

7th Grade Pacing Guide Physical Science Next Generation Science Standards			
September	October	November - December	January
<p><b>Motion and Stability-</b> Newton's Laws</p> <p><a href="#">MS-PS 2-1</a> <a href="#">MS-PS2-2</a></p> <p><b>Objective and Essential Questions</b> -“How can one describe physical interactions between objects and within systems of objects?”</p> <p><b>StemScopes:</b> -Changes in Force and Motion -Newton's Third Law of Motion</p> <p><b>Balloon Racing</b></p>	<p><b>Motion and Stability-</b> Gravity, Magnetism, Electricity</p> <p><a href="#">MS PS2-3</a> <a href="#">MS PS2-4</a> <a href="#">MS-PS2-5</a></p> <p><b>Objective and Essential Questions</b> -Develop an understanding of gravitational, electrical, and magnetic forces</p> <p><b>StemScopes:</b> -Electric and Magnetic Forces -Gravitational Forces</p> <p><b>Research Poster/ Electromagnetic investigation</b></p>	<p><b>Energy-</b> Kinetic and Potential Energy</p> <p><a href="#">MS-PS3-1</a> <a href="#">MS-PS3-2</a> <a href="#">MS-PS3-5</a></p> <p><b>Objective and Essential Questions</b> -Understand the transfer of energy and energy in a system -Study kinetic and potential energy -“How can energy be transferred from one object or system to another?”</p> <p><b>StemScopes:</b> -Kinetic Energy -Potential Energy</p> <p><b>Rollercoaster build with data poster</b></p>	<p><b>Energy-</b> Transfer of Thermal Energy</p> <p><a href="#">MS-PS3-3</a> <a href="#">MS-PS3-4</a></p> <p><b>Objective and Essential Questions</b> -How does heat move throughout the universe? -Understand energy and temperature</p> <p><b>StemScopes:</b> -Thermal Energy Transfer - Energy Transfer and Temperature</p> <p><b>Smores oven</b></p>
February	March	April -May	June
<p><b>Structure and Properties of Matter</b></p> <p><a href="#">MS-PS 1.4</a> <a href="#">MS-PS 1.1</a> <a href="#">MS-PS 1.3</a></p> <p><b>Objective and Essential Questions</b> “How can particles combine to produce a substance with different properties? How does thermal energy affect particles?”</p>	<p><b>Structure and Properties of Matter-</b> Chemical Reactions</p> <p><a href="#">MS-PS 1.2</a> <a href="#">MS-PS 1.5</a> <a href="#">MS-PS 1.6</a></p> <p><b>Objective and Essential Questions</b> “What happens when new materials are formed? What stays the same and what changes?”</p> <p><b>Stemscopes:</b></p>	<p><b>Waves and Electromagnetic Radiation</b></p> <p><a href="#">MS-PS4-1</a> <a href="#">MS-PS4-2</a> <a href="#">MS-PS4-3</a></p> <p><b>Objective and Essential Questions</b> “What are the characteristic properties of waves and how can they be used?” -Apply understanding of waves as a means to send digital information</p> <p><b>Stemscopes:</b> -Introduction to properties of Waves -Modeling Waves through Various Mediums -Properties of visible light -Digital vs. Analog Signals</p>	<p><b>End of Year PBL-</b> Student Choice Project</p> <p>-Research -Develop Model -Presentation -STEM challenge -egg drop - Ping Pong ball challenge</p>

<p><b>Stemscopes:</b> - Structure of Matter -Synthetic Material -Heat and Matter</p> <p><b>Dry Ice Lab</b></p>	<p>-Physical and Chemical Properties -Characteristics of Chemical reactions -Modeling the Conservation of Mass</p> <p><b>Chemistry in a bag/Endothermic and exothermic changes</b></p>	<p><b>Making Musical instruments with presentations</b></p>	
--	--	---	--

Stemscopes

End of unit project

<p align="center"><b>8th Grade Pacing Guide</b> <b>Life Science Next Generation Science Standards</b></p>				
September	October	November - December	January	
<p><b>Structure, Function, and Information Processing-</b> cells</p> <p><a href="#">MS-LS1-1</a> <a href="#">MS-LS1-2</a></p> <p><b>Objective and Essential Questions</b> -“How do the structures of organisms contribute to life’s functions?” -Living organisms are made of cells</p> <p><b>Stemscopes:</b> -Cells -Anatomy of a Cell</p> <p><b>Cell Model</b></p>	<p><b>Structure, Function, and Information Processing-</b> Body Systems</p> <p><a href="#">MS-LS1-3</a> <a href="#">MS-LS1-8</a></p> <p><b>Objective and Essential Questions</b> -Special structures are responsible for particular functions in organisms</p> <p><b>Stemscopes:</b> -Bodies and Systems -Sensory Receptors</p> <p><b>Body systems poster and presentation</b></p>	<p><b>Structure, Function, and Information Processing-</b> Probability of successful reproduction</p> <p><a href="#">MS-LS1-4</a> <a href="#">MS-LS1-5</a> <a href="#">MS-LS1-6</a></p> <p><b>Objective and Essential Questions</b> -Understand how the environment and genetic factors determine the growth of an individual organism -Genetic implications for sexual and asexual reproduction -Understand structures and behaviors that increase the likelihood of successful reproduction by organisms</p> <p><b>Stemscopes:</b> -Reproduction of Plants and Animals -Growth of Organisms -Introduction to Photosynthesis</p> <p><b>Structure and behavior research project</b></p>	<p><b>Heredity:</b> Inheritance and variation of traits</p> <p><a href="#">MS-LS3-1</a> <a href="#">MS-LS3-2</a></p> <p><b>Objective and Essential Questions</b> “How do organisms grow, develop, and reproduce?” -Understand mitosis vs meiosis -Understand asexual vs sexual reproduction</p> <p><b>Stemscopes:</b> -Inheritance and Genetic Variation -Genes and Proteins -Mutations</p> <p><b>Baby Monsters Building Pigeons</b></p>	
February	March - April		May	June
<p><b>Natural Selections and Adaptations</b></p> <p><a href="#">MS-LS4-1</a> <a href="#">MS-LS4-2</a> <a href="#">MS-LS4-3</a> <a href="#">MS-LS4-4</a> <a href="#">MS-LS4-6</a></p>	<p><b>Matter and Energy in Organisms and Ecosystems</b></p> <p><a href="#">MS-LS1-6</a> <a href="#">MS-LS1-7</a> <a href="#">MS-LS2-1</a> <a href="#">MS-LS2-3</a> <a href="#">MS-LS2-4</a></p>		<p><b>Interdependent Relationships in Ecosystems</b> Biodiversity <a href="#">MS-LS2-2</a> <a href="#">MS-LS2-5</a></p> <p><b>Objective and</b></p>	<p><b>End of Year PBL-</b> Student Choice Project</p> <p>-Research -Develop Model -Presentation</p> <p><b>popsicle bridge</b></p>

<p><a href="#">MS-LS4-5</a></p> <p><b>Objective and Essential Questions</b>  <i>"How does genetic variation among organisms in a species affect survival and reproduction?"</i></p> <p>-Analyze data from the fossil record to describe evidence of the history of life on Earth</p> <p><b>Stemscopes:</b></p> <ul style="list-style-type: none"> <li>-Fossil Records</li> <li>-Evolutionary History and Relationships</li> <li>-Embryonic Similarities</li> <li>-Natural Selection</li> <li>-Artificial Selection</li> </ul> <p><b>Horses of NC</b>  <b>Balls in the circle CER</b></p>	<p><b>Objective and Essential Questions</b></p> <p>"How do organisms obtain and use matter and energy? How do matter and energy move through an ecosystem?"</p> <ul style="list-style-type: none"> <li>-Understand the role of photosynthesis in cycling matter in ecosystems</li> <li>-How organisms obtain matter and energy from the ecosystem to survive and grow</li> </ul> <p><b>Stemscopes:</b></p> <ul style="list-style-type: none"> <li>-Competition in Ecosystems</li> <li>-Organism Interactions in Ecosystems</li> <li>-Flow of Energy in Ecosystems</li> <li>-Dynamic Nature of Ecosystems</li> </ul> <p><b>Food chain and food web research poster</b></p>	<p><b>Essential Questions</b></p> <ul style="list-style-type: none"> <li>-Understand interactions in ecosystems to maintain biodiversity</li> <li>-Understand that organisms and populations of organisms are dependent on their environmental interactions both with other organisms and with nonliving factors</li> </ul> <p><b>Stemscopes:</b></p> <ul style="list-style-type: none"> <li>-Relationships in Ecosystems</li> <li>-Ecosystem Biodiversity</li> </ul> <p><b>Biome Box Project and presentations</b></p>	<ul style="list-style-type: none"> <li>- <b>STEM challenge</b></li> <li>- <b>Paper tower</b></li> <li>- <b>a paper rollercoaster</b></li> </ul>
--	---	---	---

### Unit progression and sequencing

Time per unit: 4-7 weeks

- 1) Vocabulary introduction
  - a) Define based on the provided notes, define in your own words, and draw a picture
- 2) Engage
  - a) Hook/intro lab/ investigation question activity
  - b) Assessing prior knowledge activity
  - c) Investigation lab with CER writing
- 3) Explore
  - a) Notes via Nearpod
    - i) Check for understanding activities throughout notes
    - ii) 1-4 days of notes, depending on the standards of the unit
  - b) Explore stations lab via Kessler Science (student-led)
  - c) Stemscopes Explore labs
    - i) 2-4 labs, depending on the unit
    - ii) CER after at least 2 labs
- 4) Formative assessment-( throughout unit )
  - a) Stemscopes linking literacy
  - b) Individual worksheets
  - c) PhET lab sim with worksheet
  - d) Investigation lab with CER ties back to unit objectives

5) Summative assessment

a) Unit test

- i) SBAC and MCAS-type questions
- ii) Vocab
- iii) Application short answers
- iv) CER open response

(1) Data interpretation ( graphs, charts, data table, etc)

6) End of unit project

a) Creat, Built, Apply, Challenge

b) Project packets

- i) Including prelab questions, data collecting, post-lab conclusions questions, and CER

Homework weekly:

- 1. Snapshot packet
- 2. Unfinished work
- 3. Discussion questions within labs