

Second Grade Science Curriculum Map

Quarter 1						
NGSSS Body of Knowledge	<i>Nature of Science</i>	<i>Nature of Science</i>	<i>Nature of Science</i>	<i>Nature of Science</i>	<i>Nature of Science/Earth and Space Science</i>	<i>Nature of Science/Earth and Space Science/Physical Science</i>
Unit of Study	Introduction to Practice of Science	Introduction to Practice of Science	Introduction to Practice of Science	Introduction to Practice of Science	Earth	Weather
Target Standards	SC.2.N.1.6 : Explain how scientists alone or in groups are always investigating new ways to solve problems.	SC.2.N.1.2 : Compare the observations made by different groups using the same tools.	SC.2.N.1.1 : Raise questions about the natural world, investigate them in teams through free exploration and systematic observations, and generate appropriate explanations based on those explorations. SC.2.N.1.5 : Distinguish between empirical observation (what you see, hear, feel, smell, or taste) and ideas or inferences (what you think).	SC.2.N.1.1 SC.2.N.1.3 : Ask “how do you know?” in appropriate situations and attempt reasonable answers when asked the same question by others. SC.2.N.1.4 : Explain how particular scientific investigations should yield similar conclusions when repeated.	SC.2.E.6.1 : Recognize that Earth is made up of rocks. Rocks come in many sizes and shapes. SC.2.E.6.2 : Describe how small pieces of rock and dead plant and animal parts can be the basis of soil and explain the process by which soil is formed. SC.2.E.6.3 : Classify soil types based on color, texture (size of particles), the ability to retain water, and the ability to support the growth of plants.	SC.2.E.7.1 : Compare and describe changing patterns in nature that repeat themselves, such as weather conditions including temperature and precipitation, day to day and season to season. SC.2.P.8.5 : Measure and compare temperatures taken every day at the same time.
Pacing	Week 1	Weeks 2-3	Week 4	Week 5	Weeks 6-7	Weeks 8-9
Objective/ Learning Goal/SWBT	<ul style="list-style-type: none"> *Discuss as a class their understanding of science. *Develop science notebooks that will be used all year long to document new learning that results from investigations. *Explore how science is used every day. *Explore different types of scientists (e.g., astronomer, botanist, meteorologist, doctor, archaeologist, chef, student, teacher, principal, mom, dad). *Explain that scientists: solve problems by first asking questions, work alone or in groups to find dependable solutions to problems, and seek new solutions that are simpler, faster, and more efficient. 	<ul style="list-style-type: none"> *Know that scientists use tools to collect information. *Explore tools that are used to make more detailed observations *Record observations and measurements of objects/substances using the same scientific tools while working in teams. *Compare observations and measurements with other teams. *Discuss differences in observations and measurements that may have occurred and why results of teams are not always exactly the same. *Match scientific tools to their use and corresponding units of measure (metric). 	<ul style="list-style-type: none"> *Generate questions about the world around them. *Predict what may happen prior to engaging in an exploration activity based on one of their questions. *Record data in the form of observations using the five senses during the activity. *Record data in the form of measurements using science tools Made during the activity. *Make inferences (assumptions or possible explanations) using observable and measureable data collected during the exploration activity. *Distinguish between observations and inferences. 	<ul style="list-style-type: none"> *Raise questions about the world around them. *Research a topic using a variety of resources to find answers to questions. *Form a hypothesis about any of the “I wonder” questions. *Investigate a problem alone or in teams using appropriate scientific tools. *Record observations made during an investigation that includes at least 5 trials. *Generate an explanation based on the results of an investigation. *Compare the results of each trial that has been conducted during an investigation. *Discuss why differences and similarities sometimes occur. *Explain that scientific investigations should yield similar conclusions when repeated. 	<ul style="list-style-type: none"> *Observe rocks using a hand lens. *Sort rocks by observable traits and measurable traits. *Compare observations as a group. *Discuss the many uses of rocks. *Explain how they know that Earth is made up of rocks. *Explain the basis of soil composition (small pieces of rock/dead plant and animal parts). *Explain how soil is formed. *Sort and classify soil types based on color, texture, and size of particles. *Investigate alone and/or in groups the ability of different soils to hold water. *Investigate which soil types best support plant growth. *Record observations and measurements collected during the soil investigation. 	<ul style="list-style-type: none"> *Discuss what weather is and how weather changes. *Explain that a weather pattern occurs day to day. *Predict and record a description of weather conditions each day for two weeks. *Predict and record measurements of air temperature and precipitation every day at the same time. *Compare predictions of weather to actual results. *Discuss and explain what seasons are. *Sequence seasons, using pictures, in the order they occur starting at any point in the cycle. *Sequence seasons according to temperature. *Explain that a weather pattern also occurs season to season.
Inquiry Flipcharts/Labs	*Safety in Science p.1	*Hold It p.3 *What Tools Can We Use? p.4	*Hand in Hand p.2	*Everything in Balance p.5 *How Do We Solve a Problem? p.6	*Rocks Up Close p.7 *Soil Science p.8 *How Much Water? p.8 *How Do Soils Differ? p.9	*Weather Journal p.10
Fusion Textbook		TE p.13-24, 20A	TE p.1-12, 12A	TE p.25-36, 24A, 34A, 36A	TE p.39-62, 50A, 60A, 62A	TE p.65-78, 78A, 80A

Second Grade Science Curriculum Map

Quarter 2						
NGSSS Body of Knowledge	<i>Nature of Science/Earth and Space Science/Physical Science</i>	<i>Nature of Science/Earth and Space Science/Physical Science</i>	<i>Nature of Science/Earth and Space Science/Physical Science</i>	<i>Nature of Science/Physical Science</i>	<i>Nature of Science/Physical Science</i>	<i>Nature of Science/Physical Science</i>
Unit of Study	Weather	Weather	Weather	Properties of Matter	Changes in Matter	Changes in Matter
Target Standards	SC.2.E.7.2 : Investigate by observing and measuring, that the Sun's energy directly and indirectly warms the water, land, and air.	SC.2.E.7.3 : Investigate, observe and describe how water left in an open container disappears (evaporates), but water in a closed container does not disappear (evaporate).	SC.2.E.7.4 : Investigate that air is all around us and that moving air is wind. SC.2.E.7.5 : State the importance of preparing for severe weather, lightning, and other weather related events.	SC.2.P.8.1 : Observe and measure objects in terms of their properties, including size, shape, color, temperature, weight, texture, sinking or floating in water, and attraction and repulsion of magnets.	SC.2.P.8.2 : Identify objects and materials as solid, liquid, or gas.	SC.2.P.8.3 : Recognize that solids have a definite shape and that liquids and gases take the shape of their water vapor container. SC.2.P.8.4 : Observe and describe water in its solid, liquid, and gaseous states.
Pacing	Weeks 10-11	Weeks 10-11	Week 12	Weeks 13-16	Weeks 17-18	Weeks 17-18
Objective/ Learning Goal/SWBT	<ul style="list-style-type: none"> *Investigate that heat from the sun causes an increase in temperature. *Discuss and explain that more direct exposure to the sun causes a greater increase in temperature. *Investigate and record patterns of change as the sun directly and indirectly heats land (soil), air, and water. (direct – placing objects in sun's direct rays), (indirect – placing objects in containers that are not in sun's direct rays). *Compare results with peers. *Answer "how do you know" questions to communicate own thinking. *Ask "how do you know" questions to understanding peers' thinking. 	<ul style="list-style-type: none"> *Investigate and record how water left in an open container seems to disappear (evaporate) and water in a closed container does not disappear (evaporate). *Compare the results of the two investigations. *Discuss the impact sun's energy plays in evaporation. *Explain that air/water are in constant motion as water changes from a liquid to water vapor. 	<ul style="list-style-type: none"> *Explain that air is all around us even though it cannot be seen. *Observe that air takes up space and has weight. *Define wind as moving air. *Investigate the effects of wind on various objects. *Identify ways wind can be harnessed for human use. *Explain that wind can be a source of great power and can cause damage and dangerous storms. *Identify and describe severe conditions such as hail, lightning, floods, and fires associated with severe weather events specific to this area. *Discuss the procedures the school has in place to prepare students and staff for severe weather events. *Discuss the importance of having a plan at home and in the classroom for severe weather. *Generate a list of items that would be good to have in a home or classroom emergency kit, making comparisons between them. 	<ul style="list-style-type: none"> *Describe and record an object's physical properties – observable and measurable characteristics. *Explain that objects/substances are known as matter. *Discuss that matter is anything that has weight and takes up space. *Measure and compare the length of objects (matter) using a metric ruler. *Measure and compare the weight of objects (matter) using a balance. *Measure and compare the temperature of matter (solids, liquids, and gases) using a thermometer. *Predict and investigate whether various objects will sink or float in water. *Draw conclusions about objects that sink and objects that float. *Investigate the effect a magnet has on magnetic (including other magnets) and nonmagnetic objects (push/repel, pull/attract, no effect). 	<ul style="list-style-type: none"> *Sort objects (matter) and materials into three categories (solid, liquid or gas) based on similar physical characteristics. *Explain the reasons objects/materials were put into each category. *Explain that scientists classify things into groups according to common or similar properties. 	<ul style="list-style-type: none"> *Explain that one physical characteristic of a solid is that it has a definite shape. *Investigate how the shape of a solid can be changed by applying energy or a force to it. *Explain that one physical characteristic of a liquid is that it takes the shape of its container. *Investigate how a liquid flows from one place to another when it is not contained. *Explain that one physical characteristic of a gas is that it takes the shape of its container. *Compare any two forms of matter. *Observe and describe water in its solid, liquid and gaseous state. *Investigate how a change in temperature changes the physical properties of water. *Explain that water is still water even when it changes from a solid to a liquid to a gas and vice versa.
Inquiry Flipcharts/Labs	How Does the Sun Heat Earth?, p. 11 What Is Evaporation?, p. 12	How Does the Sun Heat Earth?, p. 11 What Is Evaporation?, p. 12	Wind Watching, p.10 Make Your Own Tornado, p. 13 Keep It Safe, p.13	How Can We Measure and Compare Objects?, p. 15 Sink the Boat, p. 14 Property Scavenger Hunt, p.14	What State Is It?, p. 16 The Paper Towel Mystery, p.16	What State Is It?, p. 16 The Paper Towel Mystery, p.16
Fusion Textbook	p.79-82A	p.79-82A	p.83-92	p.95-108A	p.109-120	p.109-120

Second Grade Science Curriculum Map

Quarter 3						
NGSSS Body of Knowledge	<i>Nature of Science/Physical Science</i>	<i>Nature of Science/Physical Science</i>	<i>Nature of Science/Physical Science</i>	<i>Nature of Science/Physical Science</i>	<i>Nature of Science/Physical Science</i>	<i>Nature of Science/Life Science</i>
Unit of Study	Changes in Matter	Changes in Matter	Energy and Motion	Energy and Motion	Energy and Motion	Life
Target Standards	SC.2.P.8.6 : Measure and compare the volume of liquids using containers of various shapes and sizes.	SC.2.P.9.1 : Investigate that materials can be altered to change some of their properties, but not all materials respond the same way to any one alteration.	SC.2.P.10.1 : Discuss that people use electricity or other forms of energy to cook their food, cool or warm their homes, and power their cars.	SC.2.P.13.1 : Investigate the effect of applying various pushes and pulls on different objects. SC.2.P.13.4 : Demonstrate that the greater the force (push or pull) applied to an object, the greater the change in motion of the object. SC.2.P.13.3 : Recognize that objects are pulled toward the ground unless something holds them up.	SC.2.P.13.2 : Demonstrate that magnets can be used to make some things move without touching them.	SC.2.L.14.1 : Distinguish human body parts (brain, heart, lungs, stomach, muscles, and skeleton) and their basic functions.
Pacing	Week 19	Weeks 20-21	Week 22	Weeks 23-25	Week 26	Week 27 (continued in week 28)
Objective/Learning Goal/SWBT	<p>*Define volume as the amount of space a substance (solid, liquid, or gas) takes up.</p> <p>*Recognize volume as a physical characteristic of all forms of matter (solid, liquid, gas) that can be measured.</p> <p>*Measure the volume of liquids using a variety of scientific tools (e.g., beakers, graduated cylinders).</p> <p>*Compare equal volumes of liquids using containers of various shapes and sizes.</p> <p>*Discuss how the shape of a liquid may change when placed in different containers even though the volume of the liquid does not.</p>	<p>*Investigate ways to change solid and liquid materials (e.g., cut, break, bend, cook, tear, freeze, melt, burn, soak, dissolve, evaporate, heat, rust).</p> <p>*Explain that not all materials change the same way when undergoing the same change.</p>	<p>*Identify ways people use the energy from the sun, wind, and water.</p> <p>*Match an object with its energy source (e.g., hair dryer-electricity, animals-food, car-gas, calculator-sun).</p> <p>*Explain various ways people need and use energy.</p>	<p>*Identify pushes and pulls that occur in pictures or nature walk.</p> <p>*Predict and investigate how a push or pull will affect the motion of an object (speed and direction).</p> <p>*Record observations of motion investigations in a science notebook.</p> <p>*Discuss that energy is required for a push or pull to occur.</p> <p>*Explain that force is a push or pull on an object that causes it to stop, change speed, or change direction.</p> <p>*Demonstrate that the greater the force (push or pull) applied to an object, the greater the change in motion of the object.</p> <p>*Observe and explain that it takes more force (push or pull) to change the motion of an object with more weight.</p> <p>*Compare findings with others.</p> <p>*Demonstrate and explain gravity's effect on objects when dropped.</p> <p>*Demonstrate and explain how to overcome gravity.</p>	<p>*Investigate how magnets work (attract vs. repel).</p> <p>*Investigate and classify objects that are attracted/not attracted to magnets (wood, plastic, metal).</p> <p>*Demonstrate how to move objects (including magnets) with a magnet without contact.</p> <p>*Observe and explain that the amount of movement a magnet can cause on a magnetic object is affected by the strength of the magnet and its distance from the object.</p> <p>*Investigate ways to change the motion of an object (including a magnet) by using a magnet.</p> <p>*Explore the poles of magnets (north and south).</p>	<p>*Identify outside human body parts (e.g., head, arms, legs, ankles).</p> <p>*Identify inside human body structures (limited to brain, heart, lungs, stomach, muscles, and skeleton).</p> <p>*Describe the basic function of the brain, heart, lungs, stomach, muscles, and skeleton.</p>
Inquiry Flipcharts/Labs	How Can We Compare Volumes?, p. 17	Mix It and See, p. 18 What Melts?, p.18 How Can We Change Matter?, p. 19	Making Toast, p.20 My Energy Survey, p.20 How Does the Sun Warm Our Homes?, p. 21	Ramp Race, p. 22 Push and Pull, p.22 How Do Forces Make Objects Move?, p. 23	Action at a Distance, p.24 Magnetic Attraction, p.24 How Strong Is a Magnet?, p. 25	Bones at Work, p.26 Full of Air, p. 26 What Changes Your Heart Rate?, p. 27
Fusion Textbook	p.121-122A	p.125-140, 136A, 138A	p.143-158, 154A, 156A	p.161-176, 172A, 174A	p.177-188, 186A, 188A	p.191-208, 204A, 208A

Second Grade Science Curriculum Map

Quarter 4				
NGSSS Body of Knowledge	<i>Nature of Science/Life Science</i>	<i>Nature of Science/Life Science</i>	<i>Nature of Science/Life Science</i>	<i>Nature of Science</i>
Unit of Study	Life	Life	Basic Needs	Practice of Science
Target Standards	SC.2.L.14.1 : Distinguish human body parts (brain, heart, lungs, stomach, muscles, and skeleton) and their basic functions.	SC.2.L.16.1 : Observe and describe major stages in the life cycles of plants and animals, including beans and butterflies.	SC.2.L.17.1 : Compare and contrast the basic needs that all living things, including humans, have for survival. SC.2.L.17.2 : Recognize and explain that living things are found all over Earth, but each is only able to live in habitats that meet its basic needs.	SC.2.N.1.2 : Compare the observations made by different groups using the same tools.
Pacing	Week 28 (continued from week 27)	Weeks 29-31	Weeks 32-34	Weeks 35-36
Objective/ Learning Goal/SWBT	<ul style="list-style-type: none"> *Identify outside human body parts (e.g., head, arms, legs, ankles). *Identify inside human body structures (limited to brain, heart, lungs, stomach, muscles, and skeleton). *Describe the basic function of the brain, heart, lungs, stomach, muscles, and skeleton. 	<ul style="list-style-type: none"> *Observe and describe major stages in the life cycle of the butterfly (egg, larva, pupa, adult). *Investigate the life cycles of other animals (e.g., cat, snake, hamster, spider, fish, kangaroo, salamander, penguin, possum). *Observe and describe major stages in the life cycle of the bean plant (seed, seedling, mature plant). *Investigate the life cycles of other plants (e.g., marigolds, fern, pine tree, ivy). *Explain that, when repeated, life cycle investigations yield the same results. *Compare the life cycles of the butterfly to the bean (or other plants to other animals). 	<ul style="list-style-type: none"> *Identify the basic needs of plants (water, light, air, nutrients, space). *Identify the basic needs of animals (water, air, food, shelter, space). *Compare the basic needs that all living things (plant and animal) have for survival. *Investigate a plant's ability to survive when one of its basic needs are not met. *Compare findings with other groups focusing on any differences that may have occurred. *Describe how different animals and plants depend on each other and the environment to meet their basic needs. *Describe different environments (e.g., ocean, rain forest, desert, tundra, prairie, wetlands, woodland). *Match plants and animals to their environments/habitats (e.g., wetlands, desert, woodland, prairie, ocean, rainforest, arctic). *Explain that plants and animals live in habitats that meet their basic needs. 	<ul style="list-style-type: none"> *Know that scientists use tools to collect information. *Use tools independently to make detailed observations (e.g., pan balance/scale, hand lens, thermometer, beaker, measuring cup, graduated cylinder, metric ruler, magnet, stopwatch, tape measure). *Record observations, including measurements, of objects/substances using the same scientific tools while working in teams. *Compare observations, including measurements, with the observations of other teams. *Discuss differences in observations and measurements that may have occurred and why results of teams are not always exactly the same. *Match scientific tools to their use and corresponding units of measure (metric).
Inquiry Flipcharts/Labs	Bones at Work, p.26 Full of Air, p. 26 What Changes Your Heart Rate?, p. 27	What's My Life Cycle?, p. 28 Where's the Caterpillar?, p.28 How Does a Bean Plant Grow?, p. 29 Bud a Spud!, p.30 Speedy Seed Race, p. 30	Airtight Seal, p.31 Block the Light, p. 31 An Animal I Know, p.32 Raising Crickets, p.32 Waxy Leaves, p.34 Keeping Warm, p. 34 Can Plants Survive in Different Environments?, p. 33	Hold It, p. 3 What Tools Can We Use?, p. 4
Fusion Textbook	p.191-208, 204A, 208A	p.211-240	p.243-276	p.13-24, 20A