

SCIENCE CURRICULUM GUIDE

SECOND GRADE

Office of Quality Assurance and Curriculum Support
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OKALOOSA COUNTY SCHOOL DISTRICT
Curriculum Guide for Science

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Mission Statement

Develop the highest quality science instruction and maximize student achievement by aligning grade-level benchmarks to appropriate instructional practices, materials, resources, and pacing.

Suggestions for Implementing Curriculum Guides

The role of the teacher is to:

- ✓ Teach students the Next Generation Standards as dictated by state law for their grade level.
- ✓ Provide learning-rich classroom activities that teach the benchmarks in depth.
- ✓ Enhance the curriculum by using resources and instructional technology.
- ✓ Differentiate instruction by varying methods of instruction and frequently offering relevant lab activities.
- ✓ Regularly administer assessment to include higher-level questions and performance task assessment.

In addition, teachers should:

- ✓ Collaborate with other grade-level teachers to maximize school resources and teacher expertise.
- ✓ Consult with other grade levels to define absolute skill goals for each grade level.
- ✓ Document questions and suggestions for improvement of the Curriculum Guide.
- ✓ Integrate science into math and reading curriculum.
- ✓ Consider applying for a grant to support project-based learning for their school.
- ✓ Visit the Okaloosa Science Central Website at: <http://www.okaloosa.k12.fl.us/science>

Days allotted to each benchmark are approximate and have been suggested based on the level of the complexity of the benchmark. To insure benchmarks are taught to mastery and completed by the conclusion of the school year, it is recommended that teachers not veer significantly from the suggested pacing.

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Florida Department of Education ∞ Office of Math and Science Essential Website

Next Generation Sunshine State Standards:

<http://www.floridastandards.org/homepage/index.aspx>

OCSD Curriculum and Pacing Guide ∞ Overview

This document provides a science curriculum and pacing guide. It is designed to help teachers to efficiently pace the delivery of quality instruction for each nine-week period.

Purpose: This guide was created by a team of grade-level teachers to correlate to the Next Generation Standards with the goal of providing teachers ready access to resources for teaching those new standards and a pace for accomplishing benchmark mastery.

Description: The OCSD Science Curriculum Guide specifies the science content to be covered within each nine-week instructional period. Their guide identifies Next Generation Standards (NGS) Benchmarks. Furthermore, it allows teachers to input information specific to their students or school needs.

➤ **Top Block – Big Idea and Essential Questions**

Identifies the Big Idea and the components of the Big Idea. Lists the Essential Questions addressed in the sections Benchmarks.

➤ **Column One – Benchmark/Text Alignment**

Lists the specific Benchmark by number and states the Benchmark. Cites the Houghton Mifflin Harcourt Florida Science Fusion textbook pages that correlate to the Benchmark.

➤ **Column Two – FCAT Info**

Serves as a placeholder for future FCAT information; to include content limits, complexity, assessment status, and crosswalk correlation.

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➤ **Column Three – Additional Resources/Activities**

Suggests instructional activities, including media (DVD/Video/CD), websites, and student involvement tasks.

➤ **Column Four – Literacy Connection/Vocabulary/Reading**

Lists specific literary resources, vocabulary words, and other books or stories connected to the Benchmark goals.

➤ **Column Five – Open: Specific to Teacher/Grade/Subject/School**

Serves as a placeholder for teachers to add information that is specific to their school's or student's needs.

Of note:

- Benchmarks drive instructional decisions; the text is a resource
- Results of assessment are used to adjust and revise instruction
- Hands-on science labs are an essential component of the science curriculum
- The inquiry process must be embedded within every big/supporting idea

NOTE:

Addendums to this curriculum guide, as well as additional information/forms (i.e. elementary lab templates) will be posted at <http://www.okaloosaschools.com/OkaloosaSchools/SchoolDistrict/CurriculumInstruction/CurriculumGuides/tabid/378/Default.aspx>.

Cognitive Complexity/Depth of Knowledge Rating for Science

Florida's revised science standards emphasize teaching and learning the most important K-12 science concepts in depth at each grade level. After adoption of the new science standards, the Florida Center for Research in Science, Technology, Engineering and Mathematics (FCR-STEM) at Florida State University convened a group of Florida science teachers, district math supervisors, and science education faculty, and scientists to rate the cognitive demand of each benchmark. Meeting in teams for each body of knowledge, they reviewed and discussed each benchmark, then reached consensus on level of cognitive complexity using a classification system adapted from the "depth of knowledge" system developed by Dr. Norman Webb at the University of Wisconsin.

Cognitive complexity refers to the cognitive demand of tasks associated with the benchmark. The depth of knowledge levels (Webb, 1999) reflect the relative complexity of thinking that a given benchmark demands of students — what it requires the student to recall, understand, analyze, and do. Florida's depth of knowledge rating system focuses on expectations of students at three levels:

Low Complexity

Science low complexity items rely heavily on the recall and recognition of previously learned concepts and principles. Items typically specify what the student is to do, which is often to carry out a procedure that can be performed mechanically. It is not left to the student to come up with an original method or solution. Skills required to respond correctly to a low complexity item might include the following.

- Identify a common example or recognize a concept
- Retrieve information from a chart, table, diagram, or graph
- Recognize a standard scientific representation of a simple phenomenon
- Calculate or complete a familiar single-step procedure or equation using a reference sheet

Moderate Complexity

Items in the moderate complexity category involve more flexible thinking and choice among alternatives than low complexity items. They require a response that goes beyond the habitual, is not specified, and ordinarily has more than a single step or thought process. The student is expected to decide what to do – using informal methods of reasoning and problem solving strategies – and to bring together skill and knowledge from various domains. Skills required to respond correctly to moderate complexity items might include the following.

- Apply or infer relationships among facts, terms, properties, or variables
- Describe examples and non examples of scientific processes or concepts
- Predict or determine the logical next step or outcome
- Compare or contrast structures or functions of different organisms or systems
- Choose the appropriate formula or equation to solve a problem and then solve it
- Apply and use concepts from a standard scientific model or theory

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High Complexity

High complexity items make heavy demands on student thinking. Students must engage in more abstract reasoning, planning, analysis, judgment, and creative thought. The items require that the student think in an abstract and sophisticated way often involving multiple steps. Skills required to respond to high complexity items might include the following.

- Construct models for research
- Generalize or draw conclusions
- Design an experiment, given data and condition
- Explain or solve a problem in more than one way
- Provide a justification for steps in a solution or process
- Analyze an experiment to identify a flaw and propose a method for correcting it
- Interpret, explain, or solve a problem involving complex spatial relationships
- Predict a long term effect, outcome, or result of a change within a system

Webb, N.L., 1999, Alignment Between Standards and Assessment, University of Wisconsin Center for Educational Research.

Source: Cognitive Complexity Classification of FCAT SSS Test Items, July, 2006 and revised January, 2008; Florida Department of Education.

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2nd Grade Science Standards

Big Idea 1 – The Practice of Science

Big Idea 6 – Earth Structures

Big Idea 7 – Earth Systems and Patterns

Big Idea 8 – Properties of Matter

Big Idea 9 – Changes in Matter

Big Idea 10 – Forms of Energy

Big Idea 13 – Forces and Changes in Motion

Big Idea 14 – Organization and Development of Living Organisms

Big Idea 16 – Heredity and Reproduction

Big Idea 17 – Interdependence.

The numbering for the big ideas is consistent throughout the document. Not all big ideas are addressed at each grade level, so the numbering scheme is not consecutive for each grade level.

Benchmark Coding Scheme

SC.	5.	N.	1.	1
Subject	Grade Level	Body of Knowledge	Big Idea	Benchmark

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Quarterly Benchmarks

Quarter 1		Quarter 2	
SC.2.N.1.5 Moderate 5 days	Distinguish between empirical observation (what you see, hear, feel, smell, or taste) and ideas or inferences (what you think) Unit 1	Pacing 5-10 days for SC.2.P.1.1-5	Observe and measure objects in terms of their properties, including size, shape color, temperature, weights, texture, sinking or floating in water, and attraction and repulsion of magnets. Unit 4
		SC.2.P.8.1 Low	
SC.2.N.1.6 Moderate 5 days	Explain how scientists alone or in groups are always investigating new ways to solve problems. Unit 1	SC.2.P.8.2 Low	Identify objects and materials as solid, liquid, or gas. Unit 4
SC.2.E.6.1 Moderate 5 days	Recognize that Earth is made up of rocks. Rocks come in many sizes and shapes. Unit 2	SC.2.P.8.3 Low	Recognize that solids have a definite shape and that liquids and gases take the shape of their container. Unit 4
SC.2.E.6.2 High 5 days	Describe how small pieces of rock and dead plant and animal parts can be the basis of soil and explain the process by which soil is formed. Unit 2	SC.2.P.8.4 Low	Observe and describe water in its solid, liquid, and gaseous states. Unit 4
SC.2.E.6.3 High 10 days	Classify soil types based on color, texture, size of particles, the ability to retain water, and the ability to support the growth of plants. Unit 2	SC.2.P.8.5 Moderate	Measure and compare temperatures taken every day at the same time. Unit 4
SC.2.E.7.1 Moderate 10 days	Compare and describe changing patterns in nature that repeat themselves, such as weather conditions including temperature and precipitation, day to day and season to season. Unit 3	SC.2.P.8.6 Moderate 5 days	Measure and compare the volume of liquids using containers of various shapes and sizes. Unit 4
SC.2.E.7.2 Moderate 5 days	Investigate by observing and measuring that the Sun's energy directly and indirectly warms the water, land, and air. Unit 3	SC.2.P.9.1 High 10 days	Investigate that materials can be altered to change some of their properties, but not all materials respond the same way to any one alteration. Unit 5
SC.2.E.7.3 High 5 days	Investigate, observe and describe how water left in an open container disappears (evaporates), but water in a closed container does not disappear (evaporate). Unit 3		
SC.2.E.7.4 High 5 days	Investigate that air is all around us and that moving air is wind. Unit 3		
SC.2.E.7.5 Low 5 days	State the importance of preparing for severe weather, lightning, and other weather related events. Unit 3		

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Quarter 3		Quarter 4	
SC.2.P.13.1 High	Investigate the effect of applying various pushes and pulls on different objects. Unit 7	SC.2.L.14.1 Moderate 15 days	Distinguish human body parts (brain, heart, lungs, stomach, muscles, and skeleton) and their basic functions. Unit 8
SC.2.P.13.2 Low	Demonstrate that magnets can be used to make some things move without touching them. Unit 7	SC.2.L.16.1 Moderate 10 days	Observe and describe major stages in the life cycles of plants and animals, including beans and butterflies. Unit 9
SC.2.P.13.3 Low	Recognize that objects are pulled toward the ground unless something holds them up. Unit 7	SC.2.L.17.1 Moderate 10 days	Compare and contrast the basic needs that all living things, including humans, have for survival. Unit 10
SC.2.P.13.4 Moderate 15 days	Demonstrate that the greater force (push or pull) applied to an object, the greater the change in motion of the object. Unit 7	SC.2.L.17.2 Moderate 10 days	Recognize and explain that living things are found all over Earth, but each is only able to live in habitats that meet its basic needs. Unit 10
SC.2.P.10.1 Low 5 days	Discuss that people use electricity or other forms of energy to cook their food, cool or warm their homes, and power their cars. Unit 6	HE.2.C.1.6 Moderate 15 days	Recognize the locations and functions of major human organs.

Yearlong Benchmarks

Benchmark	Description
CCSS	Common Core State Standards for English, Language Arts & Literacy in History/Social Studies, Science and Technical Subjects.
LACC.2.RI.1.3	Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.
LACC.2.RI.2.4	Determine the meaning of words and phrases in a text relevant to a grade 2 topics or subject area.
LACC.2.RI.4.10	By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 2–3 text complexity band independently and proficiently with scaffolding as needed at the high end of the range.
LACC.2.W.3.7	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).
LACC.2.W.3.8	Recall information from experiences or gather information from provided sources to answer a question.
LACC.2.SL.1.1	Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups. <ul style="list-style-type: none"> a. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion). b. Build on others' talk in conversations by linking their comments to the remarks of others. c. Ask for clarification and further explanation as needed about the topics and texts under discussion.
MACC.2.MD.4.9	Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.
MACC.2.MD.4.10	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.

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HE.2.B.3.2	Name healthy options to health-related issues and problems.
SC.2.N.1.1 Moderate	Raise questions about the natural world, investigate them in teams through free exploration and systematic observations, and generate appropriate explanations based on those explorations.
SC.2.N.1.2 Moderate	Compare the observations made by different groups using the same tools.
SC.2.N.1.3 High	Ask “how do you know” in appropriate situations and attempt reasonable answers when asked the same question by others.
SC.2.N.1.4 High	Explain how particular scientific investigations should yield similar conclusions when repeated.

SUGGESTED Science Assessment to match report card categories

Practice 10%	Progress Monitoring 50%	Summative 40%
Benchmark Review from Student Book	Unit Benchmark Test (Assessment Guide)	Performance Assessment (Assessment Guide)
Journal Entries	Classroom Experiments	Quarterly Assessments (via email from Shawnea Tallman to school science contract)
Student Workbook	Combined Lesson Quizzes (with teacher supplemented questions)	1 Project with Rubric each 9 weeks
Station Work		

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Reading Standards for Informational Text K–5

Grade 2 Students	
Key Ideas and Details	1. Ask and answer such questions as <i>who</i> , <i>what</i> , <i>where</i> , <i>when</i> , <i>why</i> , and <i>how</i> to demonstrate understanding of key details in a text.
	2. Identify the main topic of a multiparagraph text as well as the focus of specific paragraphs within the text.
	3. Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.
Craft and Structure	4. Determine the meaning of words and phrases in a text relevant to a grade 2 topics or subject area.
	5. Know and use various text features (e.g. captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently.
	6. Identify the main purpose of a text , including what the author wants to answer, explain or describe.
Integration of Knowledge and Ideas	7. Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify a text.
	8. Describe how reasons support specific points the author make in a text.
	9. Compare and contrast the most important points and key details presented in two texts on the same topic.
Range of Reading and Level of Text Complexity	10. By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 2–3 text complexity band independently and proficiently with scaffolding as needed at the high end of the range.

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Grade-level Curriculum Guide

Year-long Benchmarks

Health Education Standards				
Suggested Resources for all Health Topics: Resources for all Health Topics:				
<ul style="list-style-type: none"> www.okaloosaschools.com (Click on teachers; Science related websites are available under “Instructional Technology Links” as well as “Useful Links” further down on the page.) http://kidshealth.org/kid/ 				
Benchmark Text Alignment	FCAT info: Content limits, Item specs, other assessments	Additional Resources/Activities	Lit. Connection Vocabulary Reading	Open: Specific to Teacher, grade, subject, school
HE.2.B.3.2 Name healthy options to health-related issues or problems.	Refer to suggested Science Assessments listed in this guide.	Teacher or school nurse introduces and models proper hand washing technique, avoiding the spreading of germs (sneezing, coughing), etc. Students role-play and demonstrate comprehension of concepts related to health promotion and disease prevention to enhance health. Media Center: Books to introduce vocabulary and proper behaviors that affect personal health. Online resource: iptv.org/kidspbs.org/teachers/health fitness	Vocabulary: germs sneezing coughing sanitize Literature Connections: • <u>Germs Make Me Sick</u> by Melvin Berger • <u>Magic School Bus: Inside Ralphie (A Book About Germs)</u> by Joanna Cole	
		Introduce vocabulary and topics: nutrition, exercise, prevention measures, healthy lifestyle. Explain and help students acquire the knowledge of proper nutrition, exercise, and disease prevention. Students’ demonstrate knowledge of multiple dimensions of health through writing and illustrations. Media Center: Books to introduce nutrition, exercise, prevention measures, and healthy lifestyles.	Vocabulary: nutrition exercise prevent Literature Connections: <u>Good Enough to Eat: A Kid’s Guide to Food and Nutrition</u> by Lizzy Rockwell	

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		<p>Review and continue to monitor students' demonstration of proper hand washing technique, avoiding the spreading of germs (sneezing, coughing, blood, body fluids, sanitary procedures, etc.)</p> <p>Students brainstorm to identify a list of common childhood injuries that can be prevented by practicing safety precautions such as wearing a helmet, swimming with buddies, etc. Students participate in whole group or small group discussions. Make posters to demonstrate knowledge of prevention of childhood injuries.</p> <p>Media Center: Books to introduce use of helmets, swimming with a buddy, first aid, etc.</p>	<p>Vocabulary: helmets</p> <p>Literature Connections:</p> <ul style="list-style-type: none"> • <u>Watch Out Near Water</u> by Claire Llewellyn • <u>I Can Be Safe: A First Look at Safety</u> by Pat Thomas 	
		<p>Write a letter to a peer or to a family member to demonstrate the ability to explain how to make positive health choices.</p> <p>Group discussions about positive health choices demonstrating the ability to make a list of positive health choices.</p> <p>Suggestion: Share skills learned at school with peers at school and with family members at home.</p> <p>Media Center: Books to introduce vocabulary and promote positive health choices.</p>	<p><u>Gregory the Terrible Eater</u> by Mitchell Sharmat</p>	

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		<p>Group discussions that demonstrate students' knowledge of how to identify trusted adults at school and at home.</p> <p>Invite health care professionals to speak to students. (Nurse, physical education teacher, guidance counselor, doctors, dentists, health department representatives.)</p> <p>Media Center: Books to introduce health care professionals and community helpers.</p>	<p>Vocabulary: hospital doctor dentist</p> <p><u>Officer Buckle and Gloria</u> in Macmillan/ McGraw-Hill Reading series</p>	
		<p>Demonstrate the ability to compare healthy practices and behaviors using a graphic organizer.</p> <p>Write about and draw pictures depicting the cause and effect of healthy practices that improve personal health. Examples: exercise, nutrition, sanitary practices</p> <p>Use songs and games to promote personal health.</p> <p>Media Center: Books to introduce vocabulary and health practices that maintain or improve personal health.</p>	<p>Vocabulary: exercise nutrition drugs alcohol medicine</p> <ul style="list-style-type: none"> • <u>My Hands</u> by Aliki • <u>Germs Are Not for Sharing</u> by Elizabeth Verdick • <u>Wash Your Hands!</u> By Tony Ross • <u>Tai Chi for Kids: Move with the Animals</u> by Stuart Alve Olson • <u>The Berenstain Bears and Too Much T.V.</u> by Stan Beresain • <u>Magic School Bus: Inside the Human Body</u> by Joanna Cole and Bruce Degen 	<p>Brain Pop Jr.: Be Well; Washing Hands, Be Well, and Nutrition Video, Word Wall, Quiz</p>

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Big Idea 1: The Practice of Science

- A. Scientific inquiry is a multifaceted activity. The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.
- B. The processes of science frequently do not correspond to the traditional portrayal of the scientific method.
- C. Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.
- D. Scientific knowledge is based on observation and inference. It is important to recognize that these are very different things. Not only does science require creativity in its methods and processes but also in its questions and explanations.

Essential Questions:

- What is the process of exploring the natural world? (1.1)
- How can scientists use observations to investigate questions in teams to come to a conclusion? (1.1)
- How can observations be explained based on exploration? (1.1)
- How are the observations of different groups who use the same tools similar? (1.2)
- How do you know if you have attempted to provide reasonable answers when asked the same question by others? (1.3)
- Why should scientists repeat investigations? (1.4)

Benchmark Text Alignment	FCAT info: Content limits, Item specs, other assessments	Additional Resources/Activities	Lit. Connection Vocabulary Reading	Open: Specific to Teacher, grade, subject, school
<p>SC.2.N.1.1 Raise questions about the natural world, investigate them in teams through free exploration and systematic observations, and generate appropriate explanations based on those explorations.</p>	<p>Refer to suggested Science Assessments listed in this guide.</p> <p>Moderate Complexity</p>	<p>Conduct scientific inquiries in teams throughout year raising questions about the natural world. Collect and organize data, evaluate the meaning of data, and communicate evaluations in whole and small group discussions prior to and following experiments throughout year. Students write in science journals about all science topics and investigations throughout year.</p> <p>Brain Pop Jr. (Scientific Method: Video) Making Observations: Video, Word Wall, Quiz</p> <p>Twirling Teacher Experiment located in Science Experiments with Children</p>	<p><u>Amelia Bedelia, Rocket Scientist</u> by Herman Parish <u>Aesop's The Crow and the Pitcher</u> By Stephanie Gwyn Brown <u>Snowflake Bentley</u> by Jacqueline Briggs Martin</p>	
<p>SC.2.N.1.2 Compare the observations made by different groups using the same tools.</p>	<p>Moderate Complexity</p>	<p>Compare similarities and differences among groups using the same tools. Students write in science journals about group comparisons throughout year.</p>		

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SC.2.N.1.3 Ask "how do you know" in appropriate situations and attempt reasonable answers when asked the same question by others.	High Complexity	Formulate "how to do you know" questions throughout year. Record answers to how do you know questions in science journals throughout year.		
SC.2.N.1.4 Explain how particular scientific investigations should yield similar conclusions when repeated.	High Complexity	Repeat scientific investigations and discuss similar conclusions. Analyze and record results of scientific inquiries in Science journals throughout year.		

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Quarter 1

Big Idea 1: The Practice of Science

- A. Scientific inquiry is a multifaceted activity. The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.
- B. The processes of science frequently do not correspond to the traditional portrayal of the scientific method.
- C. Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.
- D. Scientific knowledge is based on observation and inference. It is important to recognize that these are very different things. Not only does science require creativity in its methods and processes but also in its questions and explanations.

Essential Questions:

- What is the difference between empirical observations (evidence or consequences that are observable by the senses) and inferential observations? (1.5)
- How do scientists solve problems in groups or when they are working alone? (1.6)

Benchmark Text Alignment	FCAT info: Content limits, Item specs, other assessments	Additional Resources/Activities	Lit. Connection Vocabulary Reading	Open: Specific to Teacher, grade, subject, school
SC.2.N.1.5 Distinguish between empirical observation (what you see, hear, feel, smell, or taste) and ideas or inferences (what you think).	Refer to suggested Science Assessments listed in this guide. Moderate Complexity	Students write about investigations in science journals distinguishing between empirical and inferential investigations throughout year. Curriculum Standards search at Discovery Education www.discoveryeducation.com Inquiry Flipchart that corresponds with the unit	Unit 1 Vocabulary inquiry skills Science tools thermometer investigate hypothesis draw conclusions communicate	Unit 1 introduces vocabulary and concepts that will be utilized throughout the year with mastery of concepts expected by the end-of-year.
SC.2.N.1.6 Explain how scientists alone or in groups are always investigating new ways to solve problems. Textbook: Unit 1	Moderate Complexity	Compare results from scientific investigations involving problem solving. Students write in science journals about group and independent scientific inquiries throughout year. On-line resource: http://www.easy-kids-science-experiments.com/science-experiments-elementary.html Professional Development: Mixing It Up: Integrated, Interdisciplinary, Intriguing Science in the Elementary Classroom Edited by: Susan Koba		

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Big Idea 6: Earth Structures

Humans continue to explore the composition and structure of the surface of Earth. External sources of energy have continuously altered the features of Earth by means of both constructive and destructive forces. All life, including human civilization, is dependent on Earth's water and natural resources.

Essential Questions:

- What materials make up the Earth and how do they vary? (6.1)
- What is the basis of soil? (6.2)
- How is soil formed? (6.2)
- How can soil be classified? (6.3)

Benchmark Text Alignment	FCAT info: Content limits, Item specs, other assessments	Additional Resources/Activities	Lit. Connection Vocabulary Reading	Open: Specific to Teacher, grade, subject, school
<p>SC.2.E.6.1 Recognize that Earth is made up of rocks. Rocks come in many sizes and shapes.</p> <p>Textbook: Unit 2</p>	<p>Refer to suggested Science Assessments listed in this guide.</p> <p>Moderate Complexity</p>	<p>Introduce vocabulary using graphic organizers and text visuals. Access and build background knowledge providing hands-on experiences. Demonstrate knowledge of Earth's composition through group discussions. Record acquired knowledge in science journals.</p> <p>National Science Teachers Association More Perfect Science Lessons K-4: If You Find a Rock p. 157</p>	<p>Vocabulary: rock weathering soil humus clay sand</p> <p>Unit 2 Leveled Readers</p>	
<p>SC.2.E.6.2 Describe how small pieces of rock and dead plant and animal parts can be the basis of soil and explain the process by which soil is formed.</p> <p>Textbook: Unit 2</p>	<p>High Complexity</p>	<p>Observations of soil and rocks during whole and small group investigations. Write descriptions about soil and explain process by which soil is formed in science journals.</p> <p>AIMS activities:</p> <ul style="list-style-type: none"> • <u>Primarily Earth</u>; Soil and its Contents • <u>Primarily Earth</u>; How we can sort and group rocks? <p>Conduct experiments to classify soil types. Write observations about experiment in science journals.</p> <p>Curriculum Standards search at Discovery Education www.discoveryeducation.com</p> <p>Inquiry Flipchart that corresponds with the unit</p>	<p>Literature Connections:</p> <ul style="list-style-type: none"> • <u>If You Find a Rock</u> by Peggy Christian • <u>Rocks: Hard, Soft, Smooth and Rough</u> by Natalie M. Rosinky • <u>Let's Go Rock Collecting Let's Read and Find Out Science</u> • <u>Life in a Bucket of Soil</u> by Alvin Silverstein • <u>Sylvester and the Magic Pebble</u> by William Stieg • <u>Magic School Bus Inside the Earth</u> by Joanna Cole <p>Unit 2 Leveled Readers</p>	

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<p>SC.2.E.6.3 Classify soil types based on color, texture, size of particles, the ability to retain water, and the ability to support the growth of plants.</p> <p>Textbook: Unit 2</p>	<p>High Complexity</p>	<p>Group discussions of similarities and differences classifying soil types using color, texture, size of particles, the ability to retain water, and the ability to support the growth of plants. Write about soil classifications in science journals.</p> <p>Extension activity: Examine soil samples from schoolyard, home yards or gardens.</p> <p><u>AIMS: Primarily Plants</u> Activity and Lesson Book Professional Development:</p> <ul style="list-style-type: none"> • http://kids.nationalgeographic.com/ (search “earth structures” and “rocks”) • http://www.bbc.co.uk/schools/ks2bitesize/science/ 	<ul style="list-style-type: none"> • <u>Magic School Bus Meets the Rot Squad</u> by Joanna Cole • <u>Everybody Needs a Rock</u> by Byrd Baylor • <u>A Log’s Life</u> by Wendy Pfeffer <p><u>How to Dig a Hole to the Other Side of the Earth</u> by Faith McNulty</p> <p>Unit 2 Leveled Readers</p>	
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Big Idea 7: Earth Systems and Patterns

Humans continue to explore the interactions among water, air, and land. Air and water are in constant motion that results in changing conditions that can be observed over time.

Essential Questions:

- How does the sun impact planet Earth?
- How do you investigate, observe and describe the evaporation of water?

Benchmark Text Alignment	FCAT info: Content limits, Item specs, other assessments	Additional Resources/Activities	Lit. Connection Vocabulary Reading	Open: Specific to Teacher, grade, subject, school
<p>SC.2.E.7.1 Compare and describe changing patterns in nature that repeat themselves, such as weather conditions including temperature and precipitation, day to day and season to season.</p> <p>SC.2.E.7.2 Investigate by observing and measuring that the Sun's energy directly and indirectly warms the water, land, and air.</p> <p>Textbook: Unit 3</p>	<p>Refer to suggested Science Assessments listed in this guide.</p> <p>Moderate Complexity</p> <p>High Complexity</p>	<p>Introduce vocabulary using graphic organizers and text visuals. Access and build topic background knowledge providing hands-on experiences. Demonstrate knowledge of impact of Sun's energy on Earth through group discussions and observations. Conduct experiments to investigate the sun's energy. Record observations and measurements in science journals.</p> <p>AIMS activity: <u>Primarily Earth</u> book: Air Temperature page 142</p> <p>Other Suggested Resources: Brain Pop Weather: Seasons Video, Word Wall, Quiz Crownweather.com Brain Pop Space-The Sun Video, Word Wall, Quiz Curriculum Standards search at Discovery Education www.discoveryeducation.com</p> <p>Inquiry Flipchart that corresponds with the unit</p>	<p>Vocabulary: weather precipitation temperature water cycle evaporate condense lightning tornado hurricane thunderstorm seasons</p> <p>Literature Connections:</p> <ul style="list-style-type: none"> • <u>Cloudy with a Chance of Meatballs</u> by Judi Barrett • <u>Thunder Cake</u> by Patricia Polacco • <u>Magic School Bus at the Water Works</u> by Joanna Cole • <u>Magic School Bus Kicks Up a Storm</u> by Joanna Cole • <u>Where Do Puddles Go?</u> by Fay Robinson • <u>Bringing the Rain to Kapiti Plain</u> by Verna Aardema <p>The Sun: Our Nearest Star by Franklyn M. Branley</p>	

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<p>SC.2.E.7.3 Investigate, observe and describe how water left in an open container disappears (evaporates), but water in a closed container does not disappear (evaporate)</p> <p>SC.2.E.7.4 Investigate that air is all around us and that moving air is wind.</p> <p>Textbook: Unit 3</p> <p>SC.2.E.7.5 State the importance of preparing for severe weather, lightning, and other weather related events.</p> <p>Textbook: Unit 3</p>	<p>High Complexity</p> <p>High Complexity</p> <p>Low Complexity</p>	<p>Conduct experiment to observe how water left in an open container evaporates or water in a closed container does not evaporate. Record description of observations in science journals.</p> <p>AIMS activity: Primarily Earth Book: p. 105 Covered and Uncovered <u>AIMS: Primarily Weather Activity Book</u></p> <p>On-line Resources:</p> <ul style="list-style-type: none"> • http://www.nhc.noaa.gov/HAW2/english/disaster_prevention.shtml • http://www.oar.noaa.gov/k12/html/forecasting2.html <p>Professional Development:</p> <ul style="list-style-type: none"> • http://www.internet4classrooms.com/science_elem_weather.htm • <u>Air, Water, and Weather: Stop Faking It! Finally Understanding Science So You Can Teach It</u> by William C. Robertson, Ph.D. <p>www.weatherwizkids.com</p>	<p><u>Snowflake Bentley</u> by Jacqueline Briggs Martin</p> <p>Unit 3 Leveled Books</p>	
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Quarter 2

Big Idea 8: Properties of Matter

- A. All objects and substances in the world are made of matter. Matter has two fundamental properties: matter takes up space and matter has mass.
- B. Objects and substances can be classified by their physical and chemical properties. Mass is the amount of matter (or "stuff") in an object. Weight, on the other hand, is the measure of force of attraction (gravitational force) between an object and Earth.
- C. The concepts of mass and weight are complicated and potentially confusing to elementary students. Hence, the more familiar term of "weight" is recommended for use to stand for both mass and weight in grades K-5. By grades 6-8, students are expected to understand the distinction between mass and weight, and use them appropriately.

Essential Questions:

- What are the states of matter? (8.2)
- How can you recognize a liquid or gas and conclude that it will take the shape of its container? (8.3)
- How can you recognize a solid? (8.3)
- How can you describe water in its various states? (8.4)
- How can you measure the volume of liquids? (8.6)

Benchmark Text Alignment	FCAT info: Content limits, Item specs, other assessments	Additional Resources/Activities	Lit. Connection Vocabulary Reading	Open: Specific to Teacher, grade, subject, school
<p>SC.2.P.8.1 Observe and measure objects in terms of their properties, including size, shape color, temperature, weights, texture, sinking or floating in water, and attraction and repulsion of magnets.</p> <p>Textbook: Unit 4</p>	<p>Refer to suggested Science Assessments listed in this guide.</p> <p>Low Complexity</p>	<p>On-line resource:</p> <ul style="list-style-type: none"> • Magic of Matter http://www.ripley.k12.oh.us/lindnert/MatterWebquest/matter.html#Introduction • Classify Matter http://www.dmturmer.org/Teacher/Library/5thText/ChemPart2.htm <p>Brain Pop Videos Matter</p> <p>Changes in Matter</p> <p>Solids Liquids and Gases</p>	<p>Vocabulary:</p> <p>matter mass property solid liquid gas texture measure weight water vapor</p>	
<p>SC.2.P.8.2 Identify objects and materials as solid, liquid, or gas.</p> <p>Textbook: Unit 4</p>	<p>Low Complexity</p>	<p>Introduce vocabulary using graphic organizers and text visuals.</p> <p>Access and build topic background knowledge providing hands-on experiences.</p> <p>Group classroom items according to physical characteristics.</p> <p>Classify and identify objects as solid, liquid or gas in science journals.</p>	<p>Literature Connections: <i>What Happened?</i> By Rozanne Lanczak Williams</p>	

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<p>SC.2.P.8.3 Recognize that solids have a definite shape and that liquids and gases take the shape of their container.</p> <p>Textbook: Unit 4</p>	<p>Low Complexity</p>	<p>Curriculum Standards search at Discovery Education www.discoveryeducation.com</p> <p>Inquiry Flipchart that corresponds with the unit</p>	<p>Literature Connections:</p> <ul style="list-style-type: none"> • <u>Solids, Liquids, Gases</u> by Charnan Simon • <u>What is Mass</u> by Don L. Curry • <u>Freezing and Melting</u> by Robin Nelson • <u>Change It!: Solids, Liquids, Gases and You</u> by Adrienne Msson • <u>The Sun</u> by Seymour Simon • <u>Air is All Around You</u> by Franklyn M. Branley • <u>What is the World Made Of?</u> By Kathleen Weidner Zoehfeld 	
<p>SC.2.P.8.4 Observe and describe water in its solid, liquid, and gaseous states.</p> <p>Textbook: Unit 4</p>	<p>Low Complexity</p>		<p>Literature Connections:</p> <ul style="list-style-type: none"> • <u>Solid, Liquid or Gas</u> by Fay Robinson • <u>What is the World Made of: All About Solids, Liquids and Gases</u> by Kathleen Weidner Zoehfeld <p>Unit 4 Leveled Readers</p>	
<p>SC.2.P.8.5 Measure and compare temperatures taken every day at the same time.</p> <p>Textbook: Unit 4</p>	<p>Moderate Complexity</p>	<p>On-line resource: http://magma.nationalgeographic.com/ngexplorer/0501/articles/mainarticle.htm</p>		
<p>SC.2.P.8.6 Measure and compare the volume of liquids using containers of various shapes and sizes.</p> <p>Textbook: Unit 4</p>	<p>Moderate Complexity</p>	<p>Professional Development: http://www.canteach.ca/elementary/physical.html</p>		

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Big Idea 9: Changes in Matter

- A. Matter can undergo a variety of changes.
- B. Matter can be changed physically or chemically.

Essential Question:

How are different materials affected by various alterations? (9.1)

Benchmark Text Alignment	FCAT info: Content limits, Item specs, other assessments	Additional Resources/Activities	Lit. Connection Vocabulary Reading	Open: Specific to Teacher, grade, subject, school
<p>SC.2.P.9.1 Investigate that materials can be altered to change some of their properties, but not all materials respond the same way to any one alteration.</p> <p>Textbook: Unit 5</p>	<p>Refer to suggested Science Assessments listed in this guide.</p> <p>High Complexity</p>	<p>AIMS activity: #21 and #24 Primarily Physics; Water Precious Water</p> <p>Curriculum Standards search at Discovery Education www.discoveryeducation.com</p>	<p>Vocabulary</p> <p>Literature Connections: Nitrogen by Salvatore Tocci</p> <p>Unit 4 Leveled Readers</p>	

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Quarter 3

Big Idea 10: Forms of Energy

- A. Energy is involved in all physical processes and is a unifying concept in many areas of science.
- B. Energy exists in many forms and has the ability to do work or cause a change.

Essential Question:

How do people use electricity?

Benchmark Text Alignment	FCAT info: Content limits, Item specs, other assessments	Additional Resources/Activities	Lit. Connection Vocabulary Reading	Open: Specific to Teacher, grade, subject, school
<p>SC.2.P.10.1 Discuss that people use electricity or other forms of energy to cook their food, cool or warm their homes, and power their cars.</p> <p>Textbook: Unit 6</p>	<p>Refer to suggested Science Assessments listed in this guide.</p> <p>Low Complexity</p>	<p>Introduce vocabulary using graphic organizers and text visuals.</p> <p>Access and build topic background knowledge providing hands-on experiences.</p> <p>Group discussions and investigations about how people use electricity and other forms of energy.</p> <p>Write about investigations in science journals.</p> <p>Inquiry Flipchart that corresponds with the unit</p> <p>Professional Development:</p> <ul style="list-style-type: none"> • Energy: Stop Faking It! Finally Understanding Science So You Can Teach It by William C. Robertson, Ph.D. • Electricity and Magnetism: Stop Faking It! Finally Understanding Science So You Can Teach It 	<p>Vocabulary: energy solar energy light heat electricity</p> <p>Literature Connections:</p> <ul style="list-style-type: none"> • What Happened? by Rozanne Lanczak Williams • Energy from the Sun by Allan Fowler • Electricity and Magnets by Sarah Angliss • Magic School Bus and the Electric Field Trip by Joanna Cole <p>Unit 6 Leveled Readers</p>	

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Big Idea 13: Forces and Changes in Motion

- A. It takes energy to change the motion of objects.
- B. Energy change is understood in terms of forces—pushes and pulls.
- C. Some forces act through physical contact, while others act at a distance.

Essential Questions:

- How do different amounts of force impact different objects? (13.1)
- How does gravity affect objects? (13.3)
- How does force impact the motion of an object? (13.4)

Benchmark Text Alignment	FCAT info: Content limits, Item specs, other assessments	Additional Resources/Activities	Lit. Connection Vocabulary Reading	Open: Specific to Teacher, grade, subject, school
<p>SC.2.P.13.1 Investigate the effect of applying various pushes and pulls on different objects.</p> <p>SC.2.P.13.2 Demonstrate that magnets can be used to make some things move without touching them.</p> <p>Textbook: Unit 7</p>	<p>High Complexity</p> <p>Low Complexity</p>	<p>Introduce vocabulary using graphic organizers and text visuals. Access and build topic background knowledge providing hands-on experiences. Conduct experiment to investigate effect of pushes and pulls on different objects. Write about investigations in science journals.</p> <p><u>AIMS: Primarily Magnets</u> Activity Book</p> <p>Curriculum Standards search at Discovery Education www.discoveryeducation.com</p> <p>Inquiry Flipchart that corresponds with the unit</p>	<p>Vocabulary: motion force speed gravity friction magnet pole attract repel</p> <p>Literature Connections: <u>Experiment with Movement</u> by Bryan Murphy</p> <p>Unit 7 Leveled Readers</p>	
<p>SC.2.P.13.3 Recognize that objects are pulled toward the ground unless something holds them up.</p> <p>Textbook: Unit 7</p>	<p>Low Complexity</p>	<p>Sequence the steps needed to throw a basketball into a hoop and write the steps in science journals. Write an explanation of how objects are pulled toward the ground unless something holds them up. Student demonstrations such as what happens when someone jumps into the air.</p>	<ul style="list-style-type: none"> • <u>Forces</u> by Graham Peacock • <u>Forces and Motion</u> by John Graham and David Le Jars • <u>Alexander and the Wind-Up Mouse</u> by Leo Lionni • <u>Magic School Bus Gains Weight</u> by Joanna Cole <p>Unit 7 Leveled Readers</p>	

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<p>SC.2.P.13.4 Demonstrate that the greater force (push or pull) applied to an object, the greater the change in motion.</p> <p>Textbook: Unit 7</p>	<p>Moderate Complexity</p>	<p>Demonstrate pushes and pulls applied to classroom objects.</p> <p>How can you measure force? Students write about and demonstrate knowledge about forces in science journals.</p>	<ul style="list-style-type: none">• <u>Magic School Bus Plays Ball</u> by Joanna Cole• <u>Forces Around Us</u> by Sally Hewitt <p>Unit 7 Leveled Readers</p>	
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Quarter 4

Big Idea 14: Organization and Development of Living Organisms

- A. All plants and animals, including humans, are alike in some ways and different in others.
- B. All plants and animals, including humans, have internal parts and external structures that function to keep them alive and help them grow and reproduce.
- C. Humans can better understand the natural world through careful observation.

Essential Question:

How do the brain, heart, lungs, stomach, muscles and skeleton function?

Benchmark Text Alignment	FCAT info: Content limits, Item specs, other assessments	Additional Resources/Activities	Lit. Connection Vocabulary Reading	Open: Specific to Teacher, grade, subject, school
<p>SC.2.L.14.1 Distinguish human body parts (brain, heart, lungs, stomach, muscles, and skeleton) and their basic functions.</p> <p>Textbook: Unit 8</p>	<p>Refer to suggested Science Assessments listed in this guide.</p> <p>Moderate Complexity</p>	<p>Introduce vocabulary using graphic organizers and text visuals.</p> <p>Access and build topic background knowledge providing hands-on experiences. Students write about and demonstrate knowledge of the human body in science journals.</p> <p>Other suggested resources: Picture Perfect Book: Page 55 Hear Your Heart Books in school library.</p> <p>www.discovery.com http://yucky.discovery.com/flash/body/</p> <p>Inquiry Flipchart that corresponds with the unit</p>	<p>Vocabulary: brain heart lungs stomach muscles skeleton</p> <p>Literature Connections:</p> <ul style="list-style-type: none"> • Magic School Bus Inside the Human Body by Joanna Cole • Magic School Bus for Lunch by Joanna Cole • Magic School Bus Flexes Its Muscles by Joanna Cole • Magic School Bus Works Out by Joanna Cole 	

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Big Idea 16: Heredity and Reproduction

- A. Offspring of plants and animals are similar to, but not exactly like, their parents or each other.
- B. Life cycles vary among organisms, but reproduction is a major stage in the life cycle of all organisms.

Essential Question:

What are the major stages of the life cycles of plants and animals?

Benchmark Text Alignment	FCAT info: Content limits, Item specs, other assessments	Additional Resources/Activities	Lit. Connection Vocabulary Reading	Open: Specific to Teacher, grade, subject, school
<p>SC.2.L.16.1. Observe and describe major stages in the life cycles of plants and animals, including beans and butterflies.</p> <p>Textbook: Unit 9</p>	<p>Refer to suggested Science Assessments listed in this guide.</p> <p>Moderate Complexity</p>	<p>Introduce vocabulary using graphic organizers and text visuals.</p> <p>Access and build topic background knowledge providing hands-on experiences.</p> <p>How does a caterpillar grow and change? <i>*(Must send off coupon 2 weeks before inquiry to receive caterpillars.)</i></p> <p>On-line Resources: http://www.canteach.ca/elementary/life.html</p> <p>Curriculum Standards search at Discovery Education www.discoveryeducation.com</p> <p>Inquiry Flipchart that corresponds with the unit</p>	<p>Vocabulary: life cycle reproduce metamorphosis tadpole seed cone germinate seedling</p> <p>Literature Connections:</p> <ul style="list-style-type: none"> • <u>Chickens Aren't the Only Ones</u> by Ruth Heller • <u>The Tiny Seed</u> by Eric Carle • <u>From Caterpillar to Butterfly</u> by Deborah Heiligman • <u>An Extraordinary Egg</u> by Leo Lionni <p>Unit 9 Leveled Readers</p>	

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Big Idea 17: Interdependence

- A. Plants and animals, including humans, interact with and depend upon each other and their environment to satisfy their basic needs.
- B. Both human activities and natural events can have major impacts on the environment.
- C. Energy flows from the sun through producers to consumers.

Essential Questions:

- What similar things do all living things, including humans, need to survive? (17.1)
- What do some living things need that others do not need in order to survive? (17.1)
- Where can living things be found? (17.2)
- How do different habitats meet the basic needs of all living things? (17.2)

Benchmark Text Alignment	FCAT info: Content limits, Item specs, other assessments	Additional Resources/Activities	Lit. Connection Vocabulary Reading	Open: Specific to Teacher, grade, subject, school
<p>SC.2.L.17.1 Compare and contrast the basic needs that all living things, including humans, have for survival.</p> <p>SC.2.L.17.2 Recognize and explain that living things are found all over Earth, but each is only able to live in habitats that meet its basic needs.</p> <p>Textbook: Unit 10</p>	<p>Refer to suggested Science Assessments listed in this guide.</p> <p>Moderate Complexity</p> <p>Moderate Complexity</p>	<p>Introduce vocabulary using graphic organizers and text visuals. Access and build topic background knowledge providing hands-on experiences. C compare and contrast basic needs of all living things by writing in science journals. Include illustrations of basic needs for living things.</p> <p>What does yeast need to grow? Brain PopJr. Animals-Food Chain Video, Word Wall, Quiz</p> <p>On-line resources: http://www.bbc.co.uk/schools/scienceclips/ages/10_11/interdependence.shtml</p> <p>Professional Development: <u>Exploring Ecology: 49 Ready-to-Use Activities for Grades 4-8</u> by Patricia A. Warren and Janet R. Galle</p> <p>Inquiry Flipchart that corresponds with the unit</p>	<p>Vocabulary: basic needs nutrients survive lungs gills shelter environment habitat</p> <p>Literature Connections:</p> <ul style="list-style-type: none"> • <u>The Great Kapok Tree: A Tale of the Amazon Rain Forest</u> by Lynne Cherry • <u>Dairy of a Worm</u> by Doreen Cronin • <u>Stellaluna</u> by Jannell Cannon • <u>Magic School Bus Gets Eaten</u> by Joanna Cole • <u>Magic School Bus Dries Up</u> • <u>Magic School Bus Desert Animal Adaptation</u> • <u>A Harbor Seal Pup Grows Up</u> • <u>Who Eats What?: Food Chains and Food Webs</u> By Patricia Lauber <p>Unit 10 Leveled Readers</p>	

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Textbook Correlation to Florida Science Standards

Houghton Mifflin Harcourt Science Fusion Correlation - See TE T19-T25

Scott Foresman Science Correlation follows

Introduction

This document demonstrates how **Scott Foresman Science** meets the Florida Science Standards. Correlation page references are to the Teacher's Edition with additional references to the FCAT Test Prep Booklet.

Pearson is proud to introduce our **Scott Foresman Science**, Kindergarten through Grade Five. Extensive research and analysis is the foundation for **Scott Foresman Science** and guides the instructional design.

Scaffolded Inquiry™

Scott Foresman Science is built on three levels of inquiry: Directed Inquiry, Guided Inquiry, and Full Inquiry. All three levels engage students in activities that build a strong science foundation and help them develop a full understanding of the inquiry process.

How to Read Science

Powerful connections between reading skills and science process skills in every chapter advance science literacy for all students.

Differentiated Instruction

Leveled Readers for every Student Edition chapter teach the same science concepts, vocabulary, and reading skills — at each student's reading level.

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Time-Saving Strategies

Time-saving strategies are built right into the Teacher’s Edition that will save the teacher hours of time in lesson preparation.

- Quick Teaching Plans cover the standards even when class time is short.
- Everything needed for each activity comes in its own chapter bag. With the Activity Placemat and Tray™, activity setup takes only 30 seconds.
- Premade Bilingual Bulletin Board Kits save time by creating attractive bulletin boards quickly and easily.

Technology

Scott Foresman Science brings teaching and learning together in one convenient spot—the computer. From sfsuccessnet.com to educational CDs and DVDs, this program provides a variety of interactive tools to help support, extend, and enrich classroom instruction.

The Online Teacher’s Edition provides access to the same printed content, so the teacher can plan lessons with the customizable Lesson Planner from home or school computers. The Online Student Edition allows students, teachers, and parents to access the content of the textbook from computers at school or at home.

Benchmark Code	Florida Sunshine State Standards	FUSION correlations pages T19-T25 Scott Foresman Science below
SC.2.E.6.1	Recognize that Earth is made up of rocks. Rocks come in many sizes and shapes.	SE/TE: 146–147 FCAT Test Prep: 33
SC.2.E.6.2	Describe how small pieces of rock and dead plant and animal parts can be the basis of soil and explain the process by which soil is formed.	SE/TE: 146–149, 160–161 FCAT Test Prep: 34, 35, 49, 50, 107
SC.2.E.6.3	Classify soil types based on color, texture (size of particles), the ability to retain water, and the ability to support the growth of plants.	SE/TE: 140, 148–149, 160–161, 228–229 FCAT Test Prep: 34
SC.2.E.7.1	Compare and describe changing patterns in nature that repeat themselves, such as weather conditions including temperature and precipitation, day to day and season to season.	SE/TE: 176–177, 180–181, 182–183, 184–185, 186–187, 194–195 FCAT Test Prep: 37, 39, 40, 41, 51, 85, 90, 97, 108, 113
SC.2.E.7.2	Investigate by observing and measuring, that the Sun's energy directly and indirectly warms the water, land, and air.	SE/TE: 194–195, 268, 272–273, 278–279 FCAT Test Prep: 61, 62, 64, 80, 111
SC.2.E.7.3	Investigate, observe and describe how water left in an open container disappears (evaporates), but water in a closed container does not disappear (evaporate).	SE/TE: Grade 1: 228–229
SC.2.E.7.4	Investigate that air is all around us and that moving air is wind.	SE/TE: 144–145, 174–175, 190–193, 230–231 FCAT Test Prep: 66

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Benchmark Code	Florida Sunshine State Standards	FUSION correlations pages T19-T25 Scott Foresman Science below
SC.2.E.7.5	State the importance of preparing for severe weather, lightning, and other weather related events.	SE/TE: 188–193
SC.2.L.14.1	Distinguish human body parts (brain, heart, lungs, stomach, muscles, and skeleton) and their basic functions.	SE/TE: Grade 4: 140, 142–147, 148–151, 152–155
SC.2.L.16.1	Observe and describe major stages in the life cycles of plants and animals, including beans and butterflies.	SE/TE: 104–107, 108–109, 110–111, 114–115, 118–121, 122–123, 124–125 FCAT Test Prep: 19, 20, 21, 22, 23, 24, 29, 30, 104, 106
SC.2.L.17.1	Compare and contrast the basic needs that all living things, including humans, have for survival.	SE/TE: 4, 6–9, 16–19, 20–21, 22–23, 24–25, 26–27, 42–43, 44–45, 46–47, 48–49, 50–51, 62–63, 68, 72–73, 94–95 FCAT Test Prep: 1, 2, 13, 15, 28, 103
SC.2.L.17.2	Recognize and explain that living things are found all over Earth, but each is only able to live in habitats that meet its basic needs.	SE/TE: 14–15, 16–19, 20–21, 22–23, 24–25, 42–43, 44–45, 46–47, 48–49, 50–51, 62–63 FCAT Test Prep: 5, 6, 8, 9, 10, 11, 12, 14, 17, 25, 26, 27, 103, 104
SC.2.N.1.1	Raise questions about the natural world, investigate them in teams through free exploration and systematic observations, and generate appropriate explanations based on those explorations.	<i>These are some of the many examples.</i> SE/TE: 26–27, 56–57, 68, 122–123, 132–133, 194–195, 204, 228–229, 236, 256–257, 290–291, 300, 332, 346–347, 420–421
SC.2.N.1.2	Compare the observations made by different groups using the same tools.	SE/TE: 26–27, 90–91, 140, 160–161, 218–219, 256–257, 268, 290–291, 322–323, 332, 346–347, 356–357, 420–421
SC.2.N.1.3	Ask "how do you know?" in appropriate situations and attempt reasonable answers when asked the same question by others.	SE/TE: 26–27, 56–57, 90–91, 132–133, 140, 160–161, 228–229, 268, 290–291, 300, 346–347, 364, 420–421
SC.2.N.1.4	Explain how particular scientific investigations should yield similar conclusions when repeated.	SE/TE: 4, 132–133, 194–195, 228–229, 346–347, 356–357, 420–421 FCAT Test Prep: 69
SC.2.N.1.5	Distinguish between empirical observation (what you see, hear, feel, smell, or taste) and ideas or inferences (what you think).	SE/TE: 26–27, 56–57, 100, 122–123, 140, 194–195, 204, 228–229, 290–291, 300, 396, 410–411

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Benchmark Code	Florida Sunshine State Standards	FUSION correlations pages T19-T25 Scott Foresman Science below
SC.2.N.1.6	Explain how scientists alone or in groups are always investigating new ways to solve problems.	SE/TE: 32, 62–63, 64, 128, 166–167, 168, 200, 224, 262–263, 264, 296, 328, 352, 390–391, 392, 416
SC.2.P.8.1	Observe and measure objects in terms of their properties, including size, shape, color, temperature, weight, texture, sinking or floating in water, and attraction and repulsion of magnets.	SE/TE: 240–241, 258–259 FCAT Test Prep: 56, 57, 58, 79
SC.2.P.8.2	Identify objects and materials as solid, liquid, or gas.	SE/TE: 242–247 FCAT Test Prep: 57, 59, 79, 110
SC.2.P.8.3	Recognize that solids have a definite shape and that liquids and gases take the shape of their container.	SE/TE: 242–247 FCAT Test Prep: 57
SC.2.P.8.4	Observe and describe water in its solid, liquid, and gaseous states.	SE/TE: 242–247, 252–255, 256–257, 260–261 FCAT Test Prep: 60, 82, 112, 118
SC.2.P.8.5	Measure and compare temperatures taken every day at the same time.	SE/TE: 194–195
SC.2.P.8.6	Measure and compare the volume of liquids using containers of various shapes and sizes.	SE/TE: Grade 3: 284–285, 292–293; Grade 4: 324–325
SC.2.P.9.1	Investigate that materials can be altered to change some of their properties, but not all materials respond the same way to any one alteration.	SE/TE: 248–251, 252–255, 264 FCAT Test Prep: 58, 60, 82, 83, 112, 118
SC.2.P.10.1	Discuss that people use electricity or other forms of energy to cook their food, cool or warm their homes, and power their cars.	SE/TE: 272–273, 278–281, 286–289
SC.2.P.13.1	Investigate the effect of applying various pushes and pulls on different objects.	SE/TE: 300, 304–307, 308–309, 310–311 FCAT Test Prep: 67, 70, 83, 112
SC.2.P.13.2	Demonstrate that magnets can be used to make some things move without touching them.	SE/TE: 318–321, 322–323 FCAT Test Prep: 70, 84
SC.2.P.13.3	Recognize that objects are pulled toward the ground unless something holds them up.	SE/TE: 306–307 FCAT Test Prep: 69, 112
SC.2.P.13.4	Demonstrate that the greater the force (push or pull) applied to an object, the greater the change in motion of the object.	SE/TE: 300, 304–307, 308–309, 310–313 FCAT Test Prep: 68

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Science Resources Guide

- *Read and Understand Science Series*
Grades 1-2, Grades 2-3, Grades 3-4, Grades 4-6; Evan-Moor Publishers
<http://www.evan-moor.com/Series.aspx?CurriculumID=6&ClassID=175&SeriesID=104>
- *Project Wild Activity Guide*
Project Wild, PO Box 18060, Boulder, CO 80308, (303)444-2390
<http://www.projectwild.org/educators.htm>
- *Digging Into FCAT Science – Inquiry Based Activities*
Florida Educational Tools, (904) 998-1918 or (800) 586-9940
www.fledtools.com
- *Integrating Science with Reading Instruction Grades 5&6*
By Trisha Callella and Marilyn Marks, Creative Teaching Press
<http://www.creativeteaching.com/p-800-integrating-science-with-reading-instruction-gr-5-6.aspx>
- AIMS Education Foundation On-line Store
Books, Free Resources and \$1-2 E-Activities
http://www.aimsedu.org/aims_store/home.php
- *Picture-Perfect Science Lessons: Using Children's Books to Guide Inquiry*
By: Emily Morgan and Karen Ansberry, ISBN: 978-0-87355-243-1
http://www.nsta.org/store/product_detail.aspx?id=10.2505/9780873552431
- *More Picture-Perfect Science Lessons: Using Children's Books to Guide Inquiry, K-4*
By: Emily Morgan and Karen Ansberry, ISBN: 978-1-93353-112-0
http://learningcenter.nsta.org/product_detail.aspx?id=10.2505/9781933531120
- *More Than Magnets: Exploring the Wonders of Science in Preschool and Kindergarten*
By [Sally Moomaw, MEd](#), [Brenda Hieronymus, MEd](#), ISBN: 978-188483433-2, Redleaf Press
<http://www.redleafpress.org/productdetails.cfm?PC=183>

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Science Literature by Grade Level with Benchmarks

Letting Swift River Go	Jane Yolen	Change in nature over time	2 nd	SC.2.N.1.1
Who Made These Holes?	Published by Newbridge	Inference and observation	2 nd	SC.2.N.1.3
Soil	Robin Nelson	Soil	2 nd	SC.2.E.6.2
Rocks	Robin Nelson	Rocks	2 nd	SC.2.E.6.1
Rocks and Soil	Maria Gordon	Rocks and soil	2nd	SC.2.E.6.1 SC.2.E.6.2
Soil	Rebecca Faulkner	Soil	2nd	SC.2.E.6.2
The Pebble in My Pocket	M. Hooper	Rocks	2nd	SC.2.E.6.1
Sun	S. Tomecek	Sun/sunshine	2nd	SC.2.E.7.2
Matter: See It, Touch It, Taste It, Smell It	Darlene R. Stille	Matter and changing properties	2nd	SC.2.P.9.1
From Bean to Bean Plant	Anita Ganen	Life cycle of a bean plant	2nd	SC.2.L.16.1
Pumpkin Circle: The Story of a Garden	George Levenson	Life cycle of a pumpkin	2nd	SC.2.L.16.1
From Tadpole to Frog	Wendy Pfeffer	Life cycle of a frog	2nd	SC.2.L.16.1
From Seed to Plant	Allan Fowler	Life cycle of a plant	2nd	SC.2.L.16.1
A Log's Life	Wendy Pfeffer	Life cycle of a tree	2nd	SC.2.L.16.1
Little Lost Bat	Sandra Markle	Life of bats	2nd	SC.2.L.16.1

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Science Literature by Grade Level

Title	Author	Grade Level
A Drop of Water: A Book of Science Wonder	Wick	2
A Log's Life	Pfeffer	2
Alexander and the Wind-Up Mouse	Lionni	2
Amelia Bedelia, Rocket Scientist	Parish	2
An Extraordinary Egg	Lionni	2
Bringing the Rain to Kapiti Plain	Aardema	2
Chickens Aren't the Only Ones*	Heller	2
Cloudy With a Chance of Meatballs	Barrett	2
Diary of a Worm	Cronin	2
Electricity and Magnets	Angliss	2
Energy From the Sun	Fowler	2
Everybody Needs a Rock	Baylor	2
Forces and Motion	Graham	2
Forces Around Us	Hewitt	2
From Bean to Bean Plant	Ganen	2
From Caterpillar to Butterfly	Heiligman	2
From Seed to Plant	Fowler	2
From Tadpole to Frog	Pfeffer	2
Henry Hikes to Fitchburg	Johnson	2
How to Dig a Hole to the Other Side of the Earth	McNulty	2
If You Find a Rock	Christian	2
Let's Go Rock Collecting	Gans	2
Letting Swift River Go	Yolen	2
Life In a Bucket of Soil	Silverstein	2
Little Lost Bat	Markle	2
Magic School Bus and the Electric Field Trip	Cole	2
Magic School Bus at the Water Works	Cole	2
Magic School Bus Desert Animal Adaptation	Cole	2

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Title	Author	Grade Level
Magic School Bus Dries Up	Cole	2
Magic School Bus Flexes Its Muscles	Cole	2
Magic School Bus For Lunch	Cole	2
Magic School Bus Gains Weight	Cole	2
Magic School Bus Gets Eaten	Cole	2
Magic School Bus Inside the Earth	Cole	2
Magic School Bus Inside the Human Body	Cole	2
Magic School Bus Kicks Up a Storm	Cole	2
Magic School Bus Meets the Rot Squad	Cole	2
Magic School Bus Plays Ball	Cole	2
Magic School Bus Wet All Over	Cole	2
Magic School Bus Works Out	Cole	2
Matter: See It, Touch It, Taste It, Smell It	Stille, D.	2
Nitrogen	Tocci	2
Pumpkin Circle: The Story of a Garden	Levenson	2
Rocks: Hard, Soft, Smooth, and Rough	Rosinsky	2
Scientists Ask Questions	Garrett, Rookie Reader	2
Snowflake Bentley	Martin	2
Soil	Faulkner	2
Solid, Liquid, or Gas	Robinson	2
Solids, Liquids, Gases	Simon	2
Sun	Tomecek	2
Sunshine On My Shoulders	Ansberry, Morgan	2
Sylvester and Magic Pebble	Stieg	2
The Great Kapok Tree	Cherry	2
The Pebble in My Pocket	Hooper	2
The Tiny Seed	Carle	2
Thunder Cake	Polacco	2
What Happened?	Williams	2
What Is a Scientist?	Lehn	2
What is Mass?	Curry	2

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Title	Author	Grade Level
What is the World Made Of?	Zoehfeld	2
When Winter Comes	Neuman	2
Where Do Puddles Go?	Robinson	2
Who Made These Holes?	Published by Newbridge	2

Research

- As students progress through the three stages of inquiry, support from the teacher diminishes and student ownership increases.
- This developmental process is crucial for students to reach the ultimate goal of conducting science investigations independently-engaging in Full Inquiry.
- Inquiry prepares students to answer visual analysis and critical interpretation questions.



5 Questions to Deeper Understanding

- Direct Data -*a question that requires the student to look at his/her data/measurements*
- Mathematical Interpretation -*requires the student to compare, contrast or make a calculate using two or more of his/her measurements*
- Hypothesis Revisit –*student is asked to infer from observations, measurements, and results*
- Application to Other Context-*question that requires the students to apply knowledge to a different context/setting*
- World Connection-*requires the students to consider the impact of human/social system*

Standards-Based Instruction

- ▶ Standards-Based Instruction means designing instruction to help students understand the science outlined in the standards
- ▶ It is **NOT** linking a standard to what you already do or to a favorite lesson.

Backward by Design

- ▶ A way to design lessons/units of instruction consistent with standards-based instruction
- ▶ Consists of three main steps...
 1. Identify what students need to know or what they need to be able to do (What is worthy of understanding?)
 2. Identify assessment (What is evidence of this understanding?)
 3. Design instruction (What learning experiences and teaching will promote this type of understanding?)