

Curriculum Map 2019-20 Life Science 7 (may change order slightly)

Time /Month	Unit	Content	Standard(s)	Skills
20 days	Scientific Method	<ul style="list-style-type: none"> <li>- Science prior knowledge</li> <li>- Lab safety</li> <li>- Lab tools/equipment</li> <li>- Decimals/ metric conversions</li> <li>- Graphing (bar graphs, pie charts and line graphs)</li> <li>- Scientific method</li> <li>- Observation, inference and prediction</li> <li>- Qualitative vs quantitative</li> <li>- Subjective vs objective</li> <li>- Finding evidence</li> <li>- Communicating observations</li> <li>- Theory vs law</li> </ul>	Framework skills	<ul style="list-style-type: none"> <li>- Show what I know about Science (what science is and isn't, who does science, how does science apply to me) and the world around me</li> <li>- Determine appropriate behavior /rules and procedures for lab safety</li> <li>- Identify lab equipment, tell what it is used for/ measures, determine appropriate metric units and properly use the equipment</li> <li>- Convert metric measurements</li> <li>- Make, use and interpret different types of graphs</li> <li>- Put the steps of the scientific method in order and justify the order</li> <li>- Determine the difference between observation, inference and prediction</li> <li>- Tell if an observation is qualitative vs quantitative, and subjective vs objective</li> <li>- Analyze a scenario using observations and inference to locate evidence</li> <li>- Effectively communicate observations accurately</li> <li>- Practice using the scientific method</li> <li>- design an experiment</li> <li>- Describe how a theory and law are different from one another and provide examples of each.</li> <li>- Determine the difference between independent and dependent variables</li> </ul>
20 days	Cells	<ul style="list-style-type: none"> <li>- Needs and characteristics of living things</li> <li>- Levels of organization</li> <li>- Cell organelles</li> <li>- Cell theory</li> <li>- Prokaryotic vs Eukaryotic</li> <li>- Microscope parts</li> <li>- How to use a microscope</li> <li>- Microscope history</li> </ul>	MS-LS1- 1, 2, 6,7 LS2 -1	<ul style="list-style-type: none"> <li>- Describe the characteristics and needs of living things</li> <li>- Determine how living things are organized and give examples</li> <li>- Determine the location, structure and function/ processes of cell organelles (plant and animal)</li> <li>- Compare the cell structures of bacteria, plants and animals to identify the similarities and differences between the basic cell structures</li> <li>- Identify the structures and functions of the microscope</li> <li>- Calculate the total magnification of various objective lens</li> <li>- Use a microscope properly</li> <li>- Compare various plant and animal cells</li> <li>- Determine how materials are transported across the cell membrane</li> </ul>

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		<ul style="list-style-type: none"> <li>- Animal vs plant cell organelles</li> <li>- Transport through membranes (active vs passive transport)</li> <li>- Cellular respiration vs photosynthesis</li> <li>- Mitosis(cell division)</li> </ul>		<ul style="list-style-type: none"> <li>- Determine the difference between passive and active transport</li> <li>- Compare/ contrast cellular respiration and photosynthesis</li> <li>- Explain how cells make new cells by cell division (mitosis)</li> </ul>
30 days	Human body	<ul style="list-style-type: none"> <li>- Roots, suffixes and prefixes associated with the human body</li> <li>- Body systems functions, structures and how they relate</li> <li>- Four tissue types</li> <li>- Integumentary system</li> <li>- Muscular system</li> <li>- Skeletal system</li> <li>- Digestive system</li> <li>- Cardiovascular system</li> <li>- Lymphatic system</li> <li>- Respiratory system</li> <li>- Urinary/Excretory system</li> <li>- Reproductive system</li> <li>- Endocrine system</li> <li>- Nervous system</li> </ul>	MS LS1- 2, 3, 7, 8	<ul style="list-style-type: none"> <li>- Identify and apply roots, suffixes and prefixes associated with the human body</li> <li>- Identify the various body systems, their functions and how they are related</li> <li>- Match organs and structures with the appropriate body system(s)</li> <li>- Identify the four types of tissue in the human body</li> <li>- Predict which part of the body is the most sensitive and explain why</li> <li>- Determine fingerprint patterns and analyze various types/distribution of patterns among the class</li> <li>- Conduct an experiment and analyze data to determine if blinking is voluntary or involuntary</li> <li>- Identify various types of joints and analyze muscle action</li> <li>- Describe how food moves through the digestive system</li> <li>- Determine what pulse rate tells about how the heart works</li> <li>- Determine heart rate before and after various activities</li> <li>- Compare the amount of air taken in during various breathing exercises</li> <li>- Create a working model of the kidney</li> <li>- Experiment to determine reaction time</li> <li>- Construct a model of the brain</li> </ul>
23 days	Genetics	<ul style="list-style-type: none"> <li>- Inherited characteristics</li> <li>- Gregor Mendel's contributions</li> <li>- Dominant vs recessive</li> <li>- Genotypes and phenotypes</li> <li>- Using punnett squares</li> </ul>	MS LS1- 1, 2 LS3- 1, 2	<ul style="list-style-type: none"> <li>- Determine how genes play a role in inherited characteristics</li> <li>- Describe the contributions of Gregor Mendel in the area of genetics</li> <li>- Compare and contrast dominant and recessive genes and give examples of each</li> <li>- Determine the genotype and phenotype of various gene combinations</li> <li>- Determine possible offspring genetic combinations using punnett squares</li> <li>- Identify whether a gene combination is homozygous (purebred) or</li> </ul>

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		<ul style="list-style-type: none"> <li>- Homozygous and heterozygous</li> <li>- Passing traits</li> <li>- Nitrogen bases and the Base-pair rule for DNA</li> <li>- Extracting DNA</li> <li>- Translation</li> <li>- Protein synthesis</li> <li>- meiosis/mitosis</li> <li>- Hybridization</li> <li>- Genetic engineering</li> </ul>		<ul style="list-style-type: none"> <li>heterozygous (hybrid)</li> <li>- Determine how traits are passed from parent to offspring</li> <li>- Determine genetic traits then apply that information to predict the possible genotype and phenotype of the parents</li> <li>- Use punnett squares to determine the genotype and phenotype for traits that show incomplete dominance, codominance, multiple alleles and polygenic inheritance (optional)</li> <li>- Determine how traits are passed from parent to offspring</li> <li>- model a strand of DNA using the rules of base pairing</li> <li>- Extract DNA from my cheek cells</li> <li>- Determine how DNA translates to physical characteristics</li> <li>- Model protein synthesis by combining amino acids to build proteins using various sequences of DNA</li> <li>- Explain how gametes (sex cells) pass on characteristics using meiosis</li> <li>- compare/ contrast the processes of mitosis and meiosis</li> <li>- Determine how common certain phenotypes are within a population</li> <li>- Demonstrate the passing of traits from parent to offspring</li> <li>- Demonstrate how to trace a trait through a family tree</li> <li>- Model the process of hybridization</li> <li>- research/ discuss methods of genetic engineering</li> </ul>
27 days	Ecology	<ul style="list-style-type: none"> <li>- Biotic vs abiotic</li> <li>- Levels of organization within an ecosystem/biome</li> <li>- producers/ autotrophs and consumers/ heterotrophs (various types)</li> <li>- Food chains</li> <li>- Food webs</li> <li>- Energy pyramids</li> <li>- Relationships             <ul style="list-style-type: none"> <li>- Predation</li> <li>- Competition over limited resources</li> <li>- Symbiosis</li> </ul> </li> </ul>	MS LS2- 1, 2, 3, 4, 5, 6	<ul style="list-style-type: none"> <li>- Describe how living things interact with each other with examples</li> <li>- Determine how organisms are organized by their interactions</li> <li>- Identify biotic and abiotic factors</li> <li>- Create a model of each level of organization</li> <li>- Identify the various types of organisms within an ecosystem</li> <li>- Analyze food chains, food webs, and energy pyramids to see how organisms interact within an ecosystem</li> <li>- Create food chains and food webs</li> <li>- Calculate the amounts of energy that are transferred or lost in an ecosystem (food pyramid)</li> <li>- Make a model to demonstrate how energy is transferred through a food chain</li> <li>- Explain the types of relationships that exist between organisms</li> <li>- Research a symbiotic relationship between two organisms and create a classified ad based on that research</li> <li>- Analyze data demonstrating the effects of organism interaction on population size</li> </ul>

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		<ul style="list-style-type: none"> <li>types</li> <li>- Biomes-environmental issues</li> </ul>		<ul style="list-style-type: none"> <li>- Identify the characteristics of various biomes</li> <li>- Reflect on various environmental issues that are connected with the various biomes</li> </ul>
14 days	Evolution	<ul style="list-style-type: none"> <li>- Mutations</li> <li>- Adaptations</li> <li>- Charles Darwin</li> <li>- Theory of evolution</li> <li>- Natural selection</li> <li>- Camouflage</li> <li>- Concealing coloration</li> <li>- Disruptive coloration</li> <li>- Mimicry</li> <li>- Radioactive decay</li> <li>- Fossils</li> <li>- Evidence of evolution                             <ul style="list-style-type: none"> <li>- Homologous structures</li> <li>- Missing links</li> <li>- Similarities in DNA</li> <li>- Embryological evidence</li> </ul> </li> </ul>	MS LS3-1 LS4 1, 2, 3, 4, 6	<ul style="list-style-type: none"> <li>- Explain how physical characteristics of organisms change over generations</li> <li>- Demonstrate how species change over time</li> <li>- Identify various adaptations and tell how they help organisms</li> <li>- Observe how the shape of a bird's beak determines what it eats</li> <li>- Demonstrate how camouflage can help an organism to survive in its environment</li> <li>- Simulate camouflage in animals</li> <li>- Explain the factors that affect natural selection</li> <li>- Model evolution using an interactive website</li> <li>- Explain what a fossil is and how it forms</li> <li>- Calculate the age of fossils using radioactive dating</li> <li>- Provide evidence of evolution by tracing the history of whales</li> </ul>
35 days	Classification	<ul style="list-style-type: none"> <li>- Scientific names/binomial nomenclature</li> <li>- Taxonomy</li> <li>- Latin and Greek root words</li> <li>- Level of classification from domain to species</li> <li>- Dichotomous keys</li> <li>- Cladogram</li> <li>- Viruses</li> <li>- Bacteria/Monera</li> <li>- Protists</li> <li>- Fungi</li> </ul>	MS LS1- 1, 2, 3, 4 LS4 (all)	<ul style="list-style-type: none"> <li>- Demonstrate how scientists group things according to their characteristics</li> <li>- Demonstrate how to name an organism using scientific names/binomial nomenclature</li> <li>- Determine the levels of classification to show relationships with other organisms</li> <li>- Create names for organisms based on observable characteristics using Latin and Greek root words</li> <li>- Create a dichotomous key</li> <li>- Create a cladogram showing evolutionary relationships</li> <li>- Identify a virus type using a dichotomous key</li> <li>- Identify the characteristics/ main structures of a virus</li> <li>- Explain how viruses reproduce</li> <li>- Demonstrate how a viruses/disease spreads throughout a population</li> </ul>

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		<ul style="list-style-type: none"> <li>- Lichens</li> <li>- Non-vascular plants</li> <li>- Vascular plants</li> </ul>		<ul style="list-style-type: none"> <li>- Identify the characteristics/ main structures of bacteria</li> <li>- Identify bacteria type using a dichotomous key</li> <li>- Explain the various ways bacteria can get their energy, reproduce and move</li> <li>- Identify the characteristics/ main structures of protists</li> <li>- Identify protist type using a dichotomous key</li> <li>- Explain the various ways protists can get their energy, reproduce and move</li> <li>- Create a mini-informational poster about a selected organism</li> <li>- Identify the characteristics/ main structures of fungi</li> <li>- Identify fungi type using a dichotomous key</li> <li>- Explain the various ways fungi can get their energy and reproduce</li> <li>- Identify the characteristics/ main structures of non-vascular plants</li> <li>- Identify non-vascular plant type using a dichotomous key</li> <li>- Explain the various ways non-vascular plants can reproduce</li> <li>- Identify the characteristics/ main structures of vascular plants</li> <li>- Identify vascular plant type using a dichotomous key</li> <li>- Explain the various ways vascular plants can get their energy and reproduce</li> <li>- Identify the characteristics/ main structures of animals</li> <li>- Identify animal type using a dichotomous key</li> <li>- Explain the various ways animals can get their energy, reproduce and move</li> </ul>
	Final			