

## Scope and Sequence Grid

SUBJECT: SCIENCE  
 STRAND: History and Nature of Science

PROGRAM GOAL: #1 To integrate the impact of past and present scientific knowledge in personal and social decision making.

Skills and Sub-skills	K	1	2	3	4	5	6	7	8	PS	BI	EN	CH	PH	ES	AP	
<b>.01 Natural hazards</b>																	
a. Effects of (Environment)					I	E	E	E	M			MM			MM		
b. Consequences of (Organisms)					I	E	E	E	M			MM			MM		
<b>.02 Human-induced hazards</b>																	
a. Pollution (Greenhouse Effect, Ozone Depletion)	I	E	E	E	M	ME	ME	ME	ME	M	MM	MM					
b. Recycling (benefits/techniques/reasons for)	I	E	E	M	ME	M	MM	MM									
<b>.03 Population growth</b>																	
a. Factors influencing								I	E		E/M	MM					
b. Capacity								I	E		E/M	MM					
<b>.04 Natural resources</b>																	
a. Renewable				I	E	E	M	ME	M/MM	M		MM					
b. Nonrenewable				I	E	E	M	ME	M/MM	M		MM					
c. Exploitation/Destruction/Enrichment								I	E		E/M	MM					

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 STRAND: History and Nature of Science  
 PROGRAM GOAL: #2 To demonstrate the abilities necessary to apply scientific inquiry.

Skills and sub-skills	K	1	2	3	4	5	6	7	8	PS	BI	EN	CH	PH	ES	AP
<b>.01 Methods of inquiry</b>																
a. Questioning	I	E	E	E	M	ME	ME/M	MM	MM							
b. Predicting	I	E	E	E	M	ME	ME/M	MM	MM							
c. Observing	I	E	E	E	M	ME	ME/M	MM	MM							
d. Researching		I	E	E	E	M	ME/M	MM	MM							
e. Classifying			I	E	E	E	M	MM	MM							
f. Analyzing			I	E	E	E	M	MM	MM							
g. Cause and Effect				I	E	E	M	MM	MM							
<b>.02 Investigative process</b>																
a. Formulation of question					I	E	E	M	MM	MM	MM					
b. Formulation of predictions/hypotheses/conclusions					I	E	E	M	MM	MM	MM					
c. Design					I	E	E	M	MM	MM	MM					
<b>.03 Investigation</b>																
a. Data collection	I	E	E	E	M	ME	ME	ME	M	MM	MM					
b. Data analysis	I	E	E	E	M	ME	ME	ME	M	MM	MM					
c. Data display (Charts, Tables, Graphs)	I	E	E	E	M	ME	ME	ME	M	MM	MM					
d. Tools of investigation (skills & knowledge)	I	E	E	E	M	ME	ME	ME	M	MM	MM		MM	MM		
<b>.04 Lab Safety</b>																
a. Personal Safety						I	E	E	E	M	MM		MM	MM		
b. Environmental Safety						I	E	E	E	M	MM		MM	MM		

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PROGRAM GOAL: #3 To examine the relationship between science and technology.

Skills and Sub-skills	K	1	2	3	4	5	6	7	8	PS	BI	EN	CH	PH	ES	AP	
<b>.01 Technology</b>																	
a. Definition of				I	E	E	M	MM	MM								
b. Use of				I	E	E	M	MM	MM								
c. Impact of				I	E	E	M	MM	MM								
<b>.02 Technological design</b>																	
a. Problem identification		I	E	E	E	M	ME	ME	M	MM		MM		MM			
b. Solution proposal		I	E	E	E	M	ME	ME	M	MM		MM		MM			
c. Implementation of solution		I	E	E	E	M	ME	ME	M	MM		MM		MM			
d. Evaluation of design		I	E	E	E	M	ME	ME	M	MM		MM		MM			
e. Ethical issues							I	E	M	MM		MM					
<b>.03 Historical Perspectives</b>																	
a. Technological advancements				I	E	E	E	M	ME	ME	ME	M	MM	MM			
b. Contributions (cultures and/or individuals)				I	E	E	E	M	ME	ME	ME	M	MM	MM			

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SUBJECT: SCIENCE  
 STRAND: Physical Science

PROGRAM GOAL: #4 To differentiate the uses and characteristics of matter and energy.

Skills and Sub-skills	K	1	2	3	4	5	6	7	8	PS	BI	EN	CH	PH	ES	AP
<b>.01 Atomic structure</b>																
a. Protons							I	E	E	M			MM		MM	
b. Electrons							I	E	E	M			MM		MM	
c. Neutrons							I	E	E	M			MM		MM	
d. Quantum particles																
e. Isotopes									I	E/M			MM			
<b>.02 Structure of matter</b>																
a. Physical properties (density)		I	E	E	E	M	ME	ME	ME	M			MM	MM		
b. Chemical properties							I	E	E	M/MM			MM			
c. Mass					I	E	E	E/M	ME	ME/M			MM	MM		
d. Periodic table							I	E	E	M			MM			
<b>.03 Chemical reactions</b>																
a. Types of reactions							I	E	E	E/M			MM			
b. Chemical Bonding									I	E/M			MM			
c. Chemical Equations										I/E			MM			
d. Acids and bases							I	E	E	M			MM			
e. Stoichiometry													I/E			
<b>.04 Forces and motion</b>																
a. Magnets		I	E	M	MM	MM										
b. Gravity		I	E	E	M	ME	ME	M	MM	MM				MM	MM	
c. Simple machines					I/E	E	M									
d. Wave forms/light/sound				I	E	E	E	M	ME	ME				M/MM	MM	
e. Velocity						I	E	E	E/M	MM						
f. Acceleration						I	E	E	E/M	MM						
g. Work (force and power)					I/E	E	M									
Skills and Sub-skills	K	1	2	3	4	5	6	7	8	PS	BI	EN	CH	PH	ES	AP
<b>.05 Energy forms</b>																
a. Kinetic								I/E	E	E/M			MM	MM		
b. Potential								I/E	E	E/M			MM	MM		
c. Electromagnetic Spectrum									I/E	E/M			MM		MM	
d. Nuclear							I	E	E	E/M			MM		MM	
e. Thermal									I/E	E/M			MM		MM	
f. Chemical									I/E	E/M			MM			

<b>.06 Energy transformations</b>																			
a. Thermodynamics— endothermic/exothermic processes								I	E	E	M				MM		MM		
b. Circuits/electricity				I/E	E	E	M	M/E	M/E	M					MM	MM			
c. Static electricity				I	E	E	M												
d. Radiant/Convection/Conduction																			
<b>.07 Newton's Laws of Motion</b>																			
a. Inertia										I	E					M	M		
b. Forces and Acceleration										I	E					M	M		
c. Actions/Reactions										I	E					M	M		
<b>.08 States of matter</b>																			
a. Solids				I	E	E	E	M	ME	ME	M				MM				
b. Liquids				I	E	E	E	M	ME	ME	M				MM				
c. Gases				I	E	E	E	M	ME	ME	M				MM				
d. Plasma										I	E				M		M		

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 STRAND: Physical Science

PROGRAM GOAL: #5 To investigate how matter and energy interact through forces of nature.

Skills and Sub-skills	K	1	2	3	4	5	6	7	8	PS	BI	EN	CH	PH	ES	AP	
.01 Conservation of energy																	
a. Potential									I/E	E/M			MM	MM			
b. Kinetic									I/E	E/M			MM	MM			
.02 Equilibrium																	
a. Movements of molecules (Diffusion)							I	E	M	M			MM				

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SUBJECT: SCIENCE  
 STRAND: Earth/Space Science  
 PROGRAM GOAL: #6 To construct and integrate knowledge of the Universe.

Skills and Sub-skills	K	1	2	3	4	5	6	7	8	PS	BI	EN	CH	PH	ES	AP	
.01 Origin of the universe									I	E					M		
.02 Astronomy																	
a. Stellar (constellations, galaxies, Polaris)	I	E	E	E	E	M	ME	ME	ME/M	MM					MM		
b. Solar (planets, suns, moons, comets, asteroids, meteors)	I	E	E	E	E	M	ME	ME	ME/M	MM					MM		
c. Lunar (tides, moon phases, eclipses)						I	E	E	E/M	MM					MM		
.03 Planetary motion																	
a. Revolution (seasons)	I	E	E	E	E	M	ME	ME	ME/M	MM					MM		
b. Rotation (day/night)	I	E	E	E	E	M	ME	ME	ME/M	MM					MM		

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SUBJECT: SCIENCE  
 STRAND: Earth/Space Science

PROGRAM GOAL: #7 To examine and understand the components of the Earth.

Skills and Sub-skills	K	1	2	3	4	5	6	7	8	PS	BI	EN	CH	PH	ES	AP
<b>.01 Lithosphere</b>																
a. Layers of the Earth (mantle, crust, core)					I/E/M											
b. Minerals/Rocks/Soil			I	E	E	E	M	MM	MM							
c. Rock cycle						I	E	E	M							
<b>.02 Atmosphere</b>																
a. Weather/climate	I	E	E	E	M	ME	ME	ME	M						MM	
b. Forecasting					I	E	E	E	M						MM	
c. Clouds					I/E	E	E	M	MM						MM	
d. Layers of						I	E	E	M						MM	
<b>.03 Hydrosphere</b>																
a. Marine and fresh water					I	E	E	M	MM						MM	
b. Water cycle	I	E	E	M	MM	MM										
c. Ocean currents									I/E			M			M	

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SUBJECT: SCIENCE  
 STRAND: Earth/Space Science

PROGRAM GOAL: #8 To differentiate the processes that shape the Earth.

Skills and Sub-skills	K	1	2	3	4	5	6	7	8	PS	BI	EN	CH	PH	ES	AP	
<b>.01 Geological time</b>																	
a. Fossils			I/E	E	M	MM											
b. Stratigraphic layers of the Earth								I	E/M								
c. Glaciers					I	E	E	E	M			MM			MM		
<b>.02 Plate tectonics</b>																	
a. Earthquake					I	E	E	E	M						MM		
b. Volcanoes					I	E	E	E	M						MM		
c. Formation/Types of mountains					I	E	E	E	M						MM		
d. Fault lines					I	E	E	E	M						MM		
e. Mid-ocean ridges					I	E	E	E	M						MM		

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SUBJECT: SCIENCE  
 STRAND: Life Science

PROGRAM GOAL: #9 To investigate the basic structure, functions, and processes of living organisms.

Skills and sub-skills	K	1	2	3	4	5	6	7	8	PS	BI	EN	CH	PH	ES	AP	
<b>.01 Levels of organization</b>																	
a. Simple to complex				I	E	E	E	M	E/M		MM					MM	
b. Interrelationships of cells, tissues, organs, organ system, and organisms				I	E	E	E	M	E/M		MM					MM	
<b>.02 Life functions</b>																	
a. Photosynthesis		I	E	E	E	M	M/E	M/E	MM	MM	MM						
b. Basic needs		I	E	E	M												
c. Reproduction		I	E	E	E	M											
d. Metabolism						I	E	E/M									
e. Growth and development		I	E	E/M													
<b>.03 Systems physiology</b>																	
a. Respiratory				I	E	E	E	E	M		MM					MM	
b. Excretory						I	E	E	M		MM					MM	
c. Digestive				I	E	E	E	E	M		MM					MM	
d. Circulatory				I	E	E	E	E	M		MM					MM	
e. Nervous				I	E	E	E	E	M		MM					MM	
f. Muscular				I	E	E	E	E	M		MM					MM	
g. Skeletal				I	E	E	E	E	M		MM					MM	
h. Endocrine						I	E	E	M		MM					MM	
i. Reproductive							I	E	M		MM					MM	
j. Integumentary (skin)								I	E/M		MM					MM	
k. Immune								I	E/M		MM					MM	
l. Five Senses	I	E	M														
<b>Skills and sub-skills</b>																	
Skills and sub-skills	K	1	2	3	4	5	6	7	8	PS	BI	EN	CH	PH	ES	AP	
<b>.04 Heredity</b>																	
a. Genes/Chromosomes/DNA/Traits						I	E	E	E		M/MM					MM	
b. Genetics/ Genetic engineering/ Evolution								I	E		M					MM	
<b>.05 Structure of organisms</b>																	
a. Bacteria								I	E		M						
b. Algae								I	E		M						
c. Fungi								I	E		M						

d. Virus								I	E		M						
e. Animals		I	E	M	ME	ME	ME	M	MM		MM						
f. Plants		I	E	M	ME	ME	ME	M	MM		MM						
.06 Cells																	
a. Structure/Function				I	E	E	E	M	MM		MM						MM
b. Mitosis								I/E	E		M						
c. Meiosis								I/E	E		M						

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 STRAND: Life Science

PROGRAM GOAL: #10 To interrupt ecological interactions and evaluate effects of the processes of life.

Skills and Su	K	1	2	3	4	5	6	7	8	PS	BI	EN	CH	PH	ES	AP
<b>.01 Ecosystems</b>																
a. Habitat components (food/water/shelter/space/arrangement)			I	E	E	M	MM	MM								
b. Adaptation				I	E	E	E	M	MM		MM	MM				
c. Animal species				I	E	E	E	M	MM		MM	MM				
d. Plant species				I	E	E	E	E	MM		MM	MM				
e. Aquatic ecosystems				I	E	E	E	E	MM		MM	MM				
f. Terrestrial ecosystems				I	E	E	E	E	MM		MM	MM				
g. Extinction			I	E	E	M										
<b>.02 Energy pyramids</b>																
a. Producers/Decomposers/Consumers			I	E	E	M	MM	MM								
<b>.03 Energy webs</b>																
a. Organic cycles (food chain)			I	E	E	M	MM	MM								
b. Inorganic cycles									I/E		M					
c. Living and non-living	I/E/M															

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