

**Science Curriculum Guide  
Grade 6**

State Standards	St. Louis Park Outcomes	District-Wide, Common Assessments	Units/Topics/ Activities	Materials and Resources
<b>I. HISTORY &amp; NATURE OF SCIENCE</b> <b>B. Scientific Inquiry</b> <u>Standard:</u> The student will understand that scientific inquiry is used in systematic ways to investigate the natural world.	**Develop, design, and construct a scientific model	Ask a question and design an investigation to answer the question	FOSS kits: Models and Designs Measurement: linear measurements, mass, volume, weight, density unit  Science Fair, optional (especially for Benchmark 4)	
<b>IV. LIFE SCIENCE</b> <b>C. Interdependence of Life</b> <u>Student:</u> The student will understand that within ecosystems, complex interactions exist between organisms and the physical environment.	**Explain the relationship between plants, animals, humans and their environment	FOSS assessments:  Choose one of three	FOSS: Environments unit  <ul style="list-style-type: none"> <li>◆ define a population as all individuals of a species that exist together at a given place and time</li> <li>◆ define an ecosystem as all populations living together and the physical factors with which they interact</li> <li>◆ explain the factors that affect the number and types of organisms an ecosystem can support, including available resources, abiotic and biotic factors and disease</li> </ul>	FOSS: Environments  Environmental camp, optional  Westwood – Watershed – aquatic plants and animals (optional)  Population Connection CD – activities on carrying capacity  Human impact on the environment (website to be provided)
<b>IV. LIFE SCIENCE</b> <b>F. Flow of Matter and Energy</b> <u>Standard:</u> The student will understand how the flow of energy and the recycling of matter contribute to a stable ecosystem.	**Explain the relationship between plants, animals, humans and their environment	Picture of flow of energy/foodweb	Combine with the Environments unit <ul style="list-style-type: none"> <li>◆ Photosynthesis</li> <li>◆ Basic biome/ population vocabulary (compare and contrast predator/prey, parasite/host and producer/consumer/decomposer relationships)</li> <li>◆ Photosynthesis</li> </ul>	Hennepin County Organics Recycling program: <ul style="list-style-type: none"> <li>• Bring compost back and use to plant gardens (or families pick up)</li> <li>• Speaker</li> <li>• Field Trip</li> </ul> and Environmental Camp (optional)
<b>II. PHYSICALSCIENCE</b>	**Demonstrate an	End of module	FOSS kit	

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<p><b>A. Structure of Matter</b> <b>Standard:</b> The student will understand that matter is made of small particles and this explains the properties of matter.</p>	<p>understanding of the properties of matter and chemical and physical changes</p>	<p>assessment (choose one of three)</p>	<p>Mixtures and Solutions: three phases of matter</p>	
<p><b>II. PHYSICAL SCIENCE</b> <b>B. Chemical Reactions</b> <b>Standard:</b> The student will differentiate between chemical and physical changes.</p>	<p>**Demonstrate an understanding of the properties of matter and chemical and physical changes</p>	<p>End of module assessment (choose one of three)</p>	<p>FOSS kit Mixtures and Solutions: chemical reactions  Optional extensions: GEMS and AIMS units</p>	
<p><b>IV. LIFE SCIENCE</b> <b>A. Cells</b> <b>Standard:</b> The student will understand that all organisms are composed of cells that carry on the many functions needed to sustain life.</p>	<p>**Demonstrate an understanding that all organisms are composed of cells that carry on the many functions needed to sustain life</p>	<p>Quiz from Great Body Shop, Cells unit</p>	<p>Interactive cell unit: websites  Introduction to mitosis and meiosis (<i>leave for 8<sup>th</sup> grade</i>)</p> <ul style="list-style-type: none"> <li>◆ know that cells are the fundamental units of life</li> <li>◆ distinguish between single -cellular and multi-cellular organisms</li> <li>◆ recognize that cells repeatedly divide for growth and repair.</li> </ul> <p>Note from a JH and SH work session on June 28, 2005: JH Needs: Differentiate between plant and animal cells and know basic cell structure Mitosis and Meiosis is not necessary, given the test specifications and what 8<sup>th</sup> grade will do.</p>	<p>Great Body Shop – Cells unit  “Visualizing Cells” Poster “How Do Cells Look and Function?” kit  QX3 Computer Microscopes</p>
<p><b>IV. LIFE SCIENCE</b> <b>B. Diversity of Organisms</b> <b>Standard:</b> The student will understand that living systems, at every level of organization, demonstrate the complementary nature of structure and function.</p>	<p>**Demonstrate an understanding that all organisms are composed of cells that carry on the many functions needed to sustain life</p>	<p>Quiz from Great Body Shop, Cells unit</p>	<ul style="list-style-type: none"> <li>◆ Recognize that behavioral responses of organisms may be determined by heredity and past experience.</li> </ul>	<p>Great Body Shop – Cells unit  “Visualizing Cells” Poster “How Do Cells Look and Function?” kit</p>

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				QX3 Computer Microscopes
<b>I. HISTORY &amp; NATURE OF SCIENCE</b> <b>A. Scientific World View</b> <b>Standard:</b> 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.	No isolated outcome	No assessment	Embedded in all of the FOSS units (List of 6 <sup>th</sup> grade units):  Science Fair, for those who do it  Distinguish between scientific facts, laws, and theories	
<b>I. HISTORY &amp; NATURE OF SCIENCE</b> <b>C. Scientific Enterprise</b> <b>Standard:</b> The student will know that science and technology are human efforts that both influence and are influenced by society.	No isolated outcome	No assessment	Embedded in all of the FOSS units readings	All FOSS kits booklets
<b>IV. LIFE SCIENCE</b> <b>D. Heredity</b> <b>Student:</b> The student will understand that heredity information is contained in genes, which are inherited through both sexual and asexual reproduction.	No isolated outcome; Instruction only	No assessment	6th grade introduces the following concepts, which the JH reviews and builds depth: <ul style="list-style-type: none"> <li>◆ Sexual and asexual reproduction</li> <li>◆ Genes and chromosomes</li> <li>◆ Traits and characteristics and how these traits can be passed from generation to generation</li> <li>◆ Recognize that inherited traits result from information contained in genes, which are located on chromosomes of each cell</li> </ul>	Great Body Shop – Cells and Human Reproduction
<b>III. EARTH &amp; SPACE SCIENCE</b> <b>A. Earth Structure and Processes</b> <b>Standard:</b> The student will identify Earth's composition, structure and	No isolated outcome; instruction only, introduction	No assessment	Introductory: <ul style="list-style-type: none"> <li>• layers of the atmosphere,</li> <li>• earthquakes and volcanoes, and</li> <li>• the rock cycle</li> </ul>	Scott Foresman: <i>Earth in Space</i> and <i>The Earth and Its Neighbors</i>

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processes.				Golden Guides by Herbert Zim
<b>III. EARTH &amp; SPACE SCIENCE</b> <b>B. The Water Cycle, Weather and Climate</b> <b>Standard:</b> The student will investigate how the atmosphere interacts with the Earth system.	No isolated outcome; instruction only, introduction	No assessment	Introductory: <ul style="list-style-type: none"> <li>• water cycle,</li> <li>• weather,</li> <li>• climate</li> </ul>	Westwood – Watershed – aquatic plants and animals (optional) Scott Foresman: <i>Earth in Space</i> and <i>The Earth and Its Neighbors</i>  Golden Guides by Herbert Zim  (need to find children’s book on weather)
<b>III. EARTH &amp; SPACE SCIENCE</b> <b>C. The Universe</b> <b>Standard:</b> The student will compare objects in the solar system and explain their interactions with the Earth.	No isolated outcome; instruction only, introduction	No assessment	Relationship of sun-earth-moon	First couple of lessons of “The Moon” at the Como Planetarium website <a href="http://www.curriculum.spps.org/extended/astronomy/cvr5.htm">http://www.curriculum.spps.org/extended/astronomy/cvr5.htm</a>  Golden Guides on Planets by Herbert Zim  Scott Foresman: <i>Earth in Space</i> and <i>The Earth and Its Neighbors</i>

Websites for materials and information:

- [www.Middleschoolscience.com](http://www.Middleschoolscience.com) - general
- [www.SEEK.state.mn.us](http://www.SEEK.state.mn.us) - environmental information
- [www.uwsp/KEEP.edu](http://www.uwsp/KEEP.edu) - environmental
- [www.nasa.gov](http://www.nasa.gov) - Earth and Space sciences
- [www.usgs.gov/education](http://www.usgs.gov/education) - lesson plans, activities and projects links in Earth sciences

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<http://volcano.und.nodak.edu> - lesson plans, activities, how volcanoes work, virtual field trips

[www.wunderground.com](http://www.wunderground.com) - real-time, online delivery of current weather conditions

[www.sciencecourseware.com](http://www.sciencecourseware.com) - interactive activities and online labs about earthquakes, global warming, rivers, etc.

<http://www.unitedstreaming.com> - for cells, if purchased