

Science	
Properties and Principles of Matter and Energy	
	<p>The students will understand that: Changes in properties and states of matter provide evidence of the atomic theory of matter</p> <ul style="list-style-type: none"> ▪ Objects, and the materials they are made of, have properties that can be used to describe and classify them <ul style="list-style-type: none"> ○ Describe physical properties of objects (e.g., size, shape, color, mass) by using the senses, simple tools (e.g., magnifiers, equal arm balances), and/or nonstandard measures (e.g., bigger/smaller; more/less) ○ Identify materials (e.g., cloth, paper, wood, rock, metal) that make up an object and some of the physical properties of the materials (e.g., color, texture, shiny/dull, odor, sound, taste, flexibility) ○ Sort objects based on observable physical properties (e.g., size, material, color, shape, mass) <p>Energy has a source, can be transferred, and can be transformed into various forms but is conserved between and within systems</p> <ul style="list-style-type: none"> ▪ Forms of energy have a source, a means of transfer (work and heat), and a receiver <ul style="list-style-type: none"> ○ Identify the sounds and their source of vibrations in everyday life (e.g., alarms, car horns, animals, machines, musical instruments) ○ Compare different sounds (e.g., loudness, pitch, rhythm) ○ Recognize that the ear serves as a receiver of sound
Properties and Principles of Force and Motion	
	<p>The students will understand that: The motion of an object is described by its change in</p>

	<p>position relative to another object or point</p> <ul style="list-style-type: none"> ▪ The motion of an object is described as a change in position, direction, and speed relative to another object (frame of reference) <ul style="list-style-type: none"> ○ Describe an object's position relative to another object (e.g., above, below, in front of, behind) <p>Forces affect motion</p> <ul style="list-style-type: none"> ▪ Forces are classified as either contact (pushes, pulls, friction, buoyancy) or non-contact (gravity, magnetism), described in terms of direction and magnitude ▪ Identify ways (push, pull) to cause some objects to move by touching them ▪ Recognize magnets cause some objects to move without touching them
<p>Characteristics and Interactions of Living Organisms</p>	
	<p>The students will understand that: There is a fundamental unity underlying the diversity of all living organisms</p> <ul style="list-style-type: none"> ▪ Organisms have basic needs for survival. <ul style="list-style-type: none"> ○ Identify the basic needs of most animals (e.g., air, water, food, shelter) ○ Identify the basic needs of most plants (e.g. air, water, light) ▪ Plants and animals have different structures that serve similar functions necessary for the survival of the organism <ul style="list-style-type: none"> ○ Observe and compare the structures and behaviors of different kinds of plants and animals <p>There is a genetic basis for the transfer of biological characteristics from one generation to the next through reproductive processes</p> <ul style="list-style-type: none"> ▪ There is heritable variation within every species of organism <ul style="list-style-type: none"> ○ Recognize that living things have offspring ○ Recognize a parent - offspring relationship based on the organisms' physical similarities

	and differences
Changes in Ecosystems and Interactions of Organisms with Their Environments	
	<p>The students will understand that: Organisms are interdependent with one another and with their environment</p> <ul style="list-style-type: none"> ▪ All populations living together within a community interact with one another and with their environment in order to survive and maintain a balanced ecosystem <ul style="list-style-type: none"> ○ Describe how the seasons affect the behavior of plants and animals ○ Describe how the seasons affect the everyday life of humans (e.g., clothing, activities)
Processes and Interactions of the Earth's Systems (Geosphere, Atmosphere and Hydrosphere)	
	<p>The students will understand that: Earth's systems (geosphere, atmosphere and hydrosphere) have common components and unique structures</p> <ul style="list-style-type: none"> ▪ The atmosphere (air) is composed of a mixture of gases, including water vapor and minute particles <ul style="list-style-type: none"> ○ Recognize moving air is felt as wind <p>Earth's systems (geosphere, atmosphere and hydrosphere) interact with one another as they undergo change by common processes</p> <ul style="list-style-type: none"> ▪ A. Constantly changing properties of the atmosphere occur in patterns which are described as weather <ul style="list-style-type: none"> ○ Observe and describe daily weather: precipitation (e.g., snow, rain, sleet, fog),

	<p>wind (e.g., light breezes to strong wind), cloud cover, temperature</p> <ul style="list-style-type: none"> ○ Observe and describe the general weather conditions that occur during each season
<p>Composition and Structure of the Universe and the Motion of the Objects Within It</p>	
	<p>The students will understand that: The universe has observable properties and structure</p> <ul style="list-style-type: none"> ▪ The Earth, Sun, and moon are part of a larger system that includes other planets and smaller celestial bodies <ul style="list-style-type: none"> ○ Observe and describe the presence of the Sun, moon and stars in the sky ○ Recognize there are more stars in the sky than anyone can easily count, but they vary in brightness and are not scattered evenly <p>Regular and predictable motions of objects in the universe can be described and explained as the result of gravitational forces</p> <ul style="list-style-type: none"> ▪ The apparent position of the Sun and other stars, as seen from Earth, changes in observable patterns <ul style="list-style-type: none"> ○ Describe the Sun as only being seen in the daytime ○ Recognize the Sun appears to move across the sky from morning to night ▪ The apparent position of the moon, as seen from Earth, and its actual position relative to Earth change in observable patterns <ul style="list-style-type: none"> ○ Observe the moon can be seen sometimes at night and sometimes during the daytime ○ Recognize the moon appears to change shape over the course of a month ▪ The regular and predictable motions of the Earth and moon relative to the Sun explain natural phenomena on Earth, such as day, month, year, shadows, moon phases, eclipses, tides, and seasons

	<ul style="list-style-type: none"> ○ Observe and describe the characteristics of the four seasons as they cycle through the year (summer, fall, winter, spring)
<p>Scientific Inquiry</p>	
	<p>The students will understand that: Science understanding is developed through the use of science process skills, scientific knowledge, scientific investigation, reasoning and critical thinking.</p> <ul style="list-style-type: none"> ▪ Scientific inquiry includes the ability of students to formulate a testable question and explanation, and to select appropriate investigative methods in order to obtain evidence relevant to the explanation <ul style="list-style-type: none"> ○ Pose questions about objects, materials, organisms and events in the environment ○ Conduct a simple investigation (fair test) to answer a question ▪ Scientific inquiry relies upon gathering evidence from qualitative and quantitative observations <ul style="list-style-type: none"> ○ Make qualitative observations using the five senses ○ Make observations using simple tools and equipment (e.g., magnifiers/hand lenses, magnets, equal arm balances, thermometers) ○ Measure length and mass using non-standard units ○ Compare amounts/measurements ▪ Evidence is used to formulate explanations <ul style="list-style-type: none"> ○ Use observations as support for reasonable explanations ○ Use observations to describe relationships and patterns and to make predictions to be tested ▪ Scientific inquiry includes evaluation of explanations (hypotheses, laws, theories) in light of scientific principles (understandings) <ul style="list-style-type: none"> ○ Compare explanations with prior knowledge ▪ The nature of science relies upon communication of results and justification of explanations <ul style="list-style-type: none"> ○ Communicate observations using words,

	pictures, and numbers
Impact of Science, Technology and Human Activity	
	<p>The students will understand that: The nature of technology can advance, and is advanced by, science as it seeks to apply scientific knowledge in ways that meet human needs.</p> <ul style="list-style-type: none"> ▪ A. Designed objects are used to do things better or more easily and to do some things that could not otherwise be done at all <ul style="list-style-type: none"> ○ Recognize some objects occur in nature (natural objects); others have been designed and made by people ▪ Advances in technology often result in improved data collection and an increase in scientific information <ul style="list-style-type: none"> ○ Describe how tools have helped scientists make better observations (e.g., magnifiers) <p>Science and technology affect, and are affected by, society.</p> <ul style="list-style-type: none"> ▪ People, alone or in groups, are always making discoveries about nature and inventing new ways to solve problems and get work done <ul style="list-style-type: none"> ○ Identify a question that was asked, or could be asked, or a problem that needed to be solved when given a brief scenario (fiction or nonfiction of individuals solving everyday problems or learning through discovery) ○ Work with a group to solve a problem, giving due credit to the ideas and contributions of each group member