Middle/Senior High School Curriculum Map

Curriculum Map

Course Title: 8th Grade Science	**Quarter:** 1	**Academic Year:** 2024-2025

Essential Questions for this Quarter:

1. How do molecules vary in complexity?
2. How can we model molecules of varying complexity?
3. What are some of the physical and chemical characteristics of pure substances?
4. How can you describe the six different types of chemical reactions?
5. How do substances change their state of matter?
6. What are the different phases of matter?
7. How would you explain the law of conservation of mass/energy?
8. What are the differences between endothermic and exothermic reactions?
9. What are the steps of balancing a chemical reaction?

Unit/Time Frame	Standards	Content	Skills	Assessment	Resources
Physical Science Unit 1 (3 weeks) **Physical Science Unit 2 (3 weeks)** **Physical Science Unit 3 (3 Weeks)**	**MS-PS1-1** **MS-PS1-2** **MS-PS1-3** **MS-PS1-4** **MS-PS1-5** **MS-PS1-6**	PS1.A: Structure and Properties of Matter CC.3: Scale, Proportion, and Quantity PS1.B: Chemical Reactions CC.1: Patterns CC.6: Structure and Function PS3.A: Definitions of Energy CC.2: Causes and Effect CC.5: Energy and Matter ETS1.B: Developing Possible Solutions ETS1.C: Optimizing the Design Solution	SEP.2: Developing and Using Models SEP.4: Analyzing and Interpreting Data SEP.8: Obtaining, Evaluating, and Communicating information. SEP.6: Matter and its Interactions	8 Marking Period Formative Quizzes (10% cumulative) Projects/Labs (40% cumulative) Classwork (40% cumulative) End of Marking Period Summative Test (10%)	CPO Textbooks CPO Exploration Manual CPO Lab Equipment

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Course Title: 8th Grade Science	**Quarter:** 2	**Academic Year:** 2024-2025

Essential Questions for this Quarter:

1. What behaviors do animals engage in to increase the odds of reproduction?
2. How do plants reproduce and how do they sometimes use animals to reproduce?
3. What factors as well as local conditions affect the growth of adult plants?
4. How do genes control the structure and function of the chromosomes in cells?
5. How do mutations affect the structure and function of genes causing variation?
6. What are the differences between sexual and asexual reproduction?
7. What are the differences between mitotic cells and meiotic cells?
8. How can we use fossils to look for evidence of common ancestry?
9. What is the difference between natural and artificial selection with regard to traits?

Unit/Time Frame	Standards	Content	Skills	Assessment	Resources
Life Science Unit 1 (1 week) **Life Science Unit 2 (1 week)** **Life Science Unit 3 (1 week)** **Life Science Unit 4 (1 week)** **Life Science Unit 5 (1 week)** **Life Science Unit 6 (1 week)** **Life Science Unit 7 (1 week)** **Life Science Unit 8 (1 week)** **Life Science Unit 9 (1 week)**	**MS-LS1-4** **MS-LS1-5** **MS-LS3-1** **MS-LS3-2** **MS-LS4-1** **MS-LS4-2** **MS-LS4-3** **MS-LS4-4** **MS-LS4-5** **MS-LS4-6**	LS1.B: Growth and Development of Organisms. CC.2: Cause and Effect. LS3.A: Inheritance of Traits. LS3.B: Variation of Traits. CC.6: Structure and Function. LS4.A: Evidence of Common Ancestry and Diversity. CC.1: Patterns. LS4.B: Natural Selection. LS4.C: Adaptation.	SEP.7: Engaging in Arguments from Evidence. SEP.6: Constructing Explanations and Designing Solutions. SEP.2: Developing and Using Models. SEP.4: Analyzing and Interpreting Data. SEP.8: Obtaining, Evaluating, and Communicating Information. SEP.5: Using Mathematics and Computational Thinking.	8 Marking Period Formative Quizzes (10% cumulative) Projects/Labs (40% cumulative) Classwork (40% cumulative) End of Marking Period Summative Test (10%)	CPO Textbooks CPO Exploration Manual CPO Lab Equipment

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Course Title: 8th Grade Science	**Quarter:** 3	**Academic Year:** 2024-2025

Essential Questions for this Quarter:

1. What are the steps of the water cycle?
2. How does energy transfer drive the motion of matter in a cycle?
3. Why can weather only be predicted with probability?
4. How do temperature and salinity drive ocean currents?
5. How have human activities altered the biosphere?
6. How does consumption of natural resources have negative impacts on the Earth?
7. How do greenhouse gases from burning fossil fuels impact the Earth?
8. What is the difference between weather and climate?
9. What is the difference between global warming and climate change?

Unit/Time Frame	Standards	Content	Skills	Assessment	Resources
Earth and Space Science Unit 1 (3 weeks) **Earth and Space Science Unit 2 (3 weeks)** **Earth and Space Science Unit 3 (3 weeks)**	**MS-ESS2-4** **MS-ESS2-5** **MS-ESS2-6** **MS-ESS3-3** **MS-ESS3-4** **MS-ESS3-5**	ESS2.C: The Roles of Water in Earth's Surface Processes. CC.5: Energy and Matter. ESS2.D: Weather and Climate. CC.2: Cause and Effect. CC.4: Systems and System Models. ESS3.C: Human Impacts on Earth Systems. ESS3.D: Global Climate Change. CC.7: Stability and Change.	SEP.2: Developing and Using Models. SEP.3: Planning and Carrying Out Investigations. SEP.6: Constructing Explanations and Designing Solutions. SEP.7: Engaging in Arguments from Evidence. SEP.1: Asking Questions and Defining Problems.	8 Marking Period Formative Quizzes (10% cumulative) Projects/Labs (40% cumulative) Classwork (40% cumulative) End of Marking Period Summative Test (10%)	CPO Textbooks CPO Exploration Manual CPO Lab Equipment

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Curriculum Map

Course Title: 8th Grade Science	**Quarter:** 4	**Academic Year:** 2024-2025

Essential Questions for this Quarter:

1. What are the steps of the engineering process?
2. What are the steps of the scientific method?
3. What are the differences and similarities between criteria, constraints, specifications, and outcomes?
4. How can scientific research lead to technological advances?
5. How can technological advances be both positive and negative?
6. What are the systematic processes for evaluating solutions to engineering/scientific problems?
7. How can different solutions to different problems be synthesized to create new solutions?
8. Why do engineers redesign things?
9. How do engineers use testing and models to come up with the best outcomes?

Unit/Time Frame	Standards	Content	Skills	Assessment	Resources
Engineering Technology and Science Unit 1 (2 weeks) **Engineering Technology and Science Unit 2 (2 weeks)** **Engineering Technology and Science Unit 3 (2 weeks)** **Engineering Technology and Science Unit 4 (2 weeks)**	**MS-ETS1-1** **MS-ETS1-2** **MS-ETS1-3** **MS-ETS1-4**	ETS1.A: Defining and Delimiting Engineering Problems. ETS1.B: Developing Possible Solutions. ETS1.C: Optimizing the Design Solution.	SEP.1: Asking Questions and Defining Problems. SEP.7: Engaging in Arguments from Evidence. SEP.4: Analyzing and Interpreting Data. SEP.2: Developing and Using Models.	8 Marking Period Formative Quizzes (10% cumulative) Projects/Labs (40% cumulative) Classwork (40% cumulative) End of Marking Period Summative Test (10%)	CPO Textbooks CPO Exploration Manual CPO Lab Equipment