

UNIT TITLE	CORE TOPICS (Key Concepts & Real World Contexts)	UNIT BENCHMARKS	SUGGESTED ASSESSMENT	POSSIBLE RESOURCES
All students will ask questions that help them learn about the world:				
SURFACE FEATURES AND RESOURCES	<p>KC: Questions lead to action, including careful observation and testing; questions often begin with <i>“What happens if...?”</i> or <i>“How do these two things differ?”</i></p> <p>RWC: Any in the sections on Using Scientific Knowledge.</p>	<p>C-I.1.E.1: Generate questions about the world based on observation.</p>		
All students will design and conduct investigations using appropriate methodology and technology:				
SURFACE FEATURES AND RESOURCES	<p>KC: (K-2) gather information, ask questions, think</p> <p>RWC: Any in the sections on Using Scientific Knowledge.</p> <p>KC: Manipulate simple devices that aid observations and data collection.</p> <p>RWC: Any suggested in Using Scientific Knowledge benchmarks for which students would design and/or conduct investigations.</p> <p>KC: Measurement units—milliliters, liters, teaspoon, tablespoon, ounce, cup, millimeter, centimeter, meter, gram.</p> <p>RWC: Making simple mixtures, such as food, play dough, papier maché; measuring height of a person, weight of a ball.</p>	<p>C-I.1.E.2: Develop solutions to problems through reasoning, observation, and investigations.</p> <p>C-I.1.E.3: Manipulate simple devices that aid observation and data collection.</p> <p>C-I.1.E.4: Use simple measurement devices to make measurements in scientific investigations.</p>		<p>Measuring cups and spoons Measuring tape Balance or scale</p> <p>Various data collection tools suitable for this level, such as hand lenses, wind direction indicators, grids for sampling areas of the sky or landscape.</p>
All students will learn from books and other sources of information:				
SURFACE FEATURES AND RESOURCES	<p>KC: Develop strategies and skills for information gathering and problem solving.</p> <p>RWC: Seeking help from or interviewing peers, adults, experts; using libraries, World Wide Web, CD's and other computer software, other sources.</p>	<p>C-I.1.E.5: Develop strategies and skills for information gathering and problem solving.</p>		<p>Sources of information, such as reference books, trade books, magazines, web sites, other peoples' knowledge.</p>

Science

Second Grade

UNIT TITLE	CORE TOPICS (Key Concepts & Real World Contexts)	UNIT BENCHMARKS	SUGGESTED ASSESSMENT	POSSIBLE RESOURCES
All students will communicate findings of investigations, using appropriate technology:				
SURFACE FEATURES AND RESOURCES	KC: Increase, decrease, no change, bar graph, data table. RWC: Examples of bar charts like those found in a newspaper.	C-I.1.E.6: Construct charts and graphs and prepare summaries of observations.		Graph paper Rulers Crayons
All students will analyze claims for their scientific merit and explain how scientists decide what constitutes scientific knowledge:				
SURFACE FEATURES AND RESOURCES	KC: (K-2) observations RWC: Deciding whether an explanation is supported by evidence in simple experiments, or relies on personal opinion.	R-II.1.E.1: Develop an awareness of the need for evidence in making decisions scientifically.		
All students will show how science is related to other ways of knowing:				
SURFACE FEATURES AND RESOURCES	KC: Poetry, expository work, painting, drawing, music, diagrams, graphs, charts. RWC: Explaining simple experiments using paintings and drawings; describing natural phenomena scientifically and poetically.	R-II.1.E.2: Show how science concepts can be illustrated through creative expression such as language arts and fine arts.		
All students will show how science and technology affect our society:				
SURFACE FEATURES AND RESOURCES	KC: Provide faster and farther transportation and communication, organize information and solve problems, save time. RWC: Cars, other machines, radios, telephones, computer games, calculators, appliances, e-mail, the World Wide Web. KC: Appreciation of the balance of nature and the effects organisms have on each other, including the effects humans have on the natural world. RWC: Any in the sections on Using Scientific Knowledge appropriate to elementary school.	R-II.1.E.3: Describe ways in which technology is used in everyday life. R-II.1.E.4: Develop an awareness of and sensitivity to the natural world.		
All students will show how people of diverse cultures have contributed to and influenced developments in science:				
SURFACE FEATURES AND RESOURCES	KC: Scientific contributions made by people of diverse cultures and backgrounds. RWC: Any in the sections on Using Scientific Knowledge appropriate to this benchmark.	R-II.1.E.5: Develop an awareness of contributions made to science by people of diverse backgrounds and cultures.		

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All students will identify and describe forms of energy.				
<p>SURFACE FEATURES AND RESOURCES</p>	<p>KC: Heat. Light, sound, food energy, energy of motion, electricity (see PCM-IV.2.E.1 about heat, PWV-IV.4.E.1-4 about light and sound, PME-IV.1.E.4 about electricity, LEC-III.5.E.2 about energy from food). RWC: Appropriate selection of energy and phenomena, such as appliances like a toaster or iron that use electricity, sun's heat to melt chocolate, water wheels, wind-up toys, warmth of the sun on skin, windmills, music from guitar, simple electrical circuits with batteries, bulbs and bells.</p>	<p>PME-IV.1.E.3: Identify forms of energy associated with common phenomena.</p>		
All students will describe the earth's surface.				
<p>SURFACE FEATURES AND RESOURCES</p>	<p>KC: Types of landforms— mountains, plains, valleys; bodies of water—rivers, oceans, lakes (see EH e-2); deserts. RWC: Examples of Michigan surface features, such as hills, valleys, rivers, waterfalls, Great Lakes; pictures of global land features, including mountains, deserts.</p> <p>KC: Materials— mineral, rock, boulder, gravel, sand, clay, soil. RWC: Samples of natural earth materials, such as rocks, sand, soil, ores.</p>	<p>EG-V.1.E.1: Describe major features of the earth's surface.</p> <p>EG-V.1.E.2: Recognize and describe different types of earth materials.</p>		<p>Hand lens</p>

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All students will describe and explain how the earth's features change over time:				
<p>SURFACE FEATURES AND RESOURCES</p>	<p>KC: Causes of changes— volcanoes, earthquakes, erosion (water, wind, gravity, glaciers). Results of change— valleys, hills, lakes, widened rivers, mountains, cracks, movement of earth materials (boulders, gravel, sand, clay). RWC: Places around the school where erosion has occurred, such as gullies formed in down-hill gravel areas, cracks in asphalt. Places beyond the school where changes have occurred, such as volcanic mountains, shorelines, landslides, sand dunes, slopes, river valleys.</p> <p>KC: Fossils, extinct plants and animals, ages of fossils, rock layers. See LE-III.4.E.1 (ancient life) RWC: Fossils found in gravel, mines, quarries, beaches, (Petoskey stones), museum displays, Michigan examples of layered rocks; specific examples of extinct plants and animals, such as dinosaurs.</p>	<p>EG-V.1.E.3: Describe natural changes in the earth's surface.</p> <p>EG-V.1.E.4: Explain how rocks and fossils are used to understand the history of the earth.</p>		
All students will analyze effects of technology on the earth's surface and resources:				
<p>SURFACE FEATURES AND RESOURCES</p>	<p>KC: Transportation, building materials, energy, water (see EH e-3). RWC: Examples of uses of earth materials, such as gravel into concrete for walls, gypsum into drywall, sand into glass for windows, road salt, ores into metal for chairs, oil into gasoline for cars, coal burned to produce electricity, water for hydroelectric power. Samples of manufactured materials, such as concrete, drywall, asphalt, iron and steel.</p> <p>KC: Materials that can be recycled— paper, metal, glass, plastic. Conservation and anti-pollution activities—reduce, reuse, and recycle. RWC: Collections of recyclable materials, plans for recycling at home and school, composting, ways of reusing or reducing the use of paper.</p>	<p>EG-V.1.E.5: Describe uses of materials taken from the earth.</p> <p>EG-V.1.E.6: Demonstrate ways to conserve natural resources and reduce pollution through reduction, reuse, and recycling of manufactured materials.</p>		

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All students will describe the characteristics of water and demonstrate where water is found on earth				
SURFACE FEATURES AND RESOURCES	<p>KC: Liquid (K-2) —visible, flowing, melting, dew. Solid (K-2) —hard, visible, freezing, ice. Gas (3-5) —invisible, water vapor, moisture, evaporating. See PCM e-1.</p> <p>RWC: Examples of water in each state, including dew, rain, snow, ice, evidence of moisture in the air, such as “fog” on cold bathroom mirrors; examples of melting, freezing, and evaporating.</p>	EH-V.2.E.1: Describe how water exists on earth in three states.		
All students will describe how water moves:				
SURFACE FEATURES AND RESOURCES	<p>KC: Precipitation—see EAW e-1. Flow—downhill, to rivers, into the ground. Bodies of water—streams, rivers, lakes, oceans. See EG e-1 (earth features).</p> <p>RWC: Examples of water flowing locally, including gutters, drains, streams, wetlands.</p>	EH-V.2.E.2: Trace the path that rain water follows after it falls.		
All students will explain how scientists construct and scientifically test theories concerning the origin of life an evolution of species.				
SURFACE FEATURES AND RESOURCES	<p>KC: types of evidence—fossil, extinct, ancient, modern life forms. See EG-V.1.E.4 (rocks and fossils provide evidence of history of the earth).</p> <p>RWC: Common contexts—plant and animal fossils, museum dioramas and paintings/drawings of ancient life and/or habitats.</p>	LE-III.4.E.1: Explain how fossils provide evidence about the nature of ancient life.		
All students will analyze the interaction of human activities with the hydrosphere:				
SURFACE FEATURES AND RESOURCES	<p>KC: Water sources— wells, springs, Great Lakes, rivers. Household uses— drinking, cleaning, food preparation. Public uses— generate electricity, recreation, irrigation, transportation, industry.</p> <p>RWC: Examples of local sources of drinking water, including wells, rivers, lakes. Examples of local occasions when water is used, including car wash, swimming, fire hydrants, drinking, food preparation, cleaning, watering lawn, bathing, fishing, boating, shipping on the Great Lakes.</p>	EH-V.2.E.3: Identify sources of water and its uses.		

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PLANTS	<p>KC: Questions lead to action, including careful observation and testing; questions often begin with <i>“What happens if...?”</i> or <i>“How do these two things differ?”</i></p> <p>RWC: Any in the sections on Using Scientific Knowledge.</p>	<p>C-I.1.E.1: Generate questions about the world based on observation.</p>		
All students will design and conduct investigations using appropriate methodology and technology:				
PLANTS	<p>KC: (K-2) gather information, ask questions, think</p> <p>RWC: Any in the sections on Using Scientific Knowledge.</p> <p>KC: Manipulate simple devices that aid observations and data collection.</p> <p>RWC: Any suggested in Using Scientific Knowledge benchmarks for which students would design and/or conduct investigations.</p> <p>KC: Measurement units—milliliters, liters, teaspoon, tablespoon, ounce, cup, millimeter, centimeter, meter, gram.</p> <p>RWC: Making simple mixtures, such as food, play dough, papier maché; measuring height of a person, weight of a ball.</p>	<p>C-I.1.E.2: Develop solutions to problems through reasoning, observation, and investigations.</p> <p>C-I.1.E.3: Manipulate simple devices that aid observation and data collection.</p> <p>C-I.1.E.4: Use simple measurement devices to make measurements in scientific investigations.</p>		<p>Measuring cups and spoons Measuring tape Balance or scale</p> <p>Various data collection tools suitable for this level, such as hand lenses, wind direction indicators, grids for sampling areas of the sky or landscape.</p>
All students will learn from books and other sources of information:				
PLANTS	<p>KC: Develop strategies and skills for information gathering and problem solving.</p> <p>RWC: Seeking help from or interviewing peers, adults, experts; using libraries, World Wide Web, CD's and other computer software, other sources.</p>	<p>C-I.1.E.5: Develop strategies and skills for information gathering and problem solving.</p>		<p>Sources of information, such as reference books, trade books, magazines, web sites, other peoples' knowledge.</p>
All students will communicate findings of investigations, using appropriate technology:				
PLANTS	<p>KC: Increase, decrease, no change, bar graph, data table.</p> <p>RWC: Examples of bar charts like those found in a newspaper.</p>	<p>C-I.1.E.6: Construct charts and graphs and prepare summaries of observations.</p>		<p>Graph paper Rulers Crayons</p>

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All students will analyze claims for their scientific merit and explain how scientists decide what constitutes scientific knowledge:				
PLANTS	<p>KC: (K-2) observations RWC: Deciding whether an explanation is supported by evidence in simple experiments, or relies on personal opinion.</p>	<p>R-II.1.E.1: Develop an awareness of the need for evidence in making decisions scientifically.</p>		
All students will show how science is related to other ways of knowing:				
PLANTS	<p>KC: Poetry, expository work, painting, drawing, music, diagrams, graphs, charts. RWC: Explaining simple experiments using paintings and drawings; describing natural phenomena scientifically and poetically.</p>	<p>R-II.1.E.2: Show how science concepts can be illustrated through creative expression such as language arts and fine arts.</p>		
All students will show how science and technology affect our society:				
PLANTS	<p>KC: Provide faster and farther transportation and communication, organize information and solve problems, save time. RWC: Cars, other machines, radios, telephones, computer games, calculators, appliances, e-mail, the World Wide Web.</p> <p>KC: Appreciation of the balance of nature and the effects organisms have on each other, including the effects humans have on the natural world. RWC: Any in the sections on Using Scientific Knowledge appropriate to elementary school.</p>	<p>R-II.1.E.3: Describe ways in which technology is used in everyday life.</p> <p>R-II.1.E.4: Develop an awareness of and sensitivity to the natural world.</p>		
All students will show how people of diverse cultures have contributed to and influenced developments in science:				
PLANTS	<p>KC: Scientific contributions made by people of diverse cultures and backgrounds. RWC: Any in the sections on Using Scientific Knowledge appropriate to this benchmark.</p>	<p>R-II.1.E.5: Develop an awareness of contributions made to science by people of diverse backgrounds and cultures.</p>		

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All students will measure and describe the things around us:				
PLANTS	<p>KC: Texture— rough, smooth. Flexibility— rigid, stiff, firm, flexible, strong. Hardness. Smell— pleasant, unpleasant. States of matter— solid, liquid, gas. Magnetic properties— attract, repel, push, and pull. Size— larger, smaller (K-2); length, width, height (3-5). Sink, float. Color— common color words. Shape— circle, square, triangle, rectangle, oval. Weight— heavy, light, heavier, lighter. See PWV e-4 (shadows: objects that let light pass through or block light); PME e-2 (materials that conduct electricity); C e-4 (use measuring devices).</p> <p>RWC: Common objects, such as desks, coins, pencils, buildings, snowflakes; common substances, including— solids, such as copper, iron, wood, plastic, styrofoam; liquids, such as water, alcohol, milk, juice; gases such as air, helium, water vapor.</p>	<p>PME-IV.1.E.1: Classify common objects and substances according to observable attributes/properties.</p>		
All students will use classification systems to describe groups of living things:				
PLANTS	<p>KC: Observable characteristics—fur, scales, feathers, horns, claws, eyes, quills, beaks, teeth, skeleton, muscles, exoskeleton; functions—insulation, support, movement, food-getting, protection. RWC: Vertebrate and invertebrate animals, such as humans, cows, sparrows, goldfish, spiders, crayfish, insects.</p> <p>KC: Plant and animal parts—backbone, skin, shell, limbs, roots, leaves, stems, flowers, feathers, scales. RWC: Animals that look similar—snakes, worms, millipedes; flowering and non-flowering plants; pine tree, oak tree, rose, algae.</p>	<p>LO-III.2.E.1: Explain characteristics and functions of observable body parts in a variety of animals.</p> <p>LO-III.2.E.2: Compare and contrast (K-2) or classify.</p>		

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All students will investigate and explain how living things obtain and use energy:				
PLANTS	<p>KC: Life requirements— food, air, water, minerals, sunlight, space, habitat. See LEC e-2.</p> <p>RWC: Germinating seeds, such as beans, corn ; aquarium or terrarium life, such as guppy, goldfish, snail.</p>	<p>LO-III.2.E.4: Compare and contrast food, energy, and environmental needs of selected organisms.</p>		
All students will analyze how parts of living things are adapted to carry out specific functions:				
PLANTS	<p>KC: Plant parts— roots, stems, leaves, flowers, fruits, seeds.</p> <p>RWC: Common edible plant parts, such as bean, cauliflower, carrot, apple, tomato, spinach.</p>	<p>LO-III.2.E.5: Explain functions of selected seed parts.</p>		
All students will explain how parts of an ecosystem are related and how they interact:				
PLANTS	<p>KC: Producer, consumer, predator, prey, decomposer, habitat, community.</p> <p>RWC: Food chains and food webs involving organisms, such as rabbits, birds, snakes, grasshoppers, plants.</p>	<p>LEC-III.5.E.1: Identify familiar organisms as part of a food chain or food web and describe their feeding relationships within the web.</p>		
All students will explain how energy is distributed to living things in an ecosystem:				
PLANTS	<p>KC: Needs of life— food, habitat, water, shelter, air, light, minerals. See LO e-4.</p> <p>RWC: Common vertebrate adaptations, such as white polar bears, sharp claws and sharp canines for predators, changing colors of chameleon; behaviors, such as migration, communication of danger.</p>	<p>LEC-III.5.E.2: Describe the basic requirements for all living things to maintain their existence.</p>		
All students will investigate and explain how communities of living things change over a period of time:				
PLANTS	<p>KC: Needs of life— food, habitat, water, shelter, air, light, minerals.</p> <p>RWC: Ecosystems managed by humans, including farms, ranches, gardens, lawns, potted plants.</p>	<p>LEC-III.5.E.3: Design systems that encourage growing of particular plants or animals.</p>		

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All students will analyze how humans and the environment interact:				
PLANTS	<p>KC: Human effects on the environment—garbage, habitat destruction, land management, renewable and non-renewable resources.</p> <p>RWC: Household wastes, school wastes, waste water treatment, habitat destruction due to community growth, reforestation projects, establishing parks or other green spaces, recycling.</p>	<p>LEC-III.5.E.4: Describe positive and negative effects of humans on the environment.</p>		
All students will ask questions that help them learn about the world:				
SOLAR SYSTEM	<p>KC: Questions lead to action, including careful observation and testing; questions often begin with <i>“What happens if...?”</i> or <i>“How do these two things differ?”</i></p> <p>RWC: Any in the sections on Using Scientific Knowledge.</p>	<p>C-I.1.E.1: Generate questions about the world based on observation.</p>		
All students will design and conduct investigations using appropriate methodology and technology:				
SOLAR SYSTEM	<p>KC: (K-2) gather information, ask questions, think</p> <p>RWC: Any in the sections on Using Scientific Knowledge.</p> <p>KC: Manipulate simple devices that aid observations and data collection.</p> <p>RWC: Any suggested in Using Scientific Knowledge benchmarks for which students would design and/or conduct investigations.</p> <p>KC: Measurement units—milliliters, liters, teaspoon, tablespoon, ounce, cup, millimeter, centimeter, meter, gram.</p> <p>RWC: Making simple mixtures, such as food, play dough, papier maché; measuring height of a person, weight of a ball.</p>	<p>C-I.1.E.2: Develop solutions to problems through reasoning, observation, and investigations.</p> <p>C-I.1.E.3: Manipulate simple devices that aid observation and data collection.</p> <p>C-I.1.E.4: Use simple measurement devices to make measurements in scientific investigations.</p>		<p>Measuring cups and spoons Measuring tape Balance or scale</p> <p>Various data collection tools suitable for this level, such as hand lenses, wind direction indicators, grids for sampling areas of the sky or landscape.</p>

Science

Second Grade

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All students will learn from books and other sources of information:				
SOLAR SYSTEM	KC: Develop strategies and skills for information gathering and problem solving. RWC: Seeking help from or interviewing peers, adults, experts; using libraries, World Wide Web, CD's and other computer software, other sources.	C-I.1.E.5: Develop strategies and skills for information gathering and problem solving.		Sources of information, such as reference books, trade books, magazines, web sites, other peoples' knowledge.
All students will communicate findings of investigations, using appropriate technology:				
SOLAR SYSTEM	KC: Increase, decrease, no change, bar graph, data table. RWC: Examples of bar charts like those found in a newspaper.	C-I.1.E.6: Construct charts and graphs and prepare summaries of observations.		Graph paper Rulers Crayons
All students will analyze claims for their scientific merit and explain how scientists decide what constitutes scientific knowledge:				
SOLAR SYSTEM	KC: (K-2) observations; RWC: Deciding whether an explanation is supported by evidence in simple experiments, or relies on personal opinion.	R-II.1.E.1: Develop an awareness of the need for evidence in making decisions scientifically.		
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All students will show how people of diverse cultures have contributed to and influenced developments in science:				
SOLAR SYSTEM	<p>KC: Scientific contributions made by people of diverse cultures and backgrounds.</p> <p>RWC: Any in the sections on Using Scientific Knowledge appropriate to this benchmark.</p>	<p>R-II.1.E.5: Develop an awareness of contributions made to science by people of diverse backgrounds and cultures.</p>		
All students will explain shadows, color, and other light phenomena.				
SOLAR SYSTEM	<p>KC: Shadow, blocked path, surface, object, light moves outward from the source in straight lines.</p> <p>RWC: Shadows made on surfaces by putting objects in the path of light from common sources, including sunlight, light bulbs, projectors. Changes in size of shadows due to distance from the object.</p>	<p>PWV-IV.4.E.4: Explain how shadows are made.</p>		
All students will analyze the interaction of human activities with the hydrosphere:				
SOLAR SYSTEM	<p>KC: Water sources— wells, springs, Great Lakes, rivers. Household uses— drinking, cleaning, food preparation. Public uses— generate electricity, recreation, irrigation, transportation, industry.</p> <p>RWC: Examples of local sources of drinking water, including wells, rivers, lakes. Examples of local occasions when water is used, including car wash, swimming, fire hydrants, drinking, food preparation, cleaning, watering lawn, bathing, fishing, boating, shipping on the Great Lakes.</p>	<p>EH-V.2.E.3: Identify sources of water and its uses.</p>		
All students will investigate and describe what makes up weather and how it changes from day to day, from season to season and over long periods of time.				
SOLAR SYSTEM	<p>KC: Atmosphere is a blanket of air around the earth, air is a substance; see PME e-1 (attributes of substances). Air has temperature— cold, hot, warm cool. Cloud cover— cloudy, partly cloudy; foggy. Precipitation— rain, snow, hail, freezing rain. Wind— breezy, windy calm. Severe weather— thunderstorms, lightning, tornadoes, high winds, blizzards.</p> <p>RWC: Daily changes in weather; examples of severe weather.</p>	<p>EAW-V.3.E.1: Describe weather conditions.</p>		<p>Thermometer Wind sock Rain gauge</p>

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All students will compare and contrast our planet and sun to other planets and star systems:				
SOLAR SYSTEM	<p>KC: Planet, star, sphere, space, solar system, larger/smaller, closer/farther, heat, light.</p> <p>RWC: Observations of the moon, earth, and safe observations of the sun.</p>	<p>ES-V.4.E.1: Compare and contrast characteristics of the sun, moon and earth.</p>		
All students will describe and explain how objects in the solar system move:				
SOLAR SYSTEM	<p>KC: Spin, orbit, length of day, nighttime, month, year, observed movement of the sun and stars across the sky, observed movement of the moon from day to day, calendar.</p> <p>RWC: Outdoor observing of the sun's and star's motions during the night and moon's motions over several days.</p>	<p>ES-V.4.E.2: Describe the motion of the earth around the sun and the moon around the earth.</p>		
All students will ask questions that help them learn about the world:				
BUBBLES	<p>KC: Questions lead to action, including careful observation and testing; questions often begin with <i>"What happens if...?"</i> or <i>"How do these two things differ?"</i></p> <p>RWC: Any in the sections on Using Scientific Knowledge.</p>	<p>C-I.1.E.1: Generate questions about the world based on observation.</p>		
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All students will show how science is related to other ways of knowing:				
BUBBLES	KC: Poetry, expository work, painting, drawing, music, diagrams, graphs, charts. RWC: Explaining simple experiments using paintings and drawings; describing natural phenomena scientifically and poetically.	R-II.1.E.2: Show how science concepts can be illustrated through creative expression such as language arts and fine arts.		
All students will show how science and technology affect our society:				
BUBBLES	KC: Provide faster and farther transportation and communication, organize information and solve problems, save time. RWC: Cars, other machines, radios, telephones, computer games, calculators, appliances, e-mail, the World Wide Web. KC: Appreciation of the balance of nature and the effects organisms have on each other, including the effects humans have on the natural world. RWC: Any in the sections on Using Scientific Knowledge appropriate to elementary school.	R-II.1.E.3: Describe ways in which technology is used in everyday life. R-II.1.E.4: Develop an awareness of and sensitivity to the natural world.		

UNIT TITLE	CORE TOPICS (Key Concepts & Real World Contexts)	UNIT BENCHMARKS	SUGGESTED ASSESSMENT	POSSIBLE RESOURCES
All students will show how people of diverse cultures have contributed to and influenced developments in science:				
BUBBLES	<p>KC: Scientific contributions made by people of diverse cultures and backgrounds.</p> <p>RWC: Any in the sections on Using Scientific Knowledge appropriate to this benchmark.</p>	<p>R-II.1.E.5: Develop an awareness of contributions made to science by people of diverse backgrounds and cultures.</p>		
All students will investigate, describe and analyze ways in which matter changes.				
BUBBLES	<p>KC: States of matter – solid, liquid, gas. Changes in size and shape - bending tearing, breaking. Processes that cause change of state: heating, cooling. See EH-V.2.E.1 (water in three states).</p> <p>RWC: Changes in size or shape of familiar objects, such as making snowballs, breaking glass, crumbling cookies, making clay models, carving wood, breaking bones; changes in state of water or other substances, such as freezing of ice cream, or ponds, melting wax or steel, puddles drying up.</p>	<p>PCM-IV.2.E.1: Describe common physical changes in matter – size, shape, melting, freezing</p>		<p>Filter paper Funnels Magnets Sieves Beakers Solar stills</p>
All students will explain shadows, color, and other light phenomena.				
BUBBLES	<p>KC: White light is composed of different colors.</p> <p>RWC: Light from common sources, such as the sun, stars, light bulb, colored lights, firefly, candle, flashlight, various sources.</p>	<p>PWV-IV.4.E.3: Use prisms and filters with light sources to produce various colors of light.</p>		<p>Prisms, color filters, colored lights</p>
All students will investigate and describe what makes up weather and how it changes from day to day, from season to season and over long periods of time.				
BUBBLES	<p>KC: Atmosphere is a blanket of air around the earth, air is a substance; see PME e-1 (attributes of substances). Air has temperature— cold, hot, warm cool. Cloud cover— cloudy, partly cloudy; foggy. Precipitation— rain, snow, hail, freezing rain. Wind— breezy, windy calm. Severe weather— thunderstorms, lightning, tornadoes, high winds, blizzards.</p> <p>RWC: Daily changes in weather; examples of severe weather.</p>	<p>EAW-V.3.E.1: Describe weather conditions.</p>		<p>Thermometer Wind sock Rain gauge</p>

Science

Second Grade

UNIT TITLE	CORE TOPICS (Key Concepts & Real World Contexts)	UNIT BENCHMARKS	SUGGESTED ASSESSMENT	POSSIBLE RESOURCES
All students will explain how electricity (and Magnetism) interacts with matter.				
HEALTH	<p>KC: Shock, wall outlet, hazards; see PME-IV.1.E.3 (electrical energy). RWC: Electric outlets, power lines, frayed electric cords, electric appliances, lightning, hair dryers in sinks and tubs.</p>	<p>PME-IV.1.E.5: Describe possible electrical hazards to be avoided at home and at school.</p>		
All students will analyze the relationships between human activities and the atmosphere.				
HEALTH	<p>KC: Safety precautions - safe locations, sirens, radio broadcasts, severe weather watch and warning. RWC: Examples of local severe weather, including thunderstorms, tornadoes, and blizzards, examples of local community safety precautions, including weather bulletins and tornado sirens.</p>	<p>EAW-V.3.E.3: Explain appropriate safety precautions during severe weather.</p>		
All students will describe sound and sound waves.				
MUSIC	<p>KC: Properties: pitch – high, low. Loudness – loud, soft. RWC: Sound from common sources, such as musical instruments, radio, television, animal sounds, thunder, and human voices.</p> <p>KC: Vibration – fast, slow, large, small. RWC: Sound from common sources, such as musical instruments, radio, television, animal sounds, thunder, and human voices.</p>	<p>PWV.4.E.1: Describe sounds in terms of their properties.</p> <p>PWV.4.E.2: Explain how sounds are made.</p>		