Grade 2	Unit 1: Properties of Objects and Materials		Suggested Length: 3 weeks
Essential Questions	*Program of Studies* and Core Content	Key Terms and Vocabulary	Classroom Instruction and Assessment Student will:
1. What are the observable properties of objects? 2. How do some materials change from one form to another?	***Program of Studies*** ❑ *PS1 Students will understand that properties (e.g., size, shape) of materials can be measured and used to describe, separate, or sort objects.* ❑ *PS2 Students will understand that materials can exist in different states and some common materials can change states.* ❑ *SI1 Students will ask simple scientific questions that can be answered through observations.* ❑ *SI2 Students will use simple equipment (e.g., aquarium), tools (e.g., magnifiers, spoons), skills (e.g., observing, pouring), technology (e.g., video discs), and mathematics in scientific investigations.* ❑ *SI3 Students will use evidence (e.g., observations) from simple scientific investigations and scientific knowledge to develop reasonable explanations.* ❑ *SI4 Students will design and conduct different kinds of simple scientific investigations.* ❑ *SI5 Students will communicate (e.g., speak, draw) designs, procedures, and results of scientific investigations.* ❑ *SI6 Students will question scientific investigations and explanations of other students.* ***Core Content*** ❑ **SC-EP-1.1.1 Students will classify material objects by their properties providing evidence to support their classifications. Objects are made of one or more materials such as paper, wood, and metal. Objects can be described by the properties of the materials from which they are made. Those**		❑ Compose yes or no questions to discover the properties of a hidden object. DOK 2 ❑ Identify and describe properties of hidden object to allow other students to guess item. DOK 2 ❑ Develop riddle-describing properties of an object. Students will solve each other's. DOK 3 ❑ Identity of an object in a film canister by using senses.

Grade 2	Unit 1: Properties of Objects and Materials		Suggested Length: 3 weeks
Essential Questions	*Program of Studies* and Core Content	Key Terms and Vocabulary	Classroom Instruction and Assessment Student will:
	properties and measurements of the objects can be used to separate or classify objects or materials. DOK 3	❑ Properties	Illustrate and write at least two properties of your object and explain your answer. DOK 2 ❑ Literature Link: Frog and Toad Are Friends ❑ Story- 'The Button Box' ❑ Distinguish rules for sorting buttons in cooperative groups. Record findings. DOK 2 ❑ Investigate collections of objects that have some similar properties. Produce an explanation of the groupings, drawing a sketch if necessary. DOK 3
	❑ SC-EP-1.1.2 Students will understand that objects have many observable properties such as size, mass, shape, color, temperature, magnetism, and the ability to interact and/or to react with other substances. Some properties can be measured using tools such as metric rulers, balances, and thermometers.		
	❑ **SC-EP-1.1.3 Students will describe the properties of water as it occurs as a solid, liquid or gas.** **Matter (water) can exist in different states--solid, liquid and gas. Properties of those states of matter can be used to describe and classify them. DOK 2**	❑ Solid ❑ Liquid ❑ Gas	❑ Define the terms: solid, liquid, and gas. DOK 1 ❑ Design a chart classifying objects as solid, liquid, or gas. DOK 2 ❑ Conduct an experiment using charcoal and ice to show changes from heating and cooling. DOK 2 ❑ Literature Link: Strega Nona's Magic Lesson ❑ Write a letter to a character in the story telling how our experiment worked. DOK 3 ❑ Assess with CATS like multiple choice questions and open response. DOK 2
	❑ Ask simple scientific questions that can be investigated through observations combined with scientific information. ❑ Use simple equipment in scientific investigations: magnifiers, magnets, use simple tools in scientific investigations, metric rulers, thermometers, skills in scientific investigations (e.g., classifying, predicting), technology (e.g., electronic media, calculators, www Web). ❑ Use evidence (e.g., observations, data) from simple scientific investigations and scientific knowledge to develop reasonable		

Grade 2	Unit 1: Properties of Objects and Materials		Suggested Length: 3 weeks
Essential Questions	*Program of Studies* and Core Content	Key Terms and Vocabulary	Classroom Instruction and Assessment Student will:
	explanations. ❑ Design and conduct different kinds of simple scientific investigations. Communicate (e.g. draw, graph, or write), findings of procedures, observations, and scientific investigations. ❑ Distinguish between natural objects and objects made by humans and examine the interaction between science and technology. ❑ Examine how designing and conducting scientific investigations fosters an understanding of issues related to natural resources (e.g. scarcity), demonstrate how the study of science (e.g. aquariums, living systems) helps explain changes in environments, examine the role of science and technology in communities (e.g. location of landfills, new housing developments).		

Grade 2	Unit 2: Magnetism		Suggested Length: 2 Weeks
Essential Questions	*Program of Studies* and Core Content	Key Terms and Vocabulary	Classroom Instruction and Assessment Student will:
1. Why do magnets attract and repel each other? 2. What kinds of objects are attracted to or repelled by a magnet?	***Program of Studies*** ❑ *PS5 Students will understand that magnets attract and repel each other as well as certain kinds of other materials.* ❑ *SI1 Students will ask simple scientific questions that can be answered through observations.* ❑ *SI2 Students will use simple equipment (e.g., aquarium), tools (e.g., magnifiers, spoons), skills (e.g., observing, pouring), technology (e.g., video discs), and mathematics in scientific investigations.* ❑ *SI3 Students will use evidence (e.g., observations) from simple scientific investigations and scientific knowledge to*		

Grade 2	Unit 2: Magnetism		Suggested Length: 2 Weeks
Essential Questions	*Program of Studies* and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
	develop reasonable explanations ❑ *SI4 Students will design and conduct different kinds of simple scientific investigations.* ❑ *SI5 Students will communicate (e.g., speak, draw) designs, procedures, and results of scientific investigations* ❑ *SI6 Students will question scientific investigations and explanations of other students.* ***<u>Core Content</u>*** ❑ **SC-EP-1.2.1 Students will describe and make inferences about the interactions of magnets with other magnets and other matter (e.g., magnets can make some things move without touching them). Magnets have observable properties that allow them to attract and repel each other and attract certain kinds of other materials (e.g., iron). Based on the knowledge of the basic properties of magnets, predictions can be made and conclusions drawn about their interactions with other common objects. DOK 3** ❑ Distinguish between natural objects and objects made by humans and examine the interaction between science and technology. ❑ Ask simple scientific questions that can be investigated through observations combined with scientific information. ❑ Use simple equipment in scientific investigations: magnifiers, magnets, use simple tools in scientific investigations, metric rulers, thermometers, skills in scientific investigations (e.g., classifying, predicting), technology (e.g., electronic media, calculators, www Web).	❑ Attract ❑ Repel ❑ Poles ❑ Magnetic field ❑ Interaction ❑ Magnetism ❑ Force ❑ Magnet	❑ Gather and record information on graphic organizer after planning and conducting simple investigations to classify objects as either attracted to or repelled by magnets. DOK 2 ❑ Analyze objects comparing similarities and differences to identify properties that make an item attract to a magnet, in cooperative groups. DOK 2 ❑ Writing Task: Open Response Question- Not all objects attract to a magnet. Why do some objects attract to a magnet and others don't? Explain. DOK 3 ❑ Experiment with 2 or more stacked ring magnets, in cooperative groups, observing how they interact with one another. DOK 2 ❑ Predict how like and unlike poles will react to one another. Individuals will perform experiments using magnets and record and explain results. DOK 3 ❑ <u>Assessment- Review with a Marzano Note-taking Guide. Test with multiple choice and 1 open response question.</u> DOK 3

Grade 2	Unit 2: Magnetism		Suggested Length: 2 Weeks
Essential Questions	*Program of Studies* and Core Content	Key Terms and Vocabulary	Classroom Instruction and Assessment Student will:
	❑ Use evidence (e.g., observations, data) from simple scientific investigations and scientific knowledge to develop reasonable explanations. ❑ Design and conduct different kinds of simple scientific investigations. Communicate (e.g. draw, graph, or write), findings of procedures, observations, and scientific investigations. ❑ Distinguish between natural objects and objects made by humans and examine the interaction between science and technology. ❑ Examine how designing and conducting scientific investigations fosters an understanding of issues related to natural resources (e.g. scarcity), demonstrate how the study of science (e.g. aquariums, living systems) helps explain changes in environments, examine the role of science and technology in communities (e.g. location of landfills, new housing developments)		

Grade 2	Unit 3: Objects in the Sky		Suggested Length: 3 weeks
Essential Questions	*Program of Studies* and Core Content	Key Terms and Vocabulary	Classroom Instruction and Assessment Student will:
1. How can you describe the movement of the sun and the moon? 2. Why is the sun necessary for life on earth?	***Program of Studies*** ❑ *ESS3 Students will understand that the Sun provides the light and heat necessary to maintain the temperature of the Earth.* ❑ *ESS4 Students will understand that common objects in the sky (e.g., stars, clouds, airplanes) have properties, locations, and movements that can be observed and described.* ❑ *ESS5 Students will understand that objects in the sky (e.g., Sun moon) have patterns of movement.*		

Grade 2	Unit 3: Objects in the Sky		Suggested Length: 3 weeks
Essential Questions	*Program of Studies* and Core Content	Key Terms and Vocabulary	Classroom Instruction and Assessment Student will:
	Core Content ❑ **SC-EP-2.3.3 Students will describe the properties, locations and real or apparent movements of objects in the sky (Sun, moon).** **Objects in the sky have properties, locations and real or apparent movements that can be observed and described. Observational data, patterns, and models should be used to describe real or apparent movements. DOK 2** ❑ **SC-EP-4.6.2 Students will describe evidence of the sun providing light and heat to the Earth.** **Simple observations and investigations begin to reveal that the Sun provides the light and heat necessary to maintain the temperature of Earth. Based on those experiences, the conclusion can be drawn that the Sun's light and heat are necessary to sustain life on Earth. DOK 2**	❑ Moon ❑ Orbit ❑ Sundial ❑ Earth ❑ Constellation	❑ Create a calendar to record the phases of the moon for a specified period. DOK 2 ❑ Demonstrate the orbit using balloons and colored chalk outside. They will be aligned correctly and the chalk will show their lines of travel. DOK 2 ❑ Design constellations from tiny stars to put on black paper and cover the ceiling tiles. DOK 2 ❑ Develop a descriptive paragraph about one of the constellations they see made on the classroom ceiling with glow-in-the dark stars. DOK 3 ❑ Produce and describe a Styrofoam ball that shows the phases of the moon. DOK 2 ❑ Construct a sundial to show movement of the sun by measuring how the shadow changes in a specified location every hour during the day. This should allow us to record the accurate hour. DOK 2 ❑ Literature Link: Midnight on the Moon ➢ The Moon Seems to Change ➢ Solar System- Moon ➢ The Moon ➢ Why Does The Moon Change Shape ➢ Sun ➢ Sun Up, Sun Down ➢ How Raven Brought Light to People ❑ Assessment- CATS-like questions with multiple choice and open response. DOK 3

Grade 2	Unit 4A: CONTENT TO BE INTRODUCED OR REINFORCED		Suggested Length: 2 weeks
Essential Questions	*Program of Studies* and Core Content	Key Terms and Vocabulary	Classroom Instruction and Assessment Student will:
1. How can we describe the position of an	***Core Content*** ❑ **SC-EP-1.2.3 Students will describe the position and motion of objects and predict changes in position and motion as related**	❑ Force ❑ Wind ❑ Gravity	❑ Complete Marzano note-taking guide for vocabulary and key ideas. DOK 2 ❑ Videos-

Grade 2	Unit 4A: CONTENT TO BE INTRODUCED OR REINFORCED		Suggested Length: 2 weeks
Essential Questions	*Program of Studies* and Core Content	Key Terms and Vocabulary	Classroom Instruction and <u>Assessment</u> Student will:
object? 2. What effects the position and motion of an object? 3. How is sound produced and changed?	**to the strength of pushes and pulls. The position and motion of objects can be changed by pushing or pulling, and can be explored in a variety of ways (such as rolling different objects down different ramps). The amount of change in position and motion is related to the strength of the push or pull (force). The force with which a ball is hit illustrates this principle. By examining cause and effect relationships related to forces and motions, consequences of change can be predicted. DOK 2** ❑ SC-EP-1.2.4 Students will understand that the position of an object can be described by locating it relative to another object or the background. The position can be described using phrases such as to the right, to the left, 50 cm from the other object.	❑ Motion ❑ Vibration ❑ Sound ❑ Loudness ❑ Pitch ❑ Sonar	➢ All About Forces and Gravity ➢ All About Sound ➢ Magic School Bus: Inside the Haunted House ❑ Conduct an experiment demonstrating how gravity makes objects move faster the farther they fall. SOK 2 ❑ Conduct an experiment demonstrating how to balance an object through its center of gravity. DOK 2 ❑ Develop an experiment demonstrating how to defy gravity by stopping water from falling through the holes in the base of a bottle. DOK 3 ❑ Assemble an experiment to demonstrate that the greater the mass of an object, the greater the pull of gravity on it. DOK 2 ❑ Tuning fork experiment put in water.

Grade 2	**Unit 4B: Content to be Introduced or Reinforced**		**Suggested Length:**
Essential Questions	***Program of Studies* and Core Content**	**Key Terms and Vocabulary**	**Classroom Instruction and <u>Assessment</u>** ***Student will:***
1. How does light energy work? 2. What is heat energy and how is it used? 3. How does electrical	***<u>Core Content</u>*** ❑ **SC-EP-4.6.3 Students will analyze models of basic electrical circuits using batteries, bulbs and wires, in order to determine whether a simple circuit is open or closed. Electricity in circuits can produce light. Describing and comparing models demonstrates basic understanding of circuits. DOK 2**	❑ Conduction ❑ Electric ❑ Circuit	❑ Videos- Bill Nye the Science Guy: Electrical Current; Energy ❑ Literature Link: The Magic School Bus and the Electric Field Trip ❑ Design an experiment with given materials to show if an object is a good conductor of heat. Materials: hot water, plastic ruler, pencil, metal spoon, butter, modeling clay, glass dish, three buttons. DOK 2 ❑ Develop an activity to show electrical energy using a

Grade 2	Unit 4B: Content to be Introduced or Reinforced		Suggested Length:
Essential Questions	***Program of Studies* and Core Content**	**Key Terms and Vocabulary**	**Classroom Instruction and <u>Assessment</u>** ***Student will:***
energy work and how do people use it?	❑ **SC-EP-4.6.4 Students will describe light as traveling in a straight line until it strikes an object. Light can be observed and described as it travels in a straight line until it strikes an object. DOK 2**	❑ Energy ❑ Light ❑ Heat ❑ Reflection	balloon, string, wool cloth, and tape. DOK 2 ❑ Produce electrical energy by completing a circuit using a battery, wire, bulb, and paper clip. Students will work in small groups and demonstrate an open and closed circuit. They will also create a switch with the paper clip. They will record and justify their findings. DOK 3 ❑ Complete a web showing how each electrical activity connects to each other and to objects in real life. DOK 1 ❑ Complete a Marzano note-taking guide of key terms and ideas. DOK 2 ❑ Create an activity showing the energy of light by cutting a shape from a piece of construction paper, taping it to the window, taping a solid piece over it. Take it down after 2 days and record results. Compare these to the predictions made. DOK 3 ❑ Demonstrate how light bounces back, or reflects by holding 2 cardboard tubes up to a mirror at an angle. Shine a light down one of the tubes and show the reflected light that comes from the other tube. Students will predict what they think will happen when shown the materials and draw a picture and describe what they observed after the activity. DOK 3 ❑ Conduct a heat energy experiment. Label 2 cups: 1 hot and 1 cold. Fill each with the matching temperature water. Put a tea bag in each cup and record what you see happen. Observe and record for 5 minutes. Write an explanation for what happened. DOK 2

Grade 2	**Unit 4C:** CONTENT TO BE INTRODUCED OR REINFORCED		Suggested Length:
Essential Questions	***Program of Studies* and Core Content**	**Key Terms and Vocabulary**	**Classroom Instruction and <u>Assessment</u>** ***Student will:***
1. What are the steps in the water cycle?	***<u>Core Content</u>*** ❑ **SC-EP-2.3.2 Students will describe patterns in weather and weather data in order to make simple predictions based on**	❑ Water cycle ❑ Temperature ❑ Precipitation	❑ Literature Link- <u>Water At Work</u>- this is an interactive book on the computer. ❑ Brainstorm places we find water and ways we use it.

Grade 2	**Unit 4C:** CONTENT TO BE INTRODUCED OR REINFORCED		**Suggested Length:**
Essential Questions	***Program of Studies* and Core Content**	**Key Terms and Vocabulary**	**Classroom Instruction and <u>Assessment</u>** ***Student will:***
2. How can weather be measured? 3. What differences are found in the weather of each season?	**those patterns discovered. Weather changes from day to day and over seasons. Weather can be described using observations and measurable quantities such as temperature, wind direction, wind speed and precipitation. Simple predictions can be made by analyzing collected data for patterns. DOK 2**	❑ Water vapor ❑ Anemometer ❑ Barometer ❑ Weather vane ❑ Thermometer	Draw and label a picture to put on chart paper. DOK 2 ❑ Complete a Marzano note-taking guide of vocabulary and key ideas. OOK 2 ❑ Create murals of each of the seasons in cooperative groups. Include a description of the weather, clothes worn, appropriate activities, etc. DOK 2 ❑ Assemble water cycle bracelets with cord and colored beads. Sing a song about the water cycle to explain what each bead represents. DOK 3 ❑ Compose an explanation in an on-demand writing to describe the steps in the water cycle. DOK 3 ❑ Videos- ➢ Magic School Bus Kicks Up A Storm ➢ Magic School Bus –Wet All Over All About Weather and Clouds ❑ Literature Link- <u>Cloudy With A Chance of</u> <u>Meatballs,</u> <u>Magic School Bus At The Waterworks</u> ❑ Design a weather-measuring device in cooperative groups given specific materials. DOK 2

Grade 2	**Unit 4D:** CONTENT TO BE INTRODUCED OR REINFORCED		**Suggested Length:**
Essential Questions	***Program of Studies* and Core Content**	**Key Terms and Vocabulary**	**Classroom Instruction and <u>Assessment</u>** ***Student will:***
1. What are some of Earth's materials and their properties? 2. What are some uses of natural resources? 3. What information do	***<u>Core Content</u>*** ❑ **SC-EP-2.3.1 Students will describe earth materials (solid rocks, soils, water and gases of the atmosphere) using their properties.** **Earth materials include solid rocks and soils, water and the gases of the atmosphere. Minerals that make up rocks have properties of color, luster and hardness. Soils have properties of color, texture, the capacity to retain water and the ability to support plant growth. Water on Earth and in the atmosphere can be a solid, liquid or gas. DOK 2**	❑ Rocks ❑ Soil ❑ Resources ❑ Natural resources	❑ Complete a Marzano note-taking guide of vocabulary and key concepts. DOK 2 ❑ Predict the item in a bag by listening to a riddle. DOK 1 ❑ Brainstorm and list objects made from rocks. DOK 1 ❑ Literature Link: <u>The Crow and the Pitcher</u> ❑ Videos: All About Soil ➢ The Magic School Bus Inside the Earth ➢ All About Volcanoes ➢ Earthquakes ❑ Create a web showing natural resources and examples of uses of each. DOK 2

Grade 2	**Unit 4D:** CONTENT TO BE INTRODUCED OR REINFORCED		**Suggested Length:**
Essential Questions	***Program of Studies* and Core Content**	**Key Terms and Vocabulary**	**Classroom Instruction and <u>Assessment</u>** ***Student will:***
fossils give us?	❑ **SC-EP-3.5.1 Students will describe fossils as evidence of organisms that lived long ago, some of which may be similar to others that are alive today. Fossils found in Earth materials provide evidence about organisms that lived long ago and the nature of the environment at that time. Representations of fossils provide the basis for describing and drawing conclusions about the organisms and basic environments represented by them. DOK 3**	❑ Fossils ❑ Minerals ❑ Properties ❑ Erosion ❑ Weathering ❑ Landslides ❑ Volcanic eruptions ❑ Earthquakes	❑ Explore rocks with a magnifying glass to identify different types and minerals in each. DOK 1 ❑ Defend their ideas for having a pet dinosaur in a letter to their parents (WP). DOK 3 ❑ Literature Link: ➢ <u>Fossils Tell of Long Ago</u> ➢ <u>The Fossil Hunters-</u> ➢ Interactive book on computer

Grade2	**Unit 4E:** CONTENT TO BE INTRODUCED OR REINFORCED		**Suggested Length:**
Essential Questions	***Program of Studies* and Core Content**	**Key Terms and Vocabulary**	**Classroom Instruction and <u>Assessment</u>** ***Student will:***
	<u>Core Content</u>		
1. How do living things differ from nonliving? 2. What are some basic needs of an organism?	❑ **SC-EP-3.4.1 Students will explain the basic needs of organisms. Organisms have basic needs. For example, animals need air, water and food; plants need air, water, nutrients and light. Organisms can survive only in environments in which their needs can be met. DOK 2**	❑ Living ❑ Nonliving	❑ Create a mural working in cooperative groups, of 1 environment. Write a description. DOK 2 ❑ Videos: ➢ All About Animal Adaptations ➢ How Animals Get Their Food ➢ All About Food Chains ❑ Literature Link: <u>The Reason For a Flower</u>
3. What is needed in an environment to support different	❑ SC-EP-3.4.2 Students will understand that things in the environment are classified as living, nonliving and once living. Living things differ from nonliving things. Organisms are classified into groups by using	❑ Environment ❑ Organism ❑ Body structures ❑ Functions	❑ Nature walk and completed T-chart, living and non-living. DOK2 ❑ Construct KWL chart. DOK 1 ❑ Create a comparison chart. DOK 2

Grade2	**Unit 4E:** CONTENT TO BE INTRODUCED OR REINFORCED		**Suggested Length:**
Essential Questions	***Program of Studies* and Core Content**	**Key Terms and Vocabulary**	**Classroom Instruction and Assessment** ***Student will:***
organisms?	various characteristics (e.g., body coverings, body structures). ❑ **SC-EP-3.4.3 Students will describe the basic structures and related functions of plants and animals that contribute to growth, reproduction and survival. Each plant or animal has observable structures that serve different functions in growth, survival and reproduction. For example, humans have distinct body structures for walking, holding, seeing and talking. These observable structures should be explored to sort, classify, compare and describe organisms. DOK 2** ❑ **SC-EP-4.6.1 Students will describe basic relationships of plants and animals in an ecosystem (food chains). Plants make their own food. All animals depend on plants. Some animals eat plants for food. Other animals eat animals that eat the plants. Basic relationships and connections between organisms in food chains can be used to discover patterns within ecosystems. DOK 2** ❑ **SC-EP-4.7.1 Students will describe the cause and effect relationships existing between organisms and their environments. The world has many different environments. Organisms require an environment in which their needs can be met. When the environment changes some plants and animals survive and reproduce and others die or move to new locations. DOK 2**	❑ Ecosystem ❑ Food chain	❑ Create a food chain and explain how it evolves. DOK 2