

**Science Curriculum Calendar - Grade 5**

	<b>Big Ideas</b>	<b>Unit</b>	<b>GLCE</b>	<b>Development</b> Support resources to build understanding through the use of flexible strategies.	<b>Assessments</b>
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<b>TRIMESTER I</b>	<ul style="list-style-type: none"> <li>The sun is the central and largest body in the solar system.</li> <li>The sun's warming of the Earth and tilt of the Earth on its axis have an important connection to the seasons.</li> <li>Earth's motion is the basis for measuring time.</li> <li>Objects in the sky move in regular and predictable patterns around the Sun.</li> <li>The sun, stars and constellations appear to move in predictable patterns across the sky.</li> <li>Gravity is the force that keeps the planets in orbit around the sun and controls motion in the solar system.</li> </ul>	<p><b>MEAP prep</b></p> <p><b>Unit 4: Position and Motion of Objects in the Sky</b></p> <p><b>Content Statement-</b> E.ES.M.6 Seasons-Seasons result from annual variations in the intensity of sunlight and length of day due to the tilt of the axis of the Earth relative to the plane of its yearly orbit around the sun.</p> <p><b>Content Statement-</b> E.ST.M.1 Solar system – The sun is the central and largest body in our solar system. Earth is the third planet from the sun in a system that includes other planets and their moons, as well as smaller objects, such as asteroids and comets.</p> <p><b>Content Statement-</b> E.ST.M.2 Solar System Motion – Gravity is the force that keeps most objects in the solar system in regular and predictable motion.</p> <p><b>*Engage and Explore-</b>Please see grade level packet for engagement and exploration activity.</p>	<p><b>E.ES.05.61</b> Demonstrate and explain seasons using a model.</p> <p><b>E.ES.05.62</b> Explain how the revolution of the Earth around the sun defines a year.</p> <p><b>E.ST.05.11</b> Design a model of the solar system that shows the relative distances and positions of the planets, dwarf planets, comets and asteroids to the sun.</p> <p><b>E.ST.05.21</b> Describe the motion of planets and moons in terms of rotation on axis and orbits due to gravity.</p> <p><b>E.ST.05.22</b> Explain the phases of the moon.</p> <p><b>E.ST.05.23</b> Explain the apparent motion of the stars (constellations) and the sun across the sky.</p> <p><b>E.ST.05.24</b> Explain lunar and solar eclipses.</p> <p><b>E.ST.05.25</b> Explain the tides of the oceans as they relate to the gravitational pull and orbit of the moon.</p> <p><b>*See inquiry and reflection GLCEs</b></p>	<p><u>Textbook:</u></p> <ul style="list-style-type: none"> <li>National Geographic Earth Science Chapters 1 &amp; 2</li> </ul> <p><u>Suggested Trade Books:</u></p> <ul style="list-style-type: none"> <li>The Four Seasons by Annie Jones</li> <li>Weather and Climate by Barbara</li> <li>Complete book of Seasons by Sally Tagholm</li> <li>America in Space by Steven Dick</li> <li>Our Solar System by Seymour Simon</li> <li>Don't Know Much About the Solar System by Kenneth D. Davis and Pedro Martin</li> <li>Earth, Moon, and Sun by Peter Riley</li> <li>Will the Sun Ever Burn Out by Rosalind Wiseman</li> </ul> <p><u>Websites: &amp; Video Streaming:</u></p> <ul style="list-style-type: none"> <li>myNGconnect.com</li> <li>See grade level resource packet</li> </ul> <p><u>Grade Level Resource Packet:</u></p> <ul style="list-style-type: none"> <li>See unit Position and Motion of Objects in the Sky</li> </ul>	<p><b>Formative Assessment</b></p> <ul style="list-style-type: none"> <li>Write vocabulary words and illustrations on cards with definitions on the back</li> <li>Record observations, data and conclusions in student journals</li> <li>Apply concepts of scale to an Earth-moon model.</li> <li>Demonstrate understanding through illustrations and models of the position of objects in the solar system.</li> <li>Create moon journals and illustrations of phases of the moon.</li> <li>Display models or demonstrations of eclipses and tides.</li> </ul> <p><b>Summative Assessment</b></p> <ul style="list-style-type: none"> <li>Write an essay to explain the reason for seasons based on evidence</li> <li>Create a model that explains the reason for seasons</li> <li>Create a story book for younger students that explains the seasons</li> <li>Draw a diagram of the solar system which includes the correct position of planets, dwarf planets, comets, and asteroids.</li> <li>Explain and illustrate rotation and revolution of planet and moons.</li> <li>Write a paragraph explaining how moon phases occur.</li> <li>Demonstrate a lunar and a solar eclipse with illustrations or models.</li> <li>Draw a diagram and explain how the gravitational pull of the moon causes ocean tides.</li> <li>Explain the difference between the apparent and the actual motion of the sun and stars across the sky.</li> </ul>
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<b>TRIMESTER 2</b>	<p><u>Motion:</u></p> <ul style="list-style-type: none"> <li>Forces are pushes and pulls that can be contact and non-contact forces.</li> <li>Motion is described relative to something else (point of reference).</li> <li>A change in motion is due to unbalanced forces.</li> <li>No change in motion and an object at rest are due to balanced forces.</li> <li>Every force is part of an interaction between one thing and another.</li> </ul> <p><u>Animal Systems:</u></p> <ul style="list-style-type: none"> <li>Animals' bodies are made up of various body systems that perform specific functions.</li> <li>These body systems function together and contribute to the animal's survival and well being.</li> </ul>	<p><b>Unit 1:Measuring Changes in Motion</b>  <b>Content Statement</b>-P.FM.M2 Force Interactions - Some forces between objects act when the objects are in direct contact (touching), such as friction and air resistance, or when they are not in direct contact (not touching), such as magnetic force, electrical force, and gravitational force.  <b>Content Statement</b>-P.FM.M.3 Force – Forces have a magnitude and direction. Forces can be added. The net force on an object is the sum of all of the forces acting on the object. The speed and/or direction of motion of an object changes when a non-zero net force is applied to it. A balanced force on an object does not change the motion of the object (the object either remains at rest or continues to move at a constant speed in a straight line).  <b>Content Statement</b>-P.FM.M4 Speed – Motion can be described by a change in position relative to a point of reference. The motion of an object can be described by its speed and the direction it is moving. The position and speed of an object can be measured and graphed as a function of time.</p> <p><b>*Engage and Explore</b>-Please see grade level packet for engagement and exploration activity.</p> <p><b>Unit 2:Animal Systems</b>  <b>Content Statement</b>-L.O.L.M.4 Animal Systems – Multicellular organisms may have specialized systems that perform functions that serve the needs of the organism.</p> <p><b>*Engage and Explore</b>-Please see grade level packet for engagement and exploration activity.</p>	<p><u>Motion:</u></p> <p><b>P.FM.05.21</b> Distinguish between contact forces and non-contact forces.</p> <p><b>P.FM.05.22</b> Demonstrate contact and non-contact forces to change the motion of an object.</p> <p><b>P.FM.05.31</b> Describe what happens when two forces act on an object in the same or opposing directions.</p> <p><b>P.FM.05.32</b> Describe how constant motion is the result of balanced (zero net) forces.</p> <p><b>P.FM.05.33</b> Describe how changes in the motion of objects are caused by a non-zero net (unbalanced) force.</p> <p><b>P.FM.05.34</b> Relate the size of change in motion to the strength of unbalanced forces and the mass of the object.</p> <p><b>P.FM.05.41</b> Explain the motion of an object relative to a point of reference.</p> <p><b>P.FM.05.42</b> Describe the motion of an object in terms of distance, time and direction, as the object moves, and in relationship to other objects.</p> <p><b>P.FM.05.43</b> Demonstrate how motion can be measured and represented on a graph.</p> <p><u>Animal Systems:</u></p> <p><b>L.O.L.05.41</b> Identify the general purpose of selected animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive).</p> <p><b>L.O.L.05.42</b> Explain how animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive) work together to perform selected activities.</p> <p><b>*See inquiry and reflection GLCEs</b></p>	<p><b>MOTION</b>  <u>Textbook:</u></p> <ul style="list-style-type: none"> <li>National Geographic Physical Science Chapter 3 &amp; suggested chapter 4 (for vocab.)</li> </ul> <p><u>Suggested Trade Books:</u></p> <ul style="list-style-type: none"> <li>The Magic School Bus Plays Ball: A Book About Forces (Magic School Bus Series) by Joanna Cole</li> <li>Forces and Motion by Alvin Silverstein et al</li> <li>A Crash Course in Forces and Motion with Max Axiom, Super Scientist by Emily Sohn et al</li> </ul> <p><u>Websites &amp; Video Streaming:</u></p> <ul style="list-style-type: none"> <li>myNGconnect.com</li> <li>see grade level resources packet</li> </ul> <p><u>Grade Level Resource Packet:</u></p> <ul style="list-style-type: none"> <li>See unit Measuring Changes in Motion</li> </ul> <p><b>ANIMAL SYSTEMS</b>  <u>Textbooks:</u></p> <ul style="list-style-type: none"> <li>National Geographic Life Science Chapter 5</li> </ul> <p><u>Suggested Textbook Resource:</u></p> <ul style="list-style-type: none"> <li>MI Model-phase 3</li> <li>Systems of the Human Body Milliken Transparency Book</li> </ul> <p><u>Suggested Trade Books:</u></p> <ul style="list-style-type: none"> <li>How Bodies Work: A nimal Physiology (Come Learn with me) by Bridget Anderson</li> </ul> <p><u>Websites &amp; Video Streaming:</u></p> <ul style="list-style-type: none"> <li>myNGconnect.com</li> <li>see grade level resource packet</li> </ul> <p><u>Grade Level Resource Packet:</u></p> <ul style="list-style-type: none"> <li>See unit Animal Systems</li> </ul>	<p><b>Motion:</b>  <b>Formative Assessment</b></p> <ul style="list-style-type: none"> <li>Demonstrations and explorations using magnets to change motion which would include moving a magnetic object that is at rest, repelling or attracting another magnet from distance.</li> <li>Students illustrate via graphs or number lines what it means to move regarding distance, time and direction.</li> <li>Poetry: Poetic formats such as Shape Poems, Haiku, Cinquaine, Diamonde, Limerick and Sonnet</li> <li>Quick Writes</li> <li>Design inquiry experiments using contact and non-contact forces</li> </ul> <p><b>Summative Assessment</b></p> <ul style="list-style-type: none"> <li>Poster, brochure, or PowerPoint presentation on energy transfer</li> <li>Written report on uses/benefits of alternative power</li> </ul> <p><b>Animal Systems:</b>  <b>Formative assessment</b></p> <ul style="list-style-type: none"> <li>Evaluate the accuracy of students' matching of body systems with appropriate organ/part and function.</li> <li>Explain which body systems, during exercise, are most involved and they work together.</li> </ul> <p><b>Summative assessment</b></p> <ul style="list-style-type: none"> <li>Complete a fill in the blank chart with three columns: body system, parts (organs), general purpose.</li> <li>Explain what body systems work together as you do your homework.</li> </ul>
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<b>TRIMESTER 3</b>	<ul style="list-style-type: none"> <li>• Traits are influenced by both genetics of the individual and the environment.</li> <li>• Traits can be classified as either inherited or acquired.</li> <li>• Each organism (plants and animals) have specific behavioral and physical characteristics allowing them to better survive in a given environment.</li> <li>• As environments change over time, these characteristics may change (adaptations) to allow them to continue to survive or flourish in their environment.</li> <li>• Fossils provide evidence that life forms have changed over time and were influenced by changes in environmental conditions including catastrophic events.</li> <li>• Organisms that are similar in anatomical structures are more likely to be more closely related than those whose structures are less similar to one another.</li> </ul>	<p><b>Unit 3: Evolution and Traits of Organisms</b></p> <p><b>Content Statement</b>-L.HE.M.1 Inherited and Acquired Traits – The characteristics of organisms are influenced by heredity and environment. For some characteristics, inheritance is more important; for other characteristics, interactions with the environment are more important.</p> <p><b>Content Statement</b>-L.EV.M.1 Species Adaptation and Survival – Species with certain traits are more likely than others to survive and have offspring in particular environments. When an environment changes, the advantage or disadvantage of the species’ characteristics can change. Extinction of a species occurs when the environment changes and the characteristics of a species are insufficient to allow survival.</p> <p><b>Content Statement</b>- L.EV.M.2 Relationships Among Organisms – Similarities among organisms are found in anatomical features, which can be used to infer the degree of relatedness among organisms. In classifying organisms, biologists consider details of internal and external structures to be more important than behavior and general appearance.</p>	<p><b>L.HE.05.11</b> Explain that the traits of an individual are influenced by both the environment and the genetics of the individual.</p> <p><b>L.HE.05.12</b> Distinguish between inherited and acquired traits.</p> <p><b>L.EV.05.11</b> Explain how behavioral characteristics (adaptation, instinct, learning, habit) of animals help them to survive in their environment.</p> <p><b>L.EV.05.12</b> Describe the physical characteristics (traits) of organisms that help them survive in their environment.</p> <p><b>L.EV.05.13</b> Describe how fossils provide evidence about how living things and environmental conditions have changed.</p> <p><b>L.EV.05.14</b> Analyze the relationship of environmental change and catastrophic events (for example: volcanic eruption, floods, asteroid impact, tsunami) to species extinction.</p> <p><b>L.EV.05.21</b> Relate degree of similarity in anatomical features to the classification of contemporary organisms.</p> <p><b>*See inquiry and reflection GLCEs</b></p>	<p><b>Textbook:</b></p> <ul style="list-style-type: none"> <li>• National Geographic Life Science Chapter 4 (Chapter 1-Review vocabulary as an introduction)</li> </ul> <p><b>Suggested Trade Books:</b></p> <ul style="list-style-type: none"> <li>• Fossils by Ann O. Squire</li> </ul> <p><b>Websites &amp; Video Streaming:</b></p> <ul style="list-style-type: none"> <li>▪ myNGconnect.com</li> <li>▪ see grade level resource packet</li> </ul> <p><b>Grade Level Resource Packet:</b></p> <ul style="list-style-type: none"> <li>▪ See unit Evolution and Traits of Organisms</li> </ul>	<p><b>Formative Assessment</b></p> <ul style="list-style-type: none"> <li>• Evaluate student presentation of information on environmental influences affecting plants traits.</li> <li>• Evaluate student design and investigations of the classroom habitat and presentations.</li> <li>• Evaluate student diagrams/illustrations depicting characteristics allowing survival in particular environments.</li> <li>• Evaluate student research and presentations of organisms’ changes over time.</li> <li>• Evaluate students’ ability to identify characteristics allowing organisms to survive in their environment.</li> <li>• Evaluate the list of appropriate characteristics to help scientists classify organisms.</li> <li>• Evaluate students’ completed Venn diagrams.</li> </ul> <p><b>Summative Assessment</b></p> <ul style="list-style-type: none"> <li>• Give each student 3 separate index cards and label the first with an A (Acquired), the second with an I (Inherited) and the third with a B (Both). Read different traits aloud and have each student independently choose which type of trait it represents. Visually scan the room to determine each student’s understanding (or misunderstanding) of the Content Expectation.</li> <li>• Design matching type questions for inherited and acquired traits.</li> <li>• Describe situations in which the environment would affect a trait of a plant or animal and have student describe how the trait would be affected in the given situation.</li> <li>• Choose an organism to have students identify the behavioral and physical characteristics that allow it to survive in its particular environment.</li> <li>• Students analyze fossil evidence to determine how environmental conditions changed over time.</li> <li>• List organisms that would be placed into a similar group based on characteristics and have students determine the similarity.</li> <li>• Give students different organisms to determine the degree of relatedness.</li> <li>• List organisms that would be placed into a similar group based on characteristics and have students determine the similarity.</li> </ul>
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