



**A Correlation of
Science and Technology for Children[®]
and
Science and Technology Concepts for
Middle Schools[™]
with the
Minnesota Academic Standards:
Science, K–8**

Prepared by

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Introduction

This document gives a quick visual guide to the alignment of Science and Technology for Children® (STC®) and Science and Technology Concepts for Middle Schools™ (STC/MS™) units with the Minnesota’ Academic Standards: Science, grades K–8. Although each STC® and STC/MS™ unit was developed for use at a specific grade level, there is some flexibility in grade placement, so any unit may be used a grade above or below the one for which it was designed—in other words, across a 3-grade span. These grade ranges are indicated in the chart below.

STC® and STC/MS™ Units with Recommended Grade Ranges

	Grades	Life Science	Earth Science	Physical Science and Technology	
STC®	K–2	<i>Organisms</i> (O)	<i>Weather</i> (W)	<i>Solids and Liquids</i> (SL)	<i>Comparing and Measuring</i> (CM)
	1–3	<i>The Life Cycle of Butterflies</i> (LCB)	<i>Soils</i> (S)	<i>Changes</i> (C)	<i>Balancing and Weighing</i> (BW)
	2–4	<i>Plant Growth and Development</i> (PGD)	<i>Rocks and Minerals</i> (RM)	<i>Chemical Tests</i> (CT)	<i>Sound</i> (So)
	3–5	<i>Animal Studies</i> (AS)	<i>Land and Water</i> (LW)	<i>Electric Circuits</i> (EC)	<i>Motion and Design</i> (MD)
	4–6	<i>Microworlds</i> (M)	<i>Ecosystems</i> (E)	<i>Food Chemistry</i> (FC)	<i>Floating and Sinking</i> (FS)
STC/MS™	6–8	<i>Human Body Systems</i> (HBS)	<i>Catastrophic Events</i> (CE)	<i>Properties of Matter</i> (PM)	<i>Energy, Machines, and Motion</i> (EMM)
		<i>Organisms—From Macro to Micro</i> (OMM)	<i>Earth in Space</i> (ES)	<i>Light</i> (L)	

Additional Curriculum Units Available

Carolina Biological Supply Company offers 4 additional STC® units designed for use at grades 5–7, as well as one other STC/MS™ unit entitled *Electrical Energy and Circuit Design*. For more information about these instructional materials, visit www.carolina.com/STC.

Legend

To save paper, the curriculum location information in this document has been abbreviated as follows:

- Unit abbreviations = noted in parentheses in the chart above
- TG = Teacher’s Guide
- RB = STC BOOK™ (a science reading book included in the grades 3–5 and 4–6 STC® unit kits)
- Sec4 = Section 4 in the STC® Teacher’s Guide
- L1, L2, L3, etc. = Lesson 1, Lesson 2, Lesson 3, etc.
- p, pp = page, pages

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with the Minnesota Academic Standards: Science
(Grades K–8)**

KINDERGARTEN	CURRICULUM LOCATION
I. HISTORY AND NATURE OF SCIENCE	
<i>B. Scientific Inquiry</i> The student will raise questions about the natural world.	
1. The student will observe and describe common objects using simple tools.	CM - TG: Sec4.L1-17 O - TG: Sec4.L1-17 SL - TG: Sec4.L1-17 W - TG: Sec4.L1-17
III. EARTH AND SPACE SCIENCE	
<i>B. The Water Cycle, Weather and Climate</i> The student will observe weather changes.	
1. The student will describe daily and seasonal changes in weather.	W - TG: Sec4.L1-17 (<i>seasonal changes not included</i>)
IV. LIFE SCIENCE	
<i>B. Diversity of Organisms</i> The student will understand that there are living and nonliving things.	
1. The student will compare and contrast living and nonliving things.	O - TG: Sec4.L15 (<i>extensions only</i>)
2. The student will know simple ways that living things can be grouped.	O - TG: Sec4.L7-10, 13-16
<i>G. Human Organism</i> The student will understand that people have five senses that can be used to learn about the environment.	
1. The student will observe and describe the environment using the five senses.	(<i>As a safety precaution, the sense of taste is never used during an STC unit.</i>) O - TG: Sec4.L4-16 W - TG: Sec4.L1-17

GRADE 1	CURRICULUM LOCATION
I. HISTORY AND NATURE OF SCIENCE	
<i>B. Scientific Inquiry</i> The student will raise questions about the natural world, make careful observations, and seek answers.	
1. The student will observe, describe, measure, compare and contrast common objects, using simple tools including but not limited to ruler, thermometer and balance.	BW - TG: Sec4.L1-17 C - TG: Sec4.L1-17 CM - TG: Sec4.L1-17 SL - TG: Sec4.L1-17 W - TG: Sec4.L1-2, 5, 7, 9, 11, 14

II. PHYSICAL SCIENCE	
<i>A. Structure of Matter</i> The student will understand that objects have physical properties.	
1. The student will describe objects in terms of color, size, shape, weight, texture, flexibility and attraction to magnets.	BW - TG: Sec4.L8-9, 12-13 C - TG: Sec4.L1-17 (<i>flexibility and attraction to magnets not included</i>) CM - TG: Sec4.L1-5, 17 (<i>attraction to magnets not included</i>) SL - TG: Sec4.L1-17 (<i>texture not included</i>) W - TG: Sec4.L13-14 (<i>flexibility and attraction to magnets not included</i>)
<i>E. Forces of Nature</i> The student will understand that forces can act at a distance.	
1. The student will know that magnets can be used to make some things move without direct contact.	SL - TG: Sec4.L7
2. The student will know that things near the Earth fall to the ground unless something holds them up.	
III. EARTH AND SPACE SCIENCE	
<i>B. The Water Cycle, Weather and Climate</i> The student will investigate weather cycles.	
1. The student will observe, record and describe characteristics in daily weather and seasonal cycles.	W - TG: Sec4.L1-17 (<i>seasonal cycles not included</i>)
<i>C. The Universe</i> Student will recognize the changes that occur in the sky in a 24-hour day.	
1. The student will observe and describe the changes in the position of the sun and the moon.	
IV. LIFE SCIENCE	
<i>B. Organisms</i> The student will observe plant and animal life cycles.	
1. The student will observe and describe how plants and animals grow and change.	LCB - TG: Sec4.L2-15 (<i>animals only</i>) O - TG: Sec4.L1, 7-8, 10-12, 16-17 S - TG: Sec4.L9-14, 16 W - TG: Sec4.L7
<i>D. Heredity</i> The student will understand that there is variation among individuals of one kind within a population.	
1. The student will describe ways in which many plants and animals closely resemble but are not identical to their parents.	LCB - TG: Sec4.L1, 3, 12, 15 O - TG: Sec4.L8, 10-16
2. The student will match adult animals and plants to their offspring.	LCB - TG: Sec4.L1, 3, 12, 15 O - TG: Sec4.L8, 10-16
<i>F. Flow of Matter and Energy</i> The student will understand that organisms have basic needs.	
1. The student will know that animals need air, water and food and that plants require air, water, nutrients and light.	LCB - TG: Sec4.L1, 4, 10 O - TG: Sec4.L1-17 S - TG: Sec4.L9-10, 12-14, 16

<i>G. Human Organism</i> The student will know that the human body is made up of parts.	
1. The student will observe and describe major parts of the body including, but not limited to, eyes, nose, heart, skin, arms, legs and muscles.	LCB - TG: Sec4.L14 O - TG: Sec4.L16
The student will learn that some diseases are caused by germs.	
1. The student will know that diseases caused by germs can be spread from person to person; the number of germs can be reduced by personal behavior.	

GRADE 2	CURRICULUM LOCATION
I. HISTORY AND NATURE OF SCIENCE	
<i>A. Scientific World View</i> The student will understand that science is a human endeavor practiced throughout the world.	
1. The student will recognize that repeating a scientific investigation will lead to very similar results.	<i>This objective is compatible with all STC units.</i>
2. The student will recognize that scientific investigations generally work the same way in different places.	<i>This objective is compatible with all STC units.</i>
3. The student will give examples of scientific advances throughout history.	CT - TG: Sec4.L15 PGD - TG: Sec4.L3 SL - TG: Sec4.L4 So - TG: Sec4.L4 W - TG: Sec4.L11-12
4. The student will recognize that everyone can do science and invent things and ideas.	BW - TG: Sec4.L1-17 C - TG: Sec4.L1-17 CM - TG: Sec4.L1-17 CT - TG: Sec4.L1-17 LCB - TG: Sec4.L1-16 O - TG: Sec4.L1-17 PGD - TG: Sec4.L1-17 RM - TG: Sec4.L1-17 S - TG: Sec4.L1-17 SL - TG: Sec4.L1-17 So- TG: Sec4.L1-17 W - TG: Sec4.L1-17
<i>B. Scientific Inquiry</i> The student will raise questions about the natural world, make careful observations and seek answers.	
1. The student will use appropriate tools to gather and organize data.	BW - TG: Sec4.L1-17 C - TG: Sec4.L1-17 CM - TG: Sec4.L1-17 CT - TG: Sec4.L1-17 LCB - TG: Sec4.L1-16 O - TG: Sec4.L1-17 PGD - TG: Sec4.L1-17 RM - TG: Sec4.L1-17 S - TG: Sec4.L1-17 SL - TG: Sec4.L1-17

	So- TG: Sec4.L1-17 W - TG: Sec4.L1-17
2. The student will recognize and describe patterns in data.	BW - TG: Sec4.L1-17 C - TG: Sec4.L1-17 CM - TG: Sec4.L1-17 CT - TG: Sec4.L1-17 LCB - TG: Sec4.L1-16 O - TG: Sec4.L1-17 PGD - TG: Sec4.L1-17 RM - TG: Sec4.L1-17 S - TG: Sec4.L1-17 SL - TG: Sec4.L1-17 So - TG: Sec4.L1-17 W - TG: Sec4.L1-17
II. PHYSICAL SCIENCE	
<i>A. Structure of Matter</i>	
The student will understand that objects can be sorted and classified based on their properties.	
1. The student will sort and classify objects in terms of color, size, shape, weight, texture, flexibility and attraction to magnets.	BW - TG: Sec4.L8-9, 12-13 C - TG: Sec4.L1-17 (<i>flexibility and attraction to magnets not included</i>) CM - TG: Sec4.L1, 5-17 (<i>magnets not included</i>) CT - TG: Sec4.L1-17 (<i>magnets not included</i>) RM - TG: Sec4.L1-17 SL - TG: Sec4.L1-17 So - TG: Sec4.L1, 3, 11, 14 (<i>magnets not included</i>) W - TG: Sec4.L13-14
2. The student will classify a substance as a solid, liquid or gas.	C - TG: Sec4.L1-17 CT - TG: Sec4.L1-17 SL - TG: Sec4.L1-17
3. The student will know that solids have a definite shape and that liquids take the shape of their container.	CT - TG: Sec4.L1-4, 13 SL - TG: Sec4.L1-4, 6, 12, 17
4. The student will observe that water can be a solid or liquid and can change from one state to the other.	C - TG: Sec4.L1-3, 17 CT - TG: Sec4.L4-5, 15-16 SL - TG: Sec4.L9-10 W - TG: Sec4.L11 (<i>change from one state to the other only</i>)
<i>D. Motion</i>	
The student will know that objects move in various ways.	
1. The student will observe and describe how objects move in a variety of ways, including, but not limited to, a straight line, a curve, a circle, back and forth and at different speeds.	BW - TG: Sec4.L1-7, 10, 13-17 S - TG: Sec4.L12 SL - TG: Sec4.L3-4, 13-14 W - TG: Sec4.L5, 7, 10, 15
2. The student will observe that push and pull forces can make objects move.	<i>Compatible with SL</i> - TG: Sec4.L3-4, 12-13

III. EARTH AND SPACE SCIENCE	
<i>A. Earth Structure and Processes</i> The student will recognize basic Earth materials.	
1. The student will observe and describe rocks, soils, water and air.	O - TG: Sec4.L1-17 PGD - TG: Sec4.L1, 3, 5, 17 RM - TG: Sec4.L1-17 S - TG: Sec4.L1-17 SL - TG: Sec4.L10 (<i>extension only</i>) W - TG: Sec4.L4, 8, 10-11 (<i>air and water only</i>)
IV. LIFE SCIENCE	
<i>B. Diversity of Organisms</i> The student will recognize that plants and animals have life cycles.	
1. The student will describe life cycles of plants and animals.	LCB - TG: Sec4.L1-15 O - TG: Sec4.L1, 6-12, 17 PGD - TG: Sec4.L6-7, 12, 16, Appendix B
<i>C. Interdependence of Life</i> The student will understand that organisms live in different environments.	
1. The student will observe and describe some features of plants and animals that allow them to live in specific environments.	LCB - TG: Sec4.L1-12, 15 O - TG: Sec4.L7-10, 12, 14-16 PGD - TG: Sec4.L2-11 S - TG: Sec4.L9-10, 13
<i>E. Biological Populations Change Over Time</i> The student will understand that biological populations change over time.	
1. The student will know that some kinds of organisms that once lived on Earth are now extinct, including, but not limited to, dinosaurs, trilobites, mammoths, giant tree ferns and horsetail trees.	RM - TG: Sec4.L2 (<i>extension activity</i>)
<i>F. Flow of Matter and Energy</i> The student will investigate feeding relationships among organisms.	
1. The student will observe and describe predator and prey relationships.	
2. The student will compare and contrast plant eaters and meat eaters.	
<i>G. Human Organism</i> The student will recognize that people have basic needs.	
1. The student will know that people need water, food, air, waste removal and a particular range of temperature in their environment, just like other animals.	LCB - TG: Sec4.L14 O - TG: Sec4.L16
GRADE 3	CURRICULUM LOCATION
I. HISTORY AND NATURE OF SCIENCE	
<i>A. Scientific World View</i> The student will understand the use of science as a tool to examine the natural world.	

<p>1. The student will explore the use of science as a tool that can help investigate and answer questions about the environment.</p>	<p>AS - TG: Sec4.L1-17 AS RB: all readings BW - TG: Sec4.L1-17 C - TG: Sec4.L1-17 CT - TG: Sec4.L1-17 EC - TG: Sec4.L1-17 EC RB: (pp7-10, 11-12, 13-16, 17-21, 24-28, 39-41, 47-49, 50-52, 53-55) LCB - TG: Sec4.L1-16 LW - TG: Sec4.L1-17 LW RB: (pp7-9, 10-11, 12-14, 15-18, 21-25, 26-29, 32-35, 36-38, 41-44, 47-49, 50-52, 53-56) MD - TG: Sec4.L1-17 MD RB: (pp7-9, 12-13, 14-17, 20-22, 23-28, 29-31, 32-36, 44-46, 52-53, 58-61) PGD - TG: Sec4.L1-17 RM - TG: Sec4.L1-17 S - TG: Sec4.L1-17 So - TG: Sec4.L1-17</p>
<p><i>B. Scientific Inquiry</i> The student will understand the nature of scientific investigations.</p>	
<p>1. The student will ask questions about the natural world that can be investigated scientifically.</p>	<p>AS - TG: Sec4.L1-17 BW - TG: Sec4.L1-17 C - TG: Sec4.L1-17 CT - TG: Sec4.L1-17 EC - TG: Sec4.L1-17 LCB - TG: Sec4.L1-16 LW - TG: Sec4.L1-17 MD - TG: Sec4.L1-17 PGD - TG: Sec4.L1-17 RM - TG: Sec4.L1-17 S - TG: Sec4.L1-17 So - TG: Sec4.L1-17</p>
<p>2. The student will participate in a scientific investigation using appropriate tools.</p>	<p>AS - TG: Sec4.L1-17 BW - TG: Sec4.L1-17 C - TG: Sec4.L1-17 CT - TG: Sec4.L1-17 EC - TG: Sec4.L1-17 EC RB: (pp13-16) LCB - TG: Sec4.L1-16 LW - TG: Sec4.L1-17 MD - TG: Sec4.L1-17 MD RB: (pp23-28) PGD - TG: Sec4.L1-17 RM - TG: Sec4.L1-17 S - TG: Sec4.L1-17 So - TG: Sec4.L1-17</p>

<p>3. The student will know that scientists use different kinds of investigations depending on the questions they are trying to answer.</p>	<p><i>Compatible with:</i> AS - TG: Sec4.L2-16 AS RB: (pp26-29, 38-39, 45-48, 50-52, 56-57, 58-61) BW - TG: Sec4.L2-16 C - TG: Sec4.L2-16 CT - TG: Sec4.L2-16 EC - TG: Sec4.L2-16 EC RB: (pp7-10, 11-12, 13-16, 17-21) LCB - TG: Sec4.L2-15 LW - TG: Sec4.L2-16 LW RB: (pp7-9, 32-35) MD - TG: Sec4.L2-16 MD RB: (pp20-22, 23-28) PGD - TG: Sec4.L2-16 RM - TG: Sec4.L2-16 S - TG: Sec4.L2-16 So - TG: Sec4.L2-16</p>
<p>II. PHYSICAL SCIENCE</p>	
<p><i>C. Energy Transformation</i> The student will explore the characteristics and properties of sound and light.</p>	
<p>1. The student will investigate how sounds are made when objects vibrate.</p>	<p>So - TG: Sec4.L1-16</p>
<p>2. The student will know that light tends to maintain its direction of motion until it is absorbed, refracted, or reflected by an object.</p>	<p>RM - TG: Sec4.L8-9</p>
<p>III. EARTH AND SPACE SCIENCE</p>	
<p><i>B. The Water Cycle, Weather and Climate</i> The student will investigate weather conditions.</p>	
<p>1. The student will measure, record, and describe weather conditions using common instruments.</p>	
<p>2. The student will identify cumulus, cirrus and stratus clouds.</p>	
<p><i>C. The Universe</i> The student will understand the characteristics and relationships of objects in the solar system.</p>	
<p>1. The student will recognize the difference between rotation and revolution and their connection to day, night, seasons and the year.</p>	
<p>2. The student will identify the planets in the solar system and their relative sizes, distances and basic characteristics.</p>	
<p>3. The student will observe that the sun supplies heat and light to the Earth.</p>	<p>LW - TG: Sec4.L2</p>
<p>4. The student will know that planets look like stars, but over time they move differently than stars.</p>	
<p>IV. LIFE SCIENCE</p>	
<p><i>B. Diversity of Organisms</i> The student will recognize that plants and animals have different structures that serve various functions.</p>	

1. The student will describe the structures that serve different functions in growth, survival and reproduction for plants and animals.	AS - TG: Sec4.L1-16 AS RB: (pp6-8, 16-19, 30-32, 40-42) LCB - TG: Sec4.L1-12, 15 MD RB: (pp14-17) PGD - TG: Sec4.L1-7, 9-13, 16 S - TG: Sec4.L9-10, 13-14, 16
2. The student will know that plants have different structures from animals that serve the same necessary functions in growth, survival and reproduction.	AS - TG: Sec4.L1-15 LCB - TG: Sec4.L2 LW - TG: Sec4.L14 PGD - TG: Sec4.L1-7, 10, 12-13, 16 S - TG: Sec4.L1-2, 9-10, 16
<i>C. Interdependence of Life</i> The student will understand that an organism's patterns of behavior are related to the nature of its environment.	
1. The student will know that organisms interact with one another in various ways besides providing food.	AS - TG: Sec4.L2-4, 6, 8-9, 15 AS RB: (pp6-8, 30-32) LW - TG: Sec4.L14 PGD - TG: Sec4.L8-9, 11, 14
2. The student will know that changes in a habitat can be beneficial or harmful to an organism.	AS - TG: Sec4.L10-13, 15 AS RB: (pp38-39, 40-42) LCB - TG: Sec4.L3, 12 LW - TG: Sec4.L1, 6, 12, 14-17 PGD - TG: Sec4.L1-7, 10-12, 16-17 S - TG: Sec4.L2, 10, 13
<i>D. Heredity</i> The student will understand that many characteristics of an organism are inherited from its parents, but that other characteristics result from an individual's interactions with the environment.	
1. The student will observe and differentiate between characteristics of organisms that are inherited and characteristics that are acquired.	AS - TG: Sec4.L10 (<i>extension only</i>)
2. The student will identify similarities and differences between parent and offspring.	AS - TG: Sec4.L3, 5-8, 13 LCB - TG: Sec4.L1, 3, 12, 15, 17 PGD - TG: Sec4.L1-12, 16-17

GRADE 4	CURRICULUM LOCATION
I. HISTORY AND NATURE OF SCIENCE	
<i>A. Scientific World View</i> The student will understand how science is used to investigate interactions between people and the natural world.	
1. The student will explore the uses and effects of science in our interaction with the natural world.	AS - TG: Sec4.L1-17 AS RB: (pp21-29, 35-39, 49, 53-55) CT - TG: Sec4.L1-17 E - TG: Sec4.L1-17 E RB: (pp14-16, 17-19, 26-27, 28-30, 31-34, 40-42, 45-48, 49-51, 57-59, 60-61) EC - TG: Sec4.L1-17 EC RB: (pp7-10, 11-12, 13-16, 17-21,

	<p>36, 60-61) FC - TG: Sec4.L1-17 FC RB: (pp7-9, 11-12, 15-18, 21-23, 26-30, 36-39, 44-46) FS - TG: Sec4.L1-17 FS RB: (pp7-10, 18-21, 22-23, 24-26, 36-40, 41-42, 43-45) LW - TG: Sec4.L1-17 LW RB: (pp7-9, 10-11, 12-14, 21-25, 26-29, 32-35, 36-38, 50-52, 53-56, 59-61) M - TG: Sec4.L1-17 M RB: (pp23-25) MD - TG: Sec4.L1-17 MD RB: (pp20-25, 29-33, 37-46, 49-50, 52-53, 57-61) PGD - TG: Sec4.L1-17 RM - TG: Sec4.L1-17 So - TG: Sec4.L1-17</p>
<p>2. The student will discuss the responsible use of science.</p>	<p><i>Compatible with:</i> AS - TG: Sec4.L1-17 AS RB: (pp21-29, 35-39, 49, 53-55) CT - TG: Sec4.L1-17 E - TG: Sec4.L1-17 EC RB: (pp7-21, 36, 60-61) FC - TG: Sec4.L1-17 FC RB: (pp36-39, 41-43) FS - TG: Sec4.L1-17 FS RB: (pp22-23, 24-26, 29-30, 41-42) LW - TG: Sec4.L1-17 LW RB: (pp53-56) M - TG: Sec4.L1-17 MD - TG: Sec4.L1-17 MD RB: (pp20-25, 29-33, 37-46, 49-50, 52-53, 57-61) PGD - TG: Sec4.L1-17 RM - TG: Sec4.L1-17 So - TG: Sec4.L1-17</p>
<p>3. The student will recognize the impact of scientific and technological activities on the natural world.</p>	<p>AS - TG: Sec4.L5-7, 9-10, 15 AS RB: (pp21-29, 38-61) E RB: (pp45-48, 49-51, 57-59, 60-61) EC - TG: Sec4.L1-2, 13, 15-16 EC RB: (pp7-21, 36, 60-61) FC - TG: Sec4.L2, 9-10, 14-16 FC RB: (pp15-18, 26-30, 36-39, 44-46, 55-57) FS - TG: Sec4.L7, 10, 15 FS RB: (pp7-10, 22-23, 24-26, 29-30) LW - TG: Sec4.L2, 4, 6-7, 12, 15-16 LW RB: (pp26-29, 32-35, 53-56, 59-61)</p>

	<p>M - TG: Sec4.L4-5, 7, 10 M RB: (pp7-9, 10-12, 16-19, 20-22, 56-57, 58-61) MD - TG: Sec4.L2, 5, 14 MD RB: (pp20-25, 29-33, 37-46, 49-50, 52-53, 57-61) PGD - TG: L3 RM - TG: L11</p>
<p><i>B. Scientific Inquiry</i> The student will participate in a controlled scientific investigation.</p>	
<p>1. The student will recognize when comparisons might not be fair because some conditions are not kept the same.</p>	<p><i>This objective is compatible with all STC units.</i></p>
<p>2. The student will collect, organize, analyze and present data from a controlled experiment.</p>	<p>AS - TG: Sec4.L10, 16 CT - TG: Sec4.L2-16 E RB: (pp43-44) EC - TG: Sec4.L2-9, 11-16 EC RB: (pp15-16, 60-61) FC - TG: Sec4.L1-14, 16-17 FS - TG: Sec4.L2-16 LW - TG: Sec4.L4, 10 M - TG: Sec4.L1, 3-17 MD - TG: Sec4.L3-4, 6-12, 14-16 MD RB: (pp60-61) PGD - TG: Sec4.L3-4, 11, 16 RM - TG: Sec4.L2-16 So - TG: Sec4.L1-17</p>
<p>3. The student will recognize that evidence and logic are necessary to support scientific understandings.</p>	<p><i>This objective is compatible with all STC units.</i> AS - TG: Sec4.L1-17 AS RB: (pp21-25, 38-39, 40-42, 45-48, 50-52, 53-55, 56-57, 58-61) CT - TG: Sec4.L1-17 E - TG: Sec4.L1-17 E RB: (pp60-61) EC - TG: Sec4.L1-17 EC RB: (pp60-61) FC - TG: Sec4.L1-17 FS - TG: Sec4.L1-17 FS RB: (pp7-10, 22-23, 24-26, 29-30) LW - TG: Sec4.L1-17 M - TG: Sec4.L1-17 MD - TG: Sec4.L1-17 MD RB: (pp12-13, 20-22, 23-28, 29-31, 32-36, 52-53, 58-61) PGD - TG: Sec4.L1-17 RM - TG: Sec4.L1-17 So - TG: Sec4.L1-17</p>

II. PHYSICAL SCIENCE	
<i>A. Structure of Matter</i> The student will know that heating and cooling may cause changes to the properties of a substance.	
1. The student will observe that heating and cooling can causes changes in state.	CT - TG: Sec4.L6, 10
2. The student will describe the changes in the properties of a substance when it is heated or cooled.	CT - TG: Sec4.L6, 10
3. The student will compare and contrast the mass, shape and volume of solids, liquids and gases.	CT - TG: Sec4.L1-17 RM - TG: Sec4.L6-14
<i>C. Energy Transformations</i> The student will understand basic electricity and its application in everyday life.	
1. The student will explore simple electrical circuits using components such as wires, batteries and bulbs.	EC - TG: Sec4.L1-17
2. The student will investigate static electricity.	EC RB: (pp60-61)
3. The student will identify objects and materials that conduct electricity and those that are insulators.	EC - TG: Sec4.L7 EC RB: (pp47-58)
<i>E. Forces of Nature</i> The student will understand that a relationship exists between electricity and magnetism.	
1. The student will demonstrate how a wire and magnet can be used to generate an electric current.	EC - TG: Sec4.L2, 4, 16 (<i>magnet not included</i>)
2. The student will demonstrate how an electric current can make an iron object magnetic.	
III. EARTH AND SPACE SCIENCE	
<i>A. Earth Structure and Processes</i> The student will investigate the impact humans have on the environment.	
1. The student will identify and investigate environmental issues and potential solutions.	E - TG: Sec4.L1, 7, 9, 11, 13-15, 17 E RB: (pp60-61) LW - TG: Sec4.L6-7, 12, 14, 16 LW RB: (pp32-35, 36-38)
<i>B. The Water Cycle, Weather and Climate</i> The student will recognize that water on Earth cycles and exists in many forms.	
1. The student will describe the water cycle involving the processes of evaporation, condensation, precipitation and collection.	LW - TG: Sec4.L11-12
2. The student will identify where water exists on Earth.	LW - TG: Sec4.L3-4, 6 LW RB: (pp21-31, 50-52)
<i>C. The Universe</i> The student will identify the patterns and movements of celestial objects.	
1. The student will recognize that the stars in the sky appear to slowly move from east to west.	
2. The student will identify the sun as an average-sized star and that the other stars are so far away that they look like points of light.	

3. The student will know that telescopes magnify distant objects in the sky and dramatically increase the number of stars we can see.	
IV. LIFE SCIENCE	
<i>A. Cells</i> The student will know that all organisms are composed of cells, which are the fundamental units of life.	
1. The student will recognize that cells are very small, and that all living things consist of one or more cells.	M - TG: Sec4.L11-16
2. The student will recognize that cells need: food, water and air, a way to dispose of waste, and an environment in which they can live.	M - TG: Sec4.L12-14 (<i>food and environment only</i>)
<i>B. Diversity of Organisms</i> The student will know that living things can be sorted into groups in many ways according to their varied characteristics, structures and behaviors.	
1. The student will classify plants and animals according to their physical characteristics.	AS - TG: Sec4.L1-5, 8 AS RB: (pp6-8) E - TG: Sec4.L3-6, 14, Appendix A E RB: (pp11-13) PGD - TG: Sec4.L1, 3, 10, 13, 17 (<i>plants only</i>)
2. The student will learn that the characteristics used for grouping depend on the purpose of the grouping.	AS - TG: Sec4.L1-10, 13-16 AS RB: (pp6-8) E - TG: Sec4.L3-6, 14, Appendix A E RB: (pp11-13)
<i>G. Human Organism</i> The student will know the structures that serve various functions in the human body, including protection from disease.	
1. The student will understand that humans have structures that serve functions in growth, survival and reproduction.	AS - TG: Sec4.L11, 13 FC - TG: Sec4.L1, 5, 8, 14
2. The student will know that germs entering the body can cause disease, and that the body has defenses against these germs.	
3. The student will know that there are many diseases that can be prevented by vaccination.	M RB: (pp56-57)

GRADE 5	CURRICULUM LOCATION
I. HISTORY AND NATURE OF SCIENCE	
<i>A. Scientific World View</i> The student will understand that communication is essential to science.	
1. The student will know that current scientific knowledge and understanding guide scientific investigation.	AS - TG: Sec4.L1-17 AS RB: (pp26-29, 38-39, 53-55) E - TG: Sec4.L1-17 E RB: (pp60-61) EC - TG: Sec4.L1-17 FC - TG: Sec4.L1-17 FC RB: (pp15-18) FS - TG: Sec4.L1-17

	FS RB: (pp31-33, 41-42, 43-45) M - TG: Sec4.L1-17 MD - TG: Sec4.L1-17 MD RB: (pp29-31, 32-36, 52-53, 58-61)
2. The student will recognize that clear communication of methods, findings and critical review is an essential part of doing science.	AS - TG: Sec4.L1-17 AS RB: (pp26-29, 38-39, 40-42, 45-48, 50-52, 56-57, 58-61) E - TG: Sec4.L1-17 <i>Compatible with E RB: (pp60-61)</i> EC - TG: Sec4.L1-17 FC - TG: Sec4.L1-17 FS - TG: Sec4.L1-17 M - TG: Sec4.L1-17 MD - TG: Sec4.L1-17
<i>B. Scientific Inquiry</i> The student will understand the process of scientific investigations.	
1. The student will perform a controlled experiment using a specific step-by-step procedure and present conclusions supported by the evidence.	AS - TG: Sec4.L10 E - TG: Sec4.L8, 10-16 E RB: (pp43-44) EC - TG: Sec4.L2-9, 11-16 EC RB: (pp15-16, 60-61) FC - TG: Sec4.L1-14, 16-17 FS - TG: Sec4.L2-16 LW - TG: Sec4.L4, 10 M - TG: Sec4.L1, 3-17 MD - TG: Sec4.L3-4, 6-12, 15 MD RB: (pp23-28)
2. The student will observe that when a science investigation or experiment is repeated, a similar result is expected.	<i>This objective is compatible with all STC units.</i> AS - TG: Sec4.L4-15 E - TG: Sec4.L8, 10-16 EC - TG: Sec4.L1-17 EC RB: (pp60-61) FC - TG: Sec4.L3-16 FS - TG: Sec4.L2-16 LW - TG: Sec4.L2-16 M - TG: Sec4.L3-16 MD - TG: Sec4.L3-4, 6-12, 15 MD RB: (pp23-28)
<i>C. Scientific Enterprise</i> The student will recognize that science and technology involve different kinds of work and engages men and women of all backgrounds.	
1. The student will describe different kinds of work done in science and technology.	AS - TG: Sec4.L5 AS RB: (pp26-29, 38-39, 45-52, 56-61) E - TG: L14-15 E RB: (pp20, 35-37, 54-56, 57-59, 60-

	<p>61) EC - TG: Sec4.L1, 17 EC RB: (pp7-10, 11-12, 13-16, 17-21, 50-52, 56-59) FC - TG: Sec4.L15 FC RB: (pp15-18, 21-23, 36-39, 41-43, 44-46, 55-57) FS - TG: Sec4.L10, 15 FS RB: (pp18-21, 22-23, 24-26, 41-42, 43-45) LW - TG: Sec4.L6-7, 12 LW RB: (pp32-35, 59-61) M - TG: Sec4.L5, 10 M RB: (pp7-9, 10-12, 16-19, 20-22, 56-57, 58-61) MD - TG: Sec4.L1, 5 MD RB: (pp12-13, 20-22, 23-28, 29-31, 32-36, 44-46, 54-57, 58-61)</p>
<p>2. The student will identify men and women of various backgrounds and ages who have been involved in science and technology, both past and present.</p>	<p>AS RB: (pp35-37, 45-48, 50-52) E RB: (pp35-37, 54-56, 57-59, 60-61) EC - TG: Sec4.L1, 17 EC RB: (pp7-10, 11-12, 13-16, 17-21, 39-41, 42-44, 56-59) FC - TG: Sec4.L15 FC RB: (pp15-18, 21-23, 31-33, 36-39, 44-46, 49-50, 55-57) FS - TG: Sec4.L10, 15 FS RB: (pp7-10, 22-23, 24-26, 29-30, 41-41, 43-45) LW - TG: Sec4.L16 LW RB: (pp7-9, 15-16, 32-35, 41-44, 45-46, 59-61) M - TG: Sec4.L5, 10 M RB: (pp7-9, 56-57, 58-61) MD - TG: Sec4.L1, 17 MD RB: (pp7-9, 20-22, 23-28, 29-31, 32-36, 41-43, 52-53)</p>
II. PHYSICAL SCIENCE	
<i>D. Motion</i>	
The student will understand that changes in speed or direction of motion are caused by forces.	
<p>1. The student will investigate the use of a lever, inclined plane and wheel and axle to move objects.</p>	<p>MD - TG: Sec4.L6-10 (<i>axle only</i>) MD RB: (pp32-36) (<i>wheel and axle only</i>)</p>
<p>2. The student will demonstrate that the greater the force applied, the greater the change in motion.</p>	<p>FS - TG: Sec4.L8-9 14 MD - TG: Sec4.L1, 3-8, 10-12, 14-17</p>
III. EARTH AND SPACE SCIENCE	
<i>A. Earth Structure and Processes</i>	
The student will explore the structures and functions of Earth systems.	

1. The student will recognize the natural processes that cause rocks to break down into smaller pieces and eventually into soil.	LW - TG: Sec4.L15
2. The student will investigate the formation, composition and properties of soil.	LW - TG: Sec4. L1-2, 5-7, 12, 14
3. The student will describe how waves, wind, water and ice shape and reshape the Earth's surface.	LW - TG: Sec4.L4, 7-8, 10-13, 15-16 LW RB: (pp50-52)
4. The student will describe the impact of floods, tornadoes, earthquakes and volcanoes on the Earth.	LW - TG: Sec4.L12, 16 (<i>floods only</i>) LW RB: (pp10-14) (<i>earthquakes and volcanoes only</i>)
5. The student will explore the interaction of the lithosphere, atmosphere, biosphere, hydrosphere and space.	
IV. LIFE SCIENCE	
<i>E. Biological Populations Change Over Time</i>	
The student will know that biological populations change over time.	
1. The student will recognize that individuals of the same species differ in their characteristics and that sometimes the differences give individuals an advantage in surviving and reproducing.	AS - TG: Sec4.L1-5, 8 E - TG: Sec4.L3-4, 6, Appendix A
2. The student will recognize that extinction of a species occurs when the environment changes and the adaptive characteristics of a species are insufficient to allow its survival.	AS RB: (pp40-42) E - TG: Sec4.L8-9, 14-16 E RB: (pp11-13, 20-23, 28-30, 35-37)
3. The student will compare the structure of fossils to one another and to living organisms.	E RB: (pp20-23)
<i>F. Flow of Matter and Energy</i>	
The student will know that matter and energy flow into, out of, and within a biological system.	
1. The student will recognize that organisms need energy to stay alive and grow, and that this energy originates from the sun.	AS - TG: Sec4.L1-15 E - TG: Sec4.L3-4, 6, Appendix A FC - TG: Sec4.L1, 8 (<i>sun not included</i>) FC RB: (pp7-9)
2. The student will use food webs to describe the relationships among producers, consumers, and decomposers in an ecosystem in Minnesota.	E - TG: Sec4.L6-7 (<i>Minnesota not included</i>) E RB: (pp14) (<i>Minnesota not included</i>)
3. The student will recognize that organisms are growing, dying and decaying, and that their matter is recycled.	AS - TG: Sec4.L3-10, 12-16 (<i>matter is recycled not included</i>) AS RB: (pp38-42) (<i>matter is recycled not included</i>) E - TG: Sec4.L3-6, Appendix A E RB: (pp14-19, 28-30, 35-37, 60-61) (<i>matter is recycled not included</i>)

GRADE 6	CURRICULUM LOCATION
I. HISTORY AND NATURE OF SCIENCE	
<i>A. Scientific World View</i>	
The student will understand that science is a way of knowing about the world that is characterized by empirical criteria, logical argument and skeptical review.	

1. The student will distinguish between scientific evidence and personal opinion.	<i>Compatible with:</i> EMM - TG: L1-22 L - TG: L1-26 PM - TG: L1-26
2. The student will explain why scientists often repeat investigations to be sure of the results.	<i>Compatible with:</i> EMM - TG: L1-22 L - TG: L1-26 PM - TG: L1-26
3. The student will recognize that scientists assume that the laws of nature are the same everywhere and that they are understandable and predictable.	<i>Compatible with:</i> EMM - TG: L1-22 L - TG: L1-26 PM - TG: L1-26
4. The student will define scientific facts, laws and theories.	<i>Compatible with all STC/MS units</i>
B. Scientific Inquiry The student will understand that scientific inquiry is used in systematic ways to investigate the natural world.	
1. The student will identify questions that can be answered through scientific investigation and those that cannot.	<i>Compatible with:</i> EMM - TG: L1-22 L - TG: L1-26 PM - TG: L1-26
2. The student will distinguish among observation, prediction and inference.	<i>Compatible with:</i> EMM - TG: L1-22) L - TG: L1-26 PM - TG: L1-26
3. The student will use appropriate tools and Système International (SI) units for measuring length, time, mass, volume and temperature with suitable precision and accuracy.	EMM - TG: L8, 11-15, 19, 21 L - TG: L4-5, 7, 9-10, 13-15, 17-20, 22 PM - TG: L2, 9, 17, 19, 22, 26
4. The student will present and explain data and findings from controlled experiments using multiple representations including tables, graphs, physical models and demonstrations.	EMM - TG: L1, 3-4, 8, 13, 15, 18-22 L - TG: L7, 9, 19-21, 25 PM - TG: L5-8, 12, 14, 20-26
C. Scientific Enterprise The student will know that science and technology are human efforts that both influence and are influenced by society.	
1. The student will describe the types of questions asked, the products, and the methods of investigation used to distinguish science from technology.	EMM - TG: L16 L - TG: L11
2. The student will explain why scientists may work in teams or work alone, can collaborate and, at times, compete.	<i>Compatible with:</i> EMM - TG: L1, 5, 15, 18-19 L - TG: L1, 3, 9, 19, 23 PM - TG: L2, 5, 22, 25
II. PHYSICAL SCIENCE	
A. Structure of Matter The student will understand that matter is made of small particles and this explains the properties of matter.	
1. The student will know that there are more than 100 different elements with unique properties.	PM - TG: L11-26

2. The student will use evidence to explain that matter is made of small particles called atoms or molecules which are too small to see.	PM - TG: L7-8, 12, 14
3. The student will know that the mass of a substance remains constant whether it is together, in parts or in a different state.	PM - TG: L8, 25
4. The student will describe the states of matter in terms of the space between particles.	
5. The student will distinguish between volume, mass and density.	PM - TG: L1-9
6. The student will use the characteristic properties of density, melting point, boiling point and solubility to identify and distinguish mixtures and pure substances.	PM - TG: L1-19
7. The student will know that atoms are the smallest unit of an element that maintains the characteristics of the element.	
<i>B. Chemical Reactions</i> The student will differentiate between chemical and physical changes.	
1. The student will define chemical and physical changes.	PM - TG: L6-9, 22-26
2. The student will observe that substances react chemically with other substances to form new substances with different characteristic properties.	PM - TG: L6-9, 22-26
3. The student will give examples and classify substances as mixtures or pure substances.	PM - TG: L11, 19
<i>C. Energy Transformations</i> The student will understand that energy exists in many forms and can be transferred in many ways.	
1. The student will compare and contrast heat, chemical, mechanical and electrical energy and identify transformations of energy from one form to another in everyday situations.	EMM - TG: L1-5, 7, 9-13, 15-16, 18-19, 21 L - TG: L2 (<i>identify transformations of energy from one form to another in everyday situations only</i>) PM - TG: L5-8, 20
2. The student will recognize that heat is transferred by convection, conduction and radiation from warmer objects to cooler ones until both reach the same temperature.	PM - TG: L5
3. The student will demonstrate that visible light from the sun or reflected by objects may be made up of a mixture of many different colors of light.	L - TG: L8-9, 11-12
4. The student will recognize the relationship between light and heat	L - TG: L9, 19
5. The student will describe waves in terms of speed, frequency and wave length.	L - TG: L9
6. The student will recognize that vibrations such as sound and earthquakes move in waves and that waves move at different speeds in different materials.	
<i>D. Motion</i> The student will describe the motion of objects.	
1. The student will use a frame of reference to describe the position, speed, and acceleration of an object.	EMM - TG: L18-19, 21 L - TG: L3 (<i>speed only</i>)

2. The student will measure and graph the positions and speed of an object.	EMM - TG: L18-19, 21
3. The student will recognize that unbalanced forces acting on an object change the object's speed and/or direction.	EMM - TG: L18
<i>E. Forces of Nature</i> The student will understand that a variety of forces govern the structure and motion of objects in the universe.	
1. The student will know that electric currents and magnets can exert a force on certain objects and each other.	EMM - TG: L8
2. The student will know that there are positive and negative charges and that like charges repel one another and opposite charges attract.	EMM - TG: L3

GRADE 7	CURRICULUM LOCATION
I. HISTORY AND NATURE OF SCIENCE	
<i>A. Scientific World View</i> The student will understand that science is a way of knowing about the world that is characterized by empirical criteria, logical argument and skeptical review.	
1. The student will recognize how scientific knowledge is subject to change as new evidence becomes available, or as new theories cause scientists to look at old observations differently.	<i>Compatible with:</i> HBS - TG: L9 OMM - TG: L13
2. The student will explain natural phenomena by using appropriate physical, conceptual and mathematical models.	HBS - TG: L6, 12, 17 OMM - TG: L8, 10
<i>B. Scientific Inquiry</i> The student will design and conduct scientific investigations.	
1. The student will formulate a testable hypothesis based on prior knowledge.	HBS - TG: L1-23 OMM - TG: L1-20
2. The student will recognize that a variable is a condition that may influence the outcome of an investigation and know the importance of manipulating one variable at a time.	HBS - TG: L1-23 OMM - TG: L1-20
3. The student will write a specific step-by-step procedure for a scientific investigation.	HBS - TG: L9 OMM - TG: L13-15
4. The student will explain how classroom scientific investigations relate to established scientific principles.	HBS - TG: L1-23 OMM - TG: L1-20
<i>C. Scientific Enterprise</i> The student will know that science and technology are human efforts that both influence, and are influenced by, society.	
1. The student will give examples of the development of technology influencing scientific knowledge, and investigation and scientific knowledge influencing the development of technology.	HBS - TG: L9 OMM - TG: L5, 18-19
<i>D. Historic Perspectives</i> The student will understand how scientific discovery, culture, societal norms and technology have influenced one another in different time periods.	
1. The student will cite examples of individuals throughout history who made discoveries and contributions in science and technology.	HBS - TG: L9 OMM - TG: L5, 11, 13, 15, 19-20

2. The student will cite examples of how culture influences scientific and technological advances.	<i>Compatible with:</i> HBS - TG: L12, 17, 20, 22 OMM - TG: L11, 20
IV. LIFE SCIENCE	
<i>A. Cells</i> The student will understand that all organisms are composed of cells that carry on the many functions needed to sustain life.	
1. The student will know that cells are the fundamental units of life	OMM - TG: L7
2. The student will distinguish between single-cellular and multi-cellular organisms.	OMM - TG: L7
3. The student will distinguish between plant and animal cells.	OMM - TG: L7
4. The student will recognize that cells repeatedly divide for growth and repair.	OMM - TG: L8-9
5. The student will recognize that cells convert energy from food for the production of molecules necessary for life, and for life processes including cell growth and cell division.	OMM - TG: L7
6. The student will recognize that specialized cells in multi-cellular organisms perform specialized functions.	OMM - TG: L8
<i>B. Diversity of Organisms</i> The student will understand that living systems, at every level of organization, demonstrate the complementary nature of structure and function.	
1. The student will explain that individuals are composed of specialized cells, tissues, organs and organ systems that perform specialized functions.	HBS - TG: L1-2, 4-8, 10, 12, 14, 17-20, 22-23
2. The student will recognize that an organism's body plan and its ability to regulate its internal environment enable it to make or find food, grow and reproduce in a constantly changing environment.	HBS - TG: L22 (<i>humans only</i>)
3. The student will recognize that behavioral responses of organisms may be determined by heredity and past experience.	OMM - TG: L19
4. The student will use and create dichotomous keys.	OMM - TG: L20
5. The student will use the characteristics of an organism to identify the kingdom to which it belongs.	OMM - TG: L14-15
<i>C. Interdependence of Life</i> The student will understand that within ecosystems, complex interactions exist between organisms and the physical environment.	
1. The student will provide examples of the potentially irreversible effects of human activity on ecosystems.	OMM - TG: L4
2. The student will define a population as all individuals of a species that exist together at a given place and time.	OMM - TG: L4
3. The student will define an ecosystem as all populations living together and the physical factors with which they interact.	OMM - TG: L4
4. The student will explain the factors that affect the number and types of organisms an ecosystem can support, including available resources, abiotic and biotic factors and disease.	OMM - TG: L4

<p><i>D. Heredity</i> The student will understand that heredity information is contained in genes which are inherited through both sexual and asexual reproduction.</p>	
1. The student will recognize that inherited traits result from information contained in genes, which are located on chromosomes of each cell.	OMM - TG: L19
2. The student will recognize that each gene carries a single unit of information and can influence more than one trait.	OMM - TG: L19
3. The student will explain how inherited traits can be determined by one or many genes.	OMM - TG: L19
4. The student will comprehend that interactions with the environment affect some inherited traits.	OMM - TG: L19
5. The student will comprehend that reproduction is essential for the continuation of a species.	OMM - TG: L3
6. The student will compare and contrast the advantages and disadvantages of sexual and asexual reproduction.	OMM - TG: L9
<p><i>E. Biological Populations Change Over Time</i> The student will understand how biological evolution provides a scientific explanation for the fossil record of ancient life forms, as well as for the striking similarities observed among the diverse species of living organisms.</p>	
1. The student will recognize extinction is a common event.	
2. The student will describe how the fossil record documents the appearance and diversification of many life forms.	
3. The student will explain how biological adaptations in structure, function and behavior enhance the reproductive success and survival of a species in a particular environment.	
4. The student will recognize that scientific evidence can be used to infer common ancestry among some organisms.	
5. The student will explain how diversity of species develops through gradual processes over generations.	
<p><i>F. Flow of Matter and Energy</i> The student will understand how the flow of energy and the recycling of matter contribute to a stable ecosystem.</p>	
1. The student will know that plants use the energy in light to make sugars out of carbon dioxide and water.	OMM - TG: L10
2. The student will explain how energy is transferred through food chains and food webs in an ecosystem.	OMM - TG: L12
3. The student will explain how the amount of useable energy available to organisms decreases as it passes through a food chain and/or food web.	<i>Compatible with OMM - TG: L12</i>
4. The student will know that the total amount of matter in a closed system remains the same as it is transferred between organisms and the physical environment even though its location or form changes.	

5. The student will compare and contrast predator/prey, parasite/host and producer/consumer/decomposer relationships.	
<i>G. Human Organism</i> The student will understand human body systems and their relationship to disease.	
1. The student will recognize that disease can be caused by genetics, infection by other organisms, exposure to environmental factors or a combination of these.	HBS - TG: L9 (<i>including a reading in the HBS student guide, pp72-75</i>)
2. The student will identify risks associated with natural, chemical and biological hazards.	OMM - TG: L6
3. The student will describe the structure and function of systems for digestion, respiration, reproduction, circulation, excretion, movement, control and coordination and for protection from disease, in the human organism.	HBS - TG: L1-2, 4-11, 15, 17-19, 23 (<i>reproduction and excretion not included</i>) OMM - TG: L1, 9, 11, 15, 19 (<i>respiration and circulation not included</i>)

GRADE 8	CURRICULUM LOCATION
I. HISTORY AND NATURE OF SCIENCE	
<i>A. Scientific World View</i> The student will understand that science is a way of knowing about the world that is characterized by empirical criteria, logical argument and skeptical review.	
1. The student will explain and give examples of how science can be used to make informed ethical decisions by identifying likely consequences of particular actions.	
2. The student will explain the development, usefulness and limitations of scientific models in the explanation and prediction of natural phenomena.	CE - TG: L3-7, 11-12, 14-15, 17 ES - TG: L2-6, 12, 14-15
<i>B. Scientific Inquiry</i> The student will understand that scientific inquiry is used by scientists to investigate the natural world in systematic ways.	
1. The student will know that scientific investigations involve the common elements of systematic observations, the careful collection of relevant evidence, logical reasoning and innovation in developing hypotheses and explanations.	CE - TG: L1-25 ES - TG: L1-22
2. The student will describe how scientists can conduct investigations in a simple system and make generalizations to more complex systems.	CE - TG: L1-25 ES - TG: L1-22
The student will use multiple skills to design and conduct scientific investigations.	
1. The student will specify variables to be changed, controlled and measured.	CE - TG: L1-25 ES - TG: L1-22
2. The student will use sufficient trials and adequate sample size to ensure reliable data.	CE - TG: L1-25 ES - TG: L1-22
3. The student will use appropriate technology and mathematics skills to access, gather, store, retrieve and organize data.	CE - TG: L1-25 ES - TG: L1-22

<p><i>C. Scientific Enterprise</i> The student will know that science and technology are human efforts that both influence and are influenced by civilizations and cultures worldwide.</p>	
<p>1. The student will evaluate the credibility and validity of scientific and technological information from various sources.</p>	<p><i>Compatible with:</i> CE - TG: L1-25 ES - TG: L1-22</p>
<p><i>D. Historic Perspectives</i> The student will understand how scientific discovery, culture, societal norms and technology have influenced one another in different time periods.</p>	
<p>1. The student will relate personal experiences in scientific investigation to the experiences of scientists throughout history.</p>	<p>CE - TG: L1-25 ES - TG: L1-22</p>
<p>2. The student will cite examples of how science and technology contributed to changes in agriculture, manufacturing, sanitation, medicine, warfare, transportation, information processing or communication.</p>	<p>CE - TG: L1, 3, 11 ES - TG: L10, 20</p>
<p>III. EARTH AND SPACE SCIENCE</p>	
<p><i>A. Earth Structure and Processes</i> The student will identify Earth's composition, structure and processes.</p>	
<p>1. The student will explain how earthquakes, volcanoes, sea-floor spreading and mountain building are evidence of the movement of crustal plates.</p>	<p>CE - TG: L14-16, 19</p>
<p>2. The student will describe how features on the Earth's surface are created and constantly changing through a combination of slow and rapid processes of weathering, erosion, sediment deposition, landslides, volcanic eruptions and earthquakes.</p>	<p>CE - TG: L25 ES - TG: L13</p>
<p>3. The student will describe the various processes and interactions of the rock cycle.</p>	<p>CE - TG: L22</p>
<p>4. The student will interpret successive layers of sedimentary rocks and their fossils to document the age and history of the Earth.</p>	<p>CE - TG: L14-15 ES - TG: L18</p>
<p>5. The student will recognize that constructive and destructive Earth processes can affect the evidence of Earth's history.</p>	<p>CE - TG: L18-19, 24 ES - TG: L13</p>
<p>6. The student will classify and identify rocks and minerals using characteristics including but not limited to density, hardness and streak.</p>	<p>CE - TG: L21-22</p>
<p>The student will investigate the impact humans have on the environment.</p>	
<p>1. The student will identify and research an environmental issue and evaluate its impact.</p>	<p>CE - TG: L7, 24</p>
<p><i>B. The Water Cycle, Weather and Climate</i> The student will investigate how the atmosphere interacts with the Earth system.</p>	
<p>1. The student will define radiation, conduction and convection and explain their effects on weather and climate.</p>	<p>CE - TG: L5 (<i>conduction not included</i>) ES - TG: L4, 7-8</p>

2. The student will identify the forces that create currents and layers in the Earth's atmosphere and water systems.	CE - TG: L3, 5
3. The student will describe the effect of Earth's rotation on the winds and ocean currents.	CE - TG: L2, 7 ES - TG: L2-3
4. The student will collect and use data to predict the weather.	CE - TG: L3-8
5. The student will identify the composition and structures of the atmosphere.	CE - TG: L3-7
6. The student will describe climate changes that have occurred over time.	CE - TG: L24 ES - TG: L19
<i>C. The Universe</i> The student will compare objects in the solar system and explain their interactions with the Earth.	
1. The student will recognize that the sun is the principal energy source for the solar system and that this energy is transferred in the form of radiation.	CE - TG: L3 ES - TG: L7
2. The student will explain how the combination of the Earth's tilted axis and revolution around the sun causes the progression of seasons and weather patterns.	CE - TG: L3
3. The student will compare and contrast the planets, taking into account their composition, mass and distance from the sun and recognize the conditions that have allowed life to flourish on Earth.	ES - TG: L7, 11, 19
4. The student will use the predictability of the motions of the Earth, and sun to explain the length of day, length of year, phases of the moon, eclipses, tides and shadows.	ES - TG: L2-6, 16
The student will describe the composition and structure of the universe.	
1. The student will recognize that the universe consists of many billions of galaxies, each containing many billions of stars and that there are vast distances that separate these galaxies and stars from one another.	ES - TG: L2
2. The student will recognize that the sun is a medium-sized star and is the closest star to Earth. It is the central and largest body in the solar system and is one of billions of stars in the Milky Way Galaxy.	ES - TG: L2, 21