Greenwich Public Schools Curriculum Overview

Grade 5: Science

Families as Partners in Learning

In Grade 5, instructional time should focus on exploring sound and light, natural resources and energy, weather patterns and designing solutions to reduce the impact of weather-related hazards. Students develop models, plan and carry out investigations, analyzing and interpreting data and communicating solutions to real-world problems. **All grade 5 units of study are directly aligned with the approved Next Generation Science Standards** **The GPS Science Program uses the practice of inquiry-based science instruction, applying science concepts to real-world scenarios. Students are required to communicate results and their process to teachers and peers, using a variety of methods to demonstrate their learning and construct viable arguments and critique the reasoning of others, engaging in evidence-based arguments.**	
Unit	**Student Learning Expectations**
Unit 1: Science Launch ***Enduring Understandings:*** ● Students learn about the world around them through asking questions and making observations. ● Data analysis, interpretation and evaluation help students to apply science concepts in multiple contexts.	**Students will Do:** ● Students will make observations and ask questions about the world around them. ● Students will learn how to design and conduct simple investigations. ● Students will learn how to organize, analyze, interpret, and present their data ● Students will model a natural phenomena. ● Students will draw a conclusion and support their claims with evidence. Click Next Generation Science Standards to learn more.

Unit 2 Waves ***Enduring Understandings:*** ● Waves (sound, light, ocean) behave in predictable and similar ways which can be measured. ● Objects can only be seen when light is present. ● Data (graphical and numeric) is the basis of scientific arguments.	**Students will Do:** ● Students will develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. [Clarification Statement: Examples of models could include diagrams, analogies, and physical models using wire to illustrate wavelength and amplitude of waves.] ● Students will develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. ● Students will represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. [Clarification Statement: Examples of patterns could include the position and motion of Earth with respect to the sun and selected stars that are visible only in particular months.] ● Students will support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth. ● Students will investigate the motions of waves to identify patterns. ● Students will experiment showing the movement of waves in liquids, solids, and gases. ● Students develop a model to explain the relationship between light reflection and visibility of objects including: light, objects, the path the light travels, and the eye. ● Students will use the model to explain how a given animal uses its senses to interpret and respond to given stimuli. ● Students will analyze data in a variety of representations. ● Students will synthesize information from more than one data source for more than one topic. ● Students will support arguments using data from given data sets. **Science and Engineering Practices:** ● Developing and using models ● Constructing explanations (for science) and designing solutions (for engineering)
Unit 3 Natural Resources ***Enduring Understandings:*** ● Natural resources are comprised of renewable	**Students will Do:** ● Students will obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. [Clarification Statement: Examples of renewable energy resources could include wind energy, water behind dams, and sunlight; nonrenewable energy resources are fossil fuels and fissile materials. Examples

and nonrenewable energy sources. ● Communities must work together to create methods and systems to utilize and protect Earth's natural resources.	of environmental effects could include loss of habitat due to dams, loss of habitat due to surface mining, and air pollution from burning of fossil fuels.] ● Students will obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment. ● Students will describe and graph the amounts and percentages of salt water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. ● Students will describe and analyze graphs with water distribution data. ● Students will graph water distribution data. ● Students will choose a energy / fuel source and identify from where it is derived. ● Students will describe how the energy is harvested and used. ● Students will describe the effect of harvesting and using the natural resource. ● Students will identify and describe at least one way in which a community is working to protect Earth's resources. **Science and Engineering Practices:** ● Constructing explanations (for science) and designing solutions (for engineering) ● Obtaining, evaluating, and communicating information
Unit 4 Climate ***Enduring Understandings:*** ● Scientists record patterns of the weather across different areas so that they can make predictions about what kind of weather might happen next. ● Solutions can be designed to reduce the impact of weather-related hazards.	**Students will Do:** ● Students will represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. [Clarification Statement: Examples of data at this grade level could include average temperature, precipitation, and wind direction.] ● Students will obtain and combine information to describe climates in different regions of the world. ● Students will make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard. ● Students will define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. ● Students will generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. ● Students will generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans. [Clarification Statement: Examples of solutions could include designing an earthquake resistant building and improving monitoring of volcanic activity.] ● Students will complete the first iteration of their model of the anchoring phenomena. ● Students will represent weather data.

	● Students will revise their model to include weather data. ● Students will describe the difference between weather and climate. ● Students will describe the climates of different regions in the world. ● Students will make observations about the changing climate. ● Students will describe ways humans can influence the climate. ● Students will make a claim about the merit of an existing design solution. ● Students will make observations about weather-related hazards. ● Students will generate solutions to a weather-related hazard. **Science and Engineering Practices** ● Developing and using models ● Analyzing and interpreting data ● Constructing explanations (for science) and designing solutions (for engineering) ● Obtaining, evaluating, and communicating information