

## Science Prekindergarten – Grade 5 Vertical Alignment Matrix

revised 01-03-08

### Strand 1- Nature of Science

Strand	Prekindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
<b>STRAND 1: NATURE OF SCIENCE</b>	<b>Classroom and Field Investigations: Safety</b>						
	<b>SCI.PK.1A (1)</b> Begin to demonstrate safe practices in classroom and field investigations by following appropriate rules.	<b>SCI.K.1A</b> Demonstrate safe practices during classroom and field investigations using appropriate equipment such as safety goggles.	<b>SCI.1.1A</b> Demonstrate safe practices during classroom and field investigations using appropriate equipment such as safety goggles.	<b>SCI.2.1A</b> Demonstrate safe practices during classroom and field investigations using appropriate equipment such as safety goggles.	<b>SCI.3.1A</b> Demonstrate safe practices during field and laboratory investigations using appropriate equipment such as safety goggles.	<b>SCI.4.1A</b> Demonstrate safe practices during field and laboratory investigations using appropriate equipment such as safety goggles and gloves.	<b>SCI.5.1A</b> Demonstrate and evaluate safe practices during field and laboratory investigations using appropriate equipment such as safety goggles, gloves, and laboratory aprons.
	<b>Classroom and Field Investigations: Materials and Resources</b>						
	<b>SCI.PK.1A (2)</b> Begin to demonstrate appropriate use of materials such as manipulatives.	<b>SCI.K.1B</b> Learn how to use and conserve resources and materials.	<b>SCI.1.1B</b> Learn how to use and conserve resources and materials	<b>SCI.2.1B</b> Identify the use and conservation of resources and disposal of materials.	<b>SCI.3.1B</b> Make wise choices in the use and conservation of resources and the disposal or recycling of materials.	<b>SCI.4.1B</b> Make wise choices in the use and conservation of resources and the disposal or recycling of materials.	<b>SCI.5.1B</b> Make wise choices in the use and conservation of resources and the disposal or recycling of materials.
	<b>Tools</b>						
	<b>SCI.PK.1D</b> Use one or more of the five senses to observe and to learn about objects, events, plants and animals.	<b>SCI.K.4A</b> Identify and use the five senses as tools of observation.	<b>SCI.1.4A</b> Collect information using tools including cups, hand lenses, clocks, computers, thermometers, and balances.	<b>SCI.2.4A</b> Collect information using appropriate tools including metric rulers, meter sticks, metric beakers, clocks, hand lenses, computers, metric thermometers, and metric balances.	<b>SCI.3.4A</b> Collect and analyze information using appropriate tools including calculators, microscopes, cameras, safety goggles, sound recorders, clocks, computers, metric thermometers, hand lenses, meter sticks, metric rulers, metric balances, magnets, and compasses.	<b>SCI.4.4A</b> Collect and analyze information using appropriate tools including calculators, microscopes, cameras, sound recorders, computers, hand lenses, metric rulers, metric thermometers, meter sticks, timing devices, metric balances, and compasses.	<b>SCI.5.4A</b> Collect & analyze information using appropriate tools including calculators, microscopes, cameras, sound recorders, computers, hand lenses, metric rulers, metric thermometers, compasses, metric balances, hot plates, meter sticks, timing devices, magnets, collecting nets, & safety goggles.
	<b>SCI.PK.1I</b> Gather information using simple tools such as a magnifying lens, an eyedropper and double pan balance.	<b>SCI.K.4B</b> Make observations and measurements using tools including hand lenses, balances, cups, bowls and computers.					
	<b>SCI.PK.1K</b> Use simple measuring devices such as cups, lengths of string, and double pan balances to learn about objects, plants and animals.						



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<b>STRAND 1: NATURE OF SCIENCE</b>	<b>Science Inquiry: Sorting, Organizing and Evaluating</b>						
	<b>SCI.PK.1L</b> Compare objects, plants and animals and identify similarities and differences.	<b>SCI.K.5A</b> Describe properties of objects such as size and color and characteristics of organisms such as having fur or scales.	<b>SCI.1.5A</b> Sort and classify objects and events based on their properties and patterns such as rocks by color and weather changes by season.	<b>SCI.2.5A</b> Classify and sequence organisms, objects, and events based on properties and patterns.	<b>SCI.3.2E</b> Construct simple graphs, tables, maps, and charts to organize, examine and evaluate information.	<b>SCI.4.2E</b> Construct simple graphs, tables, maps, and charts to organize, examine, and evaluate information.	<b>SCI.5.2E</b> Construct simple graphs, tables, maps, and charts using tools including computers to organize, examine, and evaluate information.
	<b>SCI.PK.1M</b> Sort objects, plants and animals into groups and describe how the groups were organized such as by color, shape, size or number of legs.						
	<b>SCI.PK.1P</b> Describe observations such as life cycles of animals and shape of objects.						
	<b>SCI.PK.1F</b> Predict what will happen next based on previous experience such as planting a seed and asking student to predict what they will observe next.	<b>SCI.K.5B</b> Observe and identify patterns including seasons, growth, day and night and predict what happens next.	<b>SCI.1.5B</b> Identify, predict, and create patterns including those seen in charts, graphs, and numbers.	<b>SCI.2.5B</b> Identify, predict, replicate, and create patterns including those seen in charts, graphs, and numbers.			
<b>SCI.PK.1O</b> Participate in creating and using simple data charts and graphs to record the growth of plants, animals, and the number of objects in a sort.	<b>SCI.K.5C</b> Recognize and copy patterns seen in charts and graphs.						



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<b>STRAND 1: NATURE OF SCIENCE</b>	<b>Science Inquiry: Critical Thinking and Decision Making</b>						
			<b>SCI.1.4C</b> Measure organisms and objects and parts of organisms and objects, using non-standard units such as paper clips, hands, and pencils.	<b>SCI.2.4B</b> Measure and compare organisms and objects and parts of organisms and objects, using non-standard units such as paper clips and metric units such as centimeters.	<b>SCI.3.2B</b> Collect information by observing and using metric measurements.	<b>SCI.4.2B</b> Collect and analyze information by observing, measuring and using numerical operations such as addition and subtraction.	<b>SCI.5.2B</b> Collect and analyze information by observing, measuring and using numerical operations such as addition, subtraction and scaling.
			<b>SCI.1.4B</b> Record and compare collected information.				
	<b>SCI.PK.1B</b> Ask questions about objects, events, plants and animals.	<b>SCI.K.2A</b> Ask questions about organisms, objects, and events.	<b>SCI.1.2A</b> Ask questions about organisms, objects, and events.	<b>SCI.2.2A</b> Ask well-defined questions about organisms, objects, and events.	<b>SCI.3.2A</b> Plan and implement descriptive investigations including asking well-defined questions, formulating testable hypotheses, and selecting and using equipment and technology.	<b>SCI.4.2A</b> Plan, implement descriptive and simple experimental investigations that include a well-defined question, a testable hypothesis, one variable and the use of equipment and technology.	<b>SCI.5.2A</b> Plan, implement and evaluate descriptive and simple experimental investigations that include a well-defined question, a testable hypothesis, one variable and the use of equipment and technology.
	<b>SCI.PK.1C</b> Investigate unfamiliar objects, plants, animals and events.	<b>SCI.K.2B</b> Plan and conduct simple descriptive investigations.	<b>SCI.1.2B</b> Plan and conduct simple descriptive investigations.	<b>SCI.2.2B</b> Plan and conduct simple descriptive investigations.			
	<b>SCI.PK.1E</b> Begins to perform simple investigations such as observing ice reacting to the sun's heat, watering one plant while not watering another plant and observing a tower of blocks fall.						
	<b>SCI.PK.1N</b> Solve simple design problems such as creating a little house for a storybook character.						
<b>SCI.PK.1J</b> Explore by manipulating materials with simple equipment such as pouring sand or water from a cup.	<b>SCI.K.2C</b> Gather information using simple equipment and tools to extend the senses.	<b>SCI.1.2C</b> Gather information using simple equipment and tools to extend the senses.	<b>SCI.2.2D</b> Gather information using simple equipment and tools to extend the senses.				



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<b>STRAND 1: NATURE OF SCIENCE</b>	<b>Science Inquiry: Analysis</b>						
		<b>SCI.K.2D</b> Construct reasonable explanations using information.	<b>SCI.1.2D</b> Construct reasonable explanations and draw conclusions.	<b>SCI.2.2E</b> Construct reasonable explanations and draw conclusions using information and prior knowledge.	<b>SCI.3.2C</b> Analyze and interpret information to construct reasonable explanations from direct and indirect evidence.	<b>SCI.4.2C</b> Analyze and interpret information to construct reasonable explanations from direct and indirect evidence.	<b>SCI.5.2C</b> Analyze and interpret information to construct reasonable explanations from direct and indirect evidence.
					<b>SCI.3.3B</b> Draw inferences based on information related to promotional materials for products and services.	<b>SCI.4.3B</b> Draw inferences based on information related to promotional materials for products and services.	<b>SCI.5.3B</b> Draw inferences based on information related to promotional materials for products and services.
					<b>SCI.3.3C</b> Represent the natural world using models and identify their limitations.	<b>SCI.4.3C</b> Represent the natural world using models and explain their limitations.	<b>SCI.5.3C</b> Represent the natural world using models and assess their limitations.
					<b>SCI.3.4B</b> Demonstrate that repeated investigations may increase the reliability of results.	<b>SCI.4.4B</b> Demonstrate that repeated investigations may increase the reliability of results.	<b>SCI.5.4B</b> Demonstrate that repeated investigations may increase the reliability of results.
		<b>SCI.K.3A</b> Make decisions using information.	<b>SCI.1.3A</b> Make decisions using information.	<b>SCI.2.3A</b> Make decisions using information.	<b>SCI.3.3A</b> Analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information.	<b>SCI.4.3A</b> Analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information.	<b>SCI.5.3A</b> Analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information.
		<b>SCI.K.3B</b> Discuss and justify merits of decisions.	<b>SCI.1.3B</b> Discuss and justify the merits of decisions.	<b>SCI.2.3B</b> Discuss and justify the merits of decisions.			
		<b>SCI.PK.1H</b> Begin to use his/her own words to explain a problem.	<b>SCI.K.3C</b> Explain a problem in his/her own words and propose a solution.	<b>SCI.1.3C</b> Explain a problem in his/her own words and identify a task and solution related to the problem.	<b>SCI.2.3C</b> Explain a problem in his/her own words and identify a task and solution related to the problem.		



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<b>STRAND 1: NATURE OF SCIENCE</b>	<b>Science Inquiry: Literacy</b>						
	<p><b>SCI.PK.1G</b> Share observations and findings with others through pictures, discussions or dramatizations.</p>	<p><b>SCI.K.2E</b> Communicate findings about simple investigations.</p>	<p><b>SCI.1.2E</b> Communicate explanations about investigations.</p>	<p><b>SCI.2.2F</b> Communicate explanations about investigations using simple sentences, illustrations, and oral presentations.</p>	<p><b>SCI.3.2D</b> Communicate valid conclusions using written statements that include pictorial and numerical representations.</p>	<p><b>SCI.4.2D</b> Communicate and evaluate valid conclusions using written statements that include pictorial and numerical representations.</p>	<p><b>SCI.5.2D</b> Communicate and evaluate valid conclusions using oral presentations or written statements that include pictorial and numerical representations.</p>
	<b>Science Inquiry: History, Society and the Environment</b>						
				<p><b>SCI.2.2C</b> Compare results of investigations with what students and scientists know about the world.</p>	<p><b>SCI.3.3D</b> Evaluate the impact of research on scientific thought, society, and the environment.</p>	<p><b>SCI.4.3D</b> Evaluate the impact of research on scientific thought, society, and the environment.</p>	<p><b>SCI.5.3D</b> Evaluate the impact of research on scientific thought, society, and the environment.</p>
					<p><b>SCI.3.3E</b> Connect Grade 3 science concepts with the history of science and contributions of scientists such as geologist Adriana Ocampo, biologist Ernest Everett Just and physicist Isaac Newton.</p>	<p><b>SCI.4.3E</b> Connect Grade 4 science concepts with the history of science and contributions of scientists such as astronomer Benjamin Banneker, biologist Lydia Villa-Komaroff and inventor Benjamin Franklin.</p>	<p><b>SCI.5.3E</b> Connect Grade 5 science concepts with the history of science and contributions of scientists such as astronomer Galileo Galilei, botanist George Washington Carver and astronaut Ellen Ochoa.</p>



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### Strand 2 - Life Science

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<b>STRAND 2: LIFE SCIENCE</b>	<b>Living Organisms and Heredity</b>						
	<b>SCI.PK.2D (1)</b> Identify animals as living things.	<b>SCI.K.8A</b> Identify a particular organism or object as living or nonliving.	<b>SCI.1.8A</b> Group and record observations of living organisms and non-living objects.	<b>SCI.2.8A</b> Identify characteristics of living organisms including ability to grow and develop, obtain and use energy, react to their environment and reproduce.	<b>SCI.3.10A</b> Identify some inherited traits of plants.	<b>SCI.4.9A</b> Distinguish between inherited traits and learned characteristics such as between a spider weaving a web and a seal balancing a ball.	<b>SCI.5.10A</b> Differentiate traits that are inherited from parent to offspring in plants and animals from ones that are not inherited (environmental traits).
	<b>SCI.PK.2D (2)</b> Identify plants as living things.				<b>SCI.3.10B</b> Identify some inherited traits of animals.	<b>SCI.4.9B</b> Identify and provide examples of inherited traits and learned characteristics.	<b>SCI.5.10B</b> Give examples of learned characteristics that result from the influence of the environment such as a raccoon opening the lid of a garbage can.
	<b>SCI.PK.2E</b> Group plants, animals and objects as living or nonliving and begin to identify things people have built.	<b>SCI.K.8B</b> Group organisms and objects as living or nonliving.	<b>SCI.1.8B</b> Compare, contrast and record observations of living organisms and nonliving objects.	<b>SCI.2.8B</b> Identify characteristics of nonliving objects and distinguish them from living organisms.			
	<b>SCI.PK.2I</b> Identify similarities and differences among objects, plants and animals.						



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<b>STRAND 2: LIFE SCIENCE</b>	<b>Living Organisms, Needs, and Adaptations</b>						
	<p><b>SCI.PK.2F</b> Begin to recognize that plants and animals have similar needs for water, food and air.</p>	<p><b>SCI.K.9A</b> Identify basic needs of organisms including food, water, air and shelter.</p>	<p><b>SCI.1.9A</b> Identify characteristics of living organisms that allow their basic needs to be met such as plants obtaining water through roots and birds providing shelter by building a nest.</p>	<p><b>SCI.2.9A</b> Evaluate how external characteristics of different kinds of plants and animals allow their needs to be met.</p>	<p><b>SCI.3.8A</b> Evaluate how habitats meet the needs of organisms within an ecosystem.</p> <p style="background-color: #ffcc99;"><b>SCI.3.8B</b> Observe and identify organisms with similar needs that compete with one another for resources such as oxygen, water, food, or space.</p> <p><b>SCI.3.8C</b> Predict environmental changes in which some organisms would thrive, become ill, or perish.</p> <p><b>SCI.3.9A</b> Observe and identify characteristics among organisms that allow them to survive and reproduce such as seagulls using their sense of sight to catch prey.</p>	<p><b>SCI.4.8A</b> Identify characteristics that allow organisms to survive and reproduce such as penguins huddling together in a tight group to retain heat.</p>	<p><b>SCI.5.9A</b> Compare the adaptive characteristics of organisms and evaluate how these improve the organism's ability to survive and reproduce in an ecosystem.</p>
	<b>Living Organisms, Food Webs and Adaptations</b>						
		<p><b>SCI.K.9B</b> Identify and record examples of how living organisms depend on each other such as a human baby being fed by its mother.</p>	<p><b>SCI.1.9B</b> Compare and give examples of the ways living organisms depend on each other for their basic needs such as in a food chain including corn, mice, and owls.</p>	<p><b>SCI.2.9B</b> Compare and give examples of the ways living organisms depend on each other and on their environments such as in a food chain or a food web.</p>	<p><b>SCI.3.8D</b> Describe how living organisms modify their physical environment to meet their needs such as beavers building a dam or humans building a home.</p> <p style="background-color: #ffcc99;"><b>SCI.3.9B</b> Analyze how adaptive characteristics help organisms to survive and reproduce such as the coloring of moths and flowers.</p>	<p><b>SCI.4.8B</b> Compare adaptive characteristics of similar organisms such as leaf shapes in plants and beak types in birds.</p> <p><b>SCI.4.8C</b> Identify the kinds of organisms that lived in the past and compare them to existing organisms such as dinosaurs and birds.</p>	<p><b>SCI.5.9B</b> Analyze and describe adaptive characteristics that result in an organism's unique niche in an ecosystem such as an organism using its sticky tongue to feed on insects.</p> <p style="background-color: #ffcc99;"><b>SCI.5.9C</b> Predict some adaptive characteristics required for survival and reproduction by an organism in an ecosystem such as having a smooth body to swim better in the ocean.</p>



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<b>STRAND 2: LIFE SCIENCE</b>	<b>Types of Change</b>						
	<b>SCI.PK.2B</b> Identify and describe properties of objects such as the color of blocks and characteristics of plants and animals such as leaves on plants and wings on birds.	<b>SCI.K.5A</b> Describe properties of objects such as size and color and characteristics of organisms such as having fur or scales.	<b>SCI.1.5A</b> Sort and classify objects and events based on their properties and patterns such as rocks by color and weather changes by season.	<b>SCI.2.5A</b> Classify and sequence organisms, objects, and events based on properties and patterns.		<b>SCI.4.6A</b> Identify patterns of change such as in weather, metamorphosis, and objects in the sky.	<b>SCI.5.6A</b> Identify events and describe changes that occur on a regular basis such as in daily, weekly, lunar, and seasonal cycles.
	<b>SCI.PK.2J</b> Begin to describe objects, events, plants and animals using appropriate scientific words and phrases.						
	<b>SCI.PK.2H</b> Recognize patterns such as what comes next in line of objects, stages of growth of plants and animals, and day following night in order to make predictions.	<b>SCI.K.5B</b> Observe and identify patterns including seasons, growth, day and night and predict what happens next.	<b>SCI.1.5B</b> Identify, predict, and create patterns including those seen in charts, graphs, and numbers.	<b>SCI.2.5B</b> Identify, predict, replicate, and create patterns including those seen in charts, graphs, and numbers.			<b>SCI.5.6C</b> Describe and compare life cycles of similar organisms including common plants and animals.
		<b>SCI.K.5C</b> Recognize and copy patterns seen in charts and graphs.					
	<b>SCI.PK.2C (1)</b> Begin to observe, identify and discuss changes in color in plants, animals, and objects.	<b>SCI.K.7A</b> Observe, describe, and record changes in size, mass, color, position, quantity, time, temperature, sound, and movement.	<b>SCI.1.7A</b> Observe, measure, and record changes in size, mass, color, position, quantity, sound and movement.	<b>SCI.2.7A</b> Observe, measure, record, analyze, predict, and illustrate changes in size, mass, temperature, color, position, quantity, sound, and movement.		<b>SCI.4.10A</b> Identify and observe effects of events that require time for changes to be noticeable including growth, erosion, dissolving, weathering, and flow.	<b>SCI.5.11A</b> Identify, observe and evaluate actions that require time for changes to be measurable, including growth, erosion, dissolving, weathering, and flow.
<b>SCI.PK.2C (2)</b> Begin to observe, identify and discuss changes in size in plants, animals, and objects.	<b>SCI.K.7D</b> Observe and record stages in the life cycle of organisms in their natural environment.	<b>SCI.1.7D</b> Observe and record changes in the life cycle of organisms.					



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<b>STRAND 2: LIFE SCIENCE</b>	<b>Systems</b>							
		<b>SCI.K.6A</b> Sort organisms such as animals and objects such as geometric shapes into groups according to their parts and describe how the groups are formed.	<b>SCI.1.6A</b> Sort organisms such as animals and objects such as toys according to their parts and characteristics.	<b>SCI.2.7D</b> Observe, measure, and record changes in weather such as temperature, the night sky such as the movement of moon and stars, and seasons.	<b>SCI.3.5A</b> Observe and identify simple systems such as the solar system, food chains or a moving toy car.	<b>SCI.4.5A</b> Identify and describe some cycles, structures, and processes that are found in simple living and nonliving systems such as in the erosion and deposition of rocks, photosynthesis or electric circuits.	<b>SCI.5.5A</b> Describe some cycles, structures, and processes that are found in simple systems such as in the water cycle, food webs or the freezing, melting and boiling of water.	
		<b>SCI.K.6B</b> Sort and record observations about parts of plants including leaves, roots, stems, and flowers.	<b>SCI.1.6B</b> Observe and describe the parts of plants and animals according to their characteristics.	<b>SCI.2.6C</b> Observe and record the functions of plant parts such as stems for support.				
		<b>SCI.K.6C</b> Sort and record observations about parts of animals including wings, feet, heads, and tails.		<b>SCI.2.6D</b> Observe and record the functions of animal parts such as wings for flight.				
		<b>SCI.K.6D</b> Identify parts that, when separated from the whole, may result in the part or whole not working such as cars without wheels and plants without roots	<b>SCI.1.6C</b> Remove a part from an object such as a wheel from a toy car which may result in the whole object not working.	<b>SCI.2.6A</b> Manipulate and identify parts that, when separated from the whole, may result in the part or the whole not working, such as flashlights without batteries and plants without leaves.	<b>SCI.3.5B</b> Observe a simple system and describe the roles of various parts such as the Sun, the Moon and the planets in the solar system, herbivores and carnivores in a food chain or different surfaces in the slowing of a moving toy car.	<b>SCI.4.5B</b> Describe and predict what happens when parts are removed from systems such as natural forces from the erosion and deposition of rocks, sunlight, carbon dioxide, water and oxygen from photosynthesis, or light bulbs and batteries from a circuit.	<b>SCI.5.5B</b> Describe and explain some interactions that occur in simple systems such as with the Sun's energy in the water cycle, energy transfers in food webs or water particles in the freezing, melting and boiling of water.	
		<b>SCI.K.6E</b> Manipulate parts of objects such as toys, vehicles, or construction sets that when put together, can do things they cannot do by themselves.	<b>SCI.1.6D</b> Identify parts that when put together can do things they cannot do by themselves such as a car moving with a motor and plants growing with soil and water.	<b>SCI.2.6B</b> Manipulate, and identify parts that, when put together, can do things they cannot do by themselves, such as a guitar and guitar strings.				
	<b>The Natural World</b>							
							<b>SCI.4.11C</b> Identify the Sun as the major source of energy for the Earth and understand its role in the growth of plants, in the creation of winds, and in the water cycle.	<b>SCI.5.6B</b> Identify and explain the significance of the water, carbon, and nitrogen cycles.



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### Strand 3 - Physical Science

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<b>STRAND 3: PHYSICAL SCIENCE</b>	<b>Physical Properties of Matter and Patterns</b>						
	<b>SCI.PK.2B</b> Identify and describe properties of objects such as the color of blocks and characteristics of plants and animals such as leaves on plants and wings on birds.	<b>SCI.K.5A</b> Describe properties of objects such as size and color and characteristics of organisms such as having fur or scales.	<b>SCI.1.5A</b> Sort and classify objects and events based on their properties and patterns such as rocks by color and weather changes by season.	<b>SCI.2.5A</b> Classify and sequence organisms, objects, and events based on properties and patterns.	<b>SCI.3.7A</b> Gather information including temperature, magnetism, hardness, and mass using appropriate tools to identify physical properties of matter.	<b>SCI.4.7B</b> Conduct tests, compare data, and draw conclusions about physical properties of matter including states of matter, conduction, density, and buoyancy.	<b>SCI.5.7C</b> Identify physical changes that can occur in solutions including the evaporation or crystallization of ingredients and the solubility of substances.
	<b>SCI.PK.2G</b> Begin to identify properties of objects including what they are made of such as distinguishing a metal spoon from a plastic spoon.						
	<b>SCI.PK.2J</b> Begin to describe objects, events and plants and animals using appropriate scientific words and phrases.						
	<b>SCI.PK.2H</b> Recognize patterns such as what comes next in line of objects, stages of growth of plants and animals, and day following night in order to make predictions.	<b>SCI.K.5B</b> Observe and identify patterns including seasons, growth, day and night and predict what happens next.					
	<b>SCI.K.5C</b> Recognize and copy patterns seen in charts and graphs.						
					<b>SCI.4.6B</b> Illustrate that certain characteristics of an object can remain constant even when the object is rotated like a spinning top, translated like a skater moving in a straight line, or reflected on a smooth surface.	<b>SCI.5.7A</b> Classify and evaluate substances and their use based on their physical properties including magnetism, physical state, and the ability to conduct or insulate heat, electricity, and sound.	
				<b>SCI.4.6C</b> Use reflections to verify that a natural object has symmetry.	<b>SCI.5.7B</b> Demonstrate that some mixtures maintain the physical properties of their ingredients and how these ingredients can be separated.		



What is it we want all students to learn?

Ⓟ Denotes Proposed Power Objective

## Science Prekindergarten – Grade 5 Vertical Alignment Matrix

revised 01-03-08

Strand	Prekindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
<b>STRAND 3: PHYSICAL SCIENCE</b>	<b>Systems</b>						
	<b>SCI.PK.2C (1)</b> Begin to observe, identify and discuss changes in color in plants, animals, and objects.	<b>SCI.K.7A</b> Observe, describe, and record changes in size, mass, color, position, quantity, time, temperature, sound, and movement.	<b>SCI.1.7A</b> Observe, measure, and record changes in size, mass, color, position, quantity, sound and movement.	<b>SCI.2.7A</b> Observe, measure, record, analyze, predict, and illustrate changes in size, mass, temperature, color, position, quantity, sound, and movement.	<b>SCI.3.6A</b> Measure and record changes in the position and direction of the motion of an object to which a force such as a push, pull or friction has been applied.	<b>SCI.4.5A</b> Identify and describe some cycles, structures, and processes that are found in simple living and nonliving systems such as in the erosion and deposition of rocks, photosynthesis or electric circuits.	<b>SCI.5.5A</b> Describe some cycles, structures, and processes that are found in simple systems such as in the water cycle, food webs or the freezing, melting and boiling of water.
	<b>SCI.PK.2C (2)</b> Begin to observe, identify and discuss changes in size in plants, animals, and objects.						
	<b>SCI.PK.2C (3)</b> Begin to observe, identify and describe changes in sound using vocabulary such as loud and soft.						
	<b>SCI.PK.2C (5)</b> Begin to observe, identify and describe changes in position using vocabulary such as before and after.						
	<b>SCI.PK.2I</b> Identify similarities and differences among objects, plants and animals.	<b>SCI.K.6A</b> Sort organisms such as animals and objects such as geometric shapes into groups according to their parts and describe how the groups are formed.	<b>SCI.1.6A</b> Sort organisms such as animals and objects such as toys according to their parts and characteristics.	<b>SCI.2.7C</b> Demonstrate a change in the motion of an object by giving the object a push or a pull.	<b>SCI.3.5A</b> Observe and identify simple systems such as the solar system, food chains or a moving toy car.	<b>SCI.5.12D</b> Identify gravity as the force that makes objects fall to the ground, keeps planets in orbit around the Sun and the moon in orbit around the Earth.	
		<b>SCI.K.6D</b> Identify parts that, when separated from the whole, may result in the part or whole not working such as cars without wheels and plants without roots	<b>SCI.1.6C</b> Remove a part from an object such as a wheel from a toy car which may result in the whole object not working.	<b>SCI.2.6A</b> Manipulate and identify parts that, when separated from the whole, may result in the part or the whole not working, such as flashlights without batteries and plants without leaves.	<b>SCI.3.5B</b> Observe a simple system and describe the roles of various parts such as the Sun, the Moon and the planets in the solar system, herbivores and carnivores in a food chain or different surfaces in the slowing of a moving toy car.	<b>SCI.4.5B</b> Describe and predict what happens when parts are removed from systems such as natural forces from the erosion and deposition of rocks, sunlight, carbon dioxide, water and oxygen from photosynthesis, or light bulbs and batteries from a circuit.	<b>SCI.5.5B</b> Describe and explain some interactions that occur in simple systems such as with the Sun's energy in the water cycle, energy transfers in food webs or water particles in the freezing, melting and boiling of water.
	<b>SCI.K.6E</b> Manipulate parts of objects such as toys, vehicles, or construction sets that when put together, can do things they cannot do by themselves.	<b>SCI.1.6D</b> Identify parts that when put together can do things they cannot do by themselves such as a car moving with a motor and plants growing with soil and water.	<b>SCI.2.6B</b> Manipulate, and identify parts that, when put together, can do things they cannot do by themselves, such as a guitar and guitar strings.				



What is it we want all students to learn?

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## Science Prekindergarten – Grade 5 Vertical Alignment Matrix

revised 01-03-08

Strand	Prekindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
<b>STRAND 3: PHYSICAL SCIENCE</b>	<b>Types of Change</b>						
		<b>SCI.K.7B</b> Identify common sources of heat (including the Sun), describe changes caused by heat and compare objects according to temperature changes.	<b>SCI.1.7B</b> Identify and conduct simple experiments to test the effect heat has on objects such as ice melting.	<b>SCI.2.7B</b> Identify, predict, and test uses of heat to cause change such as melting and evaporation.	<b>SCI.3.7B</b> Identify matter as liquids, solids, and gases.	<b>SCI.4.7A</b> Observe and record changes in the states of matter caused by the addition or reduction of heat.	<b>SCI.5.7D</b> Observe and measure characteristic properties of substances that remain constant such as boiling points and melting points.
	<b>Events Present and Future</b>						
						<b>SCI.4.10A</b> Identify and observe effects of events that require time for changes to be noticeable including growth, erosion, dissolving, weathering, and flow.	<b>SCI.5.11A</b> Identify, observe and evaluate actions that require time for changes to be measurable, including growth, erosion, dissolving, weathering, and flow.
	<b>Energy</b>						
							<b>SCI.5.8A</b> Differentiate among forms of energy including light, heat, electrical, and solar energy.
							<b>SCI.5.8B</b> Identify and demonstrate everyday examples of how light is reflected, such as from tinted windows, and refracted, such as in cameras, telescopes, and eyeglasses.
							<b>SCI.5.8C</b> Demonstrate that electricity can flow in a closed circuit and can produce heat, light, sound, and magnetic effects.
							<b>SCI.5.8D</b> Verify that vibrating an object can produce sound.



What is it we want all students to learn?

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## Science Prekindergarten – Grade 5 Vertical Alignment Matrix

revised 01-03-08

### Strand 4: Earth and Space Science

Strand	Prekindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
<b>STRAND 4: EARTH AND SPACE SCIENCE</b>	<b>The Natural World</b>						
			<b>SCI.1.10A</b> Identify and describe a variety of natural sources of water including streams, lakes, and oceans.  <b>SCI.1.7B</b> Identify and conduct simple experiments to test the effect heat has on objects such as ice melting.	<b>SCI.2.10A</b> Describe and illustrate the water cycle.	<b>SCI.3.11B</b> Identify and record properties of soils such as color and texture, capacity to retain water, and ability to support the growth of plants.	<b>SCI.4.11A</b> Implement experiments that test the properties of soils including texture, capacity to retain water, and ability to support life.	<b>SCI.5.6B</b> Identify and explain the significance of the water, carbon, and nitrogen cycles.  <b>SCI.5.12B</b> Describe processes responsible for the formation of coal, oil, gas, and minerals.
	<b>SCI.PK.2A</b> Observe, describe and identify properties of rocks such as color, soil such as texture, and water such as its ability to flow.	<b>SCI.K.10A</b> Observe and describe properties of rocks, soil, and water.	<b>SCI.1.10B</b> Observe and describe differences such as color and texture in rocks and soil samples.				
<b>SCI.PK.2E</b> Group plants, animals and objects as living or nonliving and begin to identify things people have built.	<b>SCI.K.9C</b> Identify ways that the Earth can provide resources for life such as plants for food and rocks for building houses.  <b>SCI.K.10B</b> Identify and give examples of ways that rocks, soil, and water are useful.	<b>SCI.1.10C</b> Identify how rocks, soil, and water are used and how they can be recycled.	<b>SCI.2.10B</b> Identify natural resources and their use such as cutting trees to make lumber and processing rocks to make bricks.	<b>SCI.3.11A</b> Identify and describe the importance of natural resources such as trees, fossil fuels, rocks, soil, water, and gases of the atmosphere and classify them as renewable, nonrenewable, or inexhaustible resources.			<b>SCI.5.11C</b> Identify processes and materials that led to the formation of natural resources such as trees, fossil fuels, rocks, soil, water, and gases of the atmosphere and classify them as renewable, nonrenewable, or inexhaustible resources.



## Science Prekindergarten – Grade 5 Vertical Alignment Matrix

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Strand	Prekindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
<b>STRAND 4: EARTH AND SPACE SCIENCE</b>	<b>Systems</b>						
	<b>SCI.PK.2I</b> Identify similarities and differences among objects, plants and animals.	<b>SCI.K.5A</b> Describe properties of objects such as size and color and characteristics of organisms such as having fur or scales.	<b>SCI.1.5A</b> Sort and classify objects and events based on their properties and patterns such as rocks by color and weather changes by season.	<b>SCI.2.5A</b> Classify and sequence organisms, objects, and events based on properties and patterns.	<b>SCI.3.5A</b> Observe and identify simple systems such as the solar system, food chains or a moving toy car.	<b>SCI.4.5A</b> Identify and describe some cycles, structures, and processes that are found in simple living and nonliving systems such as in the erosion and deposition of rocks, photosynthesis or electric circuits.	<b>SCI.5.5A</b> Describe some cycles, structures, and processes that are found in simple systems such as in the water cycle, food webs or the freezing, melting and boiling of water.
	<b>SCI.PK.2J</b> Begin to describe objects, events and plants and animals using appropriate scientific words and phrases.						
<b>SCI.PK.2H</b> Recognize patterns such as what comes next in line of objects, stages of growth of plants and animals, and day following night in order to make predictions.	ⓘ <b>SCI.K.5B</b> Observe and identify patterns including seasons, growth, day and night and predict what happens next.	<b>SCI.1.5B</b> Identify, predict, and create patterns including those seen in charts, graphs, and numbers.	<b>SCI.2.5B</b> Identify, predict, replicate, and create patterns including those seen in charts, graphs, and numbers.	ⓘ <b>SCI.3.5B</b> Observe a simple system and describe the roles of various parts such as the Sun, the Moon and the planets in the solar system, herbivores and carnivores in a food chain or different surfaces in the slowing of a moving toy car.	ⓘ <b>SCI.4.5B</b> Describe and predict what happens when parts are removed from systems such as natural forces from the erosion and deposition of rocks, sunlight, carbon dioxide, water and oxygen from photosynthesis, or light bulbs and batteries from a circuit.	<b>SCI.5.5B</b> Describe and explain some interactions that occur in simple systems such as with the Sun's energy in the water cycle, energy transfers in food webs or water particles in the freezing, melting and boiling of water.	



## Science Prekindergarten – Grade 5 Vertical Alignment Matrix

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Strand	Prekindergarten	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
<b>STRAND 4: EARTH AND SPACE SCIENCE</b>	<b>Types of Change</b>						
		<b>SCI.K.7A</b> Observe, describe, and record changes in size, mass, color, position, quantity, time, temperature, sound, and movement.	<b>SCI.1.7A</b> Observe, measure, and record changes in size, mass, color, position, quantity, sound and movement.	<b>SCI.2.7A</b> Observe, measure, record, analyze, predict, and illustrate changes in size, mass, temperature, color, position, quantity, sound, and movement.	<b>SCI.3.6A</b> Measure and record changes in the position and direction of the motion of an object to which a force such as a push, pull or friction has been applied.	<b>SCI.4.10A</b> Identify and observe effects of events that require time for changes to be noticeable including growth, erosion, dissolving, weathering, and flow.	<b>SCI.5.11A</b> Identify, observe and evaluate actions that require time for changes to be measurable, including growth, erosion, dissolving, weathering, and flow.
					<b>SCI.3.6B</b> Identify that the surface of the Earth can be changed by forces such as earthquakes, volcanic action and glacial movement.	<b>SCI.4.11B</b> Summarize the effects of the oceans on land.	<b>SCI.5.12A</b> Interpret how land forms are the result of a combination of constructive and destructive forces such as deposition of sediment, weathering and erosion.
	<b>SCI.PK.2C (4)</b> Begin to observe, identify and discuss changes in weather using vocabulary such as sunny, cloudy and rainy.	<b>SCI.K.7C</b> Observe and record weather changes from day to day and over seasons.	<b>SCI.1.7C</b> Observe and record changes in weather from day to day and over seasons including sunny, partly cloudy, cloudy, rainy, thunderstorms, sleet, snow, windy, and calm weather, and measurement of temperature and rainfall.	<b>SCI.2.7D</b> Observe, measure, and record changes in weather such as temperature, the night sky such as the movement of moon and stars, and seasons.		<b>SCI.4.6A</b> Identify patterns of change such as in weather, metamorphosis, and objects in the sky.	<b>SCI.5.6A</b> Identify events and describe changes that occur on a regular basis such as in daily, weekly, lunar, and seasonal cycles.
	<b>Past Events</b>						
						<b>SCI.4.10B</b> Draw conclusions about "what happened before" using fossils or charts and tables.	<b>SCI.5.11B</b> Draw conclusions about "what happened before" using data such as from tree-growth rings and sedimentary rock sequences.
<b>STRAND 4: EARTH AND SPACE SCIENCE</b>	<b>Solar System</b>						
					<b>SCI.3.11C</b> Identify the planets in our solar system and their position in relation to the Sun.	<b>SCI.4.11C</b> Identify the Sun as the major source of energy for the Earth and understand its role in the growth of plants, in the creation of winds, and in the water cycle.	<b>SCI.5.12D</b> Identify gravity as the force that makes objects fall to the ground, keeps planets in orbit around the Sun and the moon in orbit around the Earth.
				<b>SCI.3.11D</b> Describe the physical characteristics of the Sun and evaluate models representing them.	<b>SCI.5.12C</b> Identify the physical characteristics of the Earth such as size, landforms and gravitational force and compare them to the physical characteristics of the moon.		

