ELIZABETH PUBLIC SCHOOLS
Every child, Achieving Excellence

Marking Period 1 (MP1)	Science Curriculum Pacing Guide Grade 7
MP1 **Standards for Science Content**	MS-ESS1-4 Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history. (ESS U4L1/L2) MS-ESS3-2 Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects. (ESS U5 L1/L2)
MP1 **Topics**	Earth and Space Sciences Unit 4 - Earth Through Time; Physical Science Unit 5 - The Chemistry of Materials
MP1 **Skills/Concepts**	•The position of rocks in a rock formation can reveal information about their ages. (ESS U4L1) •Sedimentary rocks form when sediment is deposited in layers and compressed and cemented into rock. (ESS U4L1) •Sedimentary rock sequences go from youngest at the top to oldest at the bottom as long as they are relatively undisturbed. (U4L1) •Igneous intrusions that cut across layers of sedimentary rock formed after the sedimentary layers. (ESS U4L1) •The relative and absolute ages of rocks and fossils can be used to place events in order. (ESS U4L1) •These rock layers tell the story of Springdale's ancient past. (ESS U4L2) •The rate of geologic change is slow for some processes and fast for others. (ESS U4L2) •The rock record and fossil record provide information about past environments, living things, climates, geologic processes, and other major events. Scientists can often identify the absolute or relative age of rocks and fossils. (ESS U4L2) •The geologic time scale organizes Earth's history into unequal divisions of time that are based on major events or changes in Earth's history. (ESS U4L2) •Tsunami hazard zones can be identified. (ESS U5L1) •Natural hazards can have negative effects on humans and the environment. (ESS U5L1) •Natural hazards can sometimes be predicted given scientific understanding and data analysis. (ESS U5L1) •Patterns in data can sometimes be used to predict the likelihood of a geologic hazard occurring. (ESS U5L1) •Patterns in data can sometimes be used to predict the likelihood of a weather or climate hazard occurring. (ESS U5L1) •During a flood, water flows into low areas, damaging homes and blocking transportation (ESS U5L2) •A natural hazard mitigation plan includes preparation, response, and recovery. (ESS U5L2) •An engineering design process can be applied to develop a natural hazard mitigation plan that includes preparation, response, and recovery. (ESS U5L2)
MP1 **Core Materials**	HMH Into Science

Marking Period 2 (MP2)	Science Curriculum Pacing Guide Grade 7
MP2 **Standards for Science Content**	MS-ESS3-1 Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes. (ESS U6) MS-ESS3-4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. (ESS U6) MS-ESS3-3 Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. (U7L1) MS-ETS1-2 Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. (U7L1) MS-ESS3-5 Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century. (U7L2)
MP2 **Topics**	Earth and Space Science Unit 6 and Unit 7
MP2 **Skills/Concepts**	· Material and energy resources from Earth systems are used by society in different ways. (ESS U6L1) · Natural resources are replenished at different rates, which affects the availability of each resource. (ESS U6L1) · Tradeoffs are required when using natural resources to balance positive and negative consequences to different Earth systems. (ESS U6L1) · Geologic processes cause the uneven distribution of some natural resources. (ESS U6L1) · In northern Africa, some places are heavily populated while others are not. (ESS U6L2) · Human population growth rates are affected by birth rates, death rates, human migration, and technological improvements that increase the humanlifespan. (ESS U6L2) · The rate at which renewable and nonrenewable resources are used by a population can change over time due to a variety of factors. (ESS U6L2) · When added together, the use of a resource by individuals results in the total resource use of a population. (ESS U6L2) · The Colorado River no longer reaches the sea. (ESS U6L3) · Resource use increases as per capita consumption and population increase, affecting Earth's systems. (ESS U6L3) · The use of water affects all of Earth's systems. (ESS U6L3) · The use of plants, animals, and land affects all of Earth's systems. (ESS U6L3) · Scientists analyze data related to the use and quality of natural resources in order to monitor human impacts on the environment. (ESS U7L1) · An engineering design process can be applied to develop and evaluate methods for monitoring the impact of human activity on Earth. · People can modify their behaviors to reduce the impact of human activities on Earth. (ESS U7L1) · An engineering design process can be applied to develop and evaluate methods for reducing the impact of human activity on Earth. (ESS U7L1). · Earth's average temperature increases when the concentration of greenhouse gases in the atmosphere increases. (ESS U7L2) · Natural processes and human activity can cause changes in global climate. (ESS U7L2) · Certain human activities produce greenhouse gases, which enter the atmosphere and cause higher average global temperatures. (ESS U7L2) · Climate change affects all Earth systems because these systems are interconnected. (ESS U7L2)
MP2 **Core Materials**	HMH Into Science

Marking Period 3 (MP3)	Science Curriculum Pacing Guide Grade 7
MP3 **Standards for Science Content**	MS-PS1-2 Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred. (PS U4) MS-PS1-5 Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved. (PS U4) MS-PS1-6 Undertake a design project to construct and test a device that either releases or absorbs thermal energy by chemical processes. (PS U4) MS-ETS1-1 Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. (PS U4) MS-PS1-3 Gather and make sense of information to describe that synthetic materials come from natural resources and impact society. (PS U5) MS-PS2-1 Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects. (PS U6) MS-PS2-2 Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. (PS U6)
MP3 **Topics**	Physical Science Unit 4 - Chemical Processes and Equations; Physical Science Unit 5 - The Chemistry of Materials; Physical Science Unit 6 Lesson 1 - Introduction to Forces
MP3 **Skills/Concepts**	Students analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred. (PS U4L1) Students explain how chemical equations model chemical reactions and demonstrate the law of conservation of matter. (PS U4L2) Students research and define a problem then develop a solution that uses a chemical process for absorption or release of thermal energy. (PS U4L3) Students analyze how a material's properties affect its function and explain how synthetic materials are designed to have specific properties. (PS U5L1) Students define a frame of reference to describe the motion of an object and carry out an investigation to analyze changes in motion of an object due to forces acting on the object. (PS U6L1)
MP3 **Core Materials**	HMH Into Science

Marking Period 4 (MP4)	Science Curriculum Pacing Guide Grade 7
MP4 **Standards for Science Content**	MS-PS2-1 Apply Newton's third law to design a solution to a problem involving the motion of two colliding objects. (PS U6) MS-PS2-2 Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. (PS U6) MS-LS1-6 Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms. (LS U3) MS-LS1-7 Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism. (LS U3) MS-LS2-1 Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. (LS U3) MS-LS2-2 Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems. (LS U3)
	MS-LS2-3 Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. (LS U3)
MP4 **Topics**	Physical Science Unit 6 - Forces and Motion, Lessons 2 and 3; Life Science Unit 3 - Matter and Energy in Living Systems
MP4 **Skills/Concepts**	•Students investigate the forces acting on objects and predict changes in the objects' motion due to unbalanced forces. (PS U6L2) •Students evaluate competing design solutions using models to represent the interactions of two colliding objects. (PS U6L3) •Students explain the role of photosynthesis and cellular respiration in the cycling of matter and energy within and between organisms. (LS U3L1) •Students interpret data to predict the effects of resource availability on the growth of organisms and populations in an ecosystem. (LS U3L2) •Students explain patterns of interaction between organisms. (LS U3L3) •Students develop a model to explain how matter and energy flow through ecosystems. (LS U3L4)
MP4 **Core Materials**	HMH Into Science