

## Hamilton Heights School Corporation Science 8 Curriculum Map

Course Title: Science 8	Quarter 1	Academic Year: 2025-2026
-------------------------	-----------	--------------------------

Disciplinary Core Ideas: Science Skills Engineering Design Matter & Its Interactions						
Unit Name	Total Days	Standards Number	Knowledge Objectives	Skills Objectives	Specific Assessments (for all of Q1)	Specific Resources (for all of Q1)
Scientific Inquiry	19	MS-ETS1-1 MS-ETS1-2 MS-ETS1-3 MS-ETS1-4	<ul style="list-style-type: none"> <li>● How scientists work</li> <li>● Science vs Pseudoscience</li> </ul>	<ul style="list-style-type: none"> <li>● Students should be able to demonstrate the scientific method by successfully designing and completing their own experiment. Students will then write a formal lab report for their experiment.</li> <li>● Students should be able to analyze data and use it to provide evidence in a written conclusion.</li> </ul>	AOWs  Canvas Quizzes/Test  Scientific Method Practice Labs  Scientific Method PBA  Measurement Labs  Bohr Candy Models  Candy Compounds  Pure Elements Lab  Physical & Chemical Changes	Gizmos  PhET  EdPuzzle  Textbook  Non-fiction Articles  Canvas Textbook  Kessler Labs/Activities  IXL  Writable

				<ul style="list-style-type: none"> <li>Students should be aware and follow all safety procedures in the lab.</li> </ul>	<p style="text-align: center;">Lab Safety Cartoon Cap'n Crunch &amp; Paper Towel Labs</p>	
Chemistry	24	MS-PS 1-1 MS-PS1-2 MS-PS 1-3 MS-ETS1-1 MS-ETS1-2 MS-ETS1-3 MS-ETS1-4	<ul style="list-style-type: none"> <li>Develop models to describe the atomic composition of simple molecules and extended structures</li> <li>Physical vs Chemical Change</li> <li>Atomic Structure &amp; Subatomic Particles</li> <li>Atoms, Elements &amp; Compounds</li> </ul>	<ul style="list-style-type: none"> <li>Students should be able to explain that substances are made from different types of atoms, which combine with one another in various ways.</li> <li>Students will be able to understand that each pure substance has characteristic physical and chemical properties that can be used to identify it.</li> <li>Students will be able to understand that substances react chemically in characteristic ways. In a chemical process, the atoms</li> </ul>		

				<p>that make up the original substances are regrouped into different molecules, and these new substances have different properties from those of the reactants.</p>		
--	--	--	--	---	--	--

Disciplinary Core Ideas:  
 Matter & its interactions  
 From Molecules to Organisms: Structures & Processes  
 Engineering Design

Unit Name	Total Days	Standards Number	Knowledge Objectives	Skills Objectives	Specific Assessments	Specific Resources (for all of Q2)
Chemistry	30	MS-PS 1-2 MS-PS 1-3 MS-PS 1-4 MS-PS 1-5 MS-PS 1-6 MS-ETS1-1 MS-ETS1-2 MS-ETS1-3 MS-ETS1-4	<ul style="list-style-type: none"> <li>Atoms, Elements &amp; Compounds</li> <li>Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.</li> <li>Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.</li> <li>Develop and use a model to</li> </ul>	<ol style="list-style-type: none"> <li>Students should be able to demonstrate the relationship between atoms, elements, molecules, and compounds.</li> <li>Students should be able to demonstrate the Law of Conservation of Mass through balancing equations.</li> <li>Students should be able to identify and compare &amp; contrast physical and chemical changes.</li> <li>Students should be able to describe the different structures</li> </ol>	AOWs  Canvas Quizzes/Test  Exit Ticket  Chemical Formula Game  Case of Missing Necklace Lab  Physical & Chemical Changes Lab  Making & Eating Ice Cream Lab  Hot Cocoa STEM Challenge	Gizmos  Nonfiction Articles  Textbook Canvas Textbook  PhET  Labs/Activities  Kessler Task Cards  EdPuzzle  Writable

			<p>describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.</p> <ul style="list-style-type: none"> <li>● Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.</li> <li>● Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.</li> </ul>	<p>&amp; properties of matter.</p> <ol style="list-style-type: none"> <li>5. Students should be able to define heat and temperature with respect to energy transfer.</li> <li>6. Students should be able to differentiate between natural &amp; synthetic substances and their impact on humans.</li> </ol>		
Biology	13	MS-LS1-4  MS-ETS1-1	<ul style="list-style-type: none"> <li>● Characteristics of Living Things</li> <li>● Viruses &amp; Bacteria Effects on the Body</li> </ul>	<ol style="list-style-type: none"> <li>1. Students should be to list and identify characteristics of all living things.</li> </ol>	<p>Infectious Disease Lab</p> <p>Earthworms Lab &amp; AOW</p>	

		<p>MS-ETS1-2</p> <p>MS-ETS1-3</p> <p>MS-ETS1-4</p>	<ul style="list-style-type: none"> <li>● Classification</li> <li>● Animals engage in characteristic behaviors that increase the odds of reproduction.</li> <li>● Plants reproduce in a variety of ways, sometimes depending on animal behavior and specialized features for reproduction.</li> </ul>	<ol style="list-style-type: none"> <li>2. Students should be able to describe the effect of viruses and bacteria on the human body.</li> <li>3. Students should be able to classify living things within the 3 domains and 6 levels of classification of life.</li> </ol>	<p>Final Exam</p>	
--	--	--	--	---	-------------------	--

**Disciplinary Core Ideas:**

From Molecules to Organisms: Structures &amp; Processes

Heredity: Inheritance &amp; Variation of Traits

Engineering Design

Unit Name	Total Days	Standards Number	Knowledge Objectives	Skills Objectives	Specific Assessments	Specific Resources
Biology	43	MS-LS1-5 MS-LS3-1 MS-LS3-2 MS-LS4-1 MS-LS4-4 MS-LS4-6 MS-ETS1-1 MS-ETS1-2 MS-ETS1-3 MS-ETS1-4	<ul style="list-style-type: none"> <li>• Classification</li> <li>• Asexual/Sexual Reproduction</li> <li>• Meiosis</li> <li>• Genetics</li> <li>• Growth &amp; Development of Organisms</li> <li>• Inheritance of Traits</li> <li>• Variation of Traits</li> <li>• Natural Selection</li> <li>• Adaptation</li> </ul>	<ol style="list-style-type: none"> <li>1. Students should be able to list and identify characteristics of all living things and classify living things within the 3 domains and 6 levels of classification of life.</li> <li>2. Students should be able to use a taxonomic key to identify binomial nomenclature names.</li> <li>3. Students should be able to compare and contrast sexual and asexual reproduction.</li> </ol>	Quizzes/tests  AOWs  Virtual Labs  Dichotomous Key Labs  Spudoodle Punnett Square Activity  Bacteria/Virus Labs  Disease Research Project  DNA Models  Natural Selection Drama	Gizmos  Virtual Learning  BrainPop  IXLs  Science World  Nonfiction Articles  EdPuzzle  Kahoots  Online Modules/Activities  Amoeba Sisters  Guest Speakers: Genetic

				<ul style="list-style-type: none"><li>4. Students should be able to create a model of DNA</li><li>5. Students should be able to demonstrate how genetic information is transferred through generations.</li><li>6. Students should be able to identify and explain the difference between inherited and acquired traits</li><li>7. Students should be able to create and analyze a punnett square to demonstrate patterns of inheritance.</li><li>8. Students should be able to explain how natural selection affects species' ability to survive and how adaptations affect survival.</li></ul>		<p>Counselor &amp; Corn Genetics Business Owner</p>
--	--	--	--	--	--	---

				<p>9. Students should be able to construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.</p> <p>10. Students should be able to develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.</p> <p>11. Students should be able to develop and use a model to describe why asexual reproduction results</p>		
--	--	--	--	---	--	--

				<p>in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.</p>		
--	--	--	--	---	--	--

Disciplinary Core Ideas:  
 Biological Evolution: Unity & Diversity  
 Earth's Systems  
 Earth & Human Activity  
 Engineering Design

Unit Name	Total Days	Standards Number	Knowledge Objectives	Skills Objectives	Specific Assessments	Specific Resources
Biology	15	MS-LS4-4 MS-LS4-5 MS-LS4-6 MS-ETS1-1 MS-ETS1-2 MS-ETS1-3 MS-ETS1-4	<ul style="list-style-type: none"> <li>Natural Selection</li> <li>Adaptation</li> <li>Evolutionary Relationships among organisms</li> <li>Advances in genetics/human involvement</li> </ul>	<ol style="list-style-type: none"> <li>Students should be able to explain how natural selection affects species' ability to survive and how adaptations affect survival.</li> <li>Students should be able to research human involvement in genetic engineering.</li> </ol>	Survival of the Fittest Candy  Choice Project  AOW	Nonfiction Article  Student-led Research (internet, interviews, experimentation)  Lab Activities
Earth & Space	22	MS-ESS2-4 MS-ESS2-5 MS-ESS2-6	<ul style="list-style-type: none"> <li>Climate change</li> <li>The water cycle</li> <li>Human consumption of resources</li> </ul>	<ol style="list-style-type: none"> <li>Students should be able to explain climate change.</li> <li>Students should be able to ask</li> </ol>	AOW  Section quizzes  Unit Assessment	Science World Magazine  Online modules  Gizmos

		<p>MS-ESS3-3</p> <p>MS-ESS3-4</p> <p>MS-ESS3-5</p> <p>MS-ETS1-1</p> <p>MS-ETS1-2</p> <p>MS-ETS1-3</p> <p>MS-ETS1-4</p>	<ul style="list-style-type: none"> <li>• The Roles of Water in Earth's Surface Processes</li> <li>• Weather and Climate</li> </ul>	<p>questions to clarify evidence of the factors that have caused the rise in global temperatures over time.</p> <p>3. Students should be able to build a model of the water cycle and describe what drives it.</p> <p>4. Students should be able to describe how humans (including themselves) impact the environment.</p> <p>5. Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.</p>	<p>Lab reports</p> <p>Water Cycle Lab/Project</p> <p>Human Impact on Earth Project</p> <p>STEM: Hail Protection Challenge</p>	<p>Mosa Mack</p> <p>Amoeba Sisters</p> <p>Nonfiction Articles</p> <p>Brain Pop</p> <p>IXLs</p> <p>EdPuzzle</p> <p>PhET</p> <p>Vivify</p>
Testing	10	N/A	N/A	N/A	<p>ILEARN Checkpoints</p> <p>ILEARN</p> <p>Final Exam</p>	N/A