

National Science Education Standards

	BRSP-	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Science as Inquiry																						
CONTENT STANDARD A																						
Grades K-4:																						
A1. Abilities necessary to do scientific inquiry																						
<ul style="list-style-type: none"> Ask a question about objects, organisms, and events in the environment. Plan and conduct a simple investigation. Employ simple equipment and tools to gather data and extend the senses. Use data to construct a reasonable explanation. Communicate investigations and explanations. 																						
						x	x	x														
A2. Understandings about scientific inquiry																						
						x	x	x														
Grades 5-8:																						
A3. Abilities necessary to do scientific inquiry																						
<ul style="list-style-type: none"> Identify questions that can be answered through scientific investigations. Design and conduct a scientific investigation. Use appropriate tools and techniques to gather, analyze, and interpret data. Develop descriptions, explanations, predictions, and models using evidence. Think critically and logically to make the relationships between evidence and explanations. Recognize and analyze alternative explanations and predictions. Communicate scientific procedures and explanations. Use mathematics in all aspects of scientific inquiry. 																						
							x	x	x		x		x	x		x	x	x	x			
A4. Understandings about scientific inquiry																						
							x	x	x		x		x	x		x	x	x	x			
Grades 9-12:																						
A5. Abilities necessary to do scientific inquiry																						
<ul style="list-style-type: none"> Identify questions and concepts that guide scientific investigations. Design and conduct scientific investigations. Use technology and mathematics to improve investigations and communications. Formulate and revise scientific explanations and models using logic and evidence. Recognize and analyze alternative explanations and models. Communicate and defend a scientific argument. 																						
											x		x	x		x	x	x	x	x	x	x
A6. Understandings about scientific inquiry																						
											x		x	x		x	x	x	x	x	x	x
Physical Science																						
CONTENT STANDARD B																						
Grades K-4:																						
B1. Properties of objects and materials																						
							x	x														
B2. Position and motion of objects																						
B3. Light, heat, electricity, and magnetism																						
							x	x														
Grades 5-8:																						
B4. Properties and changes of properties in matter																						
							x						x	x	x	x						
B5. Motions and forces																						
											x									x		
B6. Transfer of energy																						
							x	x		x	x						x	x	x	x		

National Science Education Standards (continued)

BRSP-	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Grades 9-12:																					
B7. Structure of atoms															x	x					x
B8. Structure and properties of matter															x	x					x
B9. Chemical reactions															x						x
B10. Motions and forces																			x		x
B11. Conservation of energy and increase in disorder										x						x	x		x		
B12. Interactions of energy and matter										x											
<u>Life Science</u>																					
CONTENT STANDARD C																					
Grades K-4:																					
C1. The characteristics of organisms																					
C2. Life cycles of organisms																					
C3. Organisms and environments				x			x														
Grades 5-8:																					
C4. Structure and function in living systems																					
C5. Reproduction and heredity																					
C6. Regulation and behavior																					
C7. Populations and ecosystems																				x	
C8. Diversity and adaptations of organisms																					
Grades 9-12:																					
C9. The cell																					
C10. Molecular basis of heredity																					
C11. Biological evolution																					
C12. Interdependence of organisms																x					
C13. Matter, energy, and organization in living systems																x				x	
C14. Behavior of organisms																					
<u>Earth and Space Science</u>																					
CONTENT STANDARD D																					
Grades K-4:																					
D1. Properties of earth materials					x	x	x														
D2. Objects in the sky	x			x	x																
D3. Changes in earth and sky							x														
Grades 5-8:																					
D4. Structure of the earth system				x		x	x	x		x			x	x							x
D5. Earth's history																					
D6. Earth in the solar system	x				x	x	x		x	x			x						x	x	
Grades 9-12:																					
D7. Energy in the earth system										x									x		x
D8. Geochemical cycles																x					
D9. Origin and evolution of the earth system																x			x		
D.10 Origin and evolution of the universe																					x
<u>Science and Technology</u>																					
CONTENT STANDARD E																					
Grades K-4:																					
E1. Abilities of technological design																					
• Identify a simple problem. Propose a solution.																					
• Implementing proposed solutions.											x										
• Evaluate a product or design.																					
• Communicate a problem, design, and solution.																					
E2. Understanding about science and technology						x		x													
E3. Abilities to distinguish between natural objects and objects made by humans				x	x																

Note: The National Science Education Standards use only the letter designations A-G for content standards. Numerical suffixes in this table have been added for reference purposes. The complete text of the NSES is available at <http://www.nap.edu/readingroom/books/nses/html/>

National Science Education Standards (continued)

BRSP-	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Grades 5-8:																					
E4. Abilities of technological design																					
<ul style="list-style-type: none"> • Identify appropriate problems for technological design. • Design a solution or product. Implement a proposed design. • Evaluate completed technological designs or products. • Communicate the process of technological design. 																					
																x	x				
E5. Understandings about science and technology																					
				x								x			x	x					
Grades 9-12:																					
E6. Abilities of technological design																					
<ul style="list-style-type: none"> • Identify a problem or design an opportunity. • Propose designs and choose between alternative solutions. • Implement a proposed solution. • Evaluate the solution and its consequences. • Communicate the problem, process, and solution. 																					
																x	x		x		x
E7. Understandings about science and technology																					
																x	x		x	x	x
<u>Science in Personal and Social Perspectives</u> CONTENT STANDARD F																					
Grades K-4:																					
F1. Personal health																					
F2. Characteristics and changes in populations																					
F3. Types of resources																					
F4. Changes in environments																					
						x															
F5. Science and technology in local challenges																					
Grades 5-8:																					
F6. Personal health																					
																					x
F7. Populations, resources, and environments																					
																	x				x
F8. Natural hazards																					
																					x
F9. Risks and benefits																					
F10. Science and Technology in Society																					
												x			x	x		x	x		
Grades 9-12:																					
F11. Personal and community health																					
																					x
F12. Population growth																					
																x	x				x
F13. Natural resources																					
																x	x		x		x
F14. Environmental quality																					
																x	x		x	x	
F15. Natural and human-induced hazards																					
																x	x		x	x	
F16. Science and technology in local, national, and global challenges																					
																x	x		x		
<u>History and Nature of Science</u> CONTENT STANDARD G																					
Grades K-4:																					
G1. Science as a human endeavor																					
Grades 5-8:																					
G2. Science as a human endeavor																					
																		x			
G3. Nature of science																					
															x			x			
G4. History of science																					
												x						x			
Grades 9-12:																					
G5. Science as a human endeavor																					
												x						x		x	
G6. Nature of scientific knowledge																					
															x			x		x	
G7. Historical perspectives																					
																		x		x	