

2015 Blueprint - SCIENCE

Grade 4

Standards	Total Points per Standard	Skills	Branches	Benchmarks	Total # of Items per Benchmark (MC = 1pt. each)	# of Items Aligning Skill & Benchmark	Total # of Items per Branches (MC Items = 1 pt. each)	Percentage of Test Items per Branches (%)
Concepts & Processes	50	I.1 Observe and Question	Life Science	4.1.1 <u>Characteristics of Organisms</u> : Students describe observable characteristics of living things, including structures that serve specific functions and everyday behaviors.	5-6	I.1 - 0-1	16	32.00%
						I.2 - 1-2		
						I.3 - 0-1		
						I.4 - 0-1		
				4.1.2 <u>Life Cycles of Organisms</u> : Students sequence life cycles of living things, and recognize that plants and animals resemble their parents.	5-6	I.1 - 0-1		
						I.2 - 1-2		
			I.3 - 0-1					
			I.4 - 1-2					
		I.2 Design and Conduct a Scientific Investigation	Life Science	4.1.3 <u>Organisms and Their Environments</u> : Students show connections between living things, their basic needs, and the environments.	4-5	I.1 - 0-1		
				I.2 - 1-2				
				I.3 - 0-1				
				I.4 - 0-1				
I.3 Organize and Represent Data	Earth and Space Science	4.1.4 <u>Properties of Earth Materials</u> : Students investigate water, air, rocks, and soils to compare basic properties of earth materials.	4-5	I.1 - 0-1	16	32.00%		
		I.2 - 0-1						
		I.3 - 0-1						
		I.4 - 1-2						
I.4 Draw Conclusions and Make Connections		Earth and Space Science	4.1.5 <u>Objects in the Sky</u> : Students describe observable objects in the sky and their patterns of movement.	5-6			I.1 - 0-1	
			I.2 - 0-1					
	I.3 - 0-1							
	I.4 - 1-2							
	Earth and Space Science		4.1.6 <u>Changes in Earth and Sky</u> : Students describe observable changes in earth and sky, including rapid and gradual changes to the earth's surface, and daily and seasonal changes in the weather.	5-6			I.1 - 0-1	
			I.2 - 1-2					
		I.3 - 1-2						
		I.4 - 1-2						

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		I.1 Observe and Question	Physical Science	4.1.7 <u>Properties of Objects</u> : Students classify objects by properties that can be observed, measured, and recorded, including color, shape, size, weight, volume, texture, and temperature.	4-5	I.1 - 0-1	18	36.00%		
		I.2 Design and Conduct a Scientific Investigation		4.1.8 <u>Changes in States of Matter</u> : Students demonstrate that the processes of heating and cooling can change matter from one state to another.		4-5			I.2 - 1-2	
		I.3 Organize and Represent Data		4.1.9 <u>Physical Phenomena</u> : Students investigate physical phenomena commonly encountered in daily life, including light, heat, electricity, sound, and magnetism.					4-5	I.3 - 0-1
		I.4 Draw Conclusions and Make Connections		4.1.10 <u>Position and Motion of Objects</u> : Students demonstrate that pushing and pulling can change the position and motion of objects.						4-5
						I.2 - 0-1				
						I.3 - 0-1				
						I.4 - 1-2				
						I.1 - 0-1				
						I.2 - 1-2				
						I.3 - 0-1				
						I.4 - 1-2				
						I.1 - 0-1				
						I.2 - 0-1				
						I.3 - 0-1				
						I.4 - 0-1				

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Science as Inquiry				4.2.1 Students research answers to science questions and present findings through appropriate means.	Not Assessed			
				4.2.2 Students use the inquiry process to conduct simple scientific investigations: 1) Collect and organize data; 2) Use data to construct simple graphs, charts, diagrams, and/or model; 3) Draw conclusions and accurately communicate results, making connections to daily life; 4) Pose or identify questions and make predictions; and 5) Conduct investigations to answer questions and check predictions	Assessed with Concepts & Processes			
				4.2.3 Students identify and use appropriate scientific equipment.				
				4.2.4 Students properly use safety equipment and recognize hazards and safety symbols while practicing standard safety procedures.				

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		I.1 Observe and Question I.2 Design and Conduct a Scientific Investigation I.3 Organize and Represent Data I.4 Draw Conclusions and Make Connections	Life Science	<u>8.1.1 Levels of Organization in Living Systems:</u> Students model the cell as the basic unit of a living system. They realize that all functions that sustain life act within a single cell and cells differentiate into specialized cells, tissues, organs, and organ systems.	2-3	I.1 - 0-1	16	32%		
									I.2 - 0-1	
									I.3 - 0-1	
									I.4 - 0-1	
						<u>8.1.2 Reproduction and Heredity:</u> Students describe reproduction as a characteristic of all living systems, which is essential to the continuation of species, and identify and interpret traits, patterns of inheritance, and the interaction between genetics and environment.			2-3	I.1 - 0-1
						I.2 - 0-1				
						I.3 - 0-1				
						I.4 - 0-1				
						<u>8.1.3 Evolution as a Theory:</u> Students explain evolution as a theory and apply the theory to the diversity of species, which results from natural selection and the acquisition of unique characteristics through biological adaptation.			2-3	I.1 - 0-1
						I.2 - 0-1				
						I.3 - 0-1				
						I.4 - 0-1				
						<u>8.1.4 Diversity of Organisms:</u> Students investigate the interconnectedness of organisms, identifying similarity and diversity of organisms through a classification system of hierarchical relationships and structural homologies.			2-3	I.1 - 0-1
						I.2 - 0-1				
						I.3 - 0-1				
						I.4 - 0-1				
				<u>8.1.5 Behavior and Adaptation:</u> Students recognize behavior as a response of an organism to an internal or environmental stimulus and connect the characteristics and behaviors of an organism to biological adaptation.	2-3	I.1 - 0-1				
				I.2 - 0-1						
				I.3 - 0-1						
				I.4 - 0-1						

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Concepts and Processes	50			8.1.6 <u>Interrelationships of Populations and Ecosystems</u> : Students illustrate populations of organisms and their interconnection within an ecosystem, identifying relationships among producers, consumers, and decomposers.	2-3	I.1 - 0-1	16	32.00%
						I.2 - 0-1		
						I.3 - 0-1		
						I.4 - 0-1		
		I.1 Observe and Question	Earth and Space Science	8.1.7 <u>The Earth in the Solar System</u> : Students describe Earth as the third planet in the Solar System and understand the effects of the sun as a major source of energy, gravitational forces, and motions of objects in the Solar System.	5-6	I.1 - 0-1		
		I.2 Design and Conduct a Scientific Investigation				I.2 - 1-2		
						I.3 - 0-1		
						I.4 - 1-2		
		I.3 Organize and Represent Data		8.1.8 <u>The Structure of the Earth System</u> : Students examine the structure of the Earth, identifying layers of the Earth, considering plate movement and its effect, and recognizing landforms resulting from constructive and destructive forces.	5-6	I.1 - 1-2		
				I.2 - 1-2				
		I.3 - 0-1						
		I.4 - 1-2						
I.4 Draw Conclusions and Make Connections		8.1.9 <u>The Earth's History</u> : Students systematize the Earth's history in terms of geologic evidence, comparing past and present Earth processes and identifying catastrophic events and fossil evidence.	5-6	I.1 - 0-1				
		I.2 - 0-1						
		I.3 - 1-2						
		I.4 - 1-2						
I.1 Observe and Question		8.1.10 <u>The Structure and Properties of Matter</u> : Students identify characteristic properties of matter such as density, solubility, and boiling point and understand that elements are the basic components of matter.	3-4	I.1 - 0-1				
		I.2 - 0-1						
		I.3 - 0-1						
		I.4 - 0-1						

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		I. 2 Design and Conduct a Scientific Investigation	Physical Science	8.1.11 <u>Physical and Chemical Changes in Matter</u> : Students evaluate chemical and physical changes, recognizing that chemical change forms compounds with different properties and that physical change alters the appearance but not the composition of a substance.	3-4	I.1 - 0-1	18	36.00%
						I.2 - 0-1		
						I.3 - 0-1		
						I.4 - 0-1		
		I.3 Organize and Represent Data		8.1.12 <u>Forms and Uses of Energy</u> : Students investigate energy as a property of substances in a variety of forms with a range of uses.	3-4	I.1 - 0-1		
						I.2 - 0-1		
						I.3 - 0-1		
						I.4 - 0-1		
		I. 4 Draw Conclusions and Make Connections		8.1.13 <u>The Conservation of Matter and Energy</u> : Students identify supporting evidence to explain conservation of matter and energy, indicating that matter or energy cannot be created or destroyed but is transferred from one object to another.	3-4	I.1 - 0-1		
						I.2 - 0-1		
						I.3 - 0-1		
						I.4 - 0-1		
		8.1.14 <u>Effects of Motions and Forces</u> : Students describe motion of an object by position, direction, and speed, and identify the effects of force and inertia on an object.		3-4	I.1 - 0-1			
					I.2 - 0-1			
					I.3 - 0-1			
					I.4 - 0-1			

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Science as Inquiry				8.2.1 Students research answers to science questions and present findings through appropriate means.	Assessed with Concepts & Processes			
				8.2.2 Students use the inquiry to conduct scientific investigations: 1) Ask questions that lead to conducting an investigation; 2) Collect, organize, and analyze and appropriately represent data; 3) Draw conclusions based on evidence and make connections to applied scientific concepts; 4) Clearly and accurately communicate the result of the investigations				
				8.2.3 Students clearly and accurately communicate the result of their own work, as well as information obtained from other sources.				
				8.2.4 Students recognize the relationship between science and technology in meeting human needs.				
				8.2.5 Students property use appropriate scientific and safety equipment, recognize hazards and safety symbols, and observe standard safety procedures.				