skyandtelescope.com/astronomy-resources/make-a-star-wheel/">http://www.skyandtelescope.com/astronomy-resources/make-a-star-wheel/</a></p> <p><b>Northern Hemisphere Star Wheel (Manipulative)</b>  <a href="http://www.lawrencehallofscience.org/sites/default/files/pdfs/starwheels/NorthStarwheel.pdf">http://www.lawrencehallofscience.org/sites/default/files/pdfs/starwheels/NorthStarwheel.pdf</a></p>

<p>SC.4.E.5.2</p>	<p>Describe the changes in the observable shape of the Moon over the course of about a month.</p>	<p>Students should be able to describe the visible changes in the appearance of the Moon.</p> <p>Students do not need to master the vocabulary associated with moon phases, such as waning, waxing or gibbous, even though they may be exposed to them.</p> <p>Solar and lunar eclipses need not be covered at this grade level.</p>	<p><b>PBS Learning Media Phases of the Moon (Virtual Manipulative)</b>  <a href="http://www.pbslearningmedia.org/resource/ess05.sci.ess.eiu.mphase/phases-of-the-moon/">http://www.pbslearningmedia.org/resource/ess05.sci.ess.eiu.mphase/phases-of-the-moon/</a>  The Moon, Earth's only natural satellite and one of the brightest objects in its sky, appears in the sky in many different shapes. Over the course of a month, the observed shapes result from the interaction of the Moon's orbit around Earth and reflected sunlight. In this interactive resource adapted from the National Air and Space Museum, learn about the relationship between the Moon's orbit and its phases.</p> <p><b>PBS Learning Media Moon Phases / Crash Course Astronomy (Video)</b>  <a href="http://www.pbslearningmedia.org/resource/moon-phase-night-sky-video-crashcourse-1004/moon-phases-crash-course-astronomy/">http://www.pbslearningmedia.org/resource/moon-phase-night-sky-video-crashcourse-1004/moon-phases-crash-course-astronomy/</a>  Learn why the Moon has phases and what those phases are. Because the Moon is a sphere and orbiting the earth every 29.5 days, the way we see it in the night sky changes with time. Learn what the phases of the Moon are: why they occur, how we see them and what they are called.</p> <p><b>Student Tutorials/ What Phase of the Moon?</b>  <a href="http://www.floridastudents.org/PreviewResource/StudentResource/87782">http://www.floridastudents.org/PreviewResource/StudentResource/87782</a>  This activity allows the user to "drag" pictures of different phases of the Moon to their correct places in lunar cycles. Calendars are included to help the student determine which phase of the Moon belongs in the spaces. A child's voice narrates the activity and there are three levels in this Lunar Cycle Challenge.</p> <p><b>Lunar Phase Animation</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/22678">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/22678</a>  This Youtube video provides a continuous time lapse sequence video of the lunar phases.</p> <p><b>Moon Light Through the Month</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/24611">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/24611</a>  Students will work in small groups to arrange Moon phase cards into the correct sequence.</p>
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			*Materials link available by clicking link.
SC.4.E.5.3	Recognize that Earth revolves around the Sun in a year and rotates on its axis in a 24-hour day.	Students need not master the causes of seasons, directness of sunlight or Earth's tilt even though they may be exposed to it.	<p><b>Earth, Moon and Sun (Educational Game)</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/42140">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/42140</a>          What does a year look like in space? Find out more about the Earth, Moon and Sun. The Earth travels around the Sun. The Moon travels around the Earth. Day and night are caused by the Earth spinning on its axis.</p> <p><b>How do Earth's Rotation and Revolution Work?</b>  <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/46329">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/46329</a>          This lesson demonstrates how the Earth rotates, creating nights and days. It also demonstrates the revolution of the Earth around the Sun. The Earth and the Sun's movements are connected.          *Materials list available by clicking the link.</p> <p><b>Explore a Model of Earth's Yearly Revolution Around the Sun (Video / Animation)</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/5433">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/5433</a>          This is a video clip that models Earth rotating on its axis, resulting in day and night; and Earth revolving around the Sun, which happens once a year (every 365 ¼ days).</p> <p><b>What Makes Day and Night? The Earth's Rotation</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/1727">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/1727</a>          In part one of this activity, students are introduced to day and night through a whole-class reading. In the second part of this lesson, a kinesthetic modeling of day and night allows students to experience the spinning Earth and the day/night cycle.</p>
SC.4.E.5.4	Relate that the rotation of Earth (day and night) and apparent movements of the Sun, Moon and stars are connected.	Students, at this level, are to reach a conceptual understanding of the apparent movements of the Sun, Moon and stars and resulting patterns.	<p><b>How is the Earth Connected to the Moon, Sun and Other Parts of the Universe?</b>  <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/46447">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/46447</a>          There are many connections between the Earth and other heavenly bodies. The Earth's rotation creates night and day. The Moon's rotation and revolution around the Earth creates the Moon phases.          *Materials list available by clicking the link.</p> <p><b>PBS Learning Media/ Observe Sunrise and Sunset (Video)</b>  <a href="http://florida.pbslearningmedia.org/resource/ess05.sci.ess.eiu.riseset/observe-">http://florida.pbslearningmedia.org/resource/ess05.sci.ess.eiu.riseset/observe-</a></p>

			<p><a href="#">sunrise-and-sunset/</a> Night and day are determined by the Sun's presence in the sky. As Earth rotates, the portion of the planet that is illuminated by the Sun experiences day while the portion that faces away from the Sun experiences night. As observed from most locations on Earth, the Sun appears to rise in the east and set in the west every day. In this segment produced for <i>Teachers' Domain</i>, observe time-lapse video of a sunrise and a sunset.</p> <p><b>How is the Earth Connected to the Moon, Sun and Other Parts of the Universe?</b> <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/46447">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/46447</a> There are many connections between the Earth and other heavenly bodies. The Earth's rotation creates night and day. The Moon's rotation and revolution around the Earth creates the Moon phases. <i>This lesson would be ideal for review after completing unit on Earth/Space Science.</i> *Materials link available by clicking the link.</p>
SC.4.E.6.1	Identify the three categories of rocks: igneous, (formed from molten rock); sedimentary (pieces of other rocks and fossilized organisms); and metamorphic (formed from heat and pressure).	<p>Students should be able to explain each category of rock including how they form.</p> <p>However, students do not need to master the rock cycle, i.e., how igneous rocks transform to sedimentary rocks.</p>	<p><b>Cemented Together</b> <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/28743">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/28743</a> In this activity, the students will create their own sedimentary rock using glue and various pieces of sediments found throughout the school yard. The students will create a model of a sedimentary rock and describe how they would identify a sedimentary rock in the real world. *Materials link available by clicking the link.</p> <p><b>PBS Learning Media / The Rock Cycle (Focus on Section – Types of Rocks) Text Resource</b> <a href="http://www.pbslearningmedia.org/resource/2528a979-2df8-4437-87d9-0300dd6b3784/2528a979-2df8-4437-87d9-0300dd6b3784/">http://www.pbslearningmedia.org/resource/2528a979-2df8-4437-87d9-0300dd6b3784/2528a979-2df8-4437-87d9-0300dd6b3784/</a> Identify the three main types of rock, find out how to tell the different rock types apart, and see how rocks change from one type into another.</p> <p><b>What Kind of Rock? Expository Writing (Formative Assessment)</b> <a href="http://www.cpalms.org/Public/PreviewResourceUpload/Preview/20707">http://www.cpalms.org/Public/PreviewResourceUpload/Preview/20707</a> <b>PBS Learning Media Rocks and Minerals (Video)</b> <a href="http://florida.pbslearningmedia.org/resource/idptv11.sci.ess.earthsys.d4krom/rocks-">http://florida.pbslearningmedia.org/resource/idptv11.sci.ess.earthsys.d4krom/rocks-</a></p>

			<p><a href="#">and-minerals/</a> This video segment from IdahoPTV's D4K defines the different types of rock and how they are formed. Learn about the ways rocks are classified and find out all the ways rocks can be changed. This resource is part of the Idaho Collection.</p> <p><b>California Department of Education (PowerPoint)</b> <a href="http://web.compton.k12.ca.us/pages/departments/curriculum/pdf/4thsciunitc.pdf">http://web.compton.k12.ca.us/pages/departments/curriculum/pdf/4thsciunitc.pdf</a></p>
SC.4.E.6.2	Identify the physical properties of common earth-forming minerals, including hardness, color, luster, cleavage, and streak color, and recognize the role of minerals in the formation of rocks.	<p>Students do not need to identify specific mineral composition of rocks.</p> <p>Students do not need to master knowledge of Mohs hardness scale. Exposure to common minerals should be limited to quartz, feldspar, mica, calcite, talc, pyrite and graphite.</p> <p>Students do not need to be able to identify specific minerals based on their properties.</p>	<p><b>Mastering Minerals (Model Eliciting Activity)</b> <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/72385">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/72385</a> This MEA requires students to review data and rank minerals from best to worst in terms of mineral properties to help a mineral jeweler decide on the best mineral to use to make a necklace. Students will consider hardness, luster, color, cleavage and safety by analyzing the given charts which include these data by mineral. Students will work as a group and create a model for ranking the minerals. *Materials link available by clicking the link.</p> <p><b>Physical Properties of Minerals Student Activity Lab</b> <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/156535">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/156535</a> During this lab activity, students will use their knowledge of the physical properties of minerals to investigate and describe seven common minerals including quartz, feldspar, biotite mica, calcite, pyrite, graphite and talc. Students will determine hardness, color, luster, streak color and cleavage using various hands-on testing methods. *Materials link available by clicking the link.</p> <p><b>Mineralogy4Kids Mineral Properties (Web quest)</b> <a href="http://www.mineralogy4kids.org/mineral-properties">http://www.mineralogy4kids.org/mineral-properties</a></p> <p><b>California Department of Education (PowerPoint)</b> <a href="http://web.compton.k12.ca.us/pages/departments/curriculum/pdf/4thsciunitc.pdf">http://web.compton.k12.ca.us/pages/departments/curriculum/pdf/4thsciunitc.pdf</a></p>

SC.4.E.6.3	Recognize that humans need resources found on Earth and that these are either renewable or nonrenewable.	Students should be able to distinguish between renewable and nonrenewable resources found on Earth.	<p><b>Tower of Power (Text Complexity Resource)</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/57267">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/57267</a>  The article describes a new kind of solar energy which concentrates light waves from the sun.</p> <p><b>CIS Wind at Work (Comprehension Instruction Sequence Method)</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUpload/Preview/32076">http://www.cpalms.org/Public/PreviewResourceUpload/Preview/32076</a>  This lesson is using complex text to teach "close reading" strategies using the Comprehension Instructional Sequence Method (CIS). It includes a lesson plan, a National Geographic article and a summative assessment rubric. CIS is a detailed instructional method that should be used by those who have been trained in this strategy.</p> <p><b>Energy Video National Academy of Science (Video)</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/10326">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/10326</a>  This video, produced by the National Academy of Science, highlights America's role in energy sources and consumption.</p> <p><b>Recycle This! Model Eliciting Activity (MEA)</b>  <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/50839">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/50839</a>  Students will learn about recycling renewable and nonrenewable resources while completing a model eliciting activity in which they help Sunshine School District to decide which material to start their recycling program with.  *Materials link available by clicking the link.</p>
SC.4.E.6.4	Describe the basic differences between physical weathering (breaking down of rock by wind, water, ice, temperature change and	Students may be exposed to, but need not master specific landforms resulting from weathering and erosion.	<p><b>California Department of Education (PowerPoint)</b>  <a href="http://web.compton.k12.ca.us/pages/departments/curriculum/pdf/4thsciunitc.pdf">http://web.compton.k12.ca.us/pages/departments/curriculum/pdf/4thsciunitc.pdf</a></p> <p><b>Weathering (Text Complexity Resource)</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/56982">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/56982</a>  This informational text resource is intended to support reading in the content area. This article describes chemical, biological and mechanical weathering and includes causes and examples for each.</p>

	<p>plants) and erosion (movement of rock by gravity, wind, water and ice).</p>		<p><b>Weathering and Erosion: A Comprehension Instructional Sequence (CIS) Lesson Plan</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUpload/Preview/30802">http://www.cpalms.org/Public/PreviewResourceUpload/Preview/30802</a>  This lesson plan follows the template for the Comprehension Instructional Sequence (CIS) developed to implement Florida Standards in English/Language Arts. This sequence scaffolds students as they read and respond to complex content-area informational text. This particular lesson plan uses informational text about weathering and erosion, which ties into the 4th grade benchmark SC.4.E.6.4.</p> <p><b>Weathering and Erosion Unit</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUpload/Preview/13474">http://www.cpalms.org/Public/PreviewResourceUpload/Preview/13474</a>  In this unit, students learn about weathering and erosion (and different types of weathering and erosion) through different models and activities. An engineering design competition asks students to synthesize knowledge about erosion to create an erosion-blocking process/product for the Atlantic coast.  *Materials link available by clicking the link.</p>
<p>SC.4.E.6.6</p>	<p>Identify resources available in Florida (water, phosphate, oil, limestone, silicon, wind, and solar energy).</p>	<p>Students do not need to be exposed to natural Florida resources outside of water, phosphate, oil, limestone, silica, wind and solar energy.</p>	<p><b>Energy Video National Academy of Science (Video)</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/10326">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/10326</a>  This video, produced by the National Academy of Science, highlights America's role in energy sources and consumption.</p> <p><b>Find WHAT in Florida?</b>  <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/46510">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/46510</a>  This lesson addresses the topic of resources found in Florida. As 4th grade students learn about Florida, they should also be able to identify natural resources that are found and used within the state. Students have the opportunity to access and use their prior knowledge as they discover what a natural resource is and what resources can be found in Florida. Students will explore some of these resources in a hands-on activity. Additional components include a non-fiction article and cooperative learning.  *Materials link available by clicking the link.</p> <p><b>CIS Wind at Work (Comprehension Instruction Sequence Method)</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUpload/Preview/32076">http://www.cpalms.org/Public/PreviewResourceUpload/Preview/32076</a>  This lesson is using complex text to teach "close reading" strategies using the Comprehension Instructional Sequence Method (CIS). It includes a lesson plan, a</p>

			<p>National Geographic article and a summative assessment rubric. CIS is a detailed instructional method that should be used by those who have been trained in this strategy.</p> <p><b>Tower of Power (Text Complexity Resource)</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/57267">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/57267</a>  The article describes a new kind of solar energy which concentrates light waves from the sun.</p>
SC.4.P.8.1	<p>Measure and compare objects and materials based on their physical properties including: mass, shape, volume, color, hardness, texture, odor, taste and attraction to magnets.</p>	<p>Students should be exposed to the tools used to measure basic properties of solids, liquids and gases, such as balance scales and graduated cylinders.</p> <p>Students do not need to be able to decipher the difference between weight and mass as this grade level. Density is not a grade-level appropriate property at this level.</p>	<p><b>Magnets 1: Magnetic Pick-Ups</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/4337">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/4337</a>  In Magnets 1: Magnetic Pick-ups, students will look at various objects, make predictions about whether they are magnetic and then test their predictions. This exploration is an introductory activity to magnets and magnetism.  *Materials link available by clicking the link.</p> <p><b>Magnets 2: How Strong is Your Magnet?</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/4341">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/4341</a>  This lesson is to experimentally measure the strength of a magnet and to graph how the strength changes as the distance from the magnet increases, and to also observe how a barrier (masking tape), built between the magnet and an iron object, will affect the strength of the magnet.  *Materials link available by clicking the link.</p> <p><b>Properties of Matter: Color, Hardness, Texture, Odor and Taste</b>  <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/30710">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/30710</a>  In this lesson, students will use a compare and contrast chart (graphic organizer) to compare and contrast the different properties of matter – color, hardness, texture, odor and taste. Students will also demonstrate the science concepts learned from reading informational text passages on the properties of matter.  *Materials link available by clicking the link.</p> <p><b>Properties of Matter: Mass, Shape and Volume</b>  <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/29483">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/29483</a>  Using the main idea and details graphic organizer, students will be able to distinguish between information given on the properties of matter – mass, shape and volume.</p>

			<p>Students will also demonstrate their understanding of science concepts learned from reading an informational text passage on the properties of matter.</p> <p>*Materials link available by clicking the link.</p>
SC.4.P.8.4	<p>Investigate and describe that magnets can attract magnetic materials and attract and repel other magnets.</p>	<p>Students should be able to describe forces such as magnetic force.</p> <p>Students should be able to identify and describe examples of magnetic attraction and repulsion.</p>	<p><b>Magnets 1: Magnetic Pick-Ups</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/4337">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/4337</a>  In Magnets 1: Magnetic Pick-ups, students will look at various objects, make predictions about whether they are magnetic and then test their predictions. This exploration is an introductory activity to magnets and magnetism.  *Materials link available by clicking the link.</p> <p><b>Magnets 2: How Strong is Your Magnet?</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/4341">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/4341</a>  This lesson is to experimentally measure the strength of a magnet and to graph how the strength changes as the distance from the magnet increases, and to also observe how a barrier (masking tape), built between the magnet and an iron object, will affect the strength of the magnet.  *Materials link available by clicking the link.</p> <p><b>Perspectives STEM Video</b>  <a href="http://www.cpalms.org/Public/PreviewResourcePerspectivesVideo/Preview/130698">http://www.cpalms.org/Public/PreviewResourcePerspectivesVideo/Preview/130698</a>  Physics is a weighty subject, but this discussion of magnets and illusion brings a little levity.</p>
SC.4.P.9.1	<p>Identify some familiar changes in materials that result in other materials with different characteristics, such as decaying animal or plant matter, burning, rusting and</p>	<p>Students should be able to describe how some familiar changes in materials result in other materials with different characteristics, with a focus on chemical change.</p>	<p><b>Holey Rusted Metal!</b>  <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/46542">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/46542</a>  Students will conduct a guided inquiry lab involving the chemical change that creates rust. This lab is meant to be set up in one day and then observed over the course of three weeks.  *Materials link available by clicking the link.</p> <p><b>Cooking Up Chemistry</b>  <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/46625">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/46625</a>  Students will explore through fiction/nonfiction texts and hands-on activities that materials can be altered to change some of their properties. In an extension lesson,</p>

	cooking.		<p>students can also explore how other forms of energy (besides electricity) can be used to cook food.</p> <p>*Materials link available by clicking the link.</p>
SC.4.P.10.3	Investigate and explain that sound is produced by vibrating objects and that pitch depends on how fast or slow the object vibrates.	<p>Students should be able to explain that sound is produced by vibrations and/or that pitch depends on how fast or slow the object vibrates.</p> <p>Pitch is a focus vocabulary term for grade 4 students.</p>	<p><b>Student Tutorials/ Pitch (Video Resource)</b>  <a href="http://www.floridastudents.org/PreviewResource/StudentResource/13639">http://www.floridastudents.org/PreviewResource/StudentResource/13639</a>  The students will watch a short video showing how different pitches are made.</p> <p><b>Let's Hear it for Sound!</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/23812">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/23812</a>  This lesson will help students build an understanding of the concepts of sound (vibration, pitch) through participation in a variety of hands-on experiments.  *Materials link available by clicking the link.</p> <p><b>PBS Learning Media/ Understanding Vibration and Pitch (Video Resource)</b>  <a href="http://florida.pbslearningmedia.org/resource/phy03.sci.phys.howmove.collage/understanding-vibration-and-pitch/">http://florida.pbslearningmedia.org/resource/phy03.sci.phys.howmove.collage/understanding-vibration-and-pitch/</a>  Sometimes sounds are pleasant to listen to, like two voices singing in harmony or the trickling of water in a brook. Other times they are unpleasant, like a loud fire alarm or the screeching of chalk on a blackboard. Have you ever wondered what sound is and how we differentiate among various sounds? This video segment, produced for <i>Teachers' Domain</i>, includes sounds that many of us hear every day.</p> <p><b>PBS Learning Media/ Pitch: Super Sounding Drums (Video Resource)</b>  <a href="http://florida.pbslearningmedia.org/resource/phy03.sci.phys.mfe.zsuperdrums/pitch-super-sounding-drums/">http://florida.pbslearningmedia.org/resource/phy03.sci.phys.mfe.zsuperdrums/pitch-super-sounding-drums/</a>  The construction of a drum -- the materials it is made of, its size and shape, and the tension of its top, or drumhead all affect how the drum sounds. In this video segment, two members of the <i>ZOOM</i> cast create drums of different sizes, shapes, materials, and tensions, and compare the results. This video is available in both English and Spanish audio, along with corresponding closed captions.</p>

SC.4.P.10.4	Describe how moving water and air are sources of energy and can be used to move things.	Students should be exposed to comparative words such as greater than, less than, faster or slower when describing motion.	<p><b>Perspectives STEM Video</b>  <a href="http://www.cpalms.org/Public/PreviewResourcePerspectivesVideo/Preview/120773">http://www.cpalms.org/Public/PreviewResourcePerspectivesVideo/Preview/120773</a>  When your classroom is the open ocean, which is the longest period? The one from the tsunami.</p> <p><b>Set Sail with STEM: Exploring Wind and Water Movement as Energy with Sailboats</b>  <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/149255">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/149255</a>  Come sail away with this STEM activity! Students will use hands-on inquiry to find out more about wind and its effect on sails. Through trial and error and based on data collected, students will design, build and race their own vessel or "sailboat" across the boundless waters of a kiddie pool. Students should gain a better understanding of how moving water and air are sources of energy and can propel objects forward at varying rates of speed.  *Materials link available by clicking the link.</p>
SC.4.P.11.1	Recognize that heat flows from a hot object to a cold object and that heat flow may cause materials to change temperature.	Students are gaining a conceptual understanding of heat transfer at this grade level.	<p><b>Heating Up the Neighborhood</b>  <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/149248">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/149248</a>  This Engineering Design Challenge is intended to help students apply the concepts of heat insulators as they build a model house and test different materials to use as insulators, stopping the warm air from escaping and keeping the cool air out. Students will also have an opportunity to use technology in their exploration of heat energy.  *Materials link available by clicking the link.</p> <p><b>Cool It!</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/25269">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/25269</a>  As a result of this activity, students will be able to observe that materials transfer heat at different rates.  *Materials link available by clicking the link.</p> <p><b>Student Tutorials/ Which is the Better Insulator? (Video Resource)</b>  <a href="http://www.floridastudents.org/PreviewResource/StudentResource/20706">http://www.floridastudents.org/PreviewResource/StudentResource/20706</a>  Watch a demonstration of an experiment which tests the effectiveness of two different insulators. The participants will demonstrate their thinking as they run an experiment, identify variables and collect data.</p>

SC.4.P.11.2	Identify common materials that conduct heat well or poorly.	Materials that conduct heat poorly, such as styrofoam, are often called insulators.	<p><b>Heating Up the Neighborhood</b>  <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/149248">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/149248</a>  This Engineering Design Challenge is intended to help students apply the concepts of heat insulators as they build a model house and test different materials to use as insulators, stopping the warm air from escaping and keeping the cool air out. Students will also have an opportunity to use technology in their exploration of heat energy.  *Materials link available by clicking the link.</p> <p><b>Cool It!</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/25269">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/25269</a>  As a result of this activity, students will be able to observe that materials transfer heat at different rates.  *Materials link available by clicking the link.</p>
SC.4.P.12.1	Recognize that an object in motion always changes its position and may change its direction.	Students are gaining a conceptual understanding of the relationship between mass, force and motion, but are not required to utilize mathematical calculations or formulas at this grade level.	<p><b>Tinker Ball (Virtual Manipulative)</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/23417">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/23417</a>  Recognize that an object in motion always changes its position and may change its direction.</p> <p><b>Rollercoaster Investigations</b>  <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/34879">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/34879</a>  This activity will allow students to explore the motion and speed of an object. While constructing a rollercoaster and using the Scientific Method, students will create their own question and then investigate it, finding out whether the speed of an object is affected by the track it follows.</p>
SC.4.P.12.2	Investigate and describe that the speed of an object is determined by the distance it travels in a unit of time and that objects can move	Students are gaining a conceptual understanding of speed and do not need to practice mathematical calculations related to speed at this grade level.	<p><b>Rollercoaster Investigations</b>  <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/34879">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/34879</a>  This activity will allow students to explore the motion and speed of an object. While constructing a rollercoaster and using the Scientific Method, students will create their own question and then investigate it, finding out whether the speed of an object is affected by the track it follows.  *Materials link available by clicking the link.</p> <p><b>Perspective STEM Videos: Bicycle Mathematics: Speed and Distance Calculations</b></p>

	at different speeds.		<a href="http://www.cpalms.org/Public/PreviewResourcePerspectivesVideo/Preview/120717">http://www.cpalms.org/Public/PreviewResourcePerspectivesVideo/Preview/120717</a> Cycling involves a lot of real-time math when you use an on-board computer. Learn about lesson ideas and how computers help with understanding performance.
SC.4.L.16.1	Identify processes of sexual reproduction in flowering plants, including pollination, fertilization (seed production), seed dispersal and germination.	Vocabulary associated with sexual reproduction in flowering plants should be limited to stamen, pistil, ovary, petal, sperm and egg.	<p><b>Biology of Plants (Text Resource)</b>  <a href="http://www.cpalms.org/Public/PreviewResourceExternal/Preview/30602">http://www.cpalms.org/Public/PreviewResourceExternal/Preview/30602</a>  Younger students can learn about plant biology. Topics include characteristics of living things, germination and growth, the basic parts of plants, photosynthesis, reproduction and ecological adaptations of plants. The information presented can also be ordered as a video.</p> <p><b>Floral Arrangements (Video)</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/5182">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/5182</a>  It's a problem faced by all seed-producing plants: how to get their pollen into the flower of another plant of the same species. This video segment from <i>Sexual Encounters of a Floral Kind</i> explores some of the strategies plants have evolved to solve the problem.</p> <p><b>The Secret Lives of Flowers (Video/ Audio/ Animation)</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/2856">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/2856</a>  Interactive website that would assist students in grade 4 to understand the BIG IDEA 16: Heredity and Reproduction in an engaging way.</p> <p><b>Life Cycles (Virtual Manipulative)</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/51361">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/51361</a>  This resource will help you understand the parts of the flower and their role in the life cycle of flowering plants. You will also learn about the process of pollination including how pollen is taken from the stamen into the stigma, fertilized in the ovule and a seed produced which is dispersed in a variety of ways.</p> <p><b>Dissect It!</b>  <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/28965">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/28965</a>  After dissecting a flower(s), the students will be able to identify the parts necessary for pollination or reproduction of flowering plants. They will also make comparisons and find patterns in nature, leading them to the understanding of the processes of</p>

			sexual reproduction in flowering plants, including pollination and fertilization (seed production).
SC.4.L.16.2	Explain that although characteristics of plants and animals are inherited, some characteristics can be affected by the environment.	Students will distinguish plant or animal characteristics that are inherited from those that are affected by the environment.	<p><b>Wake up America!</b>  <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/47060">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/47060</a>  Students explore the impact plants, animals and humans are having on the environment - especially native plants and animals. This lesson has some interesting hands-on investigations to help students visualize the impact pollution is having on habitats. For the final project, students use their research to create a class book informing others about plants and animals that are endangered. Students also share ways people can help!  This lesson includes reading and writing activities that could be integrated into daily reading and language arts time blocks.  *Materials link available by clicking the link.</p> <p><b>Inherited vs. Learned Behavior (Assessment)</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/1898">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/1898</a>  This is an assessment in which students will identify characteristics of organisms that are inherited from their parents and others that are learned from interacting with the environment. The assessment includes multiple choice questions and a short response question.</p> <p><b>Specialized Structures and Environments</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUpload/Preview/23529">http://www.cpalms.org/Public/PreviewResourceUpload/Preview/23529</a>  This investigation will show students specialization in species as it applies to heredity and adaptation of species to their given environment.  *Materials link available by clicking the link.</p>
SC.4.L.16.3	Recognize that animal behaviors may be shaped by heredity and learning.	Students will identify inherited characteristics of animals or distinguish inherited characteristics from those that are shaped by learning.	<p><b>Inherited vs. Learned Behavior (Assessment)</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/1898">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/1898</a>  This is an assessment in which students will identify characteristics of organisms that are inherited from their parents and others that are learned from interacting with the environment. The assessment includes multiple choice questions and a short response question.</p>

			<p><b>Caution! School's a Zoo!</b>  <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/46911">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/46911</a>  This is a fun science lesson that teaches children about inherited animal behaviors through observation and direct instruction. Students then use their new skills to write a news article explaining what school might be like if teachers or students had different inherited and learned behaviors. This lesson can be integrated into reading and includes an opportunity for writing across the curriculum.  *Materials link available by clicking the link.</p>
SC.4.L.16.4	Compare and contrast the major stages in the life cycles of Florida plants and animals, such as those that undergo incomplete and complete metamorphosis, and flowering and nonflowering seed-bearing plants.	<p>Vocabulary associated with life cycle of insects should be limited to egg, larva, pupa, nymph and adult.</p> <p>Vocabulary associated with the life cycle of animals should be limited to egg, embryo, infant, adolescent and adult stages.</p> <p>Students do not need to be exposed to the major stages of the human life cycle at this grade level.</p> <p>Examples used with this benchmark should be related to plants and animals common to Florida.</p>	<p><b>Metamorphosis (Text Complexity Resource)</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUpload/Preview/57486">http://www.cpalms.org/Public/PreviewResourceUpload/Preview/57486</a>  This informational text resource is intended to support reading in the content area. This article describes the complete and incomplete metamorphosis stages.</p> <p><b>PBS Learning Media Plant Life Cycles</b>  <a href="http://florida.pbslearningmedia.org/resource/tdc02.sci.life.colt.lp_plantcycle/plant-life-cycles/">http://florida.pbslearningmedia.org/resource/tdc02.sci.life.colt.lp_plantcycle/plant-life-cycles/</a>  Students explore the cycles of plant life and compare them with those of animals.  *Materials link available by clicking the link.</p> <p><b>PBS Learning Media Butterfly Life Cycle Fitness (Video)</b>  <a href="http://florida.pbslearningmedia.org/resource/10a98850-5d05-46f1-a5f0-fb5cb4cd2fcf/butterfly-life-cycle-fitness/">http://florida.pbslearningmedia.org/resource/10a98850-5d05-46f1-a5f0-fb5cb4cd2fcf/butterfly-life-cycle-fitness/</a>  Science and exercise unite in this Kindergarten through 5th grade video! Students learn about the life cycle of a butterfly while performing certain physical tasks at each stage. Following along with their teacher, students perform exercises and stretches such as knee taps and crunches as they move their way through the life cycle of a butterfly. This video is great for engaging students in psychomotor and cognitive skills.</p> <p><b>PBS Learning Media Life Cycles of Frogs, Dragonflies and Butterflies</b>  <a href="http://florida.pbslearningmedia.org/resource/tdc02.sci.life.cyc.lp_lifecycle/life-cycles-of-frogs-dragonflies-and-butterflies/">http://florida.pbslearningmedia.org/resource/tdc02.sci.life.cyc.lp_lifecycle/life-cycles-of-frogs-dragonflies-and-butterflies/</a>  Students explore similarities and differences in the life cycle of organisms and are</p>

			introduced to the process of metamorphosis. *Materials link available by clicking the link.
SC.4.L.17.2	Explain that animals, including humans, cannot make their own food and that when animals eat plants or other animals, the energy stored in the food source is passed to them.	Refer to this section under SC.4.L.17.3 as these standards can be covered together.	Refer to this section under SC.4.L.17.3 as these standards can be covered together.
SC.4.L.17.3	Trace the flow of energy from the Sun as it is transferred along the food chain through the producers to the consumers.	<p>Students do not need to be exposed to food webs, trophic levels or energy pyramids at this level.</p> <p>The vocabulary term decomposer need not be mastered at this level, even though students may be exposed to it.</p> <p>At this conceptual level, students need only to be</p>	<p><b>Another Link in the Food Chain (Text Complexity Resource)</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/56980">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/56980</a>  This informational text resource is intended to support reading in the content area. The article describes how energy passes through food chains. Examples of each link in the chain and a description of its role in the food chain are given.</p> <p><b>PBS Learning Media Food Chain (Video)</b>  <a href="http://florida.pbslearningmedia.org/resource/idptv11.sci.life.oate.d4kfch/food-chain/">http://florida.pbslearningmedia.org/resource/idptv11.sci.life.oate.d4kfch/food-chain/</a>  This video segment from IdahoPTV's D4K illustrates how energy from the sun moves through the food chain. Learn about the food chain, and what are producers, consumers and scavengers as well as where humans fit into the mix.</p> <p><b>PBS Learning Media Think Garden: What is a Food Chain? (Video)</b></p>

		<p>able to identify the flow of energy from the Sun through the food chain.</p> <p>Calculations addressing the amounts of energy or efficiency of energy transfers is not grade-level appropriate.</p>	<p><a href="http://florida.pbslearningmedia.org/resource/thnkgard.sci.ess.chain/think-garden-whats-a-food-chain/">http://florida.pbslearningmedia.org/resource/thnkgard.sci.ess.chain/think-garden-whats-a-food-chain/</a></p> <p>This video from KET’s Think Garden collection illustrates why all living things need food and explains how organisms provide energy, in the form of food, to each other. Colorful graphics show the difference between a food chain and a food web, and an animation and poem make food chains easy to understand. This video is available in both English and Spanish audio, along with corresponding closed captions.</p> <p><b>Dramatic Food Chains</b>  <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/46523">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/46523</a></p> <p>This fun lesson gives students the chance to "act out" food chains. By really putting themselves into food chains, students will better understand the transfer of energy through the food chain, as well as understand that the sun is the primary source of energy in a food chain. This lesson ends with students constructing their own food chains and writing an explanatory paragraph to explain the flow of energy through the food chain they constructed.</p> <p>*Materials link available by clicking the link.</p>
SC.4.L.17.4	Recognize ways plants and animals, including humans, can impact the environment.	Students will identify ways in which plants and/or animals can impact the environment.	<p><b>Vultures: India’s Clean-Up Crew (Video)</b>  <a href="http://www.pbslearningmedia.org/resource/9bb2bac3-9914-4f8c-b04b-2a2d4303e09f/vultures-indias-clean-up-crew-earth-a-new-wild/">http://www.pbslearningmedia.org/resource/9bb2bac3-9914-4f8c-b04b-2a2d4303e09f/vultures-indias-clean-up-crew-earth-a-new-wild/</a></p> <p>Vultures fill a critical niche in India as scavengers, so when they began dying out due to an unknown toxin, wild dogs filled that role in their urban food web. Vultures feed on the carcasses of cattle which, in India, are left in carrion dumps and not eaten. After a medical agent used in cattle was found to be poisoning the vulture population, wild dogs and rats quickly filled the niche the birds vacated; however these new scavengers meant big trouble for the human population of India.</p> <p><b>Green Invaders! (Text Complexity Resource)</b>  <a href="http://www.cpalms.org/Public/PreviewResourceUrl/Preview/59384">http://www.cpalms.org/Public/PreviewResourceUrl/Preview/59384</a></p> <p>This informational text resource is intended to support reading in the content area. This National Geographic Kids article explains how the invasion of non-native plants is threatening native food webs.</p>

			<p><b>Slither Not in the Everglades! Python Model Eliciting Activity (MEA) *5 day Activity</b> <a href="http://www.cpalms.org/Public/PreviewResourceLesson/Preview/72414">http://www.cpalms.org/Public/PreviewResourceLesson/Preview/72414</a></p> <p>This is a 4th grade MEA. This MEA will ask students to work in teams to help their client, The Florida Fish and Wildlife Conservation Juvenile Commission, to decide which Burmese Pythons traps manufacturing company is the most economical to buy traps from. The traps will be placed along the Florida Keys and the Everglades to further help prevent the growth of Burmese Pythons species invasion. The students will implement their knowledge of how plants, animals and humans impact the environment, use mathematical and analytical problem-solving strategies and be able report their finding in an organized, descriptive manner.</p> <p>*Materials link available by clicking the link.</p>
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