Month: September
Unit: Science Inquiry

First 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.01.1 Inquiry involves generating questions, conducting investigations and developing solutions to problems through reasoning and observation** **S.IP.01.11** Make purposeful observation of the natural world using the appropriate senses **S.IP.01.12** Generate questions based on observations **S.IP.01.13** Plan and conduct simple investigations **S.IP.01.14** Manipulate simple tools that aid observation and data collection **S.IP.01.15** Make accurate measurements with appropriate units for the measurement tool **S.IA.E.1 Inquiry includes and analysis and presentation of findings that lead to future questions, research, and investigations** **S.IA.01.12** Share ideas about science through purposeful conversation **S.IA.01.13** Communicate and present findings of observations **S.IA.01.14** Develop strategies for information gathering **S.RS.E.1 Reflecting on knowledge is the application of scientific knowledge to new**	What is an investigation? How do you learn about the world around you? How do we measure an item? How do you organize data?	Use inquiry based science lessons to familiarize students with the scientific method.	Achievement Series Verbal explanation/ questioning. Match specific senses with pictured examples of the senses. Observe that students use tools appropriately. Centers. Each center uses a different non-standard measurement tool to measure specific lengths. Students must record answers for each item measured. (i.e., paperclips, pasta, cereal, buttons, cubes, etc.) Use results from an activity to create a graph.	chart discovery hearing investigation reasoning scientist senses sight smell taste touch	*What is a scientist?* Book Posters on the scientific inquiry Fun exploratory games for students to learn while having fun, based off the TV show. www.peepandthebigwideworld.com	To become a scientist to help us conduct experiments and learn how to problem solve.

Theme/Big Ideas	Objectives	Essential/ Focus Questions	Teaching Strategy *(our current performance indicator)*	Assessment	Vocabulary/ Concepts	Resources	Board Objectives
	and different situations. Reflecting on knowledge careful analysis of evidence that guides decision-making and the application of science throughout history **S.RS.01.11** Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities **S.RS.01.12** Recognize that science investigations are done more than one time						

Month: October
Unit: Solar Energy

First 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 – SOLAR ENERGY	***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.1 Solar Energy – The sun warms the land, air and water and helps plants grow** **E.ES.01.11** Identify the sun as the most important source of heat which warms the land, air and water of the Earth **E.ES.01.12** Demonstrate the importance of sunlight and warmth in plant growth ***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.01.12** Describe how Earth materials contribute to the growth of plant and animal life	What is the source of heat on Earth? When is it usually the warmest? (Day or night? Summer or winter?) Why can't plants grow in the winter? What is earth made of?	Describe how the sun's energy affects everything on Earth. Identify the sun as an important source of heat. Demonstrate the importance of sunlight in plant growth.	Achievement Series Plan and conduct simple investigations of the sun's warming of the Earth. Use simple charts, tables, or pictographs to compare monthly and seasonal weather conditions. Generate questions about why the temperature is different in the shade and sun or morning and afternoon. Review the appropriate dress for different seasons. Engage students in a discussion to answer the question "What would happen if there weren't any sun?" Cut and paste activity; students categorize which earth materials help plant and animal life.	seasons Summer Fall Winter Spring temperature cool warm hot cold cloud cover precipitation rain snow sunny precautions solar source of heat observations Celsius Fahrenheit air space sunlight	Solar Energy materials in the science lab Harcourt Science student copy Harcourt Science Workbook Experiments with growing plants from seeds in sunlight **Books:** The Season's of Arnold's Apple Tree Gail Gibbons, 1988. ISBN-13: 978-0152712457 Red Leaf, Yellow Leaf, Lois Ehlert, 1991. ISBN-13: 978-0152661977 **State Companion Document for ideas on inquiry/ instructional strategies for each unit.** http://tinyurl.com/cswnaj	To become a scientist to help us conduct experiments and learn how to problem solve. To help us learn why we need to sun and how things survive.

Month: November
Unit: Weather Systems

First 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 – WEATHER	***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.2 Weather- Weather changes from day to day and over the seasons** **E.ES.01.21** Compare daily changes in the weather related to temperature, cloud cover, precipitation, wind **E.ES.01.22** Describe and compare weather related to the four seasons in terms of temperature, cloud cover, precipitation, and wind **E.ES.01.23** Describe severe weather characteristics **E.ES.01.24** Describe precautions that should be taken for human safety during severe weather conditions	How does the weather change with the seasons? What are different types of weather? How do people adapt to weather changes? How do we measure changes in weather? What are some characteristics of these severe weather conditions: thunderstorms, lightning, tornadoes, high winds, and blizzards? What should be done in each of the severe weather conditions (thunderstorms, tornadoes, and blizzards)?	Understand the four season of MI weather, put them in order of occurrence, and tell what type of clothing is appropriate for each season. Draw a series of four pictures in order of the seasons with seasonal indicators and people wearing season-appropriate clothing.	Achievement Series Make a season diagram: Students create a four-fold paper chart illustrating the weather conditions in each of four seasons. Compare the seasons in terms of temperature, cloud cover, precipitation and wind. Activity: Set up a weather station in the classroom, like meteorologists, students will make and record weather observations over time.	temperature cold warm hot cool weather conditions daily weather pattern cloud clear-sunny cloudy partly cloudy foggy precipitation rain snow hail freezing rain breezy windy calm solar Severe weather Thunderstorm Lightning Tornadoes Blizzards Breezy Wind Strong winds Safety Cloud cover Sunny Precautions	Harcourt Science student copy (Unit D, Ch 2) Harcourt Science Workbook (Unit D, Ch. 2) Weather graphing charts for over a period of time Photos of weather **Books:** Air is All Around You, Franklyn M. Branley, 2006. ISBN-13: 978-0060594152 The Wind Blew, Pat Hutchins, 1993. ISBN-13: 978-0689717444 Activity: Take the class outside to make weather observations using their senses. Engage the students in a talk about what the weather is like today, and what it was like yesterday. Ask them how scientists know what the weather will be like tomorrow. Thunder Cake, Patricia Polacco, 1990. ISBN-13: 978-0698115811 Engage students in a discussion about seasons, the appropriate clothing, and activities they can do during each season. Weather safety quizzes, tornadoes, thunderstorms and blizzards http://tinyurl.com/azsh5e	To become a scientist to help us conduct experiments and learn how to problem solve. To help us learn about the weather around us so we know how to survive in it.

Month: December
Unit: Weather Measurement

First 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 – WEATHER	***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.3** Weather measurement – scientists use tools for observing, recording and predicting weather changes **E.ES.01.31** Identify the tools that might be used to measure temperature, precipitation, cloud cover and wind **E.ES.01.32** Observe and collect data of weather conditions over a period of time	How are thermometers, rain gauges, and wind vanes used to measure the weather conditions?	Identify tools used to measure temperature, precipitation, cloud cover, and wind. Observe and collect data of weather.	Achievement Series Activity: Give students opportunities to practice using thermometers. Let them take temperature measurements of various temperatures of water, snow, outdoors in sand/soil, etc… Lay a transparent hundred square on top of pictures of clouds. Count or estimate the number of squares that have a part of the cloud in them to determine the percentage of cloud cover.	rain gauge wind sock wind vane percentage centimeters inches north south east west Celsius Fahrenheit	Harcourt Science student copy (Unit D, Ch 1) Harcourt Science Workbook (Unit D, Ch. 1) Weather graphing charts for over a period of time Photos of weather Thermometers Rain gauge Weather safety quizzes, tornadoes, thunderstorms and blizzards http://tinyurl.com/azsh5e	To become a scientist to help us conduct experiments and learn how to problem solve. To help us learn about the weather around us so we know how to survive in it.

First Grade
***Science* Pacing Guide**

Month: January
Unit: Properties of Matter

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 – PHYSICAL PROPERTIES /STATES 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.1 Physical** Properties – all objects and substances have physical properties that can be measured **P.PM.01.11 Demonstrate** the ability to sort objects according to observable attributes including color, shape, size, sinking or floating **P.PM.E.2 States** of Matter – matter exists in several different states: solids, liquids, gases. Each state of matter has unique physical properties. Gases are easily compressed but liquids and solids do not compress easily. Solids have their own particular shapes, but liquids and gases take the shape of the container. **P.PM.01.21** Demonstrate that water as a solid keeps its own shape **P.PM.01.22** Demonstrate that water as a liquid takes on the shape of various containers	What physical properties can objects be sorted by? What are the three states of matter? What are the characteristics of the three states of matter? How are the physical properties of water as a solid and liquid different? What is water called in its solid state? What are some of the properties of water in its liquid state?	Use appropriate terms to describe and classify objects according to physical attributes / properties.	Achievement Series Provide a variety of objects for students to observe and describe according to their own criteria. Give student the opportunity to attach their own language to describing objects before introducing the properties of objects. Have students describe objects to one another and have their partner guess what the object is by the student's description. Sort objects according to observable properties, such as color, shape, size, texture, sinking or floating. Play the game "I'm thinking of something…" and describe a common object in the room by its properties. Have students try to guess what object you are describing. Give students a variety of objects to test for sinking and floating. Have students predict which objects will float and which will sink? Categorize pictures of objects representing different state of water. Describe characteristics of the three states of water.	floating investigations observe sinking sort properties air gas liquid solid states of matter energy large small medium circle round square rectangle oval triangle diamond cylinder	Harcourt Science student copy (Unit E, Ch 1 & 2) Harcourt Science Workbook (Unit D, Ch. 1 & 2) Experiments using water and ice. Properties of Matter Lakeshore Learning tub from the science lab. **Book:** How Many Snails? Paul Giganti and Donald Crews, 1994. ISBN-13: 978-0688136390 **Books:** It Could Still Be Water, Allan Fowler, 1993. ISBN-13: 978-0516460031	To become a scientist to help us conduct experiments and learn how to problem solve. To help us learn about matter and what we do with each type. We will observe objects and classify them according to their properties. We will learn characteristics of a solid, liquid, and gas. We will compare the characteristics of water as a solid and liquid.

First Grade
Science **Pacing Guide**

Month: February
Unit: Magnets

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 – MAGNETIC POLARITY	***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.3 Magnets** – magnets attract or repel other magnets. Magnets can also attract magnetic objects. Magnets can attract and repel at a distance **P.PM.01.31** Identify materials that are attracted by magnets **P.PM.01.32** Observe that like poles of a magnet repel and unlike poles of a magnet attract	What is a magnet? What objects do magnets attract?	Identify magnetic and non-magnetic properties.	Achievement Series Explore through observation how the ends of magnets can push away from or attract to each other. Students participate in a center to discover what materials magnets attract; list their discoveries. Sort materials that can be attracted to a magnet. Elaborate on sorting by properties by introducing magnetic and nonmagnetic material. Have students sort objects by their ability to be attracted by a magnet.	Attract Magnet Repel Force Poles Push pull	Harcourt Science Teacher Edition, Textbook, and Workbook (Unit F, Ch. 2) Magnets: Pulling Together, Pushing Apart, Natalie Rosinsky, 2004. ISBN-13: 978-1404803336 What Magnets Can Do, Allan Fowler, 1995. ISBN-13: 978-0516460345 www.coolmagnetman.com Use as a teacher resource to get ideas, website not set up for students. **State Companion Document for ideas on inquiry/ instructional strategies for each unit.** http://tinyurl.com/cswnaj	We will learn that a magnet is a piece of iron that attracts objects with iron in them. We will recognize that a magnetic force can pass through things to attract iron objects.

Month: March
Unit: Life Cycles

First Grade
***Science* Pacing Guide**

Theme/Big Ideas	Objectives	Essential/ Focus Questions	Teaching Strategy *(our current performance indicator)*	Assessment	Vocabulary/ Concepts	Resources	Board Objectives
INQUIRY PROCESSES THROUGH ORGANIZATION OF LIVING THINGS – LIFE CYCLES	***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.2 Life** Cycles – plants and animals have life cycles. Both plants and animals begin life and develop into adults, reproduce, and eventually die. The details of this life cycle are different for different organisms **L.OL.01.21** Describe the life cycle of animals including the following stages: egg, young, adult; egg, larva, pupa, adult	What stages do animals go through in their life cycle? What stages do some animals such as the butterfly go through?	Describe the life cycles of different animals. Explain why life cycles are different for different organisms.	Achievement Series Create a life cycle sequencing mat. (Arrange pictures in sequence.) Observe the stages of development in live butterflies; create a book diagramming the sequence of development. Read a lifecycle book about an animal, and ask the students How do animals change? Then lead a discussion on what stages of growth the animal experienced.	life cycle egg young adult larva pupa insects butterfly moth metamorphosis chrysalis cocoon growth death	Harcourt Science Teacher Edition, Textbook, Workbook (Unit A, Ch. 3) **Books:** Under One Rock: Bugs, Slugs and other Ughs, Anthony Fredericks, 2001.ISBN-13: 978-1584690276 An Earthworm's Life, John Himmelman, 2000. ISBN-13: 978-0516265353 (You can also find other animals in the series: dandelion, house spider, hummingbird, ladybug, slug, wood frog, etc…)	We will learn and observe changes in the life cycles of animals.

First Grade
Science **Pacing Guide**

Month: April
Unit: Life Requirements

Theme/Big Ideas	Objectives	Essential/ Focus Questions	Teaching Strategy *(our current performance indicator)*	Assessment	Vocabulary/ Concepts	Resources	Board Objectives
SCIENTIFIC INQUIRY PROCESSES THROUGH ORGANIZATION OF LIVING THINGS – LIFE REQUIREMENTS	***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.1 Life** requirement – organisms have basic needs. Animals and plants need air, water, and food. Plants also require light. Plants and animals use food as a source of energy and as a source of building material for growth and repair **L.OL.01.13** Identify the needs of animals	What are the basic needs of living things? What do animals need to stay alive?	Describe the basic needs of animals. Identify familiar organisms as part of a food chain. Describe feeding relationships. Explain that plants make their own food and animals depend upon plants or other animals for their food. Describe some basic needs of all living things to stay alive and grow. Describe plant's basic needs for survival (e.g., sunlight and water) and animal's basic needs for survival (e.g., water, food, and shelter). Design a basic, controlled ecosystem that provides the needs for life of familiar organisms, (plants and animals).	Achievement Series Have students identify the needs of living things using evidence. Web map the basic needs of plants/animals.	needs of animals air water food basic needs habitat plant growth	Harcourt Science Teacher Edition, Textbook, Workbook (Unit A, Ch. 3) **Books:** Under One Rock: Bugs, Slugs and other Ughs, Anthony Fredericks, 2001.ISBN-13: 978-1584690276 An Earthworm's Life, John Himmelman, 2000. ISBN-13: 978-0516265353 (You can also find other animals in the series: dandelion, house spider, hummingbird, ladybug, slug, wood frog, etc…)	We will learn that animals need food, water, air, and a place to live and survive. We will identify characteristics of living organisms that allow their basic needs to be met.

Month: May
Unit: Heredity

First 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 ORGANIZATION OF LIVING THINGS – HEREDITY	***K-7 Standard L.HE:*** *Develop an understanding that all life forms must reproduce to survive. Understand that characteristics of mature plants and animals may be inherited or acquired and that only inherited traits are passed on to their young. Understand that inherited traits can be influenced by changes in the environment and by genetics.* **L.HE.E.1** Observable characteristics – plants and animals share many, but not all, characteristics of their parents **L.HE.01.11** Identify characteristics that are passed on from parents to young **L.HE.01.12** Classify young animals based on characteristics that are passed on from parents	How characteristics are passed on from parents to their young? Can you match these baby animals with their parents?	Recognize that animals can be categorized according to their observable body parts. Identify and describe the function of observable body parts (limbs, feathers, shells, skin, scales, and other body coverings). Compare and contrast the body covering of familiar animals (feathers, scales).	Achievement Series Compare the physical characteristics of offspring and parent. Match pictures of adult animals with offspring. Students should be able to talk about characteristics passed from parent to offspring. Students study/research an animal of their choice to share (or turn in) by drawing the life cycle, characteristics passed from parent to offspring; life needs and habitat should be incorporated for their chosen animal.	characteristics parents beak shape body coverings: fur feathers skin hair scales inherited eye color animal features behavior patterns human beings individual differences living non-living organism prediction	Harcourt Science Teachers Edition, Textbook, Workbook (Unit A, Ch. 3) **Books:** In the Woods: Who's Been Here? Lindsay Barrett George, 1995. ISBN-13: 978-0688161637 Whose Baby is This? Wayne Lynch, 2000. ISBN-13: 978-1552850640 **State Companion Document for ideas on inquiry/ instructional strategies for each unit.** http://tinyurl.com/cswnaj	We will learn that characteristics are passed from parents to their young.

First Grade
Science **Pacing Guide**

Month: June
Unit: Review of Inquiry Processes

Theme/Big Ideas	Objectives	Essential/ Focus Questions	Teaching Strategy *(our current performance indicator)*	Assessment	Vocabulary/ Concepts	Resources	Board Objectives
REVIEWALL SCIENTIFIC INQUIRY PROCESSES	**S.IP.01.1 Inquiry involves generating questions, conducting investigations and developing solutions to problems through reasoning and observation** **S.IP.01.11** Make purposeful observation of the natural world using the appropriate senses **S.IP.01.12** Generate questions based on observations **S.IP.01.13** Plan and conduct simple investigations **S.IP.01.14** Manipulate simple tools that aid observation and data collection **S.IP.01.15** Make accurate measurements with appropriate units for the measurement tool **S.IA.E.1 Inquiry includes and analysis and presentation of findings that lead to future questions, research, and investigations** **S.IA.01.12** Share ideas about science through purposeful conversation **S.IA.01.13** Communicate and present findings of observations **S.IA.01.14** Develop strategies for information gathering **S.RS.E.1 Reflecting on knowledge is the application of scientific knowledge to new and different situations. Reflecting on knowledge careful analysis of evidence that guides decision-making and the application of science throughout history** **S.RS.01.11** Demonstrate scientific concepts through various illustrations, performances, models, exhibits,	What is an investigation? How do you learn about the world around you? How do we measure an item? How do you organize data?	Use inquiry based science lessons to review all science content.	Achievement Series Verbal explanation/ questioning. Match specific senses with pictured examples of the senses. Observe that students use tools appropriately. Centers. Each center uses a different non-standard measurement tool to measure specific lengths. Students must record answers for each item measured. (i.e., paperclips, pasta, cereal, buttons, cubes, etc.) Use results from an activity to create a graph.	chart discovery hearing investigation reasoning scientist senses sight smell taste touch	Harcourt Science Teachers Edition, Textbook, Workbook (Unit A, Ch. 1) Fun exploratory games for students to learn while having fun, based off the TV show. www.peepandthebigwideworld.com	We will use our 5 senses to learn about the world around us.

Theme/Big Ideas	Objectives	Essential/ Focus Questions	Teaching Strategy *(our current performance indicator)*	Assessment	Vocabulary/ Concepts	Resources	Board Objectives
	and activities **S.RS.01.12** Recognize that science investigations are done more than one time						