

# New Standards™ Student Performance Standards

	Biosphere in a Bottle	Breadbox Nightmares	Cabbage Today, Sauerkraut Soon	Can Microbes Tell the Difference?	Caught Red-Handed	Creepy Critters	Defend Your Surface	Forever and a Day	Fun with Fomites	Let's Get Small	Mega Multiples of Microbes	Natural Selection	Nature's Trash Compactors	Now You See It, Now You Don't	Puddles	The Yeast of Our Worries	Yeast on the Rise
<b>Life Science Concepts</b> Demonstrates conceptual understanding by using concepts to explain observations and make predictions and by representing the concept in multiple ways (through words, diagrams, graphs, or charts, as appropriate). Both aspects of understanding explaining and representing are required to meet this standard.																	
Structure and function in living systems, such as the complementary nature of structure and function in cells, organs, tissues, organ systems, whole organisms, and ecosystems.	X	X	X	X			X		X					X	X		X
Reproduction and heredity, such as sexual and asexual reproduction; and the role of genes and environment on trait expression	X		X	X									X				
Regulation and behavior, such as senses and behavior; and response to environmental stimuli	X											X	X		X	X	X
Populations and ecosystems, such as the roles of producers, consumers, and decomposers in a food web; and the effects of resources and energy transfer on populations.	X	X	X	X									X	X	X		
Evolution, diversity, and adaptation of organisms, such as common ancestry, speciation, adaptation variation, and extinction.						X		X				X					
<b>Earth and Space Sciences Concepts</b> Demonstrates conceptual understanding by using a concept to explain observations and make predictions and by representing the concept in multiple ways (through words, diagrams, graphs, or charts, as appropriate). Both aspects of understanding explaining and representing are required to meet this standard.																	
Structure of the Earth system, such as crustal plate and land form; water and rock cycles, oceans, weather, and climate.	X							X							X		
Earth's history, such as Earth processes including erosion and movement of plates; change over time, and fossil evidence.								X				X			X		
<b>Scientific Connections and Applications</b> Demonstrates conceptual understanding by using a concept to explain observations and make predictions and by representing the concept in multiple ways (through words, diagrams, graphs, or charts, as appropriate). Both aspects of understanding explaining and representing are required to meet this standard.																	
Big ideas and unifying concepts, such as order and organization; models, form, and function; change and constancy; and cause and effect.	X					X	X	X	X	X	X	X	X		X		
Impact of science, such as historical and contemporary contributions; and interaction between science and society.	X													X			
<b>Scientific Thinking</b> Demonstrates scientific inquiry and problem solving by using thoughtful questioning and reasoning strategies, common sense, and conceptual understanding from Science Standards 1 to 4, and appropriate methods to investigate the natural world.																	
Frames questions to distinguish cause and effect; identifies or controls variable in experimental and non-experimental research settings.		X		X			X		X					X	X	X	X
Uses concepts to explain a variety of observations and phenomena.	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X
Uses evidence from reliable sources to develop descriptions, explanations, and models.	X				X	X		X		X	X	X					
Proposes, recognizes, analyzes, considers, and critiques alternative explanations; and distinguishes between fact and opinion.	X	X		X	X						X			X	X		
Identifies a problem; proposes and implements solutions; and evaluates the accuracy, design, and outcomes of investigations.		X	X	X	X		X							X	X	X	X
Works individually and in teams to collect and share information and ideas.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<b>Scientific Tools and Technologies</b> Demonstrates competence with the tools and technologies of science by using them to collect data, make observations, analyze results, and accomplish tasks effectively.																	
Uses technology and tools (such as traditional laboratory equipment, video and computer aids) to observe and measure objects, organisms, and phenomena, directly, indirectly, and remotely.			X	X			X		X				X	X	X	X	X
Acquires information from multiple sources, such as experimentation, print, the Internet, and computer data bases.	X	X	X	X	X		X		X				X	X	X	X	X
<b>Scientific Communication</b> Demonstrates effective scientific communication by clearly describing aspects of the natural world using accurate data, graphs, or other appropriate media to convey depth of conceptual understanding in science.																	
Represents data and results in multiple ways, such as numbers, tables, and graphs; drawings, diagrams, and artwork; and technical and creative writing.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Argues from evidence, such as data produced through his or her own experiments or those done by others.	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X
Critiques published materials.	X				X		X	X	X								
Explains a scientific concept or procedure to other participants.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Communicates in a form suited to the purpose and the audience, such as writing instructions that others can follow; critiquing written and oral explanations; and using data to resolve disagreements.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
<b>Scientific Investigations</b> Demonstrates scientific competence by completing projects drawn from the following kinds of investigations:																	
Controlled experiment		X		X	X		X		X					X	X	X	X
Fieldwork	X						X						X		X		
Design	X	X	X	X	X		X	X				X		X	X	X	X
Secondary research, such as use of others' data	X	X	X	X	X		X		X					X	X	X	X
Non-experimental research using print and electronic information, such as journals, videos, or computers.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X