

PRESTON PUBLIC SCHOOLS
Science Curriculum Revision to Align with NGSS
Unit Plan Organizer
7th Grade

Grade Level	Unit Name	Unit Theme/Description	NGS Standards Included
7	Thinking Like a Scientist	Students work towards deep understanding of individual facets of the scientific method before putting them together to holistically construct a resource guide which will aid them in designing, carrying out, and analyzing data from experiments throughout the year.	Science and Engineering Practices: 1. Asking Questions and Defining Problems 3. Planning and Carrying Out Investigations 4. Analyzing and Interpreting Data 6. Constructing Explanations and Designing Solutions 7. Engaging in Argument From Evidence 8. Obtaining, Evaluating and Communicating Information
7	"What Am I Made Of? - an exploration of living things and the cells that make them	Students develop criteria to classify an object as living or non-living. Through inquiry based instructional practices, they will discover the building blocks of life (cells) and how they work as a system of integrated parts, culminating in an analogy project that demonstrates what these parts do, and how they contribute to keeping cells, and living beings, alive.	MS-LS1-1 Conduct an investigation to provide evidence that living things are made up of cells; either one cell or many different numbers and types of cells; MS-LS1-2: Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function; MS-LS1-3: Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells; 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.

7	“I Think, Therefore I Am...” - an exploration of how we perceive our world.	Students employ the scientific method to discover how the nervous system is used to perceive information from the environment, transmit it to the brain for processing, and translate it into a physiological response. This unit includes an exploration centered on reaction time, where students seek to find the limitations of this body system and determine how it interacts with other body systems, including the skeletal and muscular systems.	MS-LS1-3: Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells; 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 organism; MS-LS1-8: Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.
7	Extreme Athletes - does the human body have limits?	Students collect evidence to explain possible reasons why a marathon runner was unable to cross the finish line by herself. The focus of this unit is on understanding the interactions between the digestive, respiratory, and cardiovascular systems and how they play a central role in fueling the body with the energy it needs to perform any and all activities. Focus is on understanding the interactions between the digestive, respiratory, and cardiovascular systems.	MS-LS1-3: Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells; 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 organism.

7	How Can Twins Be so Different?	Students will develop an explanation of how twins can look completely different from one another through an understanding of DNA, mutations, and inheritance patterns.	MS-LS3-1: Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of organisms; MS-LS3-2: 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; MS-LS4-5. Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.
7	A Common Bond: An Exploration of the Fossil Record	In this unit, students will analyze the fossil record, embryological development across multiple species, and the existence of vestigial organs in search of evidence to support the theory of evolution. Throughout the unit, students will explore genetic variation among organisms currently inhabiting our planet, how these may lead to differences in success rates of reproduction, and in turn a mechanism for future evolution.	MS-LS4-1. Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past; MS-LS4-2. Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships; MS-LS4-3. Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy; MS-LS4-4. Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment; MS-LS4-6. Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.