Unpacked Content
With
OCS Priority Objectives Identified

Grade 5
Science

First Grading Period	Pacing Days/Weeks	Second Grading Period	Pacing Days/Weeks	Third Grading Period	Pacing Days/Weeks	Fourth Grading Period	Pacing Days/Weeks
5.P.1.1	**3-4 weeks**	**5.P.2.1**	**3-5 days**	**5.L.3.1**	**2-3 days**	**5.L.2.1**	**3-4 weeks**
5.P.1.2, 5.P.1.3, 5.P.1.4				5.L.3.2		5.L.2.2 5.L.2.3	
5.P.3.1	**1 week**	**5.E.1.3**	**5-6 weeks**	**5.L.1.2**	3 weeks		
5.P.3.2		5.E.1.1, 5. E.1.2		5.L.1.1	2-3 days		
5.P.2.3	**3-5 days**						
5.P.2.2	1-2 days						

	Percentage of EOG to Test Specification Weight
Physical Science	
Forces and Motion	13%-15%
Matter: Properties and Changes	12%-14%
Earth Systems, Structures and Processes	15%-17%
Energy: Conservation and Transfer	11%-13%
Life Science	
Structures and Functions of Living Organisms	14%-16%
Ecosystems	14%-16%
Evolution &Genetics	13%-15%

First Nine Weeks			
Standard	Prioritized Objective	Complementary Objectives	Unpacked Content
5.P.1 Understand force, motion and the relationship between them.	5.P.1.1 Explain how factors such as gravity, friction, and change in mass affect the motion of objects.	5.P.1.2 Infer the motion of objects in terms of how far they travel in a certain amount of time and the direction in which they travel. 5.P.1.3 Illustrate the motion of an object using a graph to show a change in position over a period.	5.P.1.1 Students know that gravity pulls any object on or near the earth toward it without touching it. Students know that friction is a force that is created anytime two surfaces move or try to move across each other. Students know that all matter has mass. Students understand that changing any or all of these factors will affect the motion of an object. 5.P.1.2 Students know that it is possible to measure the motion of an object based on the distance it will travel in a certain amount of time. 5.P.1.3 Students know that a graph can be created using one axis to represent the distance that an object travels, and the other axis to represent the period of time the object is traveling. Students know how to construct a graph that demonstrates a relation of distance to time.

		5.P.1.4 Predict the effect of a given force or a change in mass on the motion of an object.	5.P.1.4 Students know that the greater a force is, the greater the change (in motion) it produces. The greater the mass of the object being acted on, the less the effect of the (same) force.
5.P.3 Explain how the properties of some materials change as a result of heating and cooling.	5.P.3.1 Explain the effects of the transfer of heat (either by direct contact or at a distance) that occurs between objects at different temperatures. (conduction, convection or radiation).		5.P.3.1 Students know that when warmer things are put with cooler things, the warmer things lose heat and the cool things gain it until they are all at the same temperature. Students know that a warmer object can warm a cooler object by contact or at a distance. Conduction is the transfer of thermal energy between things that are touching. Conduction can happen within one object. (For example, thermal energy can be conducted through the handle of a metal pot.) Convection is the movement of thermal energy by the movement of liquids or gases. Convection in the oceans and atmosphere helps to move thermal energy around Earth, and is an important factor influencing weather and climate. Radiation is the transfer of energy by electromagnetic waves. Electromagnetic waves can carry energy through places with or without any matter. The Sun is the main source of electromagnetic energy on Earth. Part of this energy, light, is used by producers to make food. Radiation can also happen in other circumstances (i.e. sitting in front of a fireplace).
		5.P.3.2 Explain how heating and cooling affect some materials and how this relates to their purpose and practical applications.	5.P.3.2 Students know that heating and cooling can cause changes in the properties of materials, but not all materials respond the same way to being heated and cooled. Students know that heating and cooling cause changes in the properties of materials, such as water turning into steam by boiling and water turning into ice by freezing. Students know and notice that many kinds of changes occur faster at higher temperatures. Students know that some materials conduct heat much better than others, and poor conductors can reduce heat loss.

			Students need not come out of this grade span understanding heat or its difference from temperature. More important, students should become familiar with the warming of objects that start out cooler than their environment, and vice versa. Computer lab ware probes and graphic displays that detect small changes in temperature and plot them can be used by students to examine many instances of heat exchange. Because many students think of cold as a substance that spreads like heat, there may be some advantage in translating descriptions of transfer of cold into terms of transfer of heat.
5.P.2 Understand the interactions of matter and energy and the changes that occur.	5.P.2.3 Summarize properties of original materials, and the new material(s) formed, to demonstrate that a change has occurred.	5.P.2.2 Compare the weight of an object to the sum of the weight of its parts before and after an interaction.	5.P.2.3 Students know that by making qualitative and quantitative data records, we are able to create before/after representations of materials (and their properties), so that we can compare before/after versions of materials. 5.P.2.2 Students know that the weight of an object is equal to the weight of the sum of its parts. This is true in all closed systems.

Second Nine Weeks			
Standard	Prioritized Objective	Complementary Objectives	Unpacked Content
5.P.2 Understand the interactions of matter and energy and the changes that occur.	5.P.2.1 Explain how the sun's energy impacts the processes of the water cycle (including, evaporation, transpiration, condensation, precipitation and runoff).		5.P.2.1 Students know that the sun provides the energy that is a driving force for most biotic and abiotic cycles on the surface of the earth. Students know that the sun's energy fuels the water cycle and impacts different aspects of the water cycle (evaporation, transpiration, condensation, precipitation).
5.E.1 Understand weather patterns and phenomena, making connections to the weather in a particular place and time.	5.E.1.3 Explain how global patterns such as the jet stream and water currents influence local weather in measurable terms such as temperature, wind direction and speed, and precipitation.		5.E.1.3 Students know that local weather conditions are influenced by global factors such as air and water currents. The jet stream is an air current in the upper atmosphere, located over North America that has a powerful influence on the weather conditions there. The jet stream flows from the west to the east and changes location depending on global conditions. The Gulf stream is a warm water surface current in the Atlantic Ocean that moves from south of Florida up the eastern seaboard and then across the Atlantic. The Gulf stream moderates weather along the eastern seaboard, warming the air and land there during the cooler months. In the Pacific, there is an oscillation of water temperatures known as El Nino/La Nina. This oscillation impacts the climate of North and South America for long periods of time. Hurricanes are major storms that form over warm ocean water and are caused by global weather patterns.

		5.E.1.1 Compare daily and seasonal changes in weather conditions (including wind speed and direction, precipitation, and temperature) and patterns. 5.E.1.2 Predict upcoming weather events from weather data collected through observation and measurements.	5.E.1.1 Students know that weather can change from day to day, and that many factors are measured to describe and predict weather conditions. (EG: wind speed and direction, precipitation, temperature and air pressure). Students know that in different latitudes and hemispheres there are different (and sometimes opposite) seasonal weather patterns. 5.E.1.2 Students know that one can collect and compare weather data in order to predict the likelihood of a particular weather condition occurring. Students know how to read basic weather instruments: thermometer, barometer, anemometer, wind vane, and rain gauge. Students also can identify atmospheric conditions (presence and type of clouds [stratus, cirrus, cumulous], fronts) that are associated with predictable weather patterns. Students can make basic weather predictions using these skills.

Third Nine Weeks			
Standard	Prioritized Objective	Complimentary Objectives	Unpacked Content
5.L.3 Understand why organisms differ from or are similar to their parents based on the characteristics of the organism.	5.L.3.1 Explain why organisms differ from or are similar to their parents based on the characteristics of the organism.	5.L.3.2 Give examples of likenesses that are inherited and some that are not.	5.L.3.1 Students know that the life processes and species characteristics that define a population will be transmitted from parent to offspring. Students also know that these processes and characteristics cover a broad range of structures, functions and behaviors that can vary substantially from individual to individual. 5.L.3.2 Students know some likenesses between parents and children are inherited. Other likenesses are learned from parents or within the community (population/culture). Students know that in order for offspring to resemble their parents there must be a reliable way to transfer genetic information from parent to offspring. Students can be encouraged to keep lists of characteristics that animals and plants acquire from their parents, things that they don't, and things that the students are not sure about either way. This is also the time to start building the notion of a population whose members are alike in many ways but show some variation.
5.L.1 Understand how structures and systems of organisms (to include the human body) perform functions	5.L.1.2 Compare the major systems of the human body (digestive, respiratory, circulatory, muscular, skeletal, and cardiovascular)		5.L.1.2 Students know that there are many systems in the human body. Some of these systems are: • Circulatory System (heart, blood, vessels) • Respiratory System (nose, trachea, lungs) • Skeletal System (bones) • Muscular System (muscles) • Digestive System (mouth, esophagus, stomach, intestines) • Nervous System (brain, spinal cord, nerves)

necessary for life.	in terms of their functions necessary for life.	5.L.1.1 Explain why some organisms are capable of surviving as a single cell while others require many cells that are specialized to survive.	Students know that each system performs a special life process function and that the systems work together to maintain health and fitness. 5.L.1.1 Students know that unicellular organisms consist of a single cell and perform all life processes within a single cell. Students know that multicellular organisms are organisms that consist of more than one cell and have differentiated cells that perform specialized functions in the organism. Students know that many organisms –including humans – are multicellular. Students know that in complex multicellular organisms, only the surface cells that are in contact with the external environment are able to exchange substances with it. Cells within the organism are too far away from the environment for direct exchange. This is the reason multicellular organisms have developed transport systems.

Fourth Nine Weeks			
Standard	Prioritized Objective	Complementary Objectives	Unpacked Content
5.L.2 Understand the interdependence of plants and animals with their ecosystem.	5.L.2.1 Compare the characteristics of several common ecosystems, including estuaries and salt marshes, oceans, lakes and ponds, forests, and grasslands.		5. L.2.1 Students know that there are different types of ecosystems (terrestrial and aquatic). These ecosystems can be divided into two types according to their characteristics: ***Terrestrial*** Land-based ecosystems include forests and grasslands. *Forests* have many trees (with needles or with leaves), shrubs, grasses and ferns, and a variety of animals. They usually get more rain than grasslands. Diverse types of animals can be found in forests, depending on their type. Deciduous: black bear, deer, red fox, vole, rabbit, cardinal. Rain forest: panther, monkeys, capybara, snakes, spiders. Temperatures in the forests may vary depending on where the forest is located. *Grasslands* have fertile soil and are covered with tall grasses. They usually get a medium amount of rain, but less than forests. Temperatures may also vary depending on where the grassland is located. Some examples of animals that live in the grasslands are prairie dogs, bison, and grasshoppers. ***Aquatic*** Water-based ecosystems may be fresh water (lakes and ponds) or saltwater (oceans, estuaries and saltwater marshes). *Lakes* and *ponds* are bodies of freshwater that are surrounded by land. Ponds are usually shallower than lakes and the temperature of the water usually stays the same from top to bottom. Plants and algae usually grow along the edges where the water is shallow. Some examples of animals may be different types of fish, amphibians, ducks, turtles, or beavers. *Oceans* are large bodies of saltwater divided by continents. Oceans have many types of ecosystems depending on the conditions (sunlight, temperature, depth, salinity) of that part of the ocean.

		5.L.2.2 Classify the organisms within an ecosystem according to the function they serve producers, consumers, or decomposers (biotic factors). 5.L.2.3 Infer the effects that may result from the interconnected relationship of plants and animals to their ecosystem.	Most organisms live where the ocean is shallow (from the shoreline to the continental shelf) because sunlight can reach deep and the water is warm making food abundant. Some examples of organisms that live in the shallow ocean are drifters (jellyfish or seaweed), swimmers (fish), crawlers (crabs), and those anchored to the ocean floor (corals). Some organisms live in the open ocean, near the surface or down to the deep ocean bottom. Plankton float in the upper regions of the water. Some organisms swim to the surface to find food or for air (whales, turtles, sharks) while others live closer to the bottom (certain fish, octopus, tubeworms). Students know typical visual representations of the various ecosystems, as well as graphic representations of the food chains and webs, cycles and energy pyramids that are commonly associated with ecosystems. 5.L.2.2 Students know that organisms in an ecosystem can be producers, consumers, or decomposers. Students know that producers convert energy from the sun into organic matter through the process of photosynthesis. This organic matter is used by producers and consumers as food which provides the energy that fuels basic life processes. Consumers sometimes consume only or mostly other consumers as a food source. Producers and consumers produce wastes as they perform their life processes and become waste organic matter when they die. Decomposers use these waste materials and other non-living organic matter to fuel their life processes and recycle nutrients that are necessary for producers to carry out their life processes. 5.L.2.3 Students know that all of the organisms in an ecosystem have interconnected relationships. Students know that because of this, factors that impact one population within an ecosystem may impact other populations within that ecosystem.