

<p align="center">1st Six Weeks August 22 – September 30</p>	<p align="center">2nd Six Weeks October 3 – November 4</p>	<p align="center">3rd Six Weeks November 7 – December 20</p>
<p><u>Photosynthesis & Organic Compounds</u></p> <ul style="list-style-type: none"> Recognize that radiant energy from the Sun is transformed into chemical energy through the process of photosynthesis. Identify that organic compounds contain carbon and other elements such as hydrogen, oxygen, phosphorus, nitrogen, or sulfur; Demonstrate and explain the cycling of matter within living systems such as in the decay of biomass in a compost bin. <p><u>Scientific Investigation and Reasoning skills*</u></p> <ul style="list-style-type: none"> Demonstrate safe practices during laboratory and field investigations as outlined in the Texas Safety Standards and practice appropriate use and conservation of resources, including disposal, reuse, or recycling of materials. Use scientific inquiry methods during laboratory and field investigations. <ul style="list-style-type: none"> plan, design and implement comparative, descriptive and experimental investigations. collect and record data using the International System of Units (SI) . construct tables and graphs. analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends. Use critical thinking, scientific reasoning, and problem solving to make informed decisions and know the contributions of relevant scientists. <ul style="list-style-type: none"> use models to represent aspects of the natural world. identify advantages and limitations of models. relate the impact of research on scientific thought and society. Know how to use a variety of tools and safety equipment to conduct science inquiry. 	<p><u>Cell Structure and Function</u></p> <ul style="list-style-type: none"> Recognize levels of organization in plants and animals, including cells, tissues, organs, organ systems, and organisms. Differentiate between structure and function in plant and animal cell organelles, including cell membrane, cell wall, nucleus, cytoplasm, mitochondrion, chloroplast, and vacuole. Compare the functions of a cell to the functions of organisms such as waste removal Investigate how organisms respond to external stimuli found in the environment such as phototropism and fight or flight. Describe and relate responses in organisms that may result from internal stimuli such as wilting in plants and fever or vomiting in animals that allow them to maintain balance. Demonstrate and illustrate forces that affect motion in everyday life such as emergence of seedlings, turgor pressure, and geotropism. <p><u>Scientific Investigation and Reasoning skills</u></p> <ul style="list-style-type: none"> Use critical thinking, scientific reasoning, and problem solving to make informed decisions and know the contributions of relevant scientists. <ul style="list-style-type: none"> use models to represent aspects of the natural world. identify advantages and limitations of models. relate the impact of research on scientific thought and society. 	<p><u>Cell Structure and Function, continued</u></p> <ul style="list-style-type: none"> See second six weeks <p><u>Organisms and environments (Human Body)</u></p> <ul style="list-style-type: none"> Identify the main functions of the systems of the human organism, including the circulatory, respiratory, skeletal, muscular, digestive, excretory, reproductive, integumentary, nervous, and endocrine systems Compare the functions of a cell to the functions of organisms such as waste removal. Recognize how large molecules are broken down into smaller molecules such as carbohydrates can be broken down into sugars Illustrate the transformation of energy within an organism such as the transfer from chemical energy to heat and thermal energy in digestion

*Scientific, Investigation and Reasoning Skills are taught throughout the entire school year.

<p align="center">4th Six Weeks January 5 – February 17</p>	<p align="center">5th Six Weeks February 21 – April 7</p>	<p align="center">6th Six Weeks April 10 – May 25</p>
<p><u>Genetics</u></p> <ul style="list-style-type: none"> ● Know that reproduction is a characteristic of living organisms and that the instructions for traits are governed in the genetic material. The student is expected to: <ul style="list-style-type: none"> ○ define heredity as the passage of genetic instructions from one generation to the next generation; ○ compare the results of uniform or diverse offspring from sexual reproduction or asexual reproduction; and ○ recognize that inherited traits of individuals are governed in the genetic material found in the genes within chromosomes in the nucleus. <p><u>Adaptations</u></p> <ul style="list-style-type: none"> ● Know that living systems at all levels of organization demonstrate the complementary nature of structure and function. The student is expected to: <ul style="list-style-type: none"> ○ investigate and explain how internal structures of organisms have adaptations that allow specific functions such as gills in fish, hollow bones in birds, or xylem in plants; ● Know that populations and species demonstrate variation and inherit many of their unique traits through gradual processes over many generations. <ul style="list-style-type: none"> ○ identify some changes in genetic traits that have occurred over several generations through natural selection and selective breeding such as the Galapagos Medium Ground Finch (<i>Geospiza fortis</i>) or domestic animals. ○ explain variation within a population or species by comparing external features, behaviors, or physiology of organisms that enhance their survival such as migration, hibernation, or storage of food in a bulb. ○ examine organisms or their structures such as insects or leaves and use dichotomous keys for identification <p><u>Ecology</u></p> <ul style="list-style-type: none"> ● Know interactions occur between matter and energy. <ul style="list-style-type: none"> ○ diagram the flow of energy through living systems, including food chains, food webs, and energy pyramids. ● Know that there is a relationship between organisms and the environment. observe and describe how different environments, including microhabitats in schoolyards and biomes, support different varieties of organisms; <ul style="list-style-type: none"> ○ describe how biodiversity contributes to the sustainability of an ecosystem 	<p><u>Succession</u></p> <ul style="list-style-type: none"> ● Observe, record, and describe the role of ecological succession such as in a microhabitat of a garden with weeds <p><u>Weathering, Erosion, Deposition on TX Ecoregions</u></p> <ul style="list-style-type: none"> ● Analyze the effects of weathering, erosion, and deposition on the environment in ecoregions of Texas <p><u>Natural Disasters</u></p> <ul style="list-style-type: none"> ● Predict and describe how different types of catastrophic events impact ecosystems such as floods, hurricanes, or tornadoes 	<p><u>Earth and Space</u></p> <ul style="list-style-type: none"> ● Know that natural events and human activity can impact Earth systems. <ul style="list-style-type: none"> ○ model the effects of human activity on groundwater and surface water in a watershed. <p><u>Earth and Space</u></p> <ul style="list-style-type: none"> ● Know the components of our solar system. <ul style="list-style-type: none"> ○ analyze the characteristics of objects in our solar system that allow life to exist such as the proximity of the Sun, presence of water, and composition of the atmosphere ○ identify the accommodations, considering the characteristics of our solar system, that enabled manned space exploration. <p><u>Force, Motion and Energy</u></p> <ul style="list-style-type: none"> ● Contrast situations where work is done with different amounts of force to situations where no work is done such as moving a box with a ramp and without a ramp, or standing still

*Scientific, Investigation and Reasoning Skills are taught throughout the entire school year.

PROCESS STANDARDS

Scientific Investigations and Reasoning Skill TEKS are taught throughout the school year during all content units.

Safe and Environmental Practices

- demonstrate safe practices during laboratory and field investigations as outlined in the Texas Safety Standards; and
- practice appropriate use and conservation of resources, including disposal, reuse, or recycling of materials.

Scientific Inquiry

- plan and implement comparative and descriptive investigations by making observations, asking well-defined questions, and using appropriate equipment and technology;
- design and implement experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology;
- collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers;
- construct tables and graphs, using repeated trials and means, to organize data and identify patterns; and
- analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends.

Scientific Problem Solving

- in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;
- use models to represent aspects of the natural world such as human body systems and plant and animal cells;
- identify advantages and limitations of models such as size, scale, properties, and materials; and
- relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content.

Tools and Models

- use appropriate tools to collect, record, and analyze information, including life science models, hand lens, stereoscopes, microscopes, beakers, Petri dishes, microscope slides, graduated cylinders, test tubes, meter sticks, metric rulers, metric tape measures, timing devices, hot plates, balances, thermometers, calculators, water test kits, computers, temperature and pH probes, collecting nets, insect traps, globes, digital cameras, journals/notebooks, and other equipment as needed to teach the curriculum; and
- use preventative safety equipment, including chemical splash goggles, aprons, and gloves, and be prepared to use emergency safety equipment, including an eye/face wash, a fire blanket, and a fire extinguisher.