5th	Grade 5 SCIENCE: Content Map Quarter 1 2 3 4 Teacher:_____	Content (*Specific* text, chapter, lesson, etc.)

	CLASSIFYING LIVING THINGS Discuss: Why do we classify? How does classification help us understand the natural world?	Weeks 1-3	Weeks 4-6	Weeks 7-9
1. Classifying Living Things	Scientists have divided living things into five large groups called kingdoms, as follows: o Plant o Animal o Fungus (mushrooms, yeast, mold, mildew) o Protist (algae, protozoans, amoeba, euglena) o Moneran (bacteria, blue-green algae)			
	Each kingdom is divided into smaller groupings as follows: Kingdom → Phylum → Class → Order → Family → Genus → Species → (Variety)			
	When classifying living things, scientists use special names made up of Latin words (or words made to sound like Latin words), which help scientists around the world understand each other and ensure that they are using the same names for the same living things. o *Homo sapiens*: the scientific name for the species to which human beings belong • (genus *Homo,* species *sapiens*) o Taxonomists: biologists who specialize in classification			
	Different classes of vertebrates and major characteristics: o fish, amphibians, reptiles, birds, mammals (review from grade 3)			
	Introduce an example of how an animal is classified, in order for students to become familiar with the system of classification, not to memorize specific names. For example, a collie dog is classified as follows: o Kingdom: *Animalia* o Phylum: *Chordata* (Subphylum: Vertebrata) o Class: *Mammalia* (mammal) o Order: *Carnivora* (eats meat) o Family: *Canidae* (a group with doglike characteristics) o Genus: *Canis* (a coyote, wolf, or dog) o Species: *familiaris* (a domestic dog) o Variety: Collie			
	CELLS: STRUCTURES & PROCESSES	Weeks 1-3	Weeks 4-6	Weeks 7-9
2. Cell Structure & Process	All living things are made up of cells.			
	Structure of cells (both plant and animal) o Cell membrane: selectively allows substance in and out o Nucleus: surrounded by nuclear membrane, contains genetic material, divides for reproduction o Cytoplasm contains organelles, small structures that carry out the chemical activities of the cell, including mitochondria (which produce the cell's energy) and vacuoles (which store food, water, or wastes)			
	Plant cells, unlike animal cells, have cell walls and chloroplasts.			
	Cells without nuclei: monerans (bacteria)			

2. Cell Structures & Processes (continued)	Some organisms consist of only a single-cell: for example, amoeba, protozoans, some algae.			
	Cells are shaped differently in order to perform different functions. o In complex organisms, groups of cells form tissues (for example, in animals, skin tissue or muscle tissue; in plants, the skin of an onion or the bark of a tree). o Tissues with similar functions form organs (for example, in some animals, the heart, stomach, or brain; in some plants, the root or flower). o In complex organisms, organs work together in a system (recall, for example, from earlier studies of the human body, the digestive, circulatory, and respiratory systems).			
PLANT STRUCTURES & PROCESSES		Weeks 1-3	Weeks 4-6	Weeks 7-9
3A. Structure: Non-Vascular & Vascular Plants	Non-vascular plants (for example, algae)			
	Vascular plants o Vascular plants have tube-like structures that allow water and dissolved nutrients to move through the plant. o Parts and functions of vascular plants: roots, stems and buds, leaves			
3B. Photosynthesis	Photosynthesis is an important life process that occurs in plant cells, but not animal cells (photo = light; synthesis = putting together). Unlike animals, plants make their own food, through the process of photosynthesis.			
	Role in photosynthesis of: energy from sunlight, chlorophyll, carbon dioxide and water, xylem and phloem, stomata, oxygen, sugar (glucose)			
3C. Reproduction	Asexual reproduction o Example of algae o Vegetative reproductions: runners (for example, strawberries) and bulbs (for example, onions), growing plants from eyes, buds, leaves, roots, and stems			
	Sexual reproduction by spore-bearing plants (for example, mosses and ferns)			
	Sexual reproduction of non-flowering seed plants: conifers (for example, pines), male and female cones, wind pollination			
	Sexual reproduction of flowering plants (for example, peas) o Functions of sepals and petals, stamen (male), anther, pistil (female), ovary (or ovule) o Process of seed and fruit production: pollen, wind, insect and bird pollination, fertilization, growth of ovary, mature fruit o Seed germination and plant growth: seed coat, embryo and endosperm germination (sprouting of new plant), monocots (for example, corn) and dicots (for example, beans)			

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LIFE CYCLES & REPRODUCTION		Weeks 1-3	Weeks 4-6	Weeks 7-9
4A. Life Cycle & Reproduction	Life cycle: development of an organism from birth to growth, reproduction, death o Example: Growth stages of a human: embryo, fetus, newborn, infancy, childhood, adolescence, adulthood, old age			
	All living things reproduce themselves. Reproduction may be asexual or sexual. o Examples of asexual reproduction: fission (splitting) of bacteria, spores from mildews, molds, and mushrooms, budding of yeast cells, regeneration and cloning o Sexual reproduction requires the joining of special male and female cells, called gametes, to form a fertilized egg.			
4B. Sexual Reproduction in Animals	Reproductive organs: testes (sperm) and ovaries (eggs)			
	External fertilization: spawning			
	Internal fertilization: birds, mammals			
	Development of the embryo: egg, zygote, embryo, growth in uterus, fetus, newborn			
THE HUMAN BODY		**Weeks 1-3**	**Weeks 4-6**	**Weeks 7-9**
5A. Human Adolescence	Puberty o Glands and hormones (see below, Endocrine System), growth spurt, hair growth, breasts, voice change			
5B. Endocrine System	Human body has two types of glands: duct glands (such as salivary glands), and ductless glands, a.k.a. endocrine glands.			
	Endocrine glands secret (give off) chemicals called hormones. Different hormones control different body processes.			
	Pituitary gland: located at bottom of brain, secrets hormones that control other glands/hormones that regulate growth			
	Thyroid gland: located below voice box, secretes hormone that controls rate at which the body burns and uses food.			
	Pancreas: both a duct and ductless gland, secretes a hormone called insulin that regulates insulin, a person has a sickness called diabetes (which can be controlled)			
	Adrenal glands: secrete a hormone called adrenaline, especially when a person is frightened or angry, causing rapid heartbeat and breathing			
5C. Reproductive System	Females: ovaries, fallopian tubes, uterus, vagina, menstruation			
	Males: testes, scrotum, penis, urethra, semen			
	Sexual reproduction: intercourse, fertilization, zygote, implantation of zygote in the uterus, pregnancy, embryo, fetus, newborn			

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CHEMISTRY: MATTER & CHANGE		Weeks 1-3	Weeks 4-6	Weeks 7-9
6A. Atoms, Molecules, & Compounds	Basics of atomic structure: nucleus, protons (positive charge), neutrons (neutral), electrons (negative charge)			
	Atoms are constantly in motion, electrons move around nucleus in paths called shells (or energy levels).			
	Atoms may join together to form molecules and compounds.			
	Common compounds and their formulas: o Water H_20 o Salt NaCl o Carbon Dioxide CO_2			
6B. Elements	Elements have atoms of only one kind, having same number of protons. Little more than 100 different elements.			
	The Periodic Table: organized elements with common properties o Atomic symbol and atomic number			
	Some well-known elements and their symbols: o Hydrogen H o Helium He o Carbon C o Nitrogen N o Oxygen O o Sodium Na o Aluminum Al o Silicon Si o Chlorine Cl o Iron Fe o Copper Cu o Silver Ag o Gold Au			
	Two important categories of elements: metals and non-metals o Metals comprise about 2/3 of the known elements. o Properties of metals: most are shiny, ductile, malleable, conductive			
6C. Chemical & Physical Change	Chemical change changes what a molecule is made up of and results in a new substance with a new molecular structure. Examples of chemical change: rusting iron, burning of wood, milk turning sour			
	Physical change changes only the properties or appearance of the substance, but does not change what the substance is made up of. Examples of physical change: cutting wood or paper, breaking glass, freezing water			
	NOTE: Qualitative description and investigation of chemical change is sufficient at this grade level.			
SCIENCE BIOGRAPHIES		**Weeks 1-3**	**Weeks 4-6**	**Weeks 7-9**
7. Biographies	o Galileo o Carl Linnaeus (Classifying Living Things) o Ernest Just (Cells) o Percy Lavon Julian (Human Body: Endocrine System)			