

Science Curriculum Map

7th Grade

Trimester One (Aug-Oct.) Strategies/Skills covered	Key Standards	Assessments	Suggested Materials
The Nature of Science Formal Lab Report Engineering and Science	MS-ETS1-1 MS-ETS1-2 MS-ETS1-3 MS-ETS1-4	<ul style="list-style-type: none">• Understand and illustrate why it is important to study science• Write a formal lab report • Identify and practice the steps of the engineering design process• Use the steps of the engineering design process to solve a problem• Design a test to gather data and determine effectiveness of a solution• Evaluate a design for possible improvements• Develop a model of the design	Laptop Internet Lab materials Laptop Internet Lab materials Building materials Textbook

<p>Cells and Heredity</p>	<p>MS-LS1-1 MS-LS1-2 MS-LS1-3 MS-LS1-6 MS-LS3-1 MS-LS3-2</p>	<ul style="list-style-type: none"> ● Demonstrate an understanding of the differences between living and nonliving ● Identify the role of cells in the makeup of an organism ● Explain the 3 parts of the cell theory ● Differentiate between eukaryotic and prokaryotic cells ● Create cell model and identify parts of a cell ● Compare the structure and function of organelles in cells ● Differentiate between plant cells and animal cells ● Illustrate and explain photosynthesis and respiration 	<p>Textbook Laptops Internet Various lab materials Microscopes</p>
<p>Organisms as Systems Taxonomy</p>	<p>MS-LS2-2</p>	<ul style="list-style-type: none"> ● Identify the system that scientists use to organize living things ● Understand the similarities and differences between the different kingdoms of life ● Sort organisms into groups based on similar characteristics ● Differentiate between types of plants and between vertebrates and invertebrates 	<p>Textbook Laptops Internet Lab materials</p>

		<ul style="list-style-type: none"> ● Demonstrate an understanding of the system of scientific naming (binomial nomenclature) ● Use and create a dichotomous key ● Create and classify a new organism 	
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Trimester Two (Oct.-Feb.) Strategies/Skills covered	Key Standards	Assessments	Suggested Materials
Organisms as Systems Human Body	MS-LS1-1 MS-LS1-2 MS-LS1-3 MS-LS1-7 MS-LS1-8	<ul style="list-style-type: none"> ● Differentiate between important parts of different systems of the body ● Measure and make conclusions about how muscles are affected by exercise ● Explain the difference between the three types of muscles and how they perform their jobs ● Analyze and graph fingerprint patterns ● Build a life-size model of the digestive system ● Compare the structure and function of parts of the skeletal system ● Build a model of the skeletal system ● Create a model to demonstrate 	Laptops Internet Lab materials

<p>Reproduction, Heredity, and Growth</p>	<p>MS-LS1-5 MS-LS3-1 MS-LS3-2 MS-LS4-4 MS-LS4-5 MS-LS4-6</p>	<p>understanding of how the heart pumps blood</p> <ul style="list-style-type: none"> ● Analyze the heart disease risk of various fictional patients ● Write a scientific explanation of the causes and effects of a specific brain injury ● Identify and explain how various body systems work together to run the body ● Explain how the body systems work together ● Create a life-sized model of the human body, illustrating how the different systems work together <ul style="list-style-type: none"> ● Differentiate between sexual and asexual reproduction and identify the advantages and disadvantages of each ● Demonstrate and understanding of the inheritance of traits from two parents, leading to genetic diversity ● Illustrate heredity of traits with Punnett squares ● Simulate genetic inheritance of traits ● Simulate the process of selective breeding and how that impacts the 	<p>Textbook Laptops Internet Lab materials</p>
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<p>Ecology and the Environment</p>	<p>MS-LS1-4 MS-LS1-5 MS-LS1-6 MS-LS2-1 MS-LS2-2 MS-LS2-3 MS-LS2-4 MS-LS2-5 MS-ESS2-1 MS-ESS2-4</p>	<p>inheritance of traits</p> <ul style="list-style-type: none"> ● Identify how biotic and abiotic factors influence each other ● Differentiate between the different ways that organisms obtain and use energy ● Describe how matter cycles through an ecosystem ● Explain the relationship between the structure and function of the parts of an ecosystem ● Describe the different ways that organisms interact ● Analyze data to understand the predator/prey relationship ● Explain how energy is transferred from one organism to another in a food chain and food web ● Compare and contrast food chains and food webs ● Identify how a change in an ecosystem or a population affects other organisms 	<p>Textbook Laptops Internet Lab materials</p>
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Trimester Three (Mar-Jun) Strategies/Skills covered	Key Standards	Assessments	Suggested Materials
Ecology and the Environment	MS-LS1-4 MS-LS1-5 MS-LS1-6 MS-LS2-1 MS-LS2-2 MS-LS2-3 MS-LS2-4 MS-LS2-5 MS-ESS2-1 MS-ESS2-4	<ul style="list-style-type: none"> ● Explore the advantages of biodiversity ● Identify factors that maintain the balance of nature ● Analyze data to evaluate the health of an ecosystem ● Demonstrate and understanding of how ecosystems change over time and recover from damage ● Explain and illustrate the effects of resource availability ● Model the effects of habitat fragmentation ● Design and explain solutions to maintain biodiversity 	Textbook Laptops Internet Lab materials
The Diversity of Living Things History of Life on Earth	MS-LS4-1 MS-LS4-2 MS-LS4-3 MS-LS4-4	<ul style="list-style-type: none"> ● Analyze the Geologic Time Scale ● Explain how the fossil record models the history of life on Earth ● Analyze how fossil evidence can lead scientists to conclusions 	Textbook Laptops Internet Lab materials

<p>The Diversity of Living Things Evolution</p>	<p>MS-LS4-5 MS-LS4-6 MS-ESS1-4 MS-ESS2-3</p> <p>MS-LS4-1 MS-LS4-2 MS-LS4-3 MS-LS4-4 MS-LS4-5 MS-LS4-6 MS-ESS1-4 MS-ESS2-3</p>	<ul style="list-style-type: none"> ● Analyze the events that lead to a transition from one era to another ● Identify patterns of change and the evidence for that change in life on Earth ● Analyze theories about how the dinosaurs became extinct <ul style="list-style-type: none"> ● Illustrate and explain how organisms share common ancestors ● Demonstrate how Darwin’s Theory of Evolution illustrates evolution ● Explain why organisms most suited to their environments are most likely to survive ● Analyze mathematical representations of natural selection ● Explain the process of speciation ● Analyze how gathered data supports a theory ● Test and analyze survival of the fittest, including gathering and graphing data ● Analyze how genetic variation affects survival and reproduction 	<p>Textbook Laptops Internet Lab materials</p>
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Space Exploration		<ul style="list-style-type: none">● Understand and explain human exploration of space and predict future exploration● Graph and analyze space exploration data● Analyze whether or not space exploration is worth the cost● Design and build a rocket to launch and travel the farthest●	Laptops Internet Lab materials
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