

Curriculum Map/Pacing Guide

School: HMS

Grade Level: 7th

Subject: Science

Ky Standard	Content/Topic	Skill/Time Period	Assessment
07-PS1-2 07-PS3 07-PS3-3 07-PS3-4 07-PS3-5 <u>Learning Targets:</u> A. I can describe what an observation is. B. I can list and describe the two types of observation. C. I can describe what classification is. D. I can the importance of correctly	Science Process Skills (Review) (6 Weeks) <u>Essential Questions:</u> 1. What are science process skills? 2. What is the scientific method? 3. What is a scientist? 4. What is an engineer? <u>Unit Vocabulary:</u> 1. Observation 2. Classification 3. Measurement 4. Inference 5. Prediction 6. Variable 7. Hypothesis 8. Experiment	<u>Week 1:</u> A. Intro science process skills. What are science skills? Class discussion. B. Observation activity C. Classification activity. <u>Week 2</u> A. What is Measurement activity. Measure various objects using metric system. B. Converting from inches to centimeters. Using meters, liters, and grams to measure. C. Inference/Prediction activity. D. Brain Pop video, Metric Measurements <u>Week 3</u> A. Review observation, classification, measurement, prediction, and inference. Begin working with hypothesis. What is a hypothesis? What is the difference between a realistic hypothesis and an unrealistic hypothesis? B. Students write 20 realistic hypotheses and then identify the independent, dependent and control variables in each hypothesis.	A. Science Notebook (Journal entries) B. Quiz every Friday on what they learned that week. C. Exit Slips D. Experiment showing their knowledge of the steps in the scientific method. E. Unit Test

measuring objects. E. I can differentiate between liters, meters, and grams. F. I can explain the difference between an inference and a prediction. G. I can list the steps in the scientific method in order.	9. Scientific Method 10. Data 11. Qualitative Observations 12. Quantitative Observations	<u>Week 4</u> A. Discuss how observations are recorded during an experiment. Work on charts, graphs, table. B. Students will answer questions about their data after completing graphs, charts, and tables. C. Brain Pop video-Scientific Method. <u>Week 5</u> A. Break students into groups, give them a question to build an experiment around using the steps in the scientific method. B. Work on experiment, carry it out, write up a conclusion based on their observations. C. Present their results to the class. <u>Week 6</u> A. Review unit. Jeopardy B. Summative Assessment	
H. I can write a realistic hypothesis. I. I can explain what a variable is in an experiment. J. I can list and describe the three types			

of variables in an experiment.			
<p>Chemical Reactions</p> <p>07-PS1-2 Properties of substances before and after a chemical change.</p> <p>*PS1:A Structure and Properties of Matter</p> <p>*PS1:B: Chemical Reactions</p> <p>07-PS1-5-Develop and use a model to describe how the number of atoms</p>	<p>Discovering Matter, Energy, Forces/Interactions / Waves-(12 Weeks)</p> <p>Essential Questions:</p> <ol style="list-style-type: none"> 1.What is matter? 1. What is an atom? 2. What are the subatomic particles in an atom? 3. What is energy? 4. What are the two main categories of energy? 5. What is Newton's Three Laws of Motion? 6. What is a wave? 	<p>Week 1-</p> <ol style="list-style-type: none"> A. Pre-test on unit. B. Spider-web to activate prior knowledge. C. QFT activity (Physical Science) D. Define unit vocabulary in science notebook E. Know Atom section 1: Using Energy to Change Food-pages 10-13. <p>Week 2-</p> <ol style="list-style-type: none"> A. Review what an atom is/parts of an atom, and what matter is. B. Brain Pop video on matter. C. What are the physical and chemical properties of matter. D. Read pages 13-16, what is the relationship between matter and energy. <p>E. Section 1 review/quiz</p> <p>F. Section 2: Chemical Reactions.</p> <p>Week 3</p> <ol style="list-style-type: none"> A. Bill Nye video on Matter B. Read pages 19-21. Periodic Table of Elements worksheet. C. Chemical Reactions Investigation (Know Atom) D. Quiz over material covered. <p>Week 4/5</p> <ol style="list-style-type: none"> A. Review matter, mass, energy. B. Endothermic/Exothermic Experiment. C. TI calculator temperature lab. 	<p>Formative Assessment-</p> <ol style="list-style-type: none"> A. Exit Slips (Energy, Motion, Matter) B. D, C, L C. Question/Discussion D. Notebook (Journal Topics) E. TCT F. TI Calculators G. Blade H. Study Island <p>Summative Assessment-</p> <ol style="list-style-type: none"> A. Quizzes (Each Friday over material covered) B. Unit Test C. Open Response (Matter, Energy, Motion) D. Labs E. Learning Fair
<p>doesn't change.</p> <p>07-PS1-6 -Design a project to construct, test, and modify a device that releases or absorbs energy.</p> <p>Energy</p> <p>07-PS3-2 -Develop a model to describe when the arrangement of</p>			

<p>objects at a distance change.</p> <p>07-PS3-3-Apply scientific principles to design a device to</p> <p>07minimize or maximize thermal energy transfer.</p> <p>*PS3:A-Definitions of Energy</p> <p>*PS3:B-Conservation of Energy and Energy Transfer</p> <p>*PS3:C-Relationship between energy and forces</p> <p>07-PS3-4-Plan an investigation to</p>	<p>7. What are the two types of waves?</p> <p>8. What is energy transfer?</p> <p>9. What is the relationship between energy, force, and waves?</p> <p>10. What is the difference between a physical change and a chemical change?</p>	<p>D. Section 2 Review.</p> <p>E. Ice Pack Design Challenge</p> <p>F. Quiz over material covered.</p> <p><u>Week 6-8</u></p> <p>A. Notes on waves.</p> <p>B. How is Heat Transferred? Experiment.</p> <p>C. How Waves Travel activity</p> <p>D. Foldable on waves</p> <p>E. Electromagnetic Spectrum lab.</p> <p>F. Brain Pop video on electromagnetic spectrum.</p> <p><u>Week 9</u></p> <p>A. Notes on forces, Newtons Three Laws of Motion.</p> <p>B. Students design an experiment to show how energy, potential and kinetic, are directly related to the three laws of motion.</p> <p><u>Week 10</u></p> <p>A. Review all content from unit.</p> <p>B. Quizzizz and jeopardy to review.</p> <p>C. Summative assessment over unit.</p>	
<p>determine relationships among energy transferred.</p> <p>07-PS3-5-Construct, use, and present arguments to support claim that when the kinetic energy of an object changes, energy is transferred to or from the energy.</p>	<p><u>Unit Vocabulary-</u></p> <p>1. Atom</p> <p>2. Cause/Effect</p> <p>3. Conduction</p> <p>4. Energy</p> <p>5. Endothermic</p> <p>6. Exothermic</p> <p>7. Kinetic Energy</p> <p>8. Mass</p> <p>9. Matter</p>	<p><u>Week11-12:</u></p> <p>A. Begin working on activities/experiments for Learning Fair (Jan Gibson)</p> <p>B. Give each student, with a partner, a science standard to research, break down into parts, and design an activity or experiment to show their understanding of the standard.</p> <p>C. Participate in the Learning Fair during Open House.</p>	

<p>Forces and Interactions</p> <p>07-PS2-3-Ask questions to determine the factors that affect the strengths of electric and magnetic force.</p> <p>*PS2:A-Forces and Motions</p> <p>*PS2:B-Types of Interactions</p> <p>07-PS2-4-Construct and present arguments using evidence to support the claim that gravitational</p>	<p>10. Molecule</p> <p>11. Pattern</p> <p>12. Potential Energy</p> <p>13. Property</p> <p>14. Synthetic</p> <p>15. Structure</p> <p>16. Temperature</p> <p>17. Thermal Energy</p> <p>18. Products</p> <p>19. Reactants</p> <p>20. Catalysts</p> <p>21. Convection</p> <p>22. Conduction</p> <p>23. Heat Transfer</p> <p>24. Electromagnetic</p>		
<p>interactions occur.</p> <p>07-PS2-5-Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects.</p> <p>Waves and Electromagnetic Radiation</p>	<p>Spectrum</p> <p>25. Longitudinal Wave</p> <p>26. Transverse Wave</p>		

<p>07-PS4-1-Use mathematical representation to describe a simple model for waves.</p> <p>*PS4:A-Wave Properties</p> <p>*PS4:B-Electromagnetic Radiation</p> <p>*PS4:C-Information, Technologies, and Instrumentation.</p> <p>07-PS4-2-Develop and use a model to show that waves are reflected, absorbed, or transmitted.</p> <p>07-PS4-3-Integrate qualitative scientific and technical information.</p> <p><u>Learning Targets:</u></p> <p>A. I can describe what an atom is.</p>			
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<p>B. I can list the subatomic particles found in an atom.</p> <p>C. I can describe what energy is.</p> <p>D. I can list and describe the two main categories of energy.</p> <p>E. I can explain Newtons Three Laws of Motion.</p> <p>F. I can</p>			
<p>describe the physical properties of matter.</p> <p>G. I can explain the chemical properties of matter.</p> <p>H. I can explain what the Law of Conservation</p>			

<p>of Energy means.</p> <p>I. I can explain what a wave is.</p> <p>J. I can describe how energy is transferred</p> <p>K. I can list and describe the two types of energy waves</p> <p>L. I can describe the electromagnetic spectrum.</p>			
KY Standards	Content/Topic	Skill/Time Period	Assessment

<p>07-LS1-1 07-LS-1B 07-LS1-2 07-LS1-3 07-LS-3A and B 07-LS1-4 07-LS4-B 07-LS1-5 07-LS1-6 07-LS1-7</p> <p><u>Learning Targets:</u></p> <p>A. I can describe what a cell is. B. I can describe what organelles are. C. I can describe the characteristics that all organisms have in common. D. I can describe how cells grow,</p>	<p>Structure, Function, and Information Processing (12 weeks)</p> <p><u>Essential Questions:</u></p> <p>1. What is a cell? 2. What are organelles 3. What is cell division? 4. What is an organism? 5. What characteristics do all living organisms have in common? 6. What is the model of DNA called? 7. What are traits? Genes? Chromosomes? DNA? How are they all related?</p>	<p><u>Week 1:</u></p> <p>A. Pre-Test over cells B. QFT on cells C. Brain Pop video on Cells, D. Brain Pop Video on Cell Structures E. Plant/Animal Cells vs. HMS activity.</p> <p><u>Week 2:</u></p> <p>A. Review what a cell is. B. D,C,L plant cell, animal cell, muscle cell, nerve cell, prokaryotic cell. C. Notes on cells. D. Website, www.cellsalive.com</p> <p><u>Week 3:</u></p> <p>A. Review cells, organelles. B. Microscope Activity. C. Quiz over cells, organelles, parts of a microscope.</p> <p><u>Week 4:</u></p> <p>A. Notes on cell division. B. D,C,L phases of mitosis and meiosis. C. Paper Plate Cell Division activity. D. Brain Pop video Mitosis. E. Review for first part of cell test.</p> <p><u>Week 5:</u></p> <p>A. Test over cells. First part. B. Notes on genetics and heredity. C. Double Helix activity. D. Cloning article. https://www.sciencenewsforstudents.org/article/animal-clones-double-trouble E. https://sciencing.com/pros-cons-cloning-5453902.html</p>	<p><u>Formative:</u></p> <p>A. Exit Slips J. D, C, L K. Science Notebook L. Brain Pop M. Discussion N. Participation O. TCT P. Study Island Q. Learning Blade R. Simple Solutions</p> <p><u>Summative:</u></p> <p>A. Quizzes B. Unit Test C. Projects D. Experiments E. Writing Piece</p>
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<p>divide, and multiply.</p> <p>E. I can describe the two types of cell division.</p> <p>F. I can describe the components of DNA.</p> <p>G. I can describe cell organization.</p> <p>H. I can describe how organisms interact within an ecosystem.</p>	<p>8. How is a community, habitat, ecosystem connected?</p> <p>9. What are abiotic and biotic factors?</p> <p>10. What is the difference between heredity and genetics?</p> <p><u>Unit Vocabulary:</u></p> <p>1. Cell</p> <p>2. Organism</p> <p>3. Organelles</p> <p>4. DNA</p>	<p>F. Writing piece on Cloning.</p> <p><u>Week 6:</u></p> <p>A. Finish writing piece on cloning/peer editing/conferencing.</p> <p>B. Final copy of writing piece typed.</p> <p><u>Week 7-10:</u></p> <p>A. Intro ecosystems, communities, habitats, properties of each. Abiotic and biotic factors. Flow of energy throughout each.</p> <p>B. Brain Pop videos on communities and ecosystems.</p> <p>C. What is a Community? Activity.</p> <p>D. Intro Incubation project. Students use the scientific methods to carry out a real-life experiment, Can I Hatch A Chicken Egg? (Students will collect data over a three-week period as they incubate fertilized chicken eggs)</p> <p>E. After eggs hatch, students will analyze all the data they have collected, analyze the data from the three-week experiment, and write a conclusion based on the information they collected.</p>	
<p>I. I can describe how energy flows in an ecosystem.</p> <p>J. I can describe the components of an ecosystem, community, habitat.</p>	<p>5. Mitosis</p> <p>6. Meiosis</p> <p>7. Gamete</p> <p>8. Zygote</p> <p>9. Habitats</p> <p>10. Community</p> <p>11. Ecosystem</p> <p>12. Cell Division</p> <p>13. Reproduction</p> <p>14. Genes</p> <p>15. Stamen</p>	<p>F. How do ecosystems, communities, habitats work together activity. Adaptation and Diversity worksheet.</p> <p>G. Design a terrarium. Explain how it fits into a community, ecosystem, and habitat of an organism that you have been given.</p> <p><u>Week 11-12:</u></p> <p>A. What role do plants play on Earth? Photosynthesis info./notes</p>	

<p>K. I can explain how organisms pass on generic information to offspring.</p> <p>L. I can explain how traits are passed on.</p> <p>M. I can describe what generics is.</p> <p>N. I can describe what heredity is.</p>	<p>16. Pistil</p> <p>17. Prokaryotic</p> <p>18. Eukaryotic</p> <p>19. Embryology</p> <p>20. Punnett Square</p> <p>21. Carbon Cycle</p> <p>22. Nitrogen Cycle</p> <p>23. Energy Pyramid</p> <p>24. Adaptation</p> <p>25. Diversity</p>	<p>B. Parts of a flower. Incomplete and complete flowers. Parts of a flower.</p> <p>C. Flower dissection, identifying parts of flower activity.</p> <p>D. Brain Pop Plants</p> <p>E. Carbon Cycle Activity. D,C, L</p> <p>F. Nitrogen Cycle Activity. D, C, L</p> <p>G. Energy Pyramid Brain Pop</p> <p>H. What are consumers, producers, predator/prey notes/activity.</p> <p>I. Unit Test</p>	
<p>O. I can describe the female reproductive parts of a flower.</p> <p>P. I can describe the male reproductive parts of a flower.</p>			

<p>Q. I can describe what embryology is.</p> <p>R. I can set up an incubator.</p> <p>S. I can describe what factors are needed to hatch a chicken egg.</p> <p>T. I can describe what diversity is and why it is important.</p>			
<p>KY Standards:</p> <p><u>Learning Targets:</u></p> <p>A. I can explain what science process skills are and why they are important.</p> <p>B. I can describe</p>	<p>Content/Topic:</p> <p>Review 4 weeks</p> <p><u>Essential Questions:</u></p> <p>1. What are science process skills?</p> <p>2. What are the two types of</p>	<p>Skill/Time Period:</p> <p><u>Week 1:</u></p> <p>A. Science Process Skills</p> <p>B. Observations</p> <p>C. Predictions</p> <p>D. Measurements</p> <p>E. Graphs</p> <p><u>Week 2:</u></p> <p>A. What is energy?</p> <p>B. Energy Bingo</p> <p>C. Types of energy/energy flow</p>	<p>Assessment:</p> <p><u>Formative:</u></p> <p>A. Participation</p> <p>B. Discussion</p> <p>C. Buzzer Games</p> <p>D. Study Island</p> <p>E. Jeopardy</p>

<p>what an observation is and the two types of observations.</p> <p>C. I can describe what energy is, where it is found, and how it flows.</p> <p>D. I can describe objects found in space and how they work together.</p>	<p>observations ?</p> <p>3. What is energy?</p> <p>4. Where can you find energy?</p> <p>5. How does energy flow?</p> <p>6. What are cells?</p> <p>7. What is reproduction important?</p> <p>8. What is a life cycle?</p> <p>9. How old is Earth? Universe?</p>	<p>D. Chemical/Physical Properties</p> <p>E. Waves/Wavelengths</p> <p><u>Week 3:</u></p> <p>A. What is space?</p> <p>B. Planets/Satellites/Moon Phases</p> <p>C. Stars/Galaxies</p> <p>D. Earth/Atmosphere/</p> <p>E. Rock Types/Layers/Minerals</p> <p><u>Week 4:</u></p> <p>A. Cells/organelles</p> <p>B. Reproduction</p> <p>C. Life Cycles</p>	
<p>E. I can describe the three categories of rocks are and what rocks are made of.</p> <p>F. I can describe what a cell is and what components</p>	<p>10. What is a planet?</p> <p>11. What is the difference between a rock and a mineral?</p> <p>12. What is our atmosphere made up of?</p>		

are found inside of a cell.			
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