

CURRICULUM MAP
SCIENCE
Grade 8

1 st Nine Weeks	2 nd Nine Weeks
<p>Scientific Inquiry</p> <p><i>1. Choose the appropriate tools or instruments and use relevant safety procedures to complete scientific investigations.</i></p> <p>2. Describe the concepts of sample size and control and explain how these affect scientific investigations.</p> <p><i>3. Read, construct and interpret data in various forms produced by self and others in both written and oral form (e.g., tables, charts, maps, graphs, diagrams and symbols).</i></p> <p>4. Apply appropriate math skills to interpret quantitative data (e.g., mean, median and mode).</p> <p>Scientific Ways of Knowing</p> <p><i>1. Identify the difference between description (e.g., observation and summary) and explanation (e.g., inference, prediction, significance and importance).</i></p> <p>2. Explain why it is important to examine data objectively and not let bias affect observations.</p> <p>Life Science</p> <p>1. Describe that asexual reproduction limits the spread of detrimental characteristics through a species and allows for genetic continuity.</p> <p>2. Recognize that in sexual reproduction new combinations of traits are produced which may increase or decrease an organism's chances for survival.</p> <p>3. Explain how variations in structure, behavior or physiology allow some organisms to enhance their reproductive success and survival in a particular environment.</p> <p><i>4. Explain that diversity of species is developed through gradual processes over many generations (e.g., fossil record).</i></p> <p>5. Investigate how an organism adapted to a particular environment may become extinct if the environment, as shown by the fossil record, changes.</p>	<p>Physical Science</p> <p><i>4. Demonstrate that waves transfer energy.</i></p> <p>5. Demonstrate that vibrations in materials may produce waves that spread away from the source in all directions (e.g., earthquake waves and sound waves).</p> <p>Earth Science</p> <p><i>11. Use models to analyze the size and shape of Earth, its surface and its interior (e.g., globes, topographic maps, satellite images).</i></p> <p><i>13. Describe how landforms are created through a combination of destructive (e.g., weathering and erosion) and constructive processes (e.g., crustal deformation, volcanic eruptions and deposition of sediment). Emphasis on “Destructive” for purposes of SCA.</i></p> <p>9. Describe the interior structure of Earth and Earth's crust as divided into tectonic plates riding on top of the slow moving currents of magma in the mantle.</p> <p>12. Explain that some processes involved in the rock cycle are directly related to thermal energy and forces in the mantle that drive plate motions.</p> <p>14. Explain that folding, faulting and uplifting can rearrange the rock layers so the youngest is not always found on top.</p> <p>15. Illustrate how the three primary types of plate boundaries (transform, divergent and convergent) cause different landforms (e.g., mountains, volcanoes and ocean trenches).</p> <p>10. Explain that most major geological events (e.g., earthquakes, volcanic eruptions, hot spots and mountain building) result from plate motion.</p> <p style="text-align: right;">9/23/09</p>

Science & Technology indicators 1, 2, 3, and 4 Scientific Inquiry indicators 1, 2,3, and 4 Scientific Ways of Knowing indicators 1, and 2 are embedded throughout the year.

Power Indicators are in italics.

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3rd Nine Weeks	4th Nine Weeks
<p>Earth and Space</p> <p><i>1. Describe how objects in the solar system are in regular and predictable motions that explain such phenomena as days, years, seasons, eclipses, tides and moon cycles</i></p> <p>2. Explain that gravitational force is the dominant force determining motions in the solar system and in particular keeps the planets in orbit around the sun.</p> <p>3. Compare the orbits and composition of comets and asteroids with that of Earth.</p> <p>4. Describe the effect that asteroids or meteoroids have when moving through space and sometimes entering planetary atmospheres (e.g., meteor-"shooting star" and meteorite).</p> <p>5. Explain that the universe consists of billions of galaxies that are classified by shape.</p> <p>6. Explain interstellar distances are measured in light years (e.g., the nearest star beyond the sun is 4.3 light years away).</p> <p><i>7. Examine the life cycle of a star and predict the next likely stage of a star.</i></p> <p>8. Name and describe tools used to study the universe (e.g., telescopes, probes, satellites and spacecraft).</p> <p><i>11. Use models to analyze the size and shape of Earth, its surface and its interior (e.g., globes, topographic maps, satellite images).</i></p>	<p>Physical Science</p> <p>1. Describe how the change in the position (motion) of an object is always judged and described in comparison to a reference point.</p> <p><i>2. Explain that motion describes the change in the position of an object (characterized by a speed and direction) as time changes.</i></p> <p>3. Explain that an unbalanced force acting on an object changes that object's speed and/or direction.</p> <p>Science and Technology</p> <p>1. Examine how science and technology have advanced through the contributions of many different people, cultures and times in history.</p> <p>2. Examine how choices regarding the use of technology are influenced by constraints caused by various unavoidable factors (e.g., geographic location, limited resources, social, political and economic considerations).</p> <p><i>3. Design and build a product or create a solution to a problem given more than two constraints (e.g., limits of cost and time for design and production, supply of materials and environmental effects).</i></p> <p>4. Evaluate the overall effectiveness of a product design or solution.</p>

9/23/09

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Science
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Embedded throughout are the following:

Science and Technology

1. Examine how science and technology have advanced through the contributions of many different people, cultures and times in history.
2. Examine how choices regarding the use of technology are influenced by constraints caused by various unavoidable factors (e.g., geographic location, limited resources, social, political and economic considerations).
3. *Design and build a product or create a solution to a problem given more than two constraints (e.g., limits of cost and time for design and production, supply of materials and environmental effects).*
4. Evaluate the overall effectiveness of a product design or solution.

Scientific Inquiry

1. *Choose the appropriate tools or instruments and use relevant safety procedures to complete scientific investigations.*
2. Describe the concepts of sample size and control and explain how these affect scientific investigations.
3. *Read, construct and interpret data in various forms produced by self and others in both written and oral form (e.g., tables, charts, maps, graphs, diagrams and symbols).*
4. Apply appropriate math skills to interpret quantitative data (e.g., mean, median and mode).

Scientific Ways of Knowing

1. *Identify the difference between description (e.g., observation and summary) and explanation (e.g., inference, prediction, significance and importance).*
2. Explain why it is important to examine data objectively and not let bias affect observations.

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