2012-2013 CURRICULUM MAP

Science Department
Volusia County Schools

First Grade

HOW TO INTERPRET THE CURRICULUM MAP

Unit/Organizing Principle: the overarching organizational structure used to group content and concepts within the curriculum map

Pacing: the recommended time period within the year for instruction related to the essential questions to occur

Essential Questions: the overarching question(s) that will serve to guide instruction and to push students to higher levels of thinking; essential questions should guide students to the heart of the content; currently science essential questions are in draft form

Measurement Topics: a list of the major underlying concepts covered in the development of the essential questions; benchmarks are clustered under related topics; includes pacing for assessments

Learning Targets/Skills: the content knowledge, processes, and enabling skills that will ensure successful mastery of the essential questions

Benchmarks: the Next Generation Sunshine State Standards; **bold-face** type indicates annual assessment on FCAT 2.0

Academic Language: the content vocabulary and other academic language and phrases with which students should be familiar and that support mastery of the learning targets, skills and essential questions

Teacher Hints: a listing of considerations when planning for instruction

Resource Alignment: a listing of available, high quality and appropriate materials, strategies, lessons, textbooks, videos and other media sources that are aligned with the learning targets, skills and essential questions; developed to save teachers time when planning for instruction

Volusia County Science 5 E Instructional Model		
Stage	**What does the teacher do?**	**What does the student do?**

Engage	• creates interest
	• generates curiosity
	• raises questions
	• elicits responses that uncover what students know or think about the concept/subject
		• asks questions such as:
		  ○ "Why did this happen?"
		  ○ "What do I already know about this?"
		  ○ "What can I find out about this?"
		• shows interest in the topic

Explore	• encourages students to work together without direct instruction • observes and listens to students as they interact • asks probing questions to redirect students' investigations when necessary • provides time for students to puzzle through problems • acts as a consultant for students • creates a "need to know" setting	• thinks freely, within the limits of the activity • tests predictions and hypotheses • forms new predictions and hypotheses • tries alternatives and discusses them with others • records observations and ideas • asks related questions • suspends judgment
Explain	• encourages students to explain concepts and definitions in their own words • asks for justification (evidence) and clarification from students • formally provides definitions, explanations, and new labels • uses students' previous experiences as the basis for explaining concepts • assesses students' growing understanding	• explains possible solutions or answers to others • listens critically to others' explanations • listens to and tries to comprehend explanations that the teacher offers • refers to previous activities • uses recorded observations in explanations • assesses own understanding

Elaborate	• expects students to use formal labels, definitions and explanations provided previously
	• encourages students to apply or extend concepts and skills in new situations
	• reminds students of alternate explanations
	• refers students to existing data and evidence and asks":
	  ○ "What do you already know?"
	  ○ "Why do you think.....?"
		• applies new labels, definitions, explanations, and skills in new but similar situations
		• uses previous information to ask questions, propose solutions, make decisions, and design experiments
		• draws reasonable conclusions from evidence
		• records observations and explanations
		• checks for understanding among peers

Evaluate	• observes students as they apply new concepts and skills
	• assesses students' knowledge and/or skills
	• looks for evidence that students have challenged their thinking or behaviors
	• allows students to assess their own learning and group process skills
	• asks open-ended questions, such as:
	  ○ "Why do you think…?
	  ○ "What evidence do you have?"
	  ○ "Now what do you know about…?"
	  ○ "How would you explain…?"
		• answers open-ended questions by using observations, evidence, and previously accepted explanations
		• demonstrates an understanding or knowledge of the concept or skill
		• evaluates his or her own progress and knowledge
		• asks related questions that would encourage future investigations

*Adapted from: The BSCS 5E Instructional Model: Origins, Effectiveness, and Applications, July 2006, Bybee, et.al, pp. 33-34.

COGNITIVE COMPLEXITY: Low, Moderate, High
What Does It Mean?

The benchmarks in the Next Generation Sunshine State Standards (NGSSS) identify knowledge and skills students are expected to acquire at each grade level, with the underlying expectation that students also demonstrate critical thinking.

The categories—**low complexity, moderate complexity, high complexity**—form an ordered description of the demands a test item may make on a student. Instruction in the classroom should match, at a minimum, the complexity level of the learning target in the curriculum map.

Low Complexity	Moderate Complexity	High Complexity
This category relies 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 some 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 to low complexity items may include, but are not limited to, • **identifying** a common example or **recognizing** a concept; • **retrieving** information from a chart, table, diagram, or graph; • **recognizing** a standard scientific representation of a simple phenomenon; or • **calculating** or **completing** a familiar single-step procedure or equation using a reference sheet.	This category involves 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 formal methods of reasoning and problem-solving strategies—and to bring together skill and knowledge from various domains. Skills required to respond to moderate complexity items may include, but are not limited to, • **applying** or **inferring** relationships among facts, terms, properties, or variables; • **describing** examples and non-examples of scientific processes or concepts; • **predicting** or **determining** the logical next step or outcome; • **comparing** or **contrasting** structures or functions of different organisms or systems; • **choosing** the appropriate formula or equation to solve a problem and **then solving** it; or • **applying** and **using** concepts from a standard scientific model or theory.	This category makes 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 may include, but are not limited to, • **constructing** models for research; • **generalizing** or **drawing conclusions**; • **designing** an experiment, given data and conditions; • **explaining** or **solving** a problem in more than one way; • **providing a justification** for steps in a solution or process; • **analyzing** an experiment to identify a flaw and propose a methods for correcting it; • **interpreting**, **explaining**, or **solving** a problem involving spatial relationships; or • **predicting** a long-term effect, outcome, or result of a change within a system.

UNIT/ORGANIZING PRINCIPLE: BODY OF KNOWLEDGE – Nature of Science			
Essential Questions:	**Big Idea 1: The Practice of Science** What role do the five senses play in the practice of science? How do scientists use tools?	How can inquiry skills be used to learn more about the world? Why is it important for scientists to keep good records? What are the different ways scientists try to solve problems?	
Measurement Topics	**Learning Targets/Skills**	**Benchmarks**	**Academic Language**
Week 1	Students will: • **brainstorm** "What is science?" • **develop science notebooks** that will be used all year long (*e.g.,* spiral notebook, composition book, binder, stapled paper). • **draw** a picture of what a scientist looks like. • **discuss** different types of scientists (*e.g.,* paleontologist, volcanist, doctor, veterinarian).	**not First Grade curriculum** SC.K.N.1.1	**science** **science notebook** **scientists**
Weeks 2-4 **Data Collection/ Record Keeping (T02)** **Practice of Science (T01)**	Students will: • **review** five senses (body part, function). • **(T02) use** five senses as tools to make observations (number, shape, texture, size-nonstandard, weight-nonstandard, color, motion). • **(T02) keep records** (written or pictorial) of observations and data of investigations using the five senses and science tools as appropriate (*e.g.,* science notebooks, class chart). • **(T02) compare** observations with others in the class. • **(T02) explore** the use of science tools (*e.g.,* hand lens, thermometer, balance, measuring cup, beaker, ruler, tape measure) that help scientists gather information about the world around them.	**SC.1.N.1.2** **SC.1.N.1.3**	**balance** **beaker** **data** **explain** **explore** **five senses** **hand lens** **investigate** **measuring cup** **observation** **record** **results** **ruler** **tape measure** **thermometer** **tools**
	Students will: • **(T01) create** a list of questions about the world (e.g., after a nature walk, about a mystery object, after reading a book, mixture of colors). • **(T01) investigate** questions in teams through free exploration. • **(T01) generate** appropriate explanations based on those explorations.	**SC.1.N.1.1**	

Weeks 5-8 continued on next page.

Measurement Topics	Learning Targets/Skills	Benchmarks	Academic Language
Weeks 5-8 **Practice of Science (T01)** **Data Collection/ Record Keeping (T02)**	Students will: • **(T01) observe** three like objects and record the number of parts you see (flower petals, number of wheels, number of sides on shapes). • **(T01) compare** the weight (heavy/light) of two objects in the classroom using a balance. • **(T01) predict** the number of beans that will fit in containers of different sizes and shapes. • **(T01) estimate and measure** the length of objects found in the classroom using non-standard units of measure. • **(T01) sort and classify** a group of objects by the way they move and compare results with others. • (**T01) communicate** the look and feel of objects with a partner. • **(T01) hypothesize and plan** an investigation to discover whether magnets work under water or not. • **(T01) infer and draw conclusions** about the identity of an animal after observing a demonstration of its movements and sounds (charades with sounds). • **(T01) make** a model of an object found in your classroom or in the school yard. • **(T01) sequence** an event or a set of picture cards (someone making a cake).	**SC.1.N.1.1**	**balance** **classify** **communicate** **compare** **conclusion** **data** **estimate** **hypothesis** **identify** **infer** **measure** **model** **predict** **results** **sequence** **sort** **weight**
	Students will: • **(T02) ask** "how do you know" after being presented with information through reading, investigation, and/or discussion. • **(T02) discuss** possible answers to "how do you know" questions.	**SC.1.N.1.4**	

Teacher Hints:

Introduction (Week 1):

In order to access the digital curriculum resources go to www.thinkcentral.com.
(login is your Volusia County username, password is science)

- The first week of school is a perfect time to set up an interactive student notebook.
- A science notebook is a compilation of student learning that provides a partial record of the instructional experiences a student has in the classroom. Consideration may be given to the use of a class notebook at the start of the school year with the intent of moving toward individual student notebooks sometime within the school year.
- Some teachers use stapled paper, spiral bound notebooks, or composition notebooks.
- You will be pleasantly surprised by the ownership that student take in their interactive science notebooks.

Data Collection & Record Keeping/Practice of Science (Weeks 2-4):

- Careful observations are the beginning of all science.
- Observations can be made by comparing things. For example, this lotion smells like flowers, the candy is hard as a rock, the ball is bigger than a marble.
- Tools allow students to make observations that go beyond their senses. Students can investigate tools that enhance or reduce each of the five senses (*e.g.,* hand lens: sight, gloves: touch, stethoscope: hearing, thermometer: temperature).

Practice of Science/Data Collection & Record Keeping (Weeks 5-8):

- Steps in an investigation MAY include: question, research, hypothesis, experiment (materials and procedures), data, results, conclusions, application to the real world, communication, more questions.
- Not every investigation has to use all of the steps.
- Results can be a little different each time the investigation is done. Students should become very comfortable with the need to repeat an investigation a few times to be sure similar results will occur.
- Process skills (inquiry skills) are the habits of a scientist. They may include, but are not limited to, the following: observing, comparing, predicting, estimating, measuring, sorting, classifying, communicating, researching, hypothesizing, planning, inferring, concluding, modeling, sequencing, recording, interpreting, analyzing, organizing, and controlling.

Resource Alignment	Week 1 Science	Weeks 2-4 Data Collection/Record Keeping Practice of Science	Weeks 5-8 Practice of Science Data Collection/Record Keeping
HMH Teacher's Edition		Unit 1 Lesson 1-2, p. 1-16	Unit 1 Lesson 3-5, p. 17-38
HMH Leveled Readers			
HMH Inquiry Flipchart		Shoebox Senses/Balancing Act p. 2 How Can we Use our Senses p. 3	Measure Up/Animal Models p. 4 How Do We Use inquiry Skills? p. 5 Holding Water/My Fingerprints p. 6
HMH Labs To Go			Measure Up p. 17A
HMH Think Central	People in Science/Careers	Digital lesson Unit 1 lesson 1-2	Digital lesson Unit 1 lesson 3-5
AIMS Science (Florida-specific)			
Supplemental Literature			
Safari Montage		All About the Senses Magic School Bus Makes a Stink	Science as Inquiry for Children
Assessment		Assessment Guide p. AG 1-2	Assessment Guide p. AG 3-5 Student book-Unit 1 Benchmark Review p. 41-42 Unit Benchmark Test p. AG 6-9
Websites		www.cool-**kids**-craft-ideas.com/sensory-**activities**.html http://www.brainpopjr.com/health/bodies/senses/ http://www.brainpopjr.com/science/scienceskills/makingobservations/ http://thehappyscientist.com/ss-fl-g1 http://studyjams.scholastic.com/studyjams/jams/science/index.htm	http://www.brainpopjr.com/readingandwriting/comprehension/makepredictions/ http://www.bbc.co.uk/schools/scienceclips/ages/5_6/sorting_using_mate.shtml http://pbskids.org/sid/videoplayer.html http://thehappyscientist.com/ss-fl-g1

UNIT/ORGANIZING PRINCIPLE: BODY OF KNOWLEDGE – Nature of Science/Earth Science				
Essential Questions:	**Big Idea 1: The Practice of Science** How can inquiry skills be used to learn more about the world?		**Big Idea 5: Earth in Space and Time** What is the relationship between Earth and space? What effect does gravity have on objects?	
Measurement Topics	**Learning Targets/Skills**		**Benchmarks**	**Academic Language**
Weeks 9-11 **Stars and Sun (T03)** Practice of Science (T01) Data Collection/ Record Keeping (T02)	Students will: • **review** objects found in the day sky (*e.g.,* sun, sometimes moon, clouds). • **review** objects found in the night sky (*e.g.,* stars, clouds, moon). • **create** models as a review of the day and night sky.		**not First Grade curriculum**	**clouds** **stars** **day sky** **sun** **model** **moon** **night sky**
	Students will: • **(T03) observe and discuss** that there are more stars in the sky than anyone can easily count. • **(T03) observe and discuss** that stars are not scattered evenly in the sky. • **review** that stars appear tiny because they are far away. • **(T01) investigate** how hand lens and microscopes (and other tools like binoculars) make things appear closer, bigger, and more detailed (eventually linking this concept to telescopes). • **(T02) record** observations of the investigation in a science notebook.		**SC.1.E.5.1** **SC.1.E.5.3** **SC.1.N.1.1** **SC.1.N.1.2** **SC.1.N.1.3**	**light** **telescope** **magnify** **hand lens**
	Students will: • **(T03) identify** beneficial effects of the sun (*e.g.,* light, warmth, energy for living things, solar energy). • **(T03) identify** harmful effects of the sun (*e.g.,* sunburn, melting, fading, dehydration).		**SC.1.E.5.4**	**beneficial** **harmful** **helpful**
Week 12 **Gravity (T04)** Data Collection/ Record Keeping (T02)	Students will: • **(T04) demonstrate** how the Earth's gravity pulls objects towards the ground. • **(T02) record** observations of gravity investigations in a science notebook.		**SC.1.E.5.2** **SC.1.N.1.2** **SC.1.N.1.3**	**gravity** **pull** **push**

Teacher Hints:

Stars and Sun/Practice of Science/Data Collection & Record Keeping (Weeks 9-11):

- Students are not responsible for recognizing that the sun is a middle-sized star. This is a concept that is specifically taught in Grade 3, but page 46 in the student consumable will provide an early introduction of this concept.
- Students naturally build a misconception regarding the sun as a star and its apparent size.
- While there are billions of trillions of stars in the universe, we can see about 2,000 with the naked eye.
- Students at this age are able to observe and discuss objects in the night sky, but have not developed the ability to understand how many stars there really are.
- Heat and light that comes from the sun can be both beneficial and harmful.

Gravity/Data Collection & Record Keeping (Week 12):

- Gravity seems like a simple concept. Young children know that things fall to the ground. They do not realize that something is pulling the objects to the ground. Because gravity is abstract (not tangible), they come to accept gravity because of the effects it has on objects. Explore gravity by dropping things, observing pendulums, overcoming it, etc.
- Gravity is something that has been explored by your students for many years (dropping their spoon from the high chair and watching it hit the floor…repeatedly). They will be very good at predicting what will happen if something is dropped.
- Students begin building a formal understanding of gravity in Kindergarten.
- Be careful to avoid the misconception that sometimes is developed as a result of activities that are prepared for students to experience. When objects are dropped onto a table, students often think that the table has gravity. The table is simply something that holds it up (no different than their hands).
- As they mature in later grade levels, students will be expected to grasp a more sophisticated understanding of gravity. For example, all objects attract each other. The sun and Earth attract each other. The moon and Earth attract each other. People and Earth attract each other. Stars attract each other. Gravity keeps Earth and other planets in orbit around the sun. Gravity keeps the moon in orbit around Earth.
- First grade instruction on gravity is foundational to future understandings of this concept.

Resource Alignment	**Weeks 9-11** Stars and Sun Practice of Science Data Collection/Record Keeping	**Week 12** Gravity Data Collection/Record Keeping
HMH Teacher's Edition	Unit 2 Lesson 1 p. 45-54; Unit 2 Lesson 2 p. 55-56 Unit 2 Lesson 3 p. 57-67; Unit 2 Lesson 4 p. 77-78	Unit 2 Lesson 4 p. 69-76
HMH Leveled Readers	Objects in the Sky **BL** Look Up! **OL** Sun Time! **AL**	
HMH Inquiry Flipchart	High in the Sky/Star Find p. 7 How Do Magnifiers Work? P. 8 Sunny Days/Heating Land & Air p. 9	Ramp and Roll/Drop It! p. 10
HMH Labs To Go	Star Fun p. 45A	
HMH Think Central	Digital lesson unit 2 lesson 1 Digital lesson unit 2 lesson 1(p. 5,7) & 2 Digital lesson unit 2 lesson 3	Digital lesson unit 2 lesson 4
AIMS Science (Florida-specific)	Splatter Paint Stars p. 19; Stars in the Sky p. 21; The Sun p. 23 Many Magnifiers p. 45	What Goes Up Must Come Down p. 27 Reader's Theater-The Law of Gravity p. 31
Supplemental Literature	Scott Foresman readers: Day and Night Sky The Sky The Sun	
Safari Montage	Magic School Bus Sees the Stars, RR-Watch the Stars Come Out, All About Stars All About the Sun Peeps Night Out	Magic School Bus Gains Weight, All About Forces & Gravity Schoolhouse Rock! Science (Chapter 9)
Assessment	Assessment Guide p. AG 12-14	Assessment Guide p. AG 15, Student book-Unit 2 Benchmark Review p. 79-80, Unit Benchmark Test p. AG 16-19
Websites	http://www.brainpopjr.com/science/space/sun/ http://www.nasa.gov/ http://studyjams.scholastic.com/studyjams/jams/science/index.htm	http://thehappyscientist.com/ss-fl-g1 http://www.brainpopjr.com/search/?keyword=gravity http://studyjams.scholastic.com/studyjams/jams/science/index.htm
"MY OWN IDEAS"	Day/Night Family Night to see the sky	

UNIT/ORGANIZING PRINCIPLE: BODY OF KNOWLEDGE – Nature of Science/Earth & Space Science			
Essential Questions:	**Big Idea 1: The Practice of Science** What role do the five senses play in the practice of science? How do scientists use tools? Why is it important for scientists to keep good records? What are the different ways scientists try to solve problems?	**Big Idea 6: Earth Structures** What is the composition of Earth's surface? How is life on Earth dependent upon natural resources? What are the constructive and destructive forces that alter the features of the Earth?	
Measurement Topics	**Learning Targets/Skills**	**Benchmarks**	**Academic Language**
Weeks 13-16 **Earth's Surface (T05)** Practice of Science (T01) Data Collection/ Record Keeping (T02)	Students will: • **(T05) predict** what might be found on Earth's surface. • **(T02) explore** Earth's surface by walking around the school yard recording what is seen. • **(T01) discuss** the findings of the exploration around the school yard. • **(T05) identify** natural resources found on Earth's surface (water, rocks, soil and living organisms-animals and plants). • **(T02) record** observations of school yard walk in science notebook. • **(T02) record** natural resources found on Earth's surface in science notebook.	**SC.1.E.6.1** **SC.1.N.1.1** **SC.1.N.1.2** **SC.1.N.1.3**	**animals** **Earth** **lake** **natural resources** **need** **ocean** **plants** **pond** **river** **rocks** **safety** **soil** **water**
	Students will: • **(T05) describe** the need for water (humans, plants, animals). • **(T05) name** places water is found on earth (*e.g.,* rivers, lakes, ponds, ocean). • **(T05) describe** ways to be safe around water.	**SC.1.E.6.2**	
Weeks 17-18 **Changes to Earth's Surface (T06)** Practice of Science (T01) Data Collection/ Record Keeping (T02)	Students will: • **(T06) predict** ways Earth's surface can change. • **(T06) explore** the school yard for signs of change that has occurred. • **(T06) discuss** the findings of the exploration of the school yard. • **(T02) record** evidence of changes to Earth's surface in science notebook. • **(T06) discuss** natural processes that change the Earth's surface quickly. (*e.g.,* hurricanes, tornadoes, earthquakes, volcanoes, floods, fires, tsunamis). • **(T01) investigate** ways that Earth's surface changes quickly (*e.g.,* model effects of water and wind erosion using sand box and spray bottle on stream setting; sand box and fan on high speed). • **(T02) record** observations from the investigation on changes to the Earth that occur quickly.	**SC.1.E.6.3** **SC.1.N.1.1** **SC.N.1.2**	**cause and effect** **erosion** **fast change** **slow change** **weathering**
	Students will: • **(T06) discuss** natural processes that change the Earth's surface slowly (wind, water, drought, tides). • **(T01) investigate** ways that Earth's surface changes slowly over time (*e.g.,* model effects of water and wind erosion using sand box and spray bottle on mist; sandbox and fan on low speed). • **(T02) record** observations from the investigation on changes to the Earth that occur slowly.		

Teacher Hints:

Earth's Surface/Data Collection & Record Keeping (Weeks 13-16):

- The land on Earth is made of rocks, soil, and sand.
- Two-thirds of the land is covered by water in the form of oceans, lakes, ponds, rivers, streams, etc.
- Life exists on both land and water.
- All land comes from rock, but through the processes of weathering and erosion the landforms look very different (mountains, farmlands, deserts, wetlands, etc.).
- Water is necessary for life on Earth; without it we could not survive. Besides sustaining life, water is used in many other ways (transport people and goods, water sports and other recreation activities, irrigation, hydroelectric plants, steam engines, cooking, cleaning, etc.).
- Water safety may include, but is not limited to, the following: learning how to swim, following posted signs near bodies of water, enter the water feet first, avoid swimming during bad weather.

Changes to Earth's Surface/Practice of Science/Data Collection & Record Keeping (Weeks 17-18):

- Because time is important to the changing of Earth's surface, it is difficult for young children to fully understand that the Earth's surface is constantly changing.
- Effects of a changing surface can be easily observed around the schoolyard. Look for evidence of weathering (breaking down of Earth material), erosion (movement of Earth material), and deposition (relocation of Earth material).
- Students are not responsible for the terms weathering, erosion, and deposition.

Resource Alignment	**Weeks 13-16** Earth's Surface Practice of Science Data Collection/Record Keeping	**Weeks 17-18** Changes to Earth's Surface Practice of Science Data Collection/Record Keeping
HMH Teacher's Edition	Unit 3 Lesson 1-3 p. 83-106	Unit 3 Lesson 4 p. 107-118
HMH Leveled Readers	Our Earth **BL** My Earth **OL** Land and Water **AL**	Our Earth **BL** My Earth **OL** Land and Water **AL**
HMH Inquiry Flipchart	Clay in a Tray/Do People Eat Plants? P. 11, What Can We Observe About Rocks? P. 12 Water Watch p. 13	Earth Shake/Erosion Made Easy p. 14
HMH Labs To Go	Pass the Salt? p. 95A	
HMH Think Central	Digital lesson unit 3 lesson 1-3	
AIMS Science (Florida-specific)	Treasures From the Earth p. 37, Surface Search p. 39, Magnifying Materials p. 41	Fast & Slow Changes p. 67, Hurricane Homes p. 69, Wind and Wave Action p. 73, Reader theater-As the World Changes p. 77, Edible Earthquakes p. 89
Supplemental Literature	Scott Foresman readers: Natural Resources Land, Air, and Water Places in the World	
Safari Montage	All About the Year, All About Land Formations, All About Rocks and Minerals, All About Soil, All About natural Resources	All About Earthquakes, All About Volcanoes
Assessment	Assessment Guide p. AG 22-24	Assessment Guide p. AG 25, Student book-Unit 3 Benchmark Review p. 119-120, Unit Benchmark Test p. AG 26-29
Websites	http://thehappyscientist.com/ss-fl-g1 http://www.brainpopjr.com/science/land/soil/ http://www.brainpopjr.com/science/land/rocksandminerals/ http://bobber.info/ http://www.bbc.co.uk/schools/scienceclips/ages/7_8/science_7_8.shtml	http://studyjams.scholastic.com/studyjams/jams/science/index.htm http://studyjams.scholastic.com/studyjams/jams/science/index.htm http://www.brainpopjr.com/science/land/fastlandchanges/ http://www.brainpopjr.com/science/land/slowlandchanges/ http://www.prometheanplanet.com/en-us/
"MY OWN IDEAS"		

UNIT/ORGANIZING PRINCIPLE: BODY OF KNOWLEDGE – Nature of Science/Physical Science			
Essential Questions:	**Big Idea 1: The Practice of Science** What role do the five senses play in the practice of science? How do scientists use tools? How can inquiry skills be used to learn more about the world? Why is it important for scientists to keep good records? What are the different ways scientists try to solve problems?	**Big Idea 8: Properties of Matter** What is the role of matter in the world? How are physical properties used to classify matter?	
Measurement Topics	**Learning Targets/Skills**	**Benchmarks**	**Academic Language**
Weeks 19-21 **Properties of Matter (T07)** Data Collection/ Record Keeping (T02)	Students will: • **(T02) record** observations, predictions, data (written or pictorial) for each sorting activity in a science notebook. • **(T07) sort** objects by color by using the sense of sight. • **(T07) sort** objects by shape by the sense of sight or touch. • **(T07) sort** objects by texture (rough/smooth) by using the sense of touch. • **(T07) sort** objects by size (short/long, big/small). • **(T07) sort** objects by weight (heavy/light) using a pan balance. • **(T07) sort** objects by temperature (hot/cold) using a thermometer. • **(T07) sort** objects by sink or float. • **(T02) compare** observations of objects with other students.	**SC.1.P.8.1** **SC.1.N.1.2** **SC.1.N.1.3**	**float** **long** **pan balance** **properties** **rough** **ruler** **short** **sink** **smooth** **sort** **temperature** **texture** **thermometer** **weight**

Teacher Hints:

Properties of Matter/Data Collection & Record Keeping (Weeks 19-21):

- Measurement is the process of making comparisons between what is being measured and a standard. The standard can be another object, a non-customary or customary unit of measure. Students in Grade 1 measure using non-customary units of measure (paper clips, pennies, cubes, etc.).
- Students are not responsible for being able to measure temperature by reading a thermometer. Students would only need a conceptual understanding of how a thermometer works (the higher the red liquid the hotter the temperature; the lower the red liquid the cooler the temperature).
- Developing comparison strategies is a life-long skill.
- Sorting by color, shape, and size comes most naturally to young children. Have them sort and resort the same objects to tap into other ways of sorting objects.

Resource Alignment	**Weeks 19-21** Properties of Matter Data Collection/Record Keeping
HMH Teacher's Edition	Unit 4 Lesson 1-3 p. 123-140
HMH Leveled Readers	All About Matter **BL** What is Matter? **OL** Fantastic Fruit **AL**
HMH Inquiry Flipchart	Sort It out!/What's the Weight? p. 15, Which Objects Sink or Float? p. 16
HMH Labs To Go	How Can We Measure Temperature? p. 137 A
HMH Think Central	Digital lesson unit 4 lesson 1-3
AIMS Science (Florida-specific)	Balancing Bean-y Babies p. 133, Texture Rough, Texture Smooth p. 139 What Do You Sink Will Float p. 143, Backpack Bounty p. 147
Supplemental Literature	
Safari Montage	All About Properties of Matter
Assessment	Assessment Guide p. AG 32-35 Student book-Unit 4 Benchmark Review p. 141-142 Unit Benchmark Test p. AG 36-38
Websites	http://www.prometheanplanet.com/en-us/Search/resources/country/united-states/language/english/?Keywords=matter&SortField=relevance http://studyjams.scholastic.com/studyjams/jams/science/matter/properties-of-matter.htm http://thehappyscientist.com/ss-fl-g1 http://www.brainpopjr.com/science/matter/solidsliquidsandgases/ http://www.bbc.co.uk/schools/scienceclips/ages/6_7/grouping_materials.shtml
"MY OWN IDEAS"	

UNIT/ORGANIZING PRINCIPLE: BODY OF KNOWLEDGE – Nature of Science/Physical Science			
Essential Questions:	**Big Idea 1: The Practice of Science** What role do the five senses play in the practice of science? How do scientists use tools? Why is it important for scientists to keep good records? What are the different ways scientists try to solve problems?	**Big Idea 12: Motion of Objects** How is motion observed, described and measured? **Big Idea 13: Forces and Changes in Motion** What effect does force have on the motion of an object?	
Measurement Topics	**Learning Targets/Skills**	**Benchmarks**	**Academic Language**
Weeks 22-24 **Motion of Objects (T08)** Practice of Science (T01) Data Collection/ Record Keeping (T02)	Students will: • **review** various ways that objects move (*e.g.,* fall, slither, tumble, fly, climb, roll, slide, sway). • **review** the speed of various things as fast or slow *(e.g.,* roller coaster, snail, wind, car, beat to a song, feather, molasses). • **(T08) demonstrate** the following movements of objects: straight line, zigzag, back and forth, round and round. • **(T08) describe** the motion of zigzag, back and forth, round and round, and a straight line. • **(T01) investigate** the speed of objects rolling down a ramp.	**SC.1.P.12.1** **SC.1.N.1.1**	**back and forth** **fast** **move** **round and round** **slow** **speed** **straight line** **zigzag**
	Students will: • **(T02) keep records** (written or pictorial) of observations, predictions, data and results as appropriate (science notebooks).	**SC.1.N.1.3**	
Weeks 25-27 **Forces and Changes in Motion (T09)** Data Collection/ Record Keeping (T02)	Students will: • **(T09) demonstrate** push and pull on an object. • **(T09) define** force as a push or pull on an object. • **(T09) describe** an object's position (*e.g.,* in, out, up, down, left, right, over, under, on, off) . • **(T09) demonstrate** how to change the motion of an object. • **(T02) predict and record** how a push or pull would change the position of an object in motion.	**SC.1.P.13.1** **SC.1.N.1.3**	**change** **direction** **force** **motion** **position** **pull** **push**

Teacher Hints:

Motion of Objects/Practice of Science/Data Collection & Record Keeping (Weeks 22-24):

- Students need to become comfortable with observing, describing and discussing with their peers how things move, including themselves, animals, and inanimate objects.
- Observation of motion naturally leads to the need to "measure" how far, how fast, and for how long. Non-customary measurements are used at this grade level.
- Students should be given opportunities to estimate (predict) and actually measure a variety of objects. With practice, their estimation skills should improve.
- Along with observing, describing, and discussing motion of objects, students should be able to draw the path that results from the motion of an object (straight line, back and forth, zigzag, etc.).

Forces and Changes in Motion/Data Collection & Record Keeping (Week 25-27):

- Magnets, wind, water, pushes, pulls, and gravity can be used to demonstrate the effects of a push or pull on an object.
- Students should be very comfortable with the idea that if motion has occurred then a push or pull has been applied. Note: Not all pushes or pulls result in motion.
- Experimenting with the relationship between the amount of force applied to an object and the distance the object moves will be of great benefit as this concept is developed in later years.
- Provide exposure to contact and non-contact forces that can cause a push or pull. They do not need to know the terms contact (touching) and non-contact (blowing, magnetism) forces.

Resource Alignment	Weeks 22-24 Motion of Objects	Weeks 25-27 Force and Motion
HMH Teacher's Edition	Unit 5 Lesson 1-2 p. 143-154	Unit 5 Lesson 3 p. 155-166 Unit 5 Lesson 4 p. 167-168
HMH Leveled Readers	Motion **BL** In Motion! **OL** Ride On **AL**	Motion **BL** In Motion! **OL** Ride On **AL**
HMH Inquiry Flipchart	Marble race/Testing Toys p. 18 How Can We Move a Ball p. 19	Changing Motion/Motion Maze p. 20 How Can We Change Motion? p. 21
HMH Labs To Go		How Can We Change Motion? p. 167A
HMH Think Central	Digital lesson unit 5 lesson 1-2	Digital lesson unit 5 lesson 3 Digital lesson unit 5 lesson 4
AIMS Science (Florida-specific)	Make Your Move p. 153	Willie the Worm p. 155 Finding Forces p. 163 Blow and Go p. 167 Modifying Motion p. 171
Supplemental Literature	Scott Foresman readers: Movement and Sound	Scott Foresman readers: Forces and Sounds
Safari Montage	All About Motion & Balance Magic School Bus Plays Ball	All About Forces & Gravity Forces and Movement
Assessment	Assessment Guide p. AG 41-42	Assessment Guide p. AG 43 Assessment Guide p. AG 44 Student book-Unit 5 Benchmark Review p. 171-172 Unit Benchmark Test p. AG 45-48
Websites	http://www.bbc.co.uk/schools/scienceclips/ages/5_6/pushes_pulls.shtml	http://studyjams.scholastic.com/studyjams/jams/science/forces-and-motion/inertia.htm http://studyjams.scholastic.com/studyjams/jams/science/forces-and-motion/force-and-motion.htm http://thehappyscientist.com/ http://www.brainpopjr.com/science/forces/pushesandpulls/ http://pbskids.org/sid/videoplayer.html http://pbskids.org/sid/videoplayer.html http://www.bbc.co.uk/schools/scienceclips/ages/6_7/forces_movement.shtml
"MY OWN IDEAS"		

UNIT/ORGANIZING PRINCIPLE: BODY OF KNOWLEDGE – Nature of Science/Life Science			
Essential Questions:	**Big Idea 1: The Practice of Science** How can inquiry skills be used to learn more about the world?	**Big Idea 14: Organization and Development of Living Organisms** How are plants and animals, including humans, alike and different?	
Measurement Topics	**Learning Targets/Skills**	**Benchmarks**	**Academic Language**
Weeks 28-29 **Living and Nonliving Things (T10)** Practice of Science (T01) Data Collection/ Record Keeping (T02)	Students will: • **review** the difference between dead and alive. • **(T10) explain** that living organisms include those that are alive and were once alive. • **(T02) record** observations of living organisms (dead or alive) in the environment using five senses. • **(T10) develop**, as a class, a definition to determine if an organism is living (*e.g.,* can grow, change, have babies, need food, move on their own). • **(T10) apply** the class definition to known living things (tree, dog, people) to see if it works. • **(T01) ask and answer** "how do you know" questions that apply to living things.	**SC.1.L.14.1** **SC.1.N.1.2** **SC.1.N.1.3** **SC.1.N.1.4**	**alive** **define** **definition** **environment** **living** **organism**
	Students will: • **(T02) observe and record** things in the school yard in the science notebook. • **(T10) apply** their class definition for living things to sort the school yard list into "living" and "other". • **(T10) develop** a class definition for nonliving (rocks, plastic, water, metal, air) using the "other" list (*e.g.,* do not develop, do not need energy to grow, or do not have babies, do not need food, cannot move on their own). • **(T01) ask and answer** "how do you know" questions that apply to nonliving things.	**SC.1.L.14.3** **SC.1.N.1.2** **SC.1.N.1.3** **SC.1.N.1.4**	**nonliving**
Weeks 30-31 **Parts of a Plant (T11)** Data Collection/ Record Keeping (T02)	Students will: • **(T11) observe** plants using a hand lens. • **(T02) record** observation of plants and their parts in a science notebook. • **(T11) identify** the major parts of plants (stem, roots, leaves and flowers, seed). • **(T11) explore** different kinds of stems, roots, leaves, and flowers (size, shape, color). • **(T11) explore** the process of growing different plants from a seed (these plants will be used for observation in Week 37).	**SC.1.L.14.2** **SC.1.N.1.2**	**flower** **leaf** **plant** **root** **seed** **stem**

Teacher Hints:

Living and Nonliving Things/Practice of Science/Data Collection & Record Keeping (Weeks 28-29):

- The concept of living and nonliving things is not an easy one for young children. They naturally want to classify dead plants and animals as nonliving.
- Living things are those that are currently alive or once were alive (bugs, babies, bobcats, birch trees).
- Nonliving things have NEVER been alive (air, rocks, water, metal, glass).
- Ultimately as they work on their class definition, the goal is to realize that all living things need (or needed at one time) air, water, food (a source of energy), and a place to live.
- When beginning on this instruction, keep the examples clear cut. They will quickly have questions about a wooden bat, a hamburger, their teeth, etc. Starting off instruction with these things will hinder learning.
- Consider making a chart (picture or written) of ones that are not clearly living or nonliving. Seek out the thoughts of your peers on some of the tougher ideas that come forward in your classroom.
- All living things eventually die. Be prepared for this to come up.
- Nonliving things have no needs. Design pet rocks for each student to "care" for to help with this understanding.
- Consider comparing the following: videos of real babies to a baby doll, a real dog to a stuffed animal, a gummy worm to a real worm.

Parts of a Plant/Data Collection & Record Keeping (Weeks 30-31):

- When growing plants from seeds, be careful to avoid creating a misconception that seeds need light to grow. When we hang baggies in a window, seeds use the warmth that comes from a transfer of light energy from the sun to heat energy that promotes germination. All on their own, students quickly form a belief that sunlight is necessary for germination.
- Roots come in all shapes and sizes. Expose your students to taproots (carrots) and fibrous roots (grass). They do not need to know the terminology of taproot and fibrous.
- Stems come in all shapes and sizes. Expose your students to soft and green stems like those associated with a marigold. As well as hard and thick stems like those associated with bushes and trees.
- We eat stems (celery, broccoli, asparagus, sugar cane, potatoes).
- Leaves come in all shapes and sizes. This will be an easy one to explore. Caution them from all picking a leaf from the same bush or tree because of how important the leaves are to the making of energy for the plant to grow.
- Pine needles are leaves.
- Seeds are fun to explore. The size of a seed does not indicate the size of the parent plant.

Resource Alignment	**Weeks 28-29** Living Things Practice of Science Data Collection/Record Keeping	**Weeks 30-31** Parts of a Plant Data Collection/Record Keeping
HMH Teacher's Edition	Unit 6 Lesson 1 p. 175-177 Unit 6 Lesson 3 p. 195-206	Unit 6 Lesson 2 p. 185-194 Unit 6 Lesson 5 p. 209-218
HMH Leveled Readers	Environments of Living Things **BL** Animals and Plants **OL;** Web of Life **AL**	Animals and Plants **OL**
HMH Inquiry Flipchart	Modeling You/Neighborhood Search p. 22 Animal Sort/Picture Walk Safari p. 24	Rubbed Leaf Collection/ Fantastic Flowers p. 23 Are All Seeds Alike?/What Parts Do You See? p. 26
HMH Labs To Go	What Can Your Senses Tell You About Living Things? P. 207 A	
HMH Think Central	Digital lesson unit 6 lesson 1 Digital lesson unit 6 lesson 3-4	Digital lesson unit 6 lesson 2 Digital lesson unit 6 lesson 5
AIMS Science (Florida-specific)	Living and Nonliving p. 179 Pets Rock p. 189 Livin' or Not p. 193 Schoolyard Survey p.197 Putting Pictures in Place p. 203 Mixed Up Triplets p. 207 Pocketbook Pictures p. 211 Making Sense of Crickets p. 217 Cricket Journal p. 220 We've Got Guppies p. 229 Cup of Worms p. 235	Super Tuber p. 269 Plants and Their Parts p. 255 Root Study p. 259 Stem Study p. 263 Searching for Stems p. 273 Observe a Leaf p. 277 Leaf Safari p. 279 This Is My Flower p. 283 Inside a Seed p. 287
Supplemental Literature	Scott Foresman readers: Is it a Living Thing? Living and Nonliving	Scott Foresman readers: Many Leaves Living Things Grow and Change
Safari Montage	Once There Was a Tree	Peep: The Root Problem
Assessment	Assessment Guide p. AG 51 Assessment Guide p. AG 53-54	Assessment Guide p. AG 52 Assessment Guide p. AG 55 Student book-Unit 6 Benchmark Review p. 221-222 Unit Benchmark Test p. AG 56-59
Websites	http://pbskids.org/sid/videoplayer.html http://www.bbc.co.uk/schools/scienceclips/ages/5_6/growing_plants.shtml	http://studyjams.scholastic.com/studyjams/jams/science/plants/roots-stems.htm http://thehappyscientist.com/ss-fl-g1 http://www.brainpopjr.com/science/plants/partsofaplant/ http://www.brainpopjr.com/science/plants/plantlifecycle/ http://www.bbc.co.uk/schools/scienceclips/ages/9_10/life_cycles.shtml
"MY OWN IDEAS"		

UNIT/ORGANIZING PRINCIPLE: BODY OF KNOWLEDGE – Nature of Science/Life Science			
Essential Questions:	**Big Idea 1: The Practice of Science** What role do the five senses play in the practice of science? How do scientists use tools? Why is it important for scientists to keep good records? What are the different ways scientists try to solve problems?	**Big Idea 14: Organization and Development of Living Organisms** What role does each plant's part play in its ability to survive? **Big Idea 16: Heredity and Reproduction** How are offspring of plants and animals similar to, but not exactly like, their parents? **Big Idea 17: Interdependence** How do plants and animals interact with and depend on each other and the environment?	
Measurement Topics	**Learning Targets/Skills**	**Benchmarks**	**Academic Language**
Weeks 32-33 **Parents and Offspring (T12)** Practice of Science (T01)	Students will: • **(T12) match** plant and animal offspring to parent by looking at their physical traits. • **(T12) explain** that offspring of plants and animals are similar but not identical to their parents. • **(T01) explain** "how they know" which child belongs to which parent.	**SC.1.L.16.1** **SC.1.N.1.4**	**offspring** **parent** **traits**
Weeks 34-36 **Needs of Living Things (T13)** Practice of Science (T01)	Students will: • **(T13) identify** the basic needs of all living things, including humans (air, water, food and space). • **(T01) investigate** what happens when one of the basic needs are not present (e.g., plant without air, plant without water, plant without food (sunlight), plant without space).	**SC.1.L.17.1** **SC.1.N.1.1**	**animals** **humans** **needs** **plants** **survival**
Week 37 **Parts of a Plant (T11)** Data Collection/ Record Keeping (T02)	Students will: • **(T02) observe** the different plants that have begun to grow from Weeks 30-31. • **(T02) observe** different varieties of plants (*e.g.,* fern, trees, shrubs, grass, petunias). • **(T11) compare and contrast** the parts of two different plants (*e.g.,* grass and marigolds). • **(T02) record** observations of plants in a science notebook.	**SC.1.L.14.2** **SC.1.N.1.2** **SC.1.N.1.3**	**plants**
Weeks 38-39 **Enrichment**	Students will: • **discuss** ways to group animals (e.g., how they move, what they eat, where they live, size). • **sort** animals into six major groups (mammals, birds, reptiles, amphibians, fish, and insects). • **explain** "how they know" animals fit in a certain group.	**not First Grade curriculum**	**amphibians** **animals** **birds fish** **insects mammals** **reptiles**

Teacher Hints:

Parents and Offspring/Practice of Science (Weeks 32-33):

- An easy way for children of this age to begin learning about heredity (terminology not required) is to discuss how offspring often resembles their parents. Because heredity is genetically determined, there tends to be many observable similarities between parents and their offspring.
- Expose children to offspring that do not look like their parents (mealworms-beetles, caterpillar-butterfly).

Needs of Living Things/Practice of Science (Weeks 34-36):

- Water is the most important substance to life on Earth. No organism can exist without water.
- Plants make their own food; animals, including humans, eat plants and/or other animals for food.
- Needs must be met in order for an organism to survive.

Parts of a Plant/Data Collection & Record Keeping (Week 37):

Enrichment (Weeks 38-39):

Resource Alignment	**Weeks 32-33** Offspring and Parents Practice of Science	**Weeks 34-36** Needs of Living Things Practice of Science	**Week 37** Parts of a Plant Data Collection/Record Keeping	**Weeks 38-39** Enrichment
HMH Teacher's Edition	Unit 7 Lesson 1-2 p. 225-238	Unit 8 Lesson 1-3 p. 243-268	Unit 6 Lesson 2 p. 185-194 Unit 6 Lesson 5 p. 209-218	
HMH Leveled Readers	All About Plants **BL** Plants, Plants Everywhere **OL** What Do you Eat? **AL**	All About Animals **BL** Animal Groups **OL** Move It! **AL**	Animals and Plants **OL**	
HMH Inquiry Flipchart	How Are Plants of the Same Kind Different? p. 28	Grow to the Light p. 29, Why Do Plants Grow? p. 30,Meet the Mealworm/Eat Like a Bird p. 31	Rubbed Leaf Collection/ Fantastic Flowers p. 23 Are All Seeds Alike?/What Parts Do You See? p. 26	
HMH Labs To Go	Growing and Changing/Family Traits p. 225A	Colored Celery p. 243A		
HMH Think Central	Digital lesson unit 7 lesson 1-2	Digital lesson unit 8 lesson 1-3	Digital lesson unit 6 lesson 2 Digital lesson unit 6 lesson 5	

Resource Alignment continued on next page.

AIMS Science (Florida-specific)	Who's My Mom p. 323 Meet the Guppy Family p. 329 Find the Family p. 335	Attending to Needs p. 241 Survivors p. 349	Super Tuber p. 269 Plants and Their Parts p. 255 Root Study p. 259 Stem Study p. 263 Searching for Stems p. 273 Observe a Leaf p. 277 Leaf Safari p. 279 This Is My Flower p. 283 Inside a Seed p. 287	
Supplemental Literature	Scott Foresman readers: Egg to Owl	Scott Foresman readers: What We Need	Scott Foresman readers: Many Leaves Living Things Grow and Change	
Safari Montage	Tau the Lion Animal Offspring & Caring for Animals		Peep: The Root Problem	
Assessment	Assessment Guide p. AG 62-63 Student book-Unit 7 Benchmark Review p. 239-240 Unit Benchmark Test p.AG 64-67	Assessment Guide p. AG 70-72 Student book-Unit 8 Benchmark Review p. 269-270 Unit Benchmark Test p.AG 73-76	Assessment Guide p. AG 52 Assessment Guide p. AG 55 Student book-Unit 6 Benchmark Review p. 221-222 Unit Benchmark Test p. AG 56-59	
Websites	http://www.ustream.tv/decoraheagles		http://studyjams.scholastic.com/studyjams/jams/science/plants/roots-stems.htm http://thehappyscientist.com/ss-fl-g1 http://www.brainpopjr.com/science/plants/partsofaplant/ http://www.brainpopjr.com/science/plants/plantlifecycle/ http://www.bbc.co.uk/schools/scienceclips/ages/9_10/life_cycles.shtml	http://studyjams.scholastic.com/studyjams/jams/science/animals/vertebrates.htmhttp://studyjams.scholastic.com/studyjams/jams/science/animals/invertebrates.htm http://www.worksheetuniverse.com/birdsandmammals.pdf
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