Month: September – Ongoing All Year
Unit: Science Inquiry

Third Grade
***Science* Pacing Guide**

Theme/Big Ideas	Objectives	Essential/ Focus Questions	Teaching Strategy *(our current performance indicator)*	Assessment	Vocabulary/ Concepts	Resources	Board Objectives
INQUIRY PROCESS/ INQUIRY ANALYSIS AND COMMUNICATION/ SOCIAL IMPLICATION AND REFLECTION	***K-7 Standard S.IP:*** *Develop an understanding that scientific inquiry and reasoning involves observing, questioning, investigating, recording, and developing solutions to problems.* **S.IP.E.1 Inquiry involves generating questions, conducting, investigations, and developing solutions to problems through reasoning and observation.** **S.IP.03.11** Make purposeful observation of the natural world using the appropriate senses. **S.IP.03.12** Generate questions based on observations. **S.IP.03.13** Plan and conduct simple and fair investigations. **S.IP.03.14** Manipulate simple tools that aid observation and data collection (for example: hand lens, balance, ruler, meter stick, measuring cup, thermometer, spring scale, stop watch/timer). **S.IP.03.15** Make accurate measurements with appropriate units (centimeters, meters, Celsius, grams, seconds, minutes) for the measurement tool. **S.IP.03.16** Construct simple charts and graphs from data and observations	What is the scientific process? How can the Scientific Method be used to help us investigate the world around us?	Use inquiry based science lessons to introduce the scientific method.	Achievement Series Students will perform an investigation in which they apply the scientific process. Students will use the scientific process to answer a writing prompt or question given by the teacher. Students will be able to design and conduct an experiment following the steps of the Scientific Method.	calculator cause and effect evidence experiment hypothesis infer inquiry investigation microscope Scientific Method technology	Scientific Method Poem and Songs @ Kids Do Science http://srel.uga.edu/kidsdoscience/kidsdoscience-fun.htm Brain Pop Scientific Method Videos and Activities http://www.brainpopjr.com/science/scienceskills/scientificmethod/grownups.weml Harcourt School Publishers website, with activities to enhance learning for every topic. www.hspscience.com **State Companion Document for ideas on inquiry/ instructional strategies for each unit.** http://tinyurl.com/cswnaj	We will learn the steps of the scientific method and use them to experiment and solve our scientific inquiries.

Theme/Big Ideas	Objectives	Essential/ Focus Questions	Teaching Strategy *(our current performance indicator)*	Assessment	Vocabulary/ Concepts	Resources	Board Objectives
	INQUIRY ANALYSIS AND COMMUNICATION ***K-7 Standard S.IA:*** *Develop an understanding that scientific inquiry and investigations require analysis and communication of findings, using appropriate technology.* **S.IA.E.1 Inquiry includes an analysis and presentation of findings that lead to future questions, research, and investigations.** **S.IA.03.11** Summarize information from charts and graphs to answer scientific questions. **S.IA.03.12** Share ideas about science through purposeful conversation in collaborative groups. **S.IA.03.13** Communicate and present findings of observations and investigations. **S.IA.03.14** Develop research strategies and skills for information gathering and problem solving. **S.IA.03.15** Compare and contrast sets of data from multiple trials of a science investigation to explain reasons for differences. REFLECTION AND SOCIAL IMPLICATIONS ***K-7 Standard S.RS:*** *Develop an understanding that claims and evidence for their scientific merit should be analyzed. Understand how scientists decide what constitutes scientific knowledge. Develop an understanding of the*						

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	importance of reflection on scientific knowledge and its application to new situations to better understand the role of science in society and technology. **S.RS.E.1 Reflecting on knowledge is the application of scientific knowledge to new and different situations. Reflecting on knowledge requires careful analysis of evidence that guides decision-making and the application of science throughout history and within society.** **S.RS.03.11** Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities. **S.RS.03.14** Use data/samples as evidence to separate fact from opinion. **S.RS.03.15** Use evidence when communicating scientific ideas. **S.RS.03.16** Identify technology used in everyday life. **S.RS.03.17** Identify current problems that may be solved through the use of technology. **S.RS.03.18** Describe the effect humans and other organisms have on the balance of the natural world. **S.RS.03.19** Describe how people have contributed to science throughout history and across cultures.						

Month: October
Unit: Earth Systems

Third Grade
***Science* Pacing Guide**

Theme/Big Ideas	Objectives	Essential/ Focus Questions	Teaching Strategy *(our current performance indicator)*	Assessment	Vocabulary/ Concepts	Resources	Board Objectives
SCIENTIFIC INQUIRY PROCESSES THROUGH EARTH SYSTEMS	***K-7 Standard E.ES:*** *Develop an understanding of the warming of the Earth by the sun as the major source of energy for phenomenon on Earth and how the sun's warming relates to weather, climate, seasons, and the water cycle. Understand how human interaction and use of natural resources affects the environment.* **E.ES.E.4 Natural Resources – The supply of many natural resources is limited. Humans have devised methods for extending their use of natural resources through recycling, reuse, and renewal.** **E.ES.03.41** Identify natural resources (metals, fuels, fresh water, farmland, fertile soil, and forests). **E.ES.03.42** Classify renewable (fresh water, farmland, forests) and non-renewable (fuels, metals) resources. **E.ES.03.43** Describe ways humans are protecting, extending, and restoring resources (recycle, reuse, reduce, renewal). **E.ES.03.44** Recognize that paper, metal, glass, and some plastics can be recycled. **E.ES.E.5 Human Impact – Humans depend on their natural and constructed environment. Humans change environments in ways that are**	What is the difference between a natural resource and a renewable resource? What is a non-renewable resource? What is a renewable resource? How do humans affect their natural and constructed environments? How are earth materials useful and how do they enhance the quality of life? How can you help protect, extend, and restore resources? What materials can be recycled? How are humans dependent on the natural environment?	Recognize that manufactured materials can be reduced, reused, and recycled to conserve natural resources. Devise and carry out plans for improving the recycling and reusing of materials at school and home.	Achievement Series Students will write and/or create a chart with a detailed explanation of the differences between renewable, nonrenewable, and reusable resources. Have students create a list that identifies different materials they see in the classroom. Working in groups, have them classify the materials by items found in nature and man-made items. Have students research the man-made products to discover that manmade materials are made from natural materials on Earth. In groups, have student's research renewable and non-renewable resources and organize findings into a chart or other graphic organizer to share with the class. Have students sort items into recyclable, reusable,	conservation constructed environment Earth materials environment environmental changes environmental conditions farmland forests forests freshwater fuels garbage habitat habitat destruction land management metals natural environment natural resources non-renewable resources oil pollution recycle reduce renewable resources renewal resource reuse sustainability water	Brain Pop Natural Resource information and activities. http://www.brainpopjr.com/science/conservation/naturalresources/grownups.weml A collaboration of links to education websites. www.theteacherscorner.net Pre-made experiments/labs and equipment to purchase. www.AimsEdu.org **Books:** How the Earth Works, Michelle O'Brien Palmer, 2002. ISBN-13: 978-1556524424 Planet Earth/Inside Out, Gail Gibbons, 1998. ISBN-13: 978-0688158491 50 Simple Things Kids Can Do To Save the Earth, The Earthworks Group, 1990. ISBN-13: 978-0836223019 Don't Know Much About Planet Earth, Kenneth Davis and Tom Bloom, 2001. ISBN-13: 978-0064408349 The Three R's: Reduce, Reuse, Recycle, Nuria Roca and Rosa Curto, 2007. ISBN-13: 978-0764135811 **State Companion Document for ideas on inquiry/ instructional strategies for each unit.** http://tinyurl.com/cswnaj	Students will identify natural resources. Students will describe what the world would be like without natural resources. Students will identify and describe both the positive and negative impacts a person can have on the environment.

Theme/Big Ideas	Objectives	Essential/ Focus Questions	Teaching Strategy *(our current performance indicator)*	Assessment	Vocabulary/ Concepts	Resources	Board Objectives
	helpful or harmful for themselves and other organisms. **E.ES.03.51** Describe ways humans are dependent on the natural environment (forests, water, clean air, earth materials) and constructed environments (homes, neighborhoods, shopping malls, factories, and industry). **E.ES.03.52** Describe helpful or harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable and non-renewable resources).	Constructed environments? What harmful effects do humans have on the environment?		renewable or reducible categories. Elaborate on student understanding by engaging them in activities such as building a mini-landfill, creating a classroom recycling program, creating art from junk, etc. Classify lists of classroom items into two groups: items found in nature and man-made items. Classify and graphically organize natural resources into renewable and non-renewable. Develop a program to reduce, reuse, and recycle natural resources in the classroom Design a doghouse that uses all renewable materials. Create books and/or posters to teach younger students about protecting, extending and restoring natural resources.			

Month: November
Unit: Solid Earth

Third Grade
***Science* Pacing Guide**

Theme/Big Ideas	Objectives	Essential/ Focus Questions	Teaching Strategy *(our current performance indicator)*	Assessment	Vocabulary/ Concepts	Resources	Board Objectives
SCIENTIFIC INQUIRY PROCESSES THROUGH EARTH MATERIALS, CHANGES, AND RESOURCES	***K-7 Standard E.SE:*** *Develop an understanding of the properties of earth materials and how those properties make materials useful. Understand gradual and rapid changes in earth materials and features of the surface of Earth. Understand magnetic properties of Earth.* **E.SE.E.1 Earth Materials – Earth materials that occur in nature include rocks, minerals, soils, water, and the gases of the atmosphere. Some Earth materials have properties which sustain plant and animal life.** **E.SE.03.13** Recognize and describe different types of earth materials (mineral, rock, clay, boulder, gravel, sand, soil, water, and air). **E.SE.03.14** Recognize that rocks are made up of minerals. **E.SE.E.2 Surface Changes – The surface of Earth changes. Some changes are due to slow processes, such as erosion and weathering, and some changes are due to rapid processes, such as landslides, volcanic eruptions, and earthquakes.** **E.SE.03.22** Identify and describe natural causes of change in the Earth's surface (erosion, glaciers, volcanoes, landslides, and earthquakes).	What are the major earth materials? What are land formations? What causes Earth's surface to change? What are rocks made of? What are the natural causes of change in the Earth's surface? How do these natural causes affect us? What changes happen rapidly, and what changes take millions of years to complete?	Describe the different features of the Earth and where they can be found. Describe the Earth's surface in different locations, distinguishing such features in the earth's surface. Describe how earthquakes, and glaciers change the earth's surface. Recognize evidence that forces such as moving water, wind, gravity, and glaciers erode the Earth's surface.	Achievement Series Students will choose an interesting rock from their neighborhood and write a description of its properties. Students must include an illustration of the rock. Working in small collaborative groups, students sort the earth materials into student-selected groups. As students observe the materials, encourage them to write questions or ideas to explore during the unit. Give each student a sample of a mineral, have students describe the color and texture of their mineral Demonstrate the effects of erosion by pouring or sprinkling water on a sandy slope and a grass slope. Using a fan to blow air across the slopes demonstrates wind erosion. Record observations in a graphic organizer.	bedrock boulder changes in the Earth's surface clay coal crude oil Earth material's ability to hold water Earth materials earthquake erosion fossil fuels glacier gravel harmful change helpful change ice igneous rock land formation landslide metal metamorphic rock mineral natural gas nutrients oil particle size rock rock breakage rock composition rock cycle sand sedimentary rock soil soil color soil composition soil texture solid rock volcanic eruptions water	Magic School Bus Book: Explores the Inside of the Earth **Book:** Don't Know Much About Planet Earth, Kenneth Davis and Tom Bloom, 2001. ISBN-13: 978-0064408349 Investigate the growth of seeds in soil, clay and sand. Create a potting soil based on findings. Create a rock, mineral, or earth material collection. Encourage students to collect samples while on vacation or while visiting other locations. Discover the similarities and differences of the collected samples. **Books:** How the Earth Works, Michelle O'Brian Palmer, 2002. ISBN-13: 978-1556524424 Planet Earth/Inside Out, Gail Gibbons, 1998. ISBN-13: 978-0688158491	Students will be able to identify and describe Earth's layers and the main minerals that make up each layer.

Theme/Big Ideas	Objectives	Essential/ Focus Questions	Teaching Strategy *(our current performance indicator)*	Assessment	Vocabulary/ Concepts	Resources	Board Objectives
					weathered rock weathering wind		

Month: December
Unit: Solid Earth

Third Grade
***Science* Pacing Guide**

Theme/Big Ideas	Objectives	Essential/ Focus Questions	Teaching Strategy *(our current performance indicator)*	Assessment	Vocabulary/ Concepts	Resources	Board Objectives
SCIENTIFIC INQUIRY PROCESSES THROUGH EARTH MATERIALS, CHANGES, AND RESOURCES	***K-7 Standard E.SE:*** *Develop an understanding of the properties of earth materials and how those properties make materials useful. Understand gradual and rapid changes in earth materials and features of the surface of Earth. Understand magnetic properties of Earth.* **E.SE.E.3 Using Earth Materials – Some Earth materials have properties that make them useful either in their present form or designed and modified to solve human problems. They can enhance the quality of life as in the case of materials used for building or fuels used for heating and transportation.** **E.SE.03.31** Identify earth materials used to construct some common objects (for example: bricks, buildings, roads, glass). **E.SE.03.32** Describe how materials taken from the Earth can be used as fuels for heating and transportation.	What earth materials were used to construct our school? What earth materials are used for heating and transportation ?	Identify materials from earth that are used to construct common objects. Describe how materials from Earth can be used has fuel sources.	Achievement Series Give students samples of pebbles, clay, soil, and sand. Using a hand lens encourages students to make observations of color, texture, and particle size of each sample and record findings in a chart. Develop classroom definitions based on color, texture, particle size, and ability to hold water for minerals, rocks, boulders, pebbles, sand, and soil. Create a glacier using a scoop of ice cream, waxed paper and chocolate sandwich cookies. Allow the ice cream to move across a piece of waxed paper lined with crushed chocolate sandwich cookies. Discuss the effect of the movement of the glacier. What happened to the ice cream, waxed paper, and cookie? How is this similar to and different than a real glacier?	bedrock boulder changes in the Earth's surface clay coal crude oil Earth material's ability to hold water Earth materials earthquake erosion fossil fuels glacier gravel harmful change helpful change ice igneous rock land formation landslide metal metamorphic rock mineral natural gas nutrients oil particle size rock rock breakage rock composition rock cycle sand sedimentary rock soil soil color soil composition soil texture solid rock volcanic eruptions water	Magic School Bus Book: Explores the Inside of the Earth Federal Emergency Management Agency website http://www.fema.gov/kids/ **State Companion Document for ideas on inquiry/ instructional strategies for each unit.** http://tinyurl.com/cswnaj	Students will learn and be able to explain how rocks, soils and minerals can be used for constructing and manufacturing.

Theme/Big Ideas	Objectives	Essential/ Focus Questions	Teaching Strategy *(our current performance indicator)*	Assessment	Vocabulary/ Concepts	Resources	Board Objectives
					weathered rock weathering wind		

Month: January
Unit: Energy

Third Grade
Science Pacing Guide

Theme/Big Ideas	Objectives	Essential/ Focus Questions	Teaching Strategy *(our current performance indicator)*	Assessment	Vocabulary/ Concepts	Resources	Board Objectives
SCIENTIFIC INQUIRY PROCESSES THROUGH LIGHT AND SOUND	***K-7 Standard P.EN:*** *Develop an understanding that there are many forms of energy (such as heat, light, sound, and electrical) and that energy is transferable by convection, conduction, or radiation. Understand energy can be in motion, called kinetic; or it can be stored, called potential. Develop an understanding that as temperature increases, more energy is added to a system. Understand nuclear reactions in the sun produce light and heat for the Earth.* **P.EN.E.1 Forms of Energy – Heat, electricity, light, and sound are forms of energy.** **P.EN.03.11** Identify light and sound as forms of energy. **P.EN.E.2 Light Properties – Light travels in straight lines. Shadows result from light not being able to pass through an object. When light travels at an angle from one substance to another (air and water), it changes direction.** **P.EN.03.21** Demonstrate that light travels in a straight line and that shadows are made by placing an object in a path of light. **P.EN.03.22** Demonstrate what happens to light when it travels from air to water (a straw half in the water and half in the air looks bent).	What is Energy? How are light and sound forms of energy? How can light and sounds be described by their properties? What is our primary source of light energy? How do we know light travels in a straight path? How are shadows formed? What happens to light when it travels from air to water? Is there only one kind of energy? What are the differences between types of energy?	Observe, classify, and describe objects and substances using three or more appropriate descriptive physical characteristics. Demonstrate that light travels in a straight line. Demonstrate what happens to light when it travels from air to water. Explain how shadows are made. Explain how shadows change in size due to the distance of the object from its light source. Identify and describe light source, illumination, path of light.	Achievement Series Use flashlights and approximately six 3x5 cards with a hole punched in 5 of the cards in the same spot. Students discover that the cards need to be lines up in a straight line in order for the light to pass through the holes and hit the target. Students conclude that light does not bend. Light travels in straight lines. Continue to record observation, ideas, and questions generated during the activity. Students use shapes made from opaque materials to block light and form shadow. They explore shadows by manipulating the objects on a piece of white paper, using different sources of light. Trace the shadow on the paper and record observations. Predict the shape of a shadow given a source of light and an object.	drumhead effect energy forms of energy guitar light light rays light refraction light source opaque path of light pitch shadow sound sound source sun as a source of energy translucent transparent vibrations	Magic School Bus Book: Inside the Haunted House: A Book about Sound. *** High school orchestra can be a great resource. We have had them come down and play, as well as explain how they use vibration to create music *** (Must pay to use this site) www.sciencea-z.com Sign up to access animated educational movies (there may be fees) www.brainpop.com **Books:** Energy Makes Things Happen, Kimberly Bradley and Paul Meisel, 2002. ISBN-13: 978-0064452137 Moonbear's Shadow, Frank Asch, 2001. ISBN-13: 978-0689835193 Hatchet, Gary Paulsen, 1987. ISBN-13: 978-1416936473 Read the chapter where Brian tries to spear fish, he finally figures out that he has to aim differently because of the refraction of the water. Sounds All Around, Wendy Pfeffer and Holly Keller, 1998. ISBN-13: 978-0064451772 Ty's One-man Band, Mildred Walter and Margot Tomes, 1980.	Students will define and discuss multiple forms of energy. Students will be able to explain how energy travels (e.g. light travels fast and in a straight line, sound energy travels through waves or vibrations, heat energy is radiated or conducted, etc.)

Theme/Big Ideas	Objectives	Essential/ Focus Questions	Teaching Strategy *(our current performance indicator)*	Assessment	Vocabulary/ Concepts	Resources	Board Objectives
	P.EN.E.3 Sound – Vibrating objects produce sound. The pitch of sound varies by changing the rate of vibration. **P.EN.03.31** Relate sounds to their sources of vibrations (for example: a musical note produced by a vibrating guitar string, the sounds of a drum made by the vibrating drum head). **P.EN.03.32** Distinguish the effect of fast or slow vibrations as pitch.	How is sound produced? What are some sources of vibrations that produce sound waves? What are pitch and volume? How is energy used to create sound? How are high and low pitches created?	Describe sound using pitch and loudness. Analyze a variety of sounds. Recognize and describe pitch and loudness in terms of high, low, loud, and soft. Explain that sound is produced by vibrating objects or substances. Recognize and explain vibrations as fast, slow, large, and small.	Place a pencil in a cup of water or through a zip type bag full of water and observe what happens to the appearance of the pencil. Go outside and have students make observations using their sense of hearing. Have students make a list of all the sounds they are and then classify the sounds as natural or man-made. Provide a variety of toys that produce sound such as whirling tubes, clackers, buzzers, etc. Students explore the "Sound Museum" and make observations, and identify how the sounds are produced. Students make their own instruments with rubber bands, string, boxes, straws, etc. Students record and share what they observe about the various "instruments" they made.		ISBN-13: 978-0395618011 Rubber-Band Banjos and a Java Jive Bass, Alex Sabbeth, 1997. ISBN-13: 978-0471156758 Hear! Hear! The Science of Sound, Barbara Taylor, 1991. ISBN-13: 978-0679808138 **State Companion Document for ideas on inquiry/ instructional strategies for each unit.** http://tinyurl.com/cswnaj Challenge students to create a band from a variety of homemade instruments. Show some videos of the group STOMP, listed below. Brooms: http://tinyurl.com/cfhlxp Drums: http://tinyurl.com/6jhya9 Kitchen: http://tinyurl.com/cag7jq At White House: http://tinyurl.com/clqrw4	Students will be able to state at least two ways they use energy on a daily basis.

Month: February
Unit: Force and Motion

Third Grade
***Science* Pacing Guide**

Theme/Big Ideas	Objectives	Essential/ Focus Questions	Teaching Strategy *(our current performance indicator)*	Assessment	Vocabulary/ Concepts	Resources	Board Objectives
SCIENTIFIC INQUIRY PROCESSES THROUGH FORCE AND MOTION	***K-7 Standard P.FM:*** *Develop an understanding that the position and/or motion of an object is relative to a point of reference. Understand forces affect the motion and speed of an object and that the net force on an object is the total of all of the forces acting on it. Understand the Earth pulls down on objects with a force called gravity. Develop an understanding that some forces are in direct contact with objects, while other forces are no in direct contact with objects.* **P.FM.E.2 Gravity – Earth pulls down on all objects with a force called gravity. With very few exceptions, objects fall to the ground no matter where the object is on the Earth.** **P.FM.03.22** Identify the force that pulls objects towards the Earth. **P.FM.E.3 Force – A force is either a push or a pull. The motion of objects can be changed by forces. The size of the change is related to the size of the force. The change is also related to the weight (mass) of the object on which the force is being exerted. When an object does not move in response to a force, it is because another force is being applied by the environment.** **P.FM.03.35** Describe how a push or a pull is a force.	What is force? What does it cause? What is motion? How does force affect motion? What is gravity? How does the position of the observer and the object affect the description of motion? What is a push? What is a pull? What is motion affected by? What caused the change in motion? How is the speed of an object measured?	Describe the motion of an object in terms of speed (fast, slow, faster, slower, speeding up, slowing down). Describe the motion of an object in terms of direction (right, left, east, west, north, south, up, down). Compare motions of two objects in terms of speed and direction. Identify and explain changes in motion (speeding up, slowing down). Identify and explain types of common forces (push, pull, friction, gravity). Identify an inclined plane, screw, lever, pulley, wheel axle, and wedge). Demonstrate how they are used to move objects.	Achievement Series Demonstrate how a force can change the motion of an object and describe the changes that are taking place. Engage students in a variety of activities that require them to move objects, such as moving the desks, rearranging books, cleaning their desks and discarding unwanted items into a waste container, and playing kickball. Students describe how they were able to move the objects. Qualitatively observe, compare and describe the speed of two or more objects using terms such as faster, slower, same speed, slowing down, speeding up, stopping or starting. Explain and illustrate the forces that cause motion in a dropped ball, a rolling ball, a stationary object such as a large boulder, a ball changing direction and a ball slowing down. Investigate changes in motion due to different forces such as pushing, pulling, and falling. Create models to illustrate forces.	above around behind below between centimeters change of direction change of motion faster force force strength gravity hours kilometers mass meters minutes motion moving away from position pull push seconds slower slowing down speed speeding up start stop through toward weight cause change of speed clocks with a second hand compare and contrast down east left measurement of	Video - The Magic School Bus Plays Ball. Sign up to access animated educational movies (there may be fees) www.brainpop.com **Books:** Forces Make Things Move, Kimberly Brubaker Bradley, 2005. ISBN-13: 978-0064452144 Why Doesn't the Earth Fall Up? Vicki Cobb, 1989. ISBN-13: 978-0525672531 Mr. Grumpy's Motor Car, John Burningham, 1983. ISBN-13: 978-0140503005 Explore direction by participating in games such as *Mother May I, Red Light, Green Light, or Simon Says*. Take the students on a motion walk to make observations of forces and the resulting motions in and around the school. Elaborate on the term distance by giving student the tool, units, and skills to collect quantitative measurements. (meter sticks, rulers, measuring tapes, centimeters, meters, kilometers.) Elaborate on the term time by giving students the tools, units, and skills to collect quantitative measurements (stop watch, clock with second hand, timer, second, minute, hour)	Students will identify forces that makes thing move.

Theme/Big Ideas	Objectives	Essential/ Focus Questions	Teaching Strategy *(our current performance indicator)*	Assessment	Vocabulary/ Concepts	Resources	Board Objectives
	P.FM.03.36 Relate a change in motion of an object to the force that caused the change of motion. **P.FM.03.37** Demonstrate how the change in motion of an object is related to the strength of the force acting upon the object and to the mass of the object. **P.FM.03.38** Demonstrate when an object does not move in response to a force, it is because another force is acting on it. **P.FM.E.4 Speed – An object is in motion when its position is changing. The speed of an object is defined by how far it travels divided by the amount of time it took to travel that far.** **P.FM.03.41** Compare and contrast the motion of objects in terms of the path and direction. **P.FM.03.42** Identify changes in motion (change direction, speeding up, slowing down). **P.FM.03.43** Relate the speed of an object to the distance it travels in a standard amount of time.				motion measuring tapes meter sticks north relative position right rulers south stop watches timers up west	**State Companion Document for ideas on inquiry/ instructional strategies for each unit.** http://tinyurl.com/cswnaj	

Month: March
Unit: Properties of Matter

Third Grade
***Science* Pacing Guide**

Theme/Big Ideas	Objectives	Essential/ Focus Questions	Teaching Strategy *(our current performance indicator)*	Assessment	Vocabulary/ Concepts	Resources	Board Objectives
SCIENTIFIC INQUIRY PROCESSES THROUGH PROPERTIES OF MATTER	***K-7 Standard P.PM:*** *Develop an understanding that all matter has observable attributes with physical and chemical properties that are described, measured, and compared. Understand that states of matter exist as solid, liquid, or gas; and have physical and chemical properties. Understand all matter is composed of combinations of elements, which are organized by common attributes and characteristics on the Periodic Table. Understand that substances can be classified as mixtures or compounds and according to their physical and chemical properties.* **P.PM.E.5 Conductive and Reflective Properties – Objects vary to the extent they absorb and reflect light energy and conduct heat and electricity.** **P.PM.03.51** Demonstrate how some materials are heated more than others by light that shines on them. **P.PM.03.52** Explain how we need light to see objects: light from a source reflects off objects and enters our eyes.	How is energy used to create heat? What materials absorb more light energy? What materials reflect more light energy? Why do we need light to see objects?	Demonstrate how certain materials are heated more than others by light that shines on them. Explain how we need light to see objects.	Achievement Series Students write a creative story about an ice cube as temperature changes cause it to change into the different states of matter. With the assistance of the teacher, students use thermometers in dark colored materials and white/light colored materials placed under a lamp or sunlight. Students record observations on charts. The activity is repeated two more times for accurate results. In collaborative groups, students share their ideas about the differences in the temperatures recorded. They communicate their findings. Using the evidence gathered during the activity, they conclude that light is a form of energy because the light energy is transformed to heat energy.	degrees Celsius effect energy forms of energy heat light light absorption light reflection light source path of light sun as a source of energy thermometer	States of Matter Song (song to the Wheels on the Bus) http://www.superteacherworksheets.com/songs/matter-song.pdf **Book:** Day Light, Night Light: Where Light Comes From, Franklyn Branley and Stacey Schuett, 1998. ISBN-13: 978-0064451710 **State Companion Document for ideas on inquiry/ instructional strategies for each unit.** http://tinyurl.com/cswnaj	Students will demonstrate an understanding that matter takes three forms: solid, liquid, and gas. We will be able to differentiate between the three using learned characteristics.

Third Grade
Science **Pacing Guide**

Month: April
Unit: Organization of Living Things

Theme/Big Ideas	Objectives	Essential/ Focus Questions	Teaching Strategy *(our current performance indicator)*	Assessment	Vocabulary/ Concepts	Resources	Board Objectives
SCIENTIFIC INQUIRY PROCESSES THROUGH STRUCTURE AND FUNCTION OF LIVING THINGS	***K-7 Standard L.OL:*** *Develop an understanding that plants and animals (including humans) have basic requirements for maintaining life which include the need for air, water and a source of energy. Understand that all life forms can be classified as producers, consumers, or decomposers as they are all part of a global food chain where food/energy is supplied by plants which need light to produce food/energy. Develop an understanding that plants and animals can be classified by observable traits and physical characteristics. Understand that all living organisms are composed of cells and they exhibit cell growth and division. Understand that all plants and animals have a definite life cycle, body parts, and systems to perform specific life functions.* **L.OL.E.3 Structures and Functions – Organisms have different structures that serve different functions in growth, survival, and reproduction.** **L.OL.03.31** Describe the function of the following plant parts: flower, stem, root and leaf. **L.OL.03.32** Identify and compare structures in animals used for controlling body temperature, support, movement, food-getting, and protection (for example: fur, wings, teeth, scales).	What are the specific functions of the flower, stem, roots, and leaves in a plant? What are the specific functions of body coverings, skeletons, limbs, and jaws, etc… in animals?	Recognize that the life cycle of a plant is the series of stages through which it progresses as it grows. Describe the life cycle stages of familiar plants (seed-plant-flower-fruit). Recognize that all plants have parts that perform a specific function and help to keep the plant alive. Explain the function of selected plant parts. Recognize that each plant part works to support the plants' life. Explain how each plant part works to keep the plant alive. Recognize that plants obtain and use energy from their environment. Identify and compare the life requirements of plants. Describe how plants benefit mankind.	Achievement Series Describe the functions of the basic plant parts. Classify plants on the basis of observable physical characteristics. Take a walk outside and observe where plants live and don't live. Discuss reasons why plants might not be able to live in certain areas. Display a variety of plants that show different parts. Students observe the different parts of the plants and try to identify the flowers, stems, roots, and leaves. Place a celery stalk or a white flower in a glass of colored water. Observe what happens to the leaves or flower petals. Use pictures of plants and sort them into groups by their roots, leaves, stems, seeds, and flowers.	air amphibians animal features bird branching root broad-leafed plants classify color compare crustacean evergreens exoskeleton fish flowers function insect leaf movement organism physical characteristics plant plant root protection reptile skeleton stem structure support tap root traits woody stems worm	Animal Sort/Animal Scavenger Hunts Pre-made experiments/labs and equipment to purchase. www.AimsEdu.org Local zoo **Book:** Plant Parts, Richard and Louise Spilsbury, 2008. ISBN-13: 978-1432915063 **State Companion Document for ideas on inquiry/ instructional strategies for each unit.** http://tinyurl.com/cswnaj	Students will understand that in order to survive, animals need air, water, food, and shelter, and plants need air, water, nutrients, and light Students will investigate and be able to explain unique animal characteristic that help them survive within their environment.

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	L.OL.E.4 Classification – Organisms can be classified on the basis of observable characteristics. **L.OL.03.41** Classify plants on the basis of observable physical characteristics (roots, leaves, stems, and flowers). **L.OL.03.42** Classify animals on the basis of observable physical characteristics (backbone, skin shell, limbs and scales).	What are physical characteristics of plants and animals? What observable physical characteristics are plants classified by? What observable physical characteristics are animals classified by?	Explain how plants may be classified according to their physical characteristics. Explain that plants are living things and have characteristics that make them different from each other (flowering, non-flowering). Describe vertebrates in terms of observable body parts and characteristics.	Identify and compare structures in animals used for controlling body temperature, support, movement, food getting, and protection. Classify animals on the basis of observable physical characteristics. Student use pictures of animals and try to group animals using their own criteria. To show how body parts such as claws and teeth are also used to get food, students use a variety of instruments such as toothpicks, chopsticks, spoons, strainers, etc., to simulate animal body parts. Pick up and/or tear apart different types of foods using the different instruments. Record the findings and report to the class which types of body parts work best for handling which types of foods. Students write a paragraph explaining how a scientist would classify a new animal that was found.			

Month: May
Unit: Evolution

Third Grade
***Science* Pacing Guide**

Theme/Big Ideas	Objectives	Essential/ Focus Questions	Teaching Strategy *(our current performance indicator)*	Assessment	Vocabulary/ Concepts	Resources	Board Objectives
SCIENTIFIC INQUIRY PROCESSES THROUGH ENVIRONMENTAL ADAPTATION	***K-7 Standard L.EV:*** *Develop an understanding that plants and animals have observable parts and characteristics that help them survive and flourish in their environments. Understand that fossils provide evidence that life forms have changed over time and were influenced by changes in environmental conditions. Understand that life forms either change (evolve) over time or risk extinction due to environmental changes and describe how scientists identify the relatedness of various organisms based on similarities in anatomical features.* **L.EV.E.1 Environmental Adaptation – Different kinds of organisms have characteristics that help them to live in different environments.** **L.EV.03.11** Relate characteristics and functions of observable parts in a variety of plants that allow them to live in their environment (for example: leaf shape, thorns, odor, color). **L.EV.03.12** Relate characteristics and functions of observable body parts to the ability of animals to live in their environment (for example: sharp teeth, claws, color, body coverings).	What characteristics of plants help them to survive in different areas? What characteristics do animals have that help them survive in their environment?	Explain how fossils provide evidence about the nature of ancient life. Explain that some plants that once lived on earth are now extinct.	Achievement Series Students will create a creature and describe its environment and how it adapts to changes in the environment. Armed with a camera, students go on a hike to look for specific examples of adaptations that help plants survive in different environments. Make a poster or a power point presentation showing the examples. Research plants that are invasive species. What adaptations does the plant have that makes it successful in a particular environment? To show how body coverings help and animal hide or blend in with its environment, students use colored pencils, markers, and/or colored paper to design and make small insects or animals that can be placed in the open but camouflaged around the classroom.	animal adaptations backbone/ no backbone camouflage carnivore Celsius environment food getting habitat herbivore instinct living organism migration mimicry minerals omnivore organism physical characteristics plant plant adaptations pollinators predator prey protective adaptations survival of organisms temperature thermometer	**Books:** How Plants Survive, Kathleen Kudlinski, 2003. ISBN-13: 978-0791074220 How Do Animals Adapt, Bobbie Kalman and Niki Walker, 2000. ISBN-13: 978-0865059573 **State Companion Document for ideas on inquiry/ instructional strategies for each unit.** http://tinyurl.com/cswnaj	Students will Identify the ways in which an organism's habitat supports its basic needs.

Month: June
Unit: Review of Inquiry Processes

Third Grade
***Science* Pacing Guide**

Theme/Big Ideas	Objectives	Essential/ Focus Questions	Teaching Strategy *(our current performance indicator)*	Assessment	Vocabulary/ Concepts	Resources	Board Objectives
REVIEW OF ALL - INQUIRY PROCESS/ INQUIRY ANALYSIS AND COMMUNICATION/ SOCIAL IMPLICATION AND REFLECTION	***K-7 Standard S.IP:*** *Develop an understanding that scientific inquiry and reasoning involves observing, questioning, investigating, recording, and developing solutions to problems.* **S.IP.E.1 Inquiry involves generating questions, conducting, investigations, and developing solutions to problems through reasoning and observation.** **S.IP.03.11** Make purposeful observation of the natural world using the appropriate senses. **S.IP.03.12** Generate questions based on observations. **S.IP.03.13** Plan and conduct simple and fair investigations. **S.IP.03.14** Manipulate simple tools that aid observation and data collection (for example: hand lens, balance, ruler, meter stick, measuring cup, thermometer, spring scale, stop watch/timer). **S.IP.03.15** Make accurate measurements with appropriate units (centimeters, meters, Celsius, grams, seconds, minutes) for the measurement tool. **S.IP.03.16** Construct simple charts and graphs from data and observations	What is the scientific process? How can we solve our own inquiries?	Use inquiry based science lessons to introduce the scientific method. Science Fair Project	Achievement Series Students will perform an investigation in which they apply the scientific process. Students will use the scientific process to answer a writing prompt or question given by the teacher.	calculator cause and effect evidence experiment hypothesis infer inquiry investigation microscope Scientific Method technology	Scientific Method Poem and Songs @ Kids Do Science http://srel.uga.edu/kidsdoscience/kidsdoscience-fun.htm Brain Pop Scientific Method Videos and Activities http://www.brainpopjr.com/science/scienceskills/scientificmethod/grownups.weml Harcourt School Publishers website, with activities to enhance learning for every topic. www.hspscience.com **State Companion Document for ideas on inquiry/ instructional strategies for each unit.** http://tinyurl.com/cswnaj	Students will learn the how inquiries can be solved using the scientific method.

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	INQUIRY ANALYSIS AND COMMUNICATION ***K-7 Standard S.IA:*** *Develop an understanding that scientific inquiry and investigations require analysis and communication of findings, using appropriate technology.* **S.IA.E.1 Inquiry includes an analysis and presentation of findings that lead to future questions, research, and investigations.** **S.IA.03.11** Summarize information from charts and graphs to answer scientific questions. **S.IA.03.12** Share ideas about science through purposeful conversation in collaborative groups. **S.IA.03.13** Communicate and present findings of observations and investigations. **S.IA.03.14** Develop research strategies and skills for information gathering and problem solving. **S.IA.03.15** Compare and contrast sets of data from multiple trials of a science investigation to explain reasons for differences. REFLECTION AND SOCIAL IMPLICATIONS ***K-7 Standard S.RS:*** *Develop an understanding that claims and evidence for their scientific merit should be analyzed. Understand how scientists decide what constitutes scientific knowledge. Develop an understanding of the*						

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	importance of reflection on scientific knowledge and its application to new situations to better understand the role of science in society and technology. **S.RS.E.1 Reflecting on knowledge is the application of scientific knowledge to new and different situations. Reflecting on knowledge requires careful analysis of evidence that guides decision-making and the application of science throughout history and within society.** **S.RS.03.11** Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities. **S.RS.03.14** Use data/samples as evidence to separate fact from opinion. **S.RS.03.15** Use evidence when communicating scientific ideas. **S.RS.03.16** Identify technology used in everyday life. **S.RS.03.17** Identify current problems that may be solved through the use of technology. **S.RS.03.18** Describe the effect humans and other organisms have on the balance of the natural world. **S.RS.03.19** Describe how people have contributed to science throughout history and across cultures.						