Teacher: Core Science Grade 5	Year: 2010-11
Course: Science Grade 5	Month: All Months

September

CHARACTERISTICS OF LIFE FUNCTIONS

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards
	Plants: Scientific Method	Create a hypothesis, test through experimentation and observe conclusions.	observe, hypothesis, experiment, variable				S.PS.I.04- STUDENTS WILL: UNDERSTAND AND APPLY SCIENTIFIC CONCEPTS, PRINCIPLES, AND THEORIES PERTAINING TO THE PHYSICAL SETTING AND LIVING ENVIRONMENT AND RECOGNIZE THE HISTORICAL DEVELOPMENT OF IDEAS IN SCIENCE. MST.I.01- STUDENTS WILL USE MATHEMATICAL ANALYSIS, SCIENTIFIC INQUIRY, AND ENGINEERING DESIGN, AS APPROPRIATE, TO POSE QUESTIONS, SEEK ANSWERS, AND DEVELOP SOLUTIONS. MST.I.01.PI.E.01.c- SCIENTIFIC INQUIRY ~ design and conduct an experiment to test a hypothesis

								MST.I.01.PI.E.01.d-SCIENTIFIC INQUIRY ~ use appropriate tools and conventional techniques to solve problems about the natural world, including:measuering, observing, describing, classifying, sequencing
	Plants: Kingdoms Of Life	Classify plants and identify the six kingdoms of life	vascular, non-vascular, fungus, protist, bacterium				4.1.1h-Living things are classified by shared characteristics on the cellular and orglevel. In classifying organisms, biologists consider details of internal and external structures Biological classification systems are arranged from general (kingdom) to specific (species).
	Plants: Survival	Identify visually and orally the structure and function of roots, stems and leaves.	root cap, epidermis, cortex, xylem, phloem, cambium, chloroplast, chlorophyll, transpiration				4.1.1f-Many plants have roots, stems, leaves, and reproductive structures. These orga-nized groups of tissues are

								responsible for a plants life activities.
		Plants: Making Food	Describe the process of photosynthesis and transpiration.	photosynthesis, respiration				4.6.2a-Photosynthesis is carried on by green plants and other organisms containing chlorophyll. In this process, the SunÃ•s energy is converted into and stored as chemical energy in the form of a sugar. The quantity of sugar molecules increases in green plants during photosynthesis in the presence of sunlight.
October	CHARACTERISTICS OF LIFE FUNCTIONS							
Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards	
	Plant Reproduction: Without Seeds	Compare and contrast the life cycles of mosses and ferns. Identify adaptations of seedless plants.	rhizoid, spore, frond, rhizome, asexual reproduction, fertilization, sexual reproduction				4.2.1d-In asexual reproduction, all the genes come from a single parent. Asexually produced offspring are	

							genetically identical to the parent.
	Plant Reproduction: With Seeds	Compare and contrast angiosperms and gymnosperms. Observe and identify the parts of a seed.	seed, angiosperm, gymnosperm, conifer, cotyledon, monocot, dicot				4.4.3e-Patterns of development vary among plants. In seed-bearing plants, seeds contain stored food for early development. Their later development into adulthood is characterized by varying patterns of growth from species to species. 4.4.1a-Some organisms reproduce asexually. Other organisms reproduce sexually. Some organisms can reproduce both sexually and asexually.
	Plants: Life Cycles	Identify the parts of a flower and their functions. Differentiate	ovary, pollination, embryo, seed coat, fruit, stamen				4.4.1a-Some organisms reproduce asexually. Other organisms

			between self pollination and cross pollination.	pistil				reproduce sexually. Some organisms can reproduce both sexually and asexually. 4.4.1c- Methods of sexual reproduction depend upon the species. All methods involve the merging of sex cells to begin the development of a new individual. In many species, including plants and humans, eggs and sperm are produced.
		Plants: Responses	Write an explanation of a tropism and provide examples. Identify adaptations of plants key to their survival.	response, stimulus, tropism, adaptation				4.5.1g-The survival of an organism depends on its ability to sense and respond to its external environment.
Nov	METEOROLOGY/WEATHER/WATER CYCLES							
	Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards

mber		Weather: Atmosphere	Identify visually and in writing the different layers of the atmosphere.	insulation, atmosphere, troposphere, air pressure				4.2.1a- Nearly all the atmosphere is confined to a thin shell surrounding Earth. The atmos-phere is a mixture of gases, including nitrogen and oxygen with small amounts of water vapor, carbon dioxide, and other trace gases. The atmosphere is stratified into layers, each having distinct properties. Nearly all weather occurs in the lowest layer of the atmosphere. 4.2.2i- Weather describes the conditions of the atmosphere at a given location for

							a short period of time.
	Weather: Air Temperature	Identify factors that influence air temperature.	weather				4.2.2l-Air masses form when air remains nearly stationary over a large section of EarthÃ•s surface and takes on the conditions of temperature and humidity from that location. Weather conditions at a location are determined primarily by temperature, humidity, and pressure of air masses over that location.
	Weather: Water In The Air	Explain the relationship between evaporation and condensation.	water vapor, humidity, evaporation, condensation, relative humidity				4.2.1j-Water circulates through the atmosphere, lithosphere, and hydrosphere in what is known as the water

							cycle.
	Weather: Clouds	Create models of the different cloud formations. Illustrate the process known as the water cycle.	stratus clouds, cumulus clouds, cirrus clouds, fog, precipitation, water cycle				4.2.1j- Water circulates through the atmosphere, lithosphere, and hydrosphere in what is known as the water cycle.

December

METEOROLOGY/WEATHER/WATER CYCLES

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards
	Weather: Air Pressure	Differentiate between a high pressure system and a low pressure system.	isobar				4.2.2p- High-pressure systems generally bring fair weather. Low-pressure systems usually bring cloudy, unstable conditions. The general movement of highs and lows is from west to east across the United States.
	Weather: Wind	Identify examples of convection	wind, convection cell, sea				4.2.2m- Most local weather

			cells. Describe the impact of the Coriolis Effect on global winds.	breeze, land breeze, coriolis affect, wind vane, anemometer				condition changes are caused by movement of air masses. 4.2.2n-The movement of air masses is determined by prevailing winds and upper air currents.
		Weather: Air Masses	Identify characteristics of an air mass and how its location affects its properties.	air mass				4.2.2l-Air masses form when air remains nearly stationary over a large section of EarthÃ•s surface and takes on the conditions of temperature and humidity from that location. Weather conditions at a location are determined primarily by temperature, humidity, and pressure of air masses

								over that location. 4.2.2m-Most local weather condition changes are caused by movement of air masses. 4.2.2n-The movement of air masses is determined by prevailing winds and upper air currents.
		Weather: Fronts	Identify the different types of fronts and their characteristics.	front, cold front, warm front, occluded front, stationary front				4.2.2o-Fronts are boundaries between air masses. Precipitation is likely to occur at these boundaries.

January

METEOROLOGY/WEATHER/WATER CYCLES

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards
	Weather: Severe Storms	Describe different severe storms and causes of each.	thunderstorm, tornado, hurricane, storm surge				4.2.2i-Weather describes the conditions of the atmosphere at a given location for a short period of time.

							4.2.2q- Hazardous weather conditions include thunderstorms, tornadoes, hurricanes, ice storms, and blizzards. Humans can prepare for and respond to these conditions if given sufficient warning.
	Weather: Climate	Identify factors that affect climate. Differentiate between weather and climate.	climate, radiative balance, greenhouse affect				4.2.2j- Climate is the characteristic weather that prevails from season to season and year to year.

February

ASTRONOMY/SPACE

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards
	Solar System: Length of Day	Describe how the planets length of day is related to its rotational speed.	solar system, rotate, revolution				4.1.1i-The tilt of Earths axis of rotation and the revolution of Earth around the Sun cause seasons on Earth. The

								length of daylight varies depending on latitude and season.
		Solar System: Bodies in Space	Describe the solar system and things it contains.	planets, orbit				4.1.1c-The Sun and the planets that revolve around it are the major bodies in the solar system. Other members include comets, moons, and asteroids. Earths orbit is nearly circular.
		Solar System: Gravity	Identify how gravity is important to the planets in the solar system.	gravity, inertia				4.1.1d-Gravity is the force that keeps planets in orbit around the Sun and the Moon in orbit around the Earth.
March	ECOLOGY							
	Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards
		Ecological Systems: Ecosystems	Describe the structure of an ecosystem.	ecosystem, ecology, abiotic factors, biotic				4.7.2a-In ecosystems, balance is the result of interactions

			factors				between community members and their environment.
	Ecological Systems: Organization of Living Things	Compare and Contrast populations and communities.	population, community, habitat, niche				4.7.1a-A population consists of all individuals of a species that are found together at a given place and time. Populations living in one place form a community. The community and the physical factors with which it interacts compose an ecosystem.
	Life Cycles: Food Chains	Explain how food chains move energy through a community.	food chain, producer, consumer, decomposer				4.6.1a-Energy flows through ecosystems in one direction, usually from the Sun, through producers to consumers and then to decomposers. This process

							may be visualized with food chains or energy pyramids.
	Life Cycles: Food Webs	Compare and contrast food chains and food webs.	food web, predator, prey, scavenger				4.6.1b-Food webs identify feeding relationships among producers, consumers, and decomposers in an ecosystem.
	Life Cycles: Food Webs	Explain the importance of herbivores, omnivores and decomposers on food webs.	herbivore, omnivore, carnivore, decomposer				4.5.1e-Herbivores obtain energy from plants. Carnivores obtain energy from animals Omnivores obtain energy from both plants and animals. Decomposers, such as bacteria and fungi, obtain energy by consuming wastes and/or dead organisms.

April

ECOLOGY

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards
	Ecosystems:	Define the	limiting				4.7.1b-

	Survival	role of limiting factors.	factor, adaptation				Given adequate resources and no disease or predators, populations (including humans) increase. Lack of resources, habitat destruction, and other factors such as predation and climate limit the growth of certain populations in the ecosystem.
	Relationships: Symbiosis	Distinguish between mutualism, commensalism, and parasitism.	symbiosis, mutualism, parasitism, commensalism				4.7.1c-In all environments, organisms interact with one another in many ways. Relationships among organisms may be competitive, harmful, or beneficial. Some species have adapted to be dependent upon each other with the result that

							neither could survive without the other.
	Competition: Predators	Determine how predators prey and overcrowding affect population size.					4.3.2a-In all environments, organisms with similar needs may compete with one another for resources.
	Biomes: Six Types	Differentiate between the six major biomes.	biome, taiga, tundra, desert, deciduous forest, tropical rainforest				4.5.1a-Animals and plants have a great variety of body plans and internal structures that contribute to their ability to maintain a balanced condition.
	Succession: Pioneer and Climax Communities	Compare and Contast pioneer and climax communities. Describe ecological succession.	ecological succession, pioneer species, pioneer community, climax community				4.7.2b-The environment may be altered through the activities of organisms. Alterations are sometimes abrupt. Some species may replace others over time, resulting in longterm

								gradual changes (ecological succession).

May

CHARACTERICS OF LIFE FUNCTIONS

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards
	Body Systems: Circulatory	Describe the circulatory system, the parts of blood and their functions.	plasma, hemoglobin, platelet, artery, vein, capillary, transfusion				4.1.2f-The circulatory system moves substances to and from cells, where they are needed or produced, responding to changing demands.
	Body Systems: Lymphatic	Determine the importance of the lymphatic system in fighting diseases.	lymph, antibody				4.1.2j-Disease breaks down the structures or functions of an organism. Some diseases are the result of failures of the system. Other diseases are the result of damage by infection from other organisms (germ theory). Specialized cells protect

							the body from infectious disease. The chemicals they produce identify and destroy microbes that enter the body.
	Body Systems: Respiratory	Summarize how the respiratory system works.	respiration, diaphragm, trachea, mucus, cilia, diffusion				4.1.2d-During respiration, cells use oxygen to release the energy stored in food. The respi-ratory system supplies oxygen and removes carbon dioxide (gas exchange).
	Body Systems: Circulatory, Repiratory	Explain how the heart and lungs work together in the body.	atria, ventricle				4.1.2a-Each system is composed of organs and tissues which perform specific functions and interact with each other, e.g., digestion, gas exchange, excretion, circulation,

								loco-motion, control, coordination, reproduction, and protection from disease.

June

CHARACTERICS OF LIFE FUNCTIONS

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards
	Body Systems: Digestive	Describe the process of digestion. Explain how nutrients are absorbed and what happens to undigested food.	digestion, enzyme, bile, villus				4.1.2c-The digestive system consists of organs that are responsible for the mechanical and chemical breakdown of food. The breakdown process results in molecules that can be absorbed and transported to cells.
	Body Systems: Excretory	Identify what happens in the liver, kidney and bladder.	urea, excretion, nephron				4.1.2e-The excretory system functions in the disposal of dissolved waste molecules, the elimination of liquid

							and gaseous wastes, and the removal of excess heat energy.
	Health: Physical Fitness	State the importance of exercise to the development of the body. Describe how a healthful diet is important to physical fitness.	physical fitness, aerobic exercise balance diet, food group				4.5.2c- Metabolism is the sum of all chemical reactions in an organism. Metabolism can be influenced by hormones, exercise, diet, and aging.