Teacher: CORE Science Grade 6	Year: 2010-11
Course: Science Grade 6	Month: All Months

August

CHARACTERISTICS OF LIFE FUNCTIONS:

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards

September

LAB SKILLS/INSTRUMENTS:

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards
What is science ?	Scientific Method: Experiments Skills used in science: solving problems	Identify in writing the steps of the scientific method. Identify in writing the steps of problem solving/decision making.	science technology hypothesis variable				MST.I.01.PI.C MATHEMAT ANALYSIS ~ apply mathem knowledge to s real-world problems and problems that from the investigation c mathematical i using representations such as picture charts, and tab MST.I.01.PI.E SCIENTIFIC INQUIRY ~ c out their resea proposals, recording observations a measurements lab notes, audi tape, computer video tape) to assess the explanation. MST.I.01.PI.F SCIENTIFIC INQUIRY ~

							interpret the organized data answer the res question or hypothesis and gain insight in problem. MST.I.01.PI.F SCIENTIFIC INQUIRY ~ modify their personal understanding phenomena ba on evaluation their hypothes MST.I.06.PI.E MODEL ~ use models to stud processes that cannot be stud directly (e.g., v the real proces too slow, too f or too dangero for direct observation).

CHARACTERISTICS OF LIFE FUNCTIONS:

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standard
What is life ?	Basic Needs: living and nonliving Classifying Life: kingdoms	Compare and contrast living and non-living organisms. Identify the five traits of life. Identify basic needs of living organisms. List the four features	trait organism environment cell development classification species kingdom virus vaccine				4.1.0-Liv things ar both sim to and different each oth and from nonlivin things. 4.1.1a-L things ar compose cells. Ce provide

			scientists use to identify which kingdom an organism belongs to.					structure carry on major function sustain l Cells are usually microsc in size. 4.1.1d-S organism single ce others, includin humans, multicel 4.1.1e-C are orga for more effective function multicel organism Levels o organiza for struc and func of a multicel organism include tissues, organs, a organ systems. 4.1.1h-L things ar classifie shared characte on the ce and orgl In classi organism biologist consider

								details o internal external structure Biologic classific systems arranged general (kingdo specific (species)
O c t o b e r	CHARACTERISTICS OF LIFE FUNCTIONS:							
	Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standard
	What is heredity and reproduction ?	Heredity and Reproduction: sexual and asexual reproduction Genetics: the study of inheritance	Compare and contrast mitosis and meiosis. Distinguish the difference between asexual and sexual reproduction. Define in writing cloning.	mitosis asexual reproduction sexual reproduction sex cell meiosis fertilization cloning embryo genetics gene DNA variation mutation				4.2.0- Organisn inherit g informat a variety ways tha result in continuit structure function between parents a offspring 4.2.1e-In sexual reproduc typically of the ge come fro each par Sexually produced offspring not ident to either parent. 4.3.1b- Changes environn

								condition can affec survival individu organism with a particula trait. Sm differenc between parents a offspring accumul successiv generatio that descenda are very different their ancestors Individu organism with cert traits are likely to survive a have offspring individu without t traits. 4.4.1a-S organism reproduc asexually Other organism reproduc sexually. Some organism reproduc both sex and asex 4.4.2b-In

								sexual reproduc sperm ar egg each carry one of the ge informat for the n individu Therefor fertilized contains genetic informat from eac parent. 4.4.4b-In type of c division, chromos are dupli and then separate two iden and com sets to be passed to of the tw resulting cells. In type of c division, hereditar informat identical the cells result. 4.2.2a-In organism genetic t are passe from generatio generatio 4.3.1a-T processe

							sexual reproduc and muta have giv rise to a variety o traits wit species.

CHARACTERISTICS OF LIFE FUNCTIONS:

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standard
What affects diversity and adaptations ?	Diversity of Life: organisms adapt to their environment	Appreciate the variety of organisms. Define biodiversity. List ways in which organisms adapt to their environments. Describe the importance of the fossil record.	biodiversity adaptation natural selection common ancestor fossil fossil record captive breeding geologic time scale mass extinction				4.3.2b- Extinctio a species occurs w the environm changes the adap characte of a spec are insuffici permit it survival. Extinctio species i common Fossils a evidence a great v of specie existed i past. 4.3.2d- Althoug time nee for chan a species usually g some sp of insect bacteria undergo

								significa change i a few ye 4.4.3c- Various structure function change a organisn goes thr its life cy 4.4.3f-A individu organisn ages, var body structure function change. 4.4.4a-In multicel organisn cell divis is respon for grow maintena and repa some on celled organisn cell divis is a meth asexual reproduc 4.5.1a- Animals plants ha great var of body and inter structure contribu their abi maintain balanced conditio

								4.5.1b-A organisn overall b plan and environn determin way that organisn carries o life processe
November	ECOLOGY:							
	Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards
	Describe the relationships among living things. How does energy travel through the ecosystem ?	Relationships Among Living Things: Organization Energy Through the Ecosystem	Identify the living and nonliving factors in an ecosystem. Examine relationships among living things.	ecosytem ecology biosphere biotic factor abiotic factor population community limiting factor niche habitat endangered species threatened species producer consumer decomposer				4.5.1g-The survival o organism depends o ability to s and respor its externa environme 4.6.1b-Foo webs iden feeding relationshi among producers, consumers decompos an ecosyst 4.7.0-Hum decisions a activities h had a prof impact on physical a living environme 4.7.1c-In a environme organisms interact wi one anothe

								many way Relationsh among organisms be compet harmful, o beneficial. Some spec have adap be depend upon each with the re that neithe could surv without th other. 4.5.1d-The methods fo obtaining nutrients v among organisms Producers, as green p use light e to make th food. Consumer such as animals, ta energy-ric foods. 4.5.1e- Herbivore obtain ene from plant Carnivores obtain ene from anim Omnivore obtain ene from both plants and animals. Decompos such as ba

								and fungi, obtain ene by consum wastes and dead organisms 4.5.2a-Foo provides molecules serve as fu and buildi material fo organisms living thin including plants, mu release en from their using it to on their lif processes. 4.6.1a-Ene flows thro ecosystem one directi usually fro the Sun, through producers consumers then to decompos This proce may be visualized food chain energy pyramids. 4.6.2c-Gre plants are producers food whic used direc indirectly consumers 4.7.1a-A

								population consists of individual species tha found toge at a given and time. Population living in o place form communit The comm and the physical fa with whic interacts compose a ecosystem 4.7.1b-Giv adequate resources no disease predators, population (including humans) increase. I of resourc habitat destructio other facto such as predation climate lim the growth certain population the ecosys 4.7.1d-Son microorga are essenti the surviva other livin things. 4.7.1e-The environme

								may conta dangerous levels of substances (pollutants are harmfu organisms Therefore, good healt environme and indivi requires th monitoring soil, air, a water, and taking step keep them 4.7.2a-In ecosystem balance is result of interaction between communit members a their environme 4.7.2c- Overpopul by any spe impacts th environme due to the increased resources. Human activities c bring abou environme degradatio through resource acquisition urban grow land-use decisions,

							waste disp etc.

ENERGY:

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards
How can we conserve Earth's natural resources ?	Resources:Renewable and Nonrenewable Environment: Pollution	Give examples of how resources are used. Describe how people affect the environment. Analyze the problems of solid waste. Compare and contrast different types of pollution.	natural resource renewable resource nonrenewable resource landfill pollutant acid rain solid waste recycling life-cycle analysis				4.4.1b-Fo fuels cont stored sol energy an considere nonrenew resources. They are a major sou energy in United St Solar ener wind, mov water, and biomass a some exa of renewa energy resources. 4.7.1e-Th environm may conta dangerous levels of substance (pollutant that are harmful to organisms Therefore good heal environm and indivi requires t monitorin soil, air, a water, and taking ste keep them

								4.7.2a-In ecosystem balance is result of interactio between communit members their environm 4.7.2c- Overpopu by any sp impacts th environm due to the increased of resourc Human activities bring abo environm degradati through resource acquisitio urban gro land-use decisions, waste dis etc. 4.7.2d-Sin the Indust Revolutio human activities resulted i major pol of air, wa and soil. Pollution cumulativ ecologica effects su acid rain, global

								warming, ozone depletion. survival o living thir our planet dependson conservati and protec of Earths resources.

December

MATTER:

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standard
What is matter ?	Matter: Atom Parts Matter: Types	Define matter. Describe the parts of an atom and their charges. Give examples of elements, compounds, and mixture. Define synthetic elements.	matter atom proton neutron electron element periodic table compound chemical formula mixture				4.3.1a- Substanc have characte properti Some of properti include odor, ph room temperat density, solubilit heat and electrica conducti hardness boiling a freezing points. 4.3.0-Ma is made particles whose properti determin observab characte of matte its reacti

								4.3.1g- Characte properti be used identify different material separate mixture substanc into its compon For exa iron can removed a mixtu means o magnet. insolubl substanc be separ from a soluble substanc such processe filtration settling, evaporat 4.3.2a-D a physic change a substanc keeps its chemica composi and prop ties. Example physical changes include freezing melting, condens boiling,

								evaporat tearing, a crushing 4.3.2b- Mixtures physical combina of mater and can separate physical means. 4.3.2c-D a chemic change, substanc react in characte ways to new substanc with diff physical chemica properti Example chemica changes include burning wood, cooking egg, rust of iron, a souring milk. 4.3.2d- Substanc are often placed in categori they reac similar w Example include metals,

								nonmeta and nobl gases. 4.3.3a-A matter is made up atoms. A are far to small to with a li microsco 4.3.3b-A and molecul perpetua motion. greater t temperat the great motion. 4.3.3c-A may join together well-def molecul may be arranged regular geometri patterns. 4.3.3d- Interacti among a and/or molecul result in chemica reactions 4.3.3e- Interacti among a and/or molecul result in chemica reactions

								4.3.3f-T are more 100 elen Element combine multitud ways to produce compour that acc for all li and nonl substanc Few ele are foun their pur form. 4.3.3g-T periodic is one us model fo classifyi elements periodic can be u predict properti elements (metals, nonmeta noble ga
January	ENERGY:							
	Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standard
	Define properties and changes to matter.	Properties and change	Define physical and chemical properties of matter. Compare and contrast acids and bases. Identify the main ideas in	physical property density phases of matter chemical property physical change chemical				4.3.1a- Substan have characte properti Some of these properti include odor, ph

			scientific writings. Discuss how physical and chemical changes affect the world we live in.	change				at room tempera density, solubilit heat and electrica conduct hardnes boiling freezing points. 4.3.1c-T motion particles helps to explain phases (states) matter a well as changes one pha another. phase in which m exists depends the attra forces a its partic 4.3.1e-A liquid ha definite volume, takes th shape of containe 4.3.1h- Density be descr as the amount matter th in a give amount space. If

							objects l equal volume, one has mass, th with mo mass is denser.

FORCES AND MOTION

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standard
How is mass, weight, and gravity measured ?	Relationships among mass, weight, and gravity	Investigate the effects of gravity. Compare and contrast weight and mass. Distinguish methods of measuring weight and mass.	gravity weight mass				4.5.2a-E object e gravitati force on every ot object. Gravitat force depends how mu mass the objects l and on h far apart are. Gra is one o forces a on orbit objects a projectil

February

ENERGY

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards
What is energy ?	How energy changes Thermal energy Potential and kinetic	Define energy and describe the forms that it takes. Compare and contrast potential and	energy kinetic energy potential energy thermal energy heat				4.3.3b-Ato and molec are perpetu in motion. greater the temperatur greater the motion.

			kinectic energy. Differentiate among thermal energy, heat, and temperature. Explain how solar energy helps conserve Earth's limited resources.	radiation conduction convection solar energy				4.4.1c-Mo activities i everyday l involve on form of en being transforme into anoth For examp the chemic energy in gasoline is transforme into mecha energy in a automobil engine. En in the form heat, is alm always one the produc energy transforma 4.4.1d-Dif forms of e include he light, elect mechanica sound, nuc and chemi Energy is transforme many way 4.4.1e-Ene can be considered be either k energy, wh is the ener motion, or potential energy, wh depends o relative position. 4.4.2a-Hea

								moves in predictable ways, flow from warm objects to cooler one until both the same temperatur 4.4.2b-Hea be transfer through m by the collisions atoms and/ mole- cule (conductio through sp (radiation) liquid or g currents w facilitate th transfer of (convectio 4.4.4d- Electrical energy can produced f a variety o energy sou and can be transforme into almos other form energy. 4.4.5a-Ene cannot be created or destroyed, only chang from one f into anoth
Mar	ENERGY							

c h	Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standard
	What is electricity ?	Electricity: Forms Magnetism: Lines	Describe how the structure of the atom helps produce electricity. Classify static electricily as a form of potential energy. Distinquish between direct and alternating current. Investigate the relationship between magnetism and electricity. Describe how a compass works. Compare and contrast ways of generating electricity.	electrical energy static electricity circuit switch magnetic field electromagnet generator turbine				4.4.4d- Electric energy c be produ from a variety o energy sources can be transfor into alm any othe form of energy. 4.4.4e- Electric circuits provide means o transfer electrica energy. 4.4.4f- Without touchin them, material has beer electrica charged attracts uncharg material may eith attract o repel otl charged material 4.4.4g- Without direct contact, magnet

								attracts certain material either at or repels other magnets attractiv force of magnet greatest poles 4.5.2b- Electric currents magnets exert a f on each other.
April	ASTRONOMY/SPACE:							
	Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standard
	Appreciate the solar system and beyond.	Solar System: Planets Earth: Moon Stars and Galaxies:	Explain how the tilt of Earth's axis causes seasons. Analyze what causes phases of the moon. Compare and contrast objects in the solar system. Recognize bias in science articles.	rotation revolution eclipse solar system satelite constellation galaxy				4.1.1a-E Sun is ar average- star. The is more t million t greater i volume t Earth. 4.1.1c-T Sun and planets t revolve around it the majo bodies in solar sys Other members include comets, moons, a

								asteroids Earths or nearly circular. 4.1.1d- Gravity i force tha keeps pl in orbit around t Sun and Moon in around t Earth. 4.1.1e-M objects i solar sys have a re and predictab motion. motions explain s phenome a day, a phases o Moon, eclipses, tides, me showers, comets. 4.1.1g-M are seen reflected light. Ou Moon or Earth, w Earth orb the Sun. Moons p as obser from Ea are the r of seeing different tions of t

								lighted a the Moo surface. phases re in a cycl pattern i about on month. 4.1.1h-T apparent motions Sun, Mo planets, stars acr the sky c explaine Earths rotation revolutio Earths rotation causes th length of day to be approxi 24 hours rotation causes th Sun and Moon to appear to along the eastern horizon set along western horizon. Earths revolutio around t Sun defi the lengt the year 365 1/4 4.1.1i-Th of Earths

							of rotatio and the revolutio Earth arc the Sun c seasons c Earth. Th length of daylight varies dependir latitude a season. 4.1.1j-Th shape of Earth, th other pla and stars nearly spherical

GEOLOGY:

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards
Appreciate Earth's materials	Minerals Igneous and Sedimentary Rocks Metamorphic Rock Rock Cycle	Compare and contrast minerals and rocks. Identify minerals using physical properties. Compare and contrast extrusive and intrusive igneous rocks. Investigate how different types of sedimentary rocks form. Describe the	mineral rock crystal gem ore igneous extrusive intrusive sedimentary rock fossil fuel metaphoric rock foliated non-foliated rock cycle				4.2.1e-Ro are comp of minera Only a fe rock-form minerals up most c rocks of Minerals identified the basis physical properties such as s hardness, reaction t acid. 4.2.1f-Fo are usual found in sediment

			conditions needed to form metamorphic rock. Analyze how rocks change in the rock cycle.					rocks. Fo can be us study pas climates environm

May

EARTH'S STRUCTURE

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standard
The Earth is alive and dynamic.	Earthquakes and Volcanoes Layers of the Earth Plate Tectonics	Describe the interior of Earth. Determine what happens during an earthquake. Investigate how volcanoes erupt and where they occur. Investigate the evidence for the theory of continental drift. Determine how Earth's surface is changed by plate tectonics.	earthquake fault focus epicenter volcano mantle inner core outer core continental drift plate seafloor spreading convection currents plate tectonics				4.2.2a-T interior Earth is Heat flo and moveme material within E cause sections Earths c to move may res earthqua volcanic eruption the crea of moun and ocea basins. 4.2.2b- Analysis earthqua wave da (vibratio disturba leads to conclu- that ther layers w Earth. T layersÃ

								crust, m outer co and inne coreÃ‘h distinct properti 4.2.2c- Folded, tilted, faulted, displace rock lay suggest crustal moveme 4.2.2d- Contine fitting together puzzle p and foss correlati provide initial evidenc continer were on together 4.2.2e-T Theory Plate Tectonic explains the ""so lithosph consists series of plates th ""float"" the parti molten section mantle. Convect cells wi the man

							may be driving for the moveme the plate 4.2.2f-P may col move ap or slide one ano Most volcanic activity mountai building occur at boundar these pl often resulting earthqua 4.2.1c-T rock at Earths surface a nearly continuo shell arc Earth ca the lithosph

WATER

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standard
Appreciate the importance of water.	Recycling water The Water Cycle Oceans Earth shaped by water	Investigate how water moves through Earth and its atmosphere. Describe what ground water is. Explain how	evaporation condensation precipitation water cycle groundwater deposition runoff erosion meander salinty				4.2.1d-T majority the lithosph covered relativel thin laye water ca the hydrosp

		water changes Earth's surface. Determine how rivers and floods move sediment. Determine why oceans are salty. Compare and contrast currents, waves, and tides. Discuss the importance of oceans as resources. Describe sources of ocean's pollution.	current wave tide				4.2.1j-W circulate through atmosph lithosph and hydrosp in what known a water cy 4.2.1g-T dynamic processe that wea away Ea surface include weather and eros 4.2.1h-T process weather breaks d rocks to sedimen Soil con of sedim organic material water, a air.

June

REVIEW

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards

EARTH'S ATMOSPHERE

Essential Questions	Content	Skills	Vocabulary	Assessments	Lessons	Resources	Standards
Understanding the Earth's Atmosphere	Layers of the atmosphere Weather Climate	Analyze the makeup of the atmosphere.	atmosphere troposphere stratosphere weather				4.2.1a-N all the atmosphe confined

			Identify parts of the atmosphere. Determine the effects of air pressure. Discuss the causes of weather. Compare and contrast different types of weather. Explain how scientists forecast the weather. Describe climate. Analyze how people affect Earth's climate.	wind air mass front meteorologist climate global warming				thin shell surround Earth. Th atmos- ph is a mixtu gases, including nitrogen oxygen w small am of water vapor, ca dioxide, a other trac gases. Th atmosphe stratified layers, ea having di propertie Nearly al weather occurs in lowest la the atmosphe 4.2.1b-As altitude increases pressure decreases 4.2.2i- Weather describes condition the atmosphe a given location f short peri time. 4.2.2j-Cl is the character weather t prevails f

								season to season ar year to y 4.2.2k-Th uneven heating o Earths su is the cau weather. 4.2.2l-Ai masses fo when air remains r stationary a large se of EarthÂ surface a takes on condition temperatu and humi from that location. Weather condition location a determin primarily temperatu humidity pressure masses o that locat 4.2.2m-M local wea condition changes a caused by movemen air masse 4.2.2n-Th movemen air masse determin prevailin winds an

								upper air currents. 4.2.2o-Fr are boun between masses. Precipita is likely t occur at t boundari 4.2.2p-H pressure systems generally bring fai weather. pressure systems usually b cloudy, unstable condition The gene movemer highs and lows is fr west to e across th United St 4.2.2q-Hazardou weather condition include thunderst tornadoes hurricane storms, a blizzards Humans prepare f and respo these condition given sufficient

								warning. 4.2.2r- Substanc enter the atmosphe naturally from hun activity. S of these substance include d from vol eruptions greenhou gases suc carbon dioxide, methane, water vap These substance affect we climate, a living thi