

Wakulla County Schools
ELEMENTARY SCIENCE CURRICULUM
Third Grade

Without Access Points

Revised June, 2011

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Third Grade Science Curriculum

This curriculum is based upon the Next Generation Sunshine State Standards for Science. Third grade science instruction should fully instruct students on the benchmarks contained in this document. A minimum of 100 minutes per week should be spent in science instruction, with an additional 50 minutes per week spent on the Comprehensive Health Curriculum. Where possible, Health standards have been aligned with Science standards in this document.

Documentation:

Teachers should document when instruction is provided on the benchmarks. The date noted should correspond to a specific lesson or unit of instruction as noted in the teacher's lesson plans or to when an assessment was given to determine student mastery of the benchmark.

Major Tool of Instruction:

The major tool of instruction provided to all teachers is the National Geographic Science, 2010 K-5 series. It is critical that teachers require that students access the text in order to build content-area reading skills. Other resources may be incorporated to insure that all students achieve mastery of the required benchmarks.

Key to Acronyms and Markings:

SIWB – Science Inquiry and Writing Book

Bold Print – Vocabulary to be taught to mastery

Marked with * - FCAT Vocabulary

CPALMS – www.floridastandards.org

SCIENCE CURRICULUM – Third Grade

Body of Knowledge: Nature of Science

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.**

BENCHMARK CODE	BENCHMARK	RESOURCES/ACTIVITIES/TEXT CORRELATION	DATE					
			11/12	12/13	13/14	14/15	15/16	16/17
SC.3.N.1.1	Raise questions about the natural world, investigate them individually and in teams through free exploration and systematic investigations, and generate appropriate explanations based on those explorations. Complexity: High	Text: SIWB – pages 40-49; 76-85; 10-139						
SC.3.N.1.2	Compare the observations made by different groups using the same tools and see reasons to explain the differences across groups. Complexity: High	Text: SIWB – pages 56-59; 126						
SC.3.N.1.3	Keep records as appropriate, such as pictorial, written or simple charts and graphs, of investigations conducted. Complexity: Moderate	Text: SIWB – pages 20-23; 60-63; 36-39						
SC.3.N.1.4	Recognize the importance of communication among scientists. Complexity: Moderate	Text: <i>After science inquiry activities there should be discussion to help students reach understanding of the importance of communication between scientists.</i> Guiding Questions: Why would it be important for one scientist to know about another scientist’s work? How could a scientist learn about the work of another scientist?						
SC.3.N.1.5	Recognize that scientists question, discuss and check each other’s evidence and explanations. Complexity: Moderate	Text: <i>Implementation of most Inquiry activities will lead students in discussions where they check each other’s evidence and explanation.</i>						

SC.3.N.1.6	Infer based on observation. Complexity: High	Text: SIWB – pages page 10; page 8; 50-53 Investigation: Observe a plant’s growth.						
SC.3.N.1.7	Explain that empirical evidence is information, such as observations or measurements, that is used to help validate explanations of natural phenomena. Complexity: High	Text: SIWB – pages 102-105; pages 140-143						
Required Activity	Sensing Energy (CPALMS) Science experiment – Science Fair							
Associated Vocabulary	Scientist, observation* , model, evidence, explain, infer , compare, valid* , reasonable, unreasonable							
Connections	Math: MA.3.A.4.1: Create, analyze, and represent patterns and relationships using words, variables, tables, and graphs. MA.3.S.7.1: Construct and analyze frequency tables, bar graphs, pictographs, and line plots from data, including data collected through observations, surveys, and experiments.							
Assessment Information	SC.3.N.1.1 is assessed as SC.5.N.1.1 in 5 th grade. Prior knowledge from SC.3.N.1.3 and SC.3.N.1.6 will also be required. Tasks will require students to evaluate written procedures or experimental setup, identify appropriate forms of record keeping, interpret and analyze data to generate appropriate explanations based on that data, and identify examples of or distinguish among observations, predictions, and/or inferences. Students will also explain the difference between an experiment and other types of scientific investigations and identify a control group and/or explain its importance in an experiment. SC.3.N.1.7 is assessed as SC.5.N.2.1 in 5 th grade. Task will require students to identify and/or explain that science is grounded in verifiable observations (empirical) that are testable, distinguish between personal interpretation and verified observation, distinguish between examples of evidence or observations (empirical) and personal opinion. SC.3.N.1.2 and SC.3.N.1.5 are assessed as SC.5.N.2.2 in 5 th Grade. Prior knowledge from SC.3.N.1.4 will also be required. Task will require students to identify and/or explain the need for replication of scientific investigation; explain the reason for differences in data across groups as a result of using different tools and/or procedures; as well as identify and/or explain the need for repeated trials in a scientific investigation.							

Body of Knowledge: Nature of Science

Big Idea 3: The Role of Theories, Laws, Hypotheses and Models

The terms that describe examples of scientific knowledge, for example: “theory,” “law,” “hypothesis,” and “model” have very specific meanings and functions within science.

BENCHMARK CODE	BENCHMARK	RESOURCES/ACTIVITIES/TEXT CORRELATION	DATE					
			11/12	12/13	13/14	14/15	15/16	16/17
SC.3.N.3.1	Recognize that words in science can have different or more specific meanings than their use in everyday language; for example, energy, cell, heat/cold, and evidence. Complexity: Moderate	Text: Covered throughout. See required vocabulary with each benchmark and in Appendix A.						
SC.3.N.3.2	Recognize that scientists use models to help understand and explain how things work. Complexity: Low	Text: SIWB pages 24-27						
SC.3.N.3.3	Recognize that all models are approximations of natural phenomena; as such, they do not perfectly account for all observations. Complexity: Moderate	Text: SIWB pages 24-27						
Required Activity	Make a Model of a Backbone: SIWB pages 24-27							
Associated Vocabulary	Models, scientists, observation* , energy, heat, cold, evidence							
Assessment/ Connection Information	Social Studies: SS.3.G.1.5 Health: HE.3.C.1.6: Recognize that body parts and organs work together to form human body systems.							

Body of Knowledge: Earth/Space Science

Big Idea 5: Earth in Space and Time

Humans continue to explore Earth’s place in space. Gravity and energy influence the formation of galaxies, including our own Milky Way Galaxy, stars, the Solar System and Earth. Humankind’s need to explore continues to lead to the development of knowledge and understanding of our Solar System.

BENCHMARK CODE	BENCHMARK	RESOURCES/ACTIVITIES/TEXT CORRELATION	DATE					
			11/12	12/13	13/14	14/15	15/16	16/17
SC.3.E.5.1	Explain that stars can be different; some are smaller, some are larger, and some appear brighter than others; all except the Sun are so far away that they look like points of light. Complexity: High	Text: SIWB pages 68 – 71 Activity: Our Super Star (CPALMS) Sensing Energy (CPALMS)						
SC.3.E.5.2	Identify the Sun as a star that emits energy; some of it in the form of light. Complexity: Moderate	Text: Earth Science – Chapter 4 Activity: Our Super Star (CPALMS)						
SC.3.E.5.3	Recognize that the Sun appears large and bright because it is the closest star to Earth. Complexity: High	Text: Earth Science – Chapter 4; <i>SIWB - Investigate Light Brightness pp. 68 - 71</i>						
SC.3.E.5.4	Explore the Law of Gravity by demonstrating that gravity is a force that can be overcome. Complexity: High	Text: Earth Science – Chapter 4; <i>SIWB- Investigate Gravity – pp. 64-67</i>						
SC.3.E.5.5	Investigate that the number of stars that can be seen through telescopes is dramatically greater than those seen by the unaided eye. Complexity: Moderate	Text: Earth Science – Chapter 4						
Required Activity	Investigate Energy from the Sun – SIWB – pp. 56-59; Investigate Gravity – SIWB – pp. 64-67							
Associated Vocabulary	Gravity, energy, sun, law, light, telescope, emit, star* , solar system* , magnify, moon* , reflect*							
Connections								
Assessment Information	<p>SC.3.E.5.1, SC.3.E.5.2 and SC.3.E.5.3 are assessed at SC.5.E.5.1 in 5th grade.. Task will require students to identify the basic components of a galaxy, to explain how stars can be different, to identify the Sun as a star that emits energy and to identify that the Sun’s appearance is due to its proximity to Earth.</p> <p>SC.3.E.5.4 is assessed at SC.5.P.13.1 in 5th grade. Task will require students to identify familiar forces that affect how objects move; identify scenarios whereby gravity is overcome and/or describe examples of magnetic attraction and repulsion.</p>							

Body of Knowledge: Earth/Space Science

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.							
BENCHMARK CODE	BENCHMARK	RESOURCES/ACTIVITIES/TEXT CORRELATION	DATE				
			11/12	12/13	13/14	14/15	15/16
SC.3.E.6.1	Demonstrate that radiant energy from the Sun can heat objects and when the Sun is not present, heat may be lost. Complexity: High	Text: Using Solar Energy – SIWB pp. 86-89; Earth Science – Chapter 4 Activity: Our Super Star (CPALMS); Don't Marry the Mole (Susasar Energy Source)					
Required Activity	Investigate Energy from the Sun – SIWB pp. 56-59						
Associated Vocabulary	Energy, solar						
Connection	HE.3.B.1.3: Describe criteria for selecting health information, resources, products, and services. (Context: Sunscreen)						
Assessment Information	SC.3.E.6.1 is tested as SC.5.P.10.4 in 5 th grade. Task will require students to explain that electrical energy can be transformed into heat, light and/or sound energy, as well as the energy of motion; explain that energy from the Sun can be used to heat objects, and that when sunlight is not present, heat may be lost; identify the flow of heat between hot and cold objects and/or that heat may cause objects to change temperature; identify common materials that conduct heat well or poorly; explain that an electrically charged object can attract an uncharged object and/or either attract or repel another charged object without any contact between the objects; determine that the flow of electricity requires a closed circuit; identify and/or classify materials that conduct electricity and materials that do not.						

Body of Knowledge: Physical Science

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.

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 between mass and weight, and use them appropriately.

BENCHMARK CODE	BENCHMARK	RESOURCES/ACTIVITIES/TEXT CORRELATION	DATE					
			11/12	12/13	13/14	14/15	15/16	16/17
SC.3.P.8.1	Measure and compare temperatures of various samples of solids and liquids. Complexity: Moderate	Text: Measuring Temperature – SIWB pp. 106-107; Investigate Temperature – SIWB pp. 110-113; Physical Science – Chapter 7						
SC.3.P.8.2	Measure and compare the mass and volume of solids and liquids. Complexity: Moderate	Text: Water Predictions – SIWB p. 90; Investigate Volume and Mass – SIWB pp. 98 – 101; Physical Science – Chapter 6 Activity: Look Alike Liquids(CPALMS)						
SC.3.P.8.3	Compare materials and objects according to properties such as size, shape, color, texture and hardness. Complexity: Moderate	Text: Investigate Properties of Objects – SIWB pp. 94-97; Physical Science – Chapter 6						
Required Activity	Water Predictions – SIWB p. 90 Investigate Properties of Objects – SIWB p. 94-97 Investigate Volume and Mass – SIWB pp. 98 – 101							
Connection	Math: MA.3.G.5.2: Measure objects using fractional parts of linear units such as 1/2, 1/4, and 1/10. Volume is introduced in second grade and applied and tested in fifth grade.							
Associated Vocabulary	Texture* , degrees, mass* , volume* , physical properties, solid, observe, liquid, gas, absorbed* , measure, compare, temperature							
Assessment Information	SC.3.P.8.1, SC.3.P.8.2 & SC.3.P.8.3 are assessed as SC.5.P.8.1 in 5 th grade. Task will require students to compare and/or contrast the physical properties of solids, liquids and/or gases; and, to describe and/or classify a material as a solid, liquid or gas.							

Body of Knowledge: Physical Science

Big Idea 9: Changes in Matter							
A. Matter can undergo a variety of changes.							
B. Matter can be changed physically or chemically.							
BENCHMARK CODE	BENCHMARK	RESOURCES/ACTIVITIES/TEXT CORRELATION	DATE				
			11/12	12/13	13/14	14/15	15/16
SC.3.P.9.1	Describe the changes water undergoes when it changes state through heating and cooling by using familiar scientific terms such as melting, freezing, boiling, evaporation and condensation. Complexity: Moderate	Text: Observe Water Drops – SIWB p. 91; Investigate Water and Temperature – SIWB pp. 102-105; Physical Science – Chapter 7 Resource: Phases of Water Slideshow - http://www.teachersdomain.org/resource/ess05.sci.ess.watcyc.waterphases/					
Required Activity	Investigate Water and Temperature – SIWB pp. 102-105						
Associated Vocabulary	Freeze, boil, precipitation, condensation* , evaporation* , liquid, melt, solid, gas, physical change* , heat, energy, water cycle* , vapor, state of matter*						
Connection	Social Studies: SS.3.G.3.2: Describe the natural resources in the United States, Canada, Mexico, and the Caribbean.						
Assessment Information	SC.3.P.9.1 is assessed as SC.5.P.9.1 in 5 th grade. Task will require students to describe how physical and/or chemical changes are affected by temperature, to describe the physical changes water undergoes as it is heated and/or cooled, as well as how some familiar changes in materials result in other materials with different characteristics.						

Body of Knowledge: Physical Science

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.								
BENCHMARK CODE	BENCHMARK	RESOURCES/ACTIVITIES/TEXT CORRELATION	DATE					
			11/12	12/13	13/14	14/15	15/16	16/17
SC.3.P.10.1	Identify some basic forms of energy such as light, heat, sound, electrical and mechanical. Complexity: Low	Text: Observe Sound – SIWB p. 92; Investigate Energy of Motion – SIWB pp. 114-117; Physical Science – Chapters 8, 9						
SC.3.P.10.2	Recognize that energy has the ability to cause motion or create change. Complexity: Low	Text: Investigate Motion – SIWB pp. 118-121; Physical Science – Chapter 8						
SC.3.P.10.3	Demonstrate that light travels in a straight line until it strikes an object or travels from one medium to another. Complexity: Moderate	Text: Physical Science – Chapter 9						
SC.3.P.10.4	Demonstrate that light can be reflected, refracted and absorbed. Complexity: Moderate	Text: Observe Heat – SIWB p. 93; Investigate Light and Objects – SIWB pp. 126-129; Physical Science – Chapter 9						
Required Activity	Investigate Energy of Motion – SIWB pp. 114-117 Investigate Motion – SIWB pp. 118-121							
Associated Vocabulary	Light, heat, electricity, mechanical energy, reflect* , refraction, absorbed* , motion, vibration							
Connection	HE.3.C.1.5: Describe why it is important to seek health care. (Context: Taking care of eyes)							
Assessment Information	<p>SC.3.P.10.1, SC.3.P.10.3, SC.3.P.10.4 are assessed as SC.5.P.10.1 in 5th grade. Task will require students to identify and/or describe some basic forms of energy as well as describe that light travels in a straight line until it strikes an object or travels from one material to another. Students will also explain that heat is produced when two objects are rubbed against each other and that sound is produced by vibrations and/or that pitch depends on how fast or slow the object vibrates.</p> <p>SC.3.P.10.2 is assessed as SC.5.P.10.2 in 5th grade. Task will require students to explain that energy has the ability to cause motion or create change; identify and/or describe examples where energy has caused motion or created changes; and, describe and/or explain how water and/or air are sources of energy.</p>							

Body of Knowledge: Physical Science

Big Idea 11: Energy Transfer and Transformations								
A. Waves involve a transfer of energy without a transfer of matter.								
B. Water and sound waves transfer energy through a material.								
C. Light waves can travel through a vacuum and through matter.								
BENCHMARK CODE	BENCHMARK	RESOURCES/ACTIVITIES/TEXT CORRELATION	DATE					
			11/12	12/13	13/14	14/15	15/16	16/17
SC.3.P.11.1	Investigate, observe and explain that things that give off light often also give off heat. Complexity: High	Text: Investigate Light and Heat – SIWB pp. 122-125; Physical Science – Chapter 9						
SC.3.P.11.2	Investigate, observe and explain that heat is produced when one object rubs against another, such as rubbing one’s hands together. Complexity: High	Text: Physical Science – Chapter 8 Activity: When things start heating up (CPALMS); Don’t Marry the Mole (CPALMS)						
Required Activity	Investigate Light and Heat – SIWB pp. 122-125							
Associated Vocabulary	Friction*, force*, light, heat, source, matter*							
Assessment Information	SC.3.P.11.1 & SC.3.P.11.2 are assessed as SC.5.P.10.1 in 5 th grade. Task will require students to identify and/or describe some basic forms of energy as well as describe that light travels in a straight line until it strikes an object or travels from one material to another. Students will also explain that heat is produced when two objects are rubbed against each other and that sound is produced by vibrations and/or that pitch depends on how fast or slow the object vibrates.							

Body of Knowledge: Life Science

Big Idea 14: Organization and Development of Living Organisms								
<p>A. All plants and animals, including humans, are alike in some ways and different in others.</p> <p>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.</p> <p>C. Humans can better understand the natural world through careful observation.</p>								
BENCHMARK CODE	BENCHMARK	RESOURCES/ACTIVITIES/TEXT CORRELATION	DATE					
			11/12	12/13	13/14	14/15	15/16	16/17
SC.3.L.14.1	Describe structures in plants and their roles in food production, support, water and nutrient transport and reproduction. Complexity: Moderate	Text: Life Science – Chapter 1 Activity: Exploring Plants (CPALMS) Resource: 4-H Gardening Materials						
SC.3.L.14.2	Investigate and describe how plants respond to stimuli (heat, light, gravity), such as the way plant stems grow toward light and their roots grow downward in response to gravity. Complexity: High	Text: Life Science – Chapter 1; Investigate Plants and Gravity – SIWB pp. 10-13 Activity: Exploring Plants (CPALMS)						
Required Activity	Investigate Plants and Gravity – SIWB pp. 10-13							
Associated Vocabulary	heat, transport, reproduction* , nutrient* , stimuli, adaptation, light, gravity, behavior* , cell, leaves, stem, roots, soil* , flower							
Assessment Information	<p>SC.3.L.14.1 Reporting Category: Life Science Benchmark Clarification: Task will require students to identify and/or describe the parts of plants and/or the part’s role; describe how plants respond to stimuli as well as processes of sexual reproduction in flowering plants. Content Limits: Items assessing the structures and functions of major parts of plants are limited to stem, leaf/needle, root, flower, seed and fruit; items assessing sexual reproduction in flowering plants are limited to stamen, pistil, ovary, petals, sperm and egg; items will not assess cellular processes; items referring to a plant’s response to stimuli are limited to a conceptual understanding of a plant’s response to heat, light or gravity; items will not use the terms <i>phototropism</i>, <i>geotropism</i>, <i>hydrotropism</i> and <i>thigmotropism</i>. Stimulus Attribute: Scenarios referring to how plants respond to conditions will not use the terms <i>stimulus</i> or <i>stimuli</i>. Prior Knowledge: SC.K.L.14.3, SC.1.L.14.1, SC.1.L.14.2, SC.1.L.14.3 Sample Item: Katie Put a flowering plant on her kitchen table.</p>							



How would the flowers respond to light coming through the window?

- A. The flowers would begin to wilt.
- B. The flowers would change color.
- C. The flowers would lean toward the window. ♦**
- D. The flowers would open facing away from the window.

Also Assesses: SC.3.L.14.2, SC.4.L.16.1

Body of Knowledge: Life Science

Big Idea 15: Diversity and Evolution of Living Organisms							
A. Earth is home to a great diversity of living things, but changes in the environment can affect their survival.							
B. Individuals of the same kind often differ in their characteristics and sometimes the differences give individuals an advantage in surviving and reproducing.							
BENCHMARK CODE	BENCHMARK	RESOURCES/ACTIVITIES/TEXT CORRELATION	DATE				
			11/12	12/13	13/14	14/15	15/16
SC.3.L.15.1	Classify animals into major groups (mammals, birds, amphibians, fish, arthropods, vertebrates and invertebrates, those having live births and those which lay eggs) according to their physical characteristics and behaviors. Complexity: Moderate	Text: Investigate Animal Classification – SIWB pp. 24-27; Investigate Arthropods – SIWB pp. 23-31; Life Science – Chapter 2 Resource: BrainPop: www.brainpopjr.com/science/animals/classifyinganimals www.learninghaven.com/science/articles/classifying_animals.html					
SC.3.L.15.2	Classify flowering and non-flowering plants into major groups such as those that produce seeds, or those like ferns and mosses that produce spores, according to their physical characteristics. Complexity: Moderate	Text: Life Science – Chapter 1; Investigate Plant Parts – SIWB pp. 14-19					
Required Activity	Investigate Plant Parts – SIWB pp. 14-19						
Associated Vocabulary	Amphibian, arthropod, invertebrate, vertebrate* , behavior* , mammal, bird, reptile, fish, species* , fern, flowering, spore, reproduction*						
Assessment Information	SC.3.L.15.1, SC.3.L.15.2 are assessed as SC.5.L.14.2 in 5 th grade. Task will require students to compare and/or contrast the function of organs and/or other physical structures of plants and/or animals; to classify animals into major groups according to their physical characteristics and behaviors; and, flowering and/or non-flowering plants into major groups according to their physical characteristics.						

Body of Knowledge: Life Science

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.								
BENCHMARK CODE	BENCHMARK	RESOURCES/ACTIVITIES/TEXT CORRELATION	DATE					
			11/12	12/13	13/14	14/15	15/16	16/17
SC.3.L.17.1	Describe how animals and plants respond to changing seasons. Complexity: Moderate	Text: Life Science – Chapter 3; Investigate Cricket Behavior – SIWB pp. 32-35; Investigate Temperature and Seed Sprouting – SIWB pp. 36-39						
SC.3.L.17.2	Recognize that plants use energy from the Sun, air and water to make their own food. Complexity: Low	Text: Life Science – Chapter 1						
Required Activity	Investigate Cricket Behavior – SIWB pp. 32-35							
Associated Vocabulary	Season, consumer* , producer* , environment* , nutrient* , prey* , predator*							
Assessment Information	<p>SC.3.L.17.1 is assessed as SC.4.L.17.1 in 5th grade. Task will require students to explain, compare and/or contrast how adaptations displayed by animals or plants enable them to survive in different environments; describe or explain how animals and/or plants respond to changing seasons; distinguish plant or animal characteristics that are inherited from those that are affected by the environment; identify characteristics of animals that are inherited or distinguish inherited characteristics from those that are shaped by learning; compare the seasonal changes in Florida plants and/or animals to those in other regions of the country; identify ways in which plants and/or animals can impact the environment; describe how, when the environment changes, differences between organisms allow some plants and animals to survive and reproduce while others die or move to new locations.</p> <p>SC.3.L.17.2 is assessed as SC.4.L.17.3 in 5th grade. Task will require students to describe or explain how energy is transferred from the Sun through a food chain; explain that plants make their own food using carbon dioxide, water and energy from the Sun; explain that animals obtain energy from the plants and/or animals they eat.</p>							

Appendix A

Vocabulary

absorbed*
adaptation*
amphibian
analyze
arthropod
behavior*
boil
classify
compare
condensation*
consumer*
degrees
electricity
emit
energy
environment*
evaporation*
evidence
explain
fern
flower
force*
freeze
friction*
gas
germinate
gravity
heat
infer/inference

invertebrate
law (of gravity)
leaves
light
liquid
mammal
mass*
matter*
measure
mechanical (energy)
melt
models
moon*
motion
nutrient*
observation*
observe
organism
physical change*
physical properties
pollen
pollinate
precipitation
predator*
prey*
producer*
reasonable
reflect*
refraction

reproduction*
reptile
roots
scientist
season
soil*
solar
solar system*
solid
source
sound
species*
star*
state of matter*
stem
sun
telescope
temperature
texture*
transport
unreasonable
valid
vapor
variable
vertebrate*
vibration
volume*
water cycle*

Appendix B

4-H Materials

The Wakulla County 4-H Program in conjunction with the University of Florida endorses uses and shares resource materials that can be found at the following websites: <http://www.4-h.org/resource-library/curriculum/>

To utilize the resources available from the 4-H Agent, Sherri Kraeft, please contact her at (850) 926-3931 or sjkraeft@ufl.edu.

Bold indicates curriculum that focuses on Science, Mathematics and Technology skills.

	Project Book Title	Resource
A	Aerospace	http://www.aces.edu/dept/4Haero/
	Agriculture	http://projects.4-hcurriculum.org/curriculum/afterschoolag/
	ATV Safety	http://svia.4-h.org/atvsafety/
B	Beef	http://www.4-h.org/resource-library/curriculum/4-h-beef/
	Bicycle	
	Butterfly	http://www.flmnh.ufl.edu/wings/
C	Cat	
	Child Development	
	Citizenship	
	Communication	
	Computer	
	Consumer Savvy	
D	Dairy Cattle	
	Dairy Goat	
	Dog	
	Down-To-Earth	
E	Electric	
	Entomology	http://new.4-hcurriculum.org/projects/entomology/
	Entrepreneurship	
	Exploring 4-H	
	Exploring Your Environment	http://online.4-hcurriculum.org/curriculum/environment/
F	Financial	
	Fishing	http://4hfishing.org/

	Food, Culture & Reading	http://projects.4-hcurriculum.org/curriculum/fcr/
	Foods	http://www.four-h.purdue.edu/foods/
	Forestry	http://new.4-hcurriculum.org/projects/forestry/
G	Gardening	
	Geospatial	
H	Health and Fitness	http://new.4-hcurriculum.org/projects/health/HealthCurriculum.htm
	Health Rocks!	
	Horse	http://www.4-hcurriculum.org/projects/leadership/
L	Latino Cultural Arts	
	Leadership	http://new.4-hcurriculum.org/projects/leadership
M	Meat Goat	
	Microwave	
O	Outdoor Adventures	http://www.4-h.org/resource-library/curriculum/4-h-outdoor-adventures/project-
P	Pets	
	Photography	http://new.4-hcurriculum.org/projects/photography/
	Poultry	
Q	Quilting (Nebraska)	
R	Rabbit	http://www.4-h.org/resource-library/curriculum/4-h-rabbit/
	Reading/Financial Literacy	http://online.4-hcurriculum.org/curriculum/reading/
	Robotics	http://www.4-h.org/resource-library/curriculum/4-h-robotics/
S	Science Discovery	http://discoverscience.rutgers.edu/curriculum/about.html
	Service Learning	
	Sewing	http://new.4-hcurriculum.org/projects/sewing/
	Sheep	
	Small Engines	http://new.4-hcurriculum.org/projects/smallengines/
	Swine	http://www.4-h.org/resource-library/curriculum/4-h-swine/
T	Theater Arts	
	There's No New Water	http://tnnw.4-hcurriculum.org/curriculum/water/
V	Veterinary Science	http://www.4-h.org/resource-library/curriculum/4-h-veterinary-science/
	Visual Arts	http://new.4-hcurriculum.org/projects/visualarts/
W	The Power of the Wind	http://online.4-hcurriculum.org/curriculum/wind/
	Woodworking	
	Workforce Readiness	

