

Standards Curriculum Map Bourbon County Schools

Level: 2nd

Grade and/or Course: Science

Updated/Created: May 2020

Unit 1: Review 1st grade skills

Physical Science Life Science Earth & Space Science **Engineering**

Days:	KAS:	Skills/Targets:	Vocabulary:	Activities/ Strategies:	Resources Used for Implementation of Science/Engineering Practices, Core Ideas and Crosscutting Concepts
1st Nine Weeks Days 1-20	<p>1-PS4-1 Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.</p> <p>1-PS4-2 Make observations to construct an evidence-based account that objects can be seen only when illuminated.</p> <p>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.</p> <p>1-PS4-4. Use tools and materials to design and build a device that</p>	<p>I can review skills from 1st grade.</p> <p>I can understand how light travels in waves.</p> <p>I can understand how sound travels in waves.</p> <p>I can create shadows.</p> <p>I can observe the sun, moon and stars to describe patterns that can be predicted.</p>	<p>Light Shadow Waves Vibrate Sound Illuminate</p> <p>Sun Moon Stars Sunrise Sunset Season Patterns</p>	<p>-Examples of vibrating objects (tuning forks, pluck a string) -Make observations with light -Make shadows with different objects -Observe your shadow at</p>	<p>Generation Genius K-2 videos: "Introduction to Sound" and "Introduction to Light"</p> <p>How can sound make matter move? https://betterlesson.com/lesson/615699/wiggle-it-just-a-little-bit?from=search</p> <p>Mystery Science-1st grade: "Light and Illumination" and "Light, Communicating and Engineering"</p> <p>Light It Up-different sources of light affect different materials. https://betterlesson.com/lesson/622016/light-it-up?from=search</p> <p>NewsELA article "Sound, explained"</p>

	<p>uses light or sound to solve the problem of communicating over a distance.</p> <p>1-ESS1-1. Use observations of the sun, moon, and stars to describe patterns that can be predicted.</p> <p>1-ESS1-2. Make observations at different times of year to relate the amount of daylight to the time of year.</p> <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>I can make observations about the amount of daylight at different times of the year.</p> <p>I can use the scientific method to solve problems.</p> <p>I can illustrate how the design of an object helps solve a given problem.</p> <p>I can analyze data to compare how two designs work to solve a problem.</p>		<p>different times of day outside</p>	<p>https://newsela.com/read/lib-sound/id/2000001603/?collection_id=339&search_id=935e3670-01b9-4e40-ba77-e250678fade5</p> <p>NewsELA article “The 3 Things You Need to Make Sound” https://newsela.com/read/lib-overview-making-sound/id/55101/?collection_id=339&search_id=8b53c391-0758-4692-b5d3-9e9afb5378c0</p> <p>Mystery Science-1st grade: “Daylight and Seasonal Patterns” and “Stars and Daily Patterns”</p> <p>Reviewing Patterns in the Sky https://betterlesson.com/lesson/639225/review-of-patterns-in-the-sky?form=search</p> <p>Generation Genius K-2 videos: “Four Seasons and Day Lengths” and “Patterns in the Sky”</p> <p>Brainpop Jr Videos under Space category</p> <p>Mystery Doug video: Why do leaves change color in the fall? https://mysterydoug.com/mysteries/all-leaves</p>
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HOT questions: How are sound waves and light waves similar? How can you make a shadow using what you have learned? Name the seasons. How does the sun affect the length of a day? How does a season relate to the length of daylight hours? Can light bend around corners? Why do flying bees buzz? Waves allow you to see and hear the world around you. What does this statement mean?

Why is the sky dark at night?

Evidence of Literacy and Writing in Science: RI.1.1 Ask and answer questions about key details in a text. (1-LS1-2),(1-LS3-1)
RI.1.2 Identify the main topic and retell key details of a text. (1-LS1-2) **RI.1.10** With prompting and support, read informational texts appropriately complex for grade. (1-LS1-2) **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),(1-LS3-1) **W.1.8** With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

Unit 2: Structure and Properties of Matter

Days:	KAS:	Skills/Targets:	Vocabulary:	Strategies/ Activities:	Resources Used for Implementation of Science/Engineering Practices, Core Ideas and Crosscutting Concepts
1st Nine Weeks Days 21-40	<p>2-PS1-1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.</p> <p>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.</p> <p>2-PS1-3 Make observations to construct an evidence-based account of how an object made of a small set of pieces</p>	<p>I can classify objects based on observable properties.</p> <p>I can determine which objects have the properties that are best suited for an intended purpose.</p> <p>I can create multiple items from the same objects.</p> <p>I can prove that some changes caused by heating or</p>	<p>solid liquid gas matter mass volume weight temperature classify properties melt heating cooling structure</p>	<p>-Observe objects and classify by color, texture, hardness, flexibility. Look for patterns. -Use different types of building blocks to construct, disassemble and make a new object. -Show how removing heat can freeze water or</p>	<p>Is It Science? An opening lesson to get students started thinking. https://betterlesson.com/lesson/614283/is-it-science?from=search</p> <p>Mystery Science-2nd grade: 5 lessons under “Material Magic: Properties and Phases of Matter”</p> <p>Brainpop, Jr. videos: “Solids, Liquids, and Gases”, “Changing States of Matter”, and “Physical and Chemical Changes”</p> <p>Generation Genius K-2 videos: “Solids, Liquids and Gases”, “Heating and Cooling”, “Classification of Materials”</p>

<p>can be disassembled and made into a new object. \</p> <p>2-PS1-4 Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.</p> <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>cooling can be reversed while others cannot.</p> <p>I can use the scientific method to solve problems.</p> <p>I can illustrate how the design of an object helps solve a given problem.</p> <p>I can analyze data to compare how two designs work to solve a problem.</p>	<p>chemical reaction</p> <p>water cycle</p> <p>evaporate</p> <p>evaporation</p> <p>condense</p> <p>condensation</p> <p>precipitation</p> <p>transpiration</p> <p>water vapor</p> <p>freeze</p>	<p>adding heat can change it to a gas.</p> <p>-Show how some changes cannot be reversed ex. Cook popcorn, heat up paper, and make goop (cornstarch and water)</p> <p>-build a cloud in a jar; put water in a clear jar and cover with plastic, set in a warm spot and watch as condensation builds up as the water heats up</p> <p>-watch an ice cube melt</p>	<p>Study Jams “Solids, Liquid and Gases”</p> <p>Understanding Materials, Shapes, and Changes https://betterlesson.com/lesson/636571/understanding-materials-shapes-and-changes?from=search</p> <p>NewsELA -link to infographic comparing states of matter https://newsela.com/read/lib-mulimedia-gfx-states-of-matter/id/200002134/?collection_id=2000000553&search_id=4dcc1391-7082-4e0a-b3f0-1e00255d613d</p>
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HOT questions: What is matter? (phenomena) How can I classify objects? (ie: color, hardness, texture, flexibility) How can I determine which objects have the properties that are best suited for an intended purpose? How can I use the same materials to create something new? How can I prove that some changes caused by heating or cooling can be reversed while others cannot?

Evidence of Literacy and Writing in Science: **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. (2-PS1-4) **RI.2.3** Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-PS1-4) **RI.2.8** Describe how reasons support specific points the author makes in a text. (2-PS1-2),(2-PS1-4) **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. (2-PS1-4) **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). (2-PS1-1), (2-PS1-2),(2-PS1-3) **W.2.8** Recall information from experiences or gather information from provided sources to answer a question.

Unit 3: Earth's Systems: Processes that Shape the Earth

Days:	KAS:	Skills/Targets:	Vocabulary:	Strategies/ Activities:	Resources Used for Implementation of Science/Engineering Practices, Core Ideas and Crosscutting Concepts
<p>2nd Nine Weeks</p> <p>Days 41-85</p>	<p>2-ESS1-1 Use information from several sources to provide evidence that Earth events can occur quickly or slowly.</p> <p>2-ESS2-1 Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.*</p> <p>2-ESS2-2 Develop a model to represent the shapes and kinds of land and bodies of water in an area.</p> <p>2-ESS2-3 Obtain information to identify where water is found on Earth and that it can be solid or liquid.</p> <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</p>	<p>I can describe how Earth changes suddenly and over time.</p> <p>I can determine ways to slow or prevent wind and water from changing the shape of the land.</p> <p>I can create a model to show patterns between land and water.</p> <p>I can explain where water is found on Earth in different forms. (ie: solid, liquid)</p> <p>I can use the scientific method to solve problems.</p>	<p>flood drought severe storm volcanic eruption earthquake landslides erosion weathering rainstorms evaluate solution environment compare model map hill creek ocean lake</p>	<p>-build a volcano in class and use vinegar, baking soda, red food coloring and liquid soap to make it “erupt”</p> <p>-nature walk around the school to find places where erosion has happened</p> <p>-find videos to show earthquake, volcano, landslide</p> <p>-brainstorm what materials could be used to</p>	<p>Mystery Science-2nd grade: 4 lessons under “Work of Water: Erosion and Earth’s Surface”</p> <p>Generation Genius K-2 videos: “Oceans, Lake and Rivers”, “Changing the Shape of Land”, “Maps of Landforms”, and “Timescale of Earth’s Events”</p> <p>Brainpop Jr videos: “Landforms”, “Fast Land Changes”, “Slow Land Changes”, “Landforms” “Fossils”</p> <p>Mystery Doug video: Could a mountain turn into a volcano? https://mysterydoug.com/mysterie/s/mountain-volcano#slide-id-7051</p> <p>Mystery Doug video: How do earthquakes happen? https://mysterydoug.com/mysterie/s/earthquakes#slide-id-5912</p>

	<p>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>I can illustrate how the design of an object helps solve a given problem.</p> <p>I can analyze data to compare how two designs work to solve a problem.</p>	<p>river results strength weakness determine compare designed</p>	<p>prevent a landslide</p>	<p>LDC Science Module “Processes that Shape the Earth” - research & writing task https://coretools ldc.org/mods/1f15430b-036c-48bb-9138-e2eed175a727</p> <p>LDC Science Module “What Factors Determine Whether Events that Change the Earth Happen Quickly or Slowly?” - research task https://coretools ldc.org/mods/78fc6f17-6053-467b-9d45-b64fb8b5720a</p> <p>Using food to help assimilate Earth's changes https://betterlesson.com/lesson/635225/not-dinner-plates-global-plates?from=search</p>
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HOT questions: How can water change the shape of the Earth? Explain your thinking. How does Earth change? (Show an unusual landform like Natural Bridge.) What do you think caused it to look the way it does? Was this a rapid or a slow change?

Evidence of Literacy and Writing in Science: **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. (2-ESS1-1) **RI.2.3** Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-ESS1-1), (2-ESS2-1) **RI.2.9** Compare and contrast the most important points presented by two texts on the same topic. (2-ESS2-1) **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. (2-ESS1-1), (2-ESS2-3) **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). (2-ESS1-1) **W.2.8** Recall information from experiences or gather information from provided sources to answer a question. (2-ESS1-1), (2-ESS2-3)

Unit 4: Interdependent Relationships in Ecosystems: Animals

Days:	KAS:	Skills/Targets:	Vocabulary:	Strategies/ Activities:	Resources Used for Implementation of Science/Engineering Practices, Core Ideas and Crosscutting Concepts
<p>3rd Nine Weeks</p> <p>Days 86-128</p>	<p>2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.</p> <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>I can observe and explain what animals need to survive in varying habitats.</p> <p>I can use the scientific method to solve problems.</p> <p>I can illustrate how the design of an object helps solve a given problem.</p> <p>I can analyze data to compare how two designs work to solve a problem.</p>	<p>diversity habitats mammals amphibians reptiles birds insects observe recorded organized needs adapt adaptation hibernate migrate camouflage environment habitat</p>	<p>-research about different habitats (group project) -create habitat shadow boxes -virtual field trip to a zoo</p>	<p>Mystery Science-2nd grade 3 videos under "Animal Adventures: Animal Biodiversity"</p> <p>Generation Genius K-2 videos: "Living and Nonliving Things", "Animals Help their Babies Survive", "Habitats" "Living Things Change Their Environment", "Animals Need Food", "Biodiversity of Life on Earth"</p> <p>Brainpop Jr Videos under these category: Animals and Habitats</p> <p>Mystery Doug video: Why do bears hibernate? https://mysterydoug.com/mysteries/bears#slide-id-7497</p> <p>Mystery Doug video: Why can't fish breathe on land? https://mysterydoug.com/mysteries/fish-breathing</p> <p>Mystery Doug video: Why are butterflies so colorful? https://mysterydoug.com/mysteries/butterflies</p> <p>Mystery Doug video: Why do</p>

					<p>animals come back after going to warmer places in the winter? https://mysterydoug.com/mysteries/a-nimal-migration</p> <p>LDC Science Module “Comparing the Diversity of Life in Different Habitats” - writing task https://coretools ldc.org/mods/1fcd311f-e4c8-4ee5-b623-e3b71514f575</p> <p>LDC Science Module “Developing Descriptive Language” mini-task (can be done with any animal, not just birds) https://coretools ldc.org/minitasks/ba6982c4-bf57-4cc1-bff7-b6a8c487ee4a</p> <p>VR/AR lab to observe different habitats</p> <p>NewsELA article- This article contains links to many different live WebCams to observe animals https://newsela.com/read/watch-live-webcams/id/2001008480/?collection_id=339</p> <p>Monsers of the Deep-visualizing animals in the deepest part of the ocean https://betterlesson.com/lesson/613582/monsters-of-the-deep?from=search</p>
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HOT questions: What do animals need to survive? (Display a photo of a penguin and a typical backyard bird.) How is this penguin similar to this bird? How are they different? Why is the beak of a pelican different from the beak of a hummingbird?

Evidence of Literacy and Writing in Science: 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). (2-LS2-1),(2-LS4-1) W.2.8 Recall information from

experiences or gather information from provided sources to answer a question.

Unit 5: Interdependent Relationships in Ecosystems: Plants

Days:	KAS:	Skills/Targets:	Vocabulary:	Strategies/ Activities:	Resources Used for Implementation of Science/Engineering Practices, Core Ideas and Crosscutting Concepts
<p>4th Nine Weeks</p> <p>Days 129-173</p>	<p>2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow.</p> <p>2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.</p> <p>2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.</p> <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</p>	<p>I can label parts of a plant.</p> <p>I can explain how each part of a plant helps it to survive.</p> <p>I can describe ways that seeds can be dispersed.</p> <p>I can describe ways plants that live in different habitats are similar and/or different.</p> <p>I can use the scientific method to solve problems.</p> <p>I can illustrate how the design of an object helps solve a given problem.</p>	<p>plant seed seedling seed coat root leaf stem flower petal branch nutrients soil structure function disperse germinate pollinate growth development</p>	<p>-Investigate to determine if plants need sunlight and water to grow (testing 1 variable at a time)</p> <p>plant seeds in class and watch process</p> <p>-use Cheese Puffs to show how pollination works (students touch the Cheese Puffs to get pollen on their fingers and then touch a</p>	<p>Mystery Science-2nd grade 5 videos under "Plant Adventures: Plant Adaptations"</p> <p>Generation Genius K-2 videos: "Inspired by Nature (Biomimicry)", "Pollination and Seed Dispersal", "Plant Growth Conditions", "Plants Need Water and Light", "Parts of a Plant"</p> <p>Brainpopjr Videos under these category: Plants</p> <p>Mystery Doug video: How do flowers bloom in the Spring? https://mysterydoug.com/mysteries/spring-flowers#slide-id-8722</p> <p>KY Dept of Agriculture - Ag Truck program about soybeans</p> <p>Sunflower Seeds Germination and Growth Time Lapse - YouTube</p> <p>Watermelon Plant Time Lapse - YouTube</p>

	<p>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>I can analyze data to compare how two designs work to solve a problem.</p>		<p>white flower on paper so see how the pollen gets shared)</p>	<p>How Does A Seed Become A Plant? - YouTube</p> <p>LDC Science Module “Drawing a Leaf- Elementary” - observation task https://coretools ldc.org/minitasks/fd8214f5-9d81-49f3-906d-3b8b6c25bd10</p> <p>LDC Science Module “How does a Plant’s Habitat Support Its Needs?” https://coretools ldc.org/mods/d0b1d704-37e5-4d0a-9519-714ad673bd5e</p> <p>LDC Science Module “Scientific Plant Poster” - active note taking practice https://coretools ldc.org/mods/ff9f7211-d29a-4085-93d7-3414aa9bedeb</p> <p>Plant Survival https://betterlesson.com/lesson/626914/survival-of-a-plant?from=search</p>
<p>HOT questions: What do plants need to survive? How do animals and plants depend on each other? How are living things in various habitats the same and different? How does a plant’s habitat affect its growth and development?</p>					
<p>Evidence of Literacy and Writing in Science: 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). (2-LS2-1),(2-LS4-1) W.2.8 Recall information from experiences or gather information from provided sources to answer a question.</p>					

Required Through Course Tasks (Provide the link for each task you administered): None for K-2