West Deptford Middle School Curriculum Map
Science - Grade 6

Unit/ Duration	Essential Questions	Content	Skills	Assessment	Standards
Unit 1: Waves and Electricity Marking Period 1	• What causes a wave? • What are the basic "parts" of a wave? • What are the properties that all waves exhibit? • What is a mechanical wave? • How do pitch and loudness correspond to the structure of a wave? • How does the Human ear detect sound? • What happens to the pitch of a sound wave when the sound source is in motion? • What happens to the sound waves	• A simple wave has a repeating pattern with a specific wavelength, frequency, and amplitude. • A sound wave needs a medium through which it is transmitted. • When light shines on an object, it is reflected, absorbed, or transmitted through the object, depending on the object's material and the frequency (color) of the light. • The path that light travels can be traced as straight lines, except at surfaces between	• Describe and predict characteristic properties and behaviors of waves when the waves interact with matter. • Apply an understanding of waves as a means to send digital information. • Demonstrate proficiency in developing and using models, using mathematical thinking, and obtaining, evaluating and communicating information.	• Guided, partnered and independent class experiments • Sequencing quiz • Written lab forms	• **LA.6-8.CCSS.ELA-Literacy.RST.6-8.1** • **LA.6-8.CCSS.ELA-Literacy.RST.6-8.2** • **LA.6-8.CCSS.ELA-Literacy.RST.6-8.9** • **SCI.MS-PS4-2** • **LA.6-8.CCSS.ELA-Literacy.WHST.6-8.9** • **LA.8.CCSS.ELA-Literacy.SL.8.5** • **SCI.MS-PS4-3** • **SCI.MS-PS4-1** • **8.1.8.B.1** • **8.1.8.C.1** • **9.2**

	of a plane that travels faster than the speed of sound?	different transparent materials (e.g., air and water, air and glass) where the light path bends. • A wave model of light is useful for explaining brightness, color, and the frequency-dependent bending of light at a surface between media. • However, because light can travel through space, it cannot be a matter wave, like sound or water waves. • Digitized signals (sent as wave pulses) are a more reliable way to encode and			

		transmit information.			

Unit/ Duration	Essential Questions	Content	Skills	Assessment	Standards
Unit 2: Weather and Climate Marking Period 1	• What factors affect weather and climate? • How do meteorologists predict the weather? • What are natural disasters and how are they predicted?	• The complex patterns of the changes and the movement of water in the atmosphere, determined by winds, landforms, and ocean temperatures and currents, are major determinants of local weather patterns. • Variations in density due to variations in temperature and salinity drive a global pattern of	• Construct and use models to develop understanding of the factors that control weather and climate. • Examine feedbacks using a systems approach between systems as energy from the sun is transferred between systems and circulates though the ocean and atmosphere. • Collect data to provide evidence for how the	• Climograph: Google Sheets Project • Google Doc for weather prediction using cold and warm fronts • EdHeads weather prediction activity website	• **SCI.MS-ESS3-5** • **LA.6-8.CCSS.ELA-Literacy.RST.6-8.1** • **LA.6-8.CCSS.ELA-Literacy.RST.6-8.9** • **SCI.MS-ESS2-6** • **LA.6-8.CCSS.ELA-Literacy.WHST.6-8.8** • **SCI.MS-ESS2-5** • **LA.8.CCSS.ELA-Literacy.SL.8.5** • **8.1.8.B.1** • **8.1.8.C.1** • **9.2**

		interconnected ocean currents. • Weather and climate are influenced by interactions involving sunlight, the ocean, the atmosphere, ice, landforms, and living things. These interactions vary with latitude, altitude, and local and regional geography, all of which can affect oceanic and atmospheric flow patterns. • Because these patterns are so complex, weather can only be predicted probabilistically. • The ocean exerts a major influence on weather and	motions and complex interactions of air masses results in changes in weather conditions • Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates. • Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.		

		climate by absorbing energy from the sun, releasing it over time, and globally redistributing it through ocean currents. • Human activities, such as the release of greenhouse gases from burning fossil fuels, are major factors in the current rise in Earth's mean surface temperature (global warming).			

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Unit 3: Space Systems Marking Period 2	• What is Earth's place in the Universe? • What makes up our solar system and how can the motion of Earth explain seasons and eclipses?	• Patterns of the apparent motion of the sun, the moon, and stars in the sky can be observed, described, predicted, and explained with models • Earth and its solar system are part of the Milky Way galaxy, which is one of many galaxies in the universe. • The solar system consists of the sun and a collection of objects, including planets, their moons, and asteroids that are	• Analyze and interpret data to determine scale properties of objects in the solar system. • Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons. • Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.	• Analyze moon phase, eclipse and tidal data to construct models that explain how the relative positions and motions of the Sun, Earth, and Moon cause these three phenomena. • Students work in groups of four to analyze data about a fictional planet and use the data to predict the day length, year length, extent of seasonal variation, and tides for the planet. The	• **SCI.MS-ESS1-3** • **LA.6-8.CCSS.ELA-Literacy.RST.6-8.1** • **LA.6-8.CCSS.ELA-Literacy.RST.6-8.7** • **SCI.MS-ESS1-1** • **SCI.MS-ESS1-2** • **LA.8.CCSS.ELA-Literacy.SL.8.5** • **8.1.8.B.1** • **8.1.8.C.1** • **8.2.8.D.5** • **9.2**

		held in orbit around the sun by its gravitational pull on them. • This model of the solar system can explain eclipses of the sun and the moon. Earth's spin axis is fixed in direction over the short-term but tilted relative to its orbit around the sun. The seasons are a result of that tilt and are caused by the differential intensity of sunlight on different areas of Earth across the year. • The solar system appears to have formed from a disk of dust and gas, drawn		groups model and discuss the characteristics of their planet in a presentation to the class. They prepare a concept map to show their understanding of main concepts gained during the course of the unit.	

		together by gravity.			

Unit/ Duration	Essential Questions	Content	Skills	Assessment	Standards
Unit 4: Structure, Function, and Information Processing Marking Period 3	• How do the structures of organisms contribute to life's functions?	• Volume is how much 3-dimensional space an object takes up. • Density is a measure of mass per unit of volume. • You can determine a pure substance's identity if you know information such as said substance's density, solubility, boiling point, and melting point.	• Conduct an investigation to provide evidence that living things are made of cells, either one cell or many different numbers and types of cells. • Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function. • Use argument supported by evidence for how the body is a	• Analysis Questins and discussions • Formal research paper • Edible Cell model • Microscope instruction folder and labeling quiz. • Web Quests Cells Alive and microbe zoo • Super hero/cell theory rap • Plant and animal cell models	• **SCI.MS-LS1-1** • **LA.6-8.CCSS.ELA-Literacy.RST.6-8.1** • **LA.6-8.CCSS.ELA-Literacy.RST.6-8.2** • **LA.6-8.CCSS.ELA-Literacy.WHST.6-8.1** • **LA.6-8.CCSS.ELA-Literacy.WHST.6-8.7** • **LA.6-8.CCSS.ELA-Literacy.WHST.6-8.8** • **SCI.MS-LS1-8** • **LA.6.CCSS.ELA-Literacy.RI.6.8** • **LA.8.CCSS.ELA-Literacy.SL.8.5** • **SCI.MS-LS1-2** • **SCI.MS-LS13** • **8.1.8.B.1** • **8.1.8.C.1** • **9.2**

		• Relevant Vocabulary: volume, water displacement, graduated cylinder, meniscus, mass, scale balance, density, buoyancy, extrinsic properties, intrinsic properties, melting point, boiling point, solubility, solute, solvent, odor	system of interacting subsystems composed of groups of cells. • Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories		

Unit/ Duration	Essential Questions	Content	Skills	Assessment	Standards
Unit 5:Growth, Development and Reproduction of Organisms Marking Period 4	• How do organisms grow, develop, and reproduce?	• Organisms reproduce, either sexually or asexually, and transfer their genetic	• Use argument based on empirical evidence and scientific reasoning to support an	• Pedigree Chart and punnett square completion. • Leaf color genetics	• **LA.6-8.CCSS.ELA-Literacy.RST.6-8.1** • **LA.6-8.CCSS.ELA-Literacy.RST.6-8.2** • **LA.6-8.CCSS.ELA-Literacy.RST.6-8.4** • **LA.6-8.CCSS.ELA-Literacy.RST.6-8.7**

		information to their offspring. • Plants reproduce in a variety of ways, sometimes depending on animal behavior and specialized features for reproduction. • Genetic factors as well as local conditions affect the growth of the adult plant. • Genes are located in the chromosomes of cells, with each chromosome pair containing two variants of each of many distinct genes. Each distinct gene chiefly controls the production of specific proteins, which in turn affects the traits	explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively. • Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. • Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes	lab. • Create your own person through coin toss genetic trait activity. • Breeding "Critters: using genetic probability. • Using Blood type samples and DNA fingerprinting to find "The Lost Children."	• **LA.6-8.CCSS.ELA-Literacy.WHST.6-8.1** • **LA.6-8.CCSS.ELA-Literacy.WHST.6-8.2** • **LA.6-8.CCSS.ELA-Literacy.WHST.6-8.8** • **LA.6-8.CCSS.ELA-Literacy.WHST.6-8.9** • **SCI.MS-LS4-5** • **SCI.MS-LS1-5** • **LA.6.CCSS.ELA-Literacy.RI.6.8** • **LA.8.CCSS.ELA-Literacy.SL.8.5** • **SCI.MS-LS3-1** • **SCI.MS-LS1-4** • **SCI.MS-LS3-2** • **8.1.8.B.1** • **8.1.8.C.1** • **8.1.8.E.1** • **8.2.8.E.1** • **9.2**

		of the individual. Changes (mutations) to genes can result in changes to proteins, which can affect the structures and functions of the organism and thereby change traits. • Variations of inherited traits between parent and offspring arise from genetic differences that result from the subset of chromosomes (and therefore genes) inherited. • In sexually reproducing organisms, each parent contributes half of the genes acquired (at random) by the	may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism. • Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation. • Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of		

		offspring. Individuals have two of each chromosome and hence two alleles of each gene, one acquired from each parent. These versions may be identical or may differ from each other • In addition to variations that arise from sexual reproduction, genetic information can be altered because of mutations. Though rare, mutations may result in changes to the structure and function of proteins. Some changes are beneficial, others harmful, and	desired traits in organisms.		

		some neutral to the organism. • In artificial selecti on, humans have the capacity to influence certain characteristics of organisms by selective breeding. One can choose desired parental traits determined by genes, which are then passed on to offspring.			