**Course: Science 8 Grade: 8**

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| **Months/Days** | **UNITS** | **STANDARDS** | **CONTENT**  **Topics being covered? What do students need to know? (*nouns*)** | **ACTIVITIES**  **w/Integration of Technology & Career Ready Practices** | **ASSESSMENTS**  **What evidence (formative/summative) is utilized to establish that the content, standards, & skills have been mastered?** |
| September  & October | Unit 1:  Cell Structure and Function 2019 | MS-LS1-1  MS-LS1-2  MS-LS1-3 | -Scientific Method  -Designing Experiments  -Organisms are made of cells  -Microscopes  -Living vs. non-living  - Cell Theory  -Organelles  -Plant and animal cells  -Transport in cells  -Osmosis and Diffusion | -Microscope notes  -Microscope Mania  -Letter e lab  - Characteristics of life notes  - Lab on Characteristics of Life  - Characteristics of life project  -Cell notes  - Cell Theory Lab  -Cell model lab  -Plant and animal cell lab  -Cell Illustrations  - Osmosis notes  -Osmosis Egg Lab  -Gummy Bear osmosis lab  -Design your own Lab  -Kahoots  -Ed-Puzzle  -Virtual Labs | -Microscope labs  -Microscope quiz  - Characteristics of life project  -Cell Model lab  -Cell Quiz  -Cell Story  - Create your own experiment project  -Class Discussion |
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| November | Unit 2: Genetics and Traits  20 | MS-LS3-1  MS LS 3.2 | -DNA in our cells  -Sexual Reproduction  -Asexual reproduction  -Punnett Squares  -Co-dominance  -Sex-linked traits  --Mutations  -Genes  -Genetic Disorders  -GMO’s  -Biotechnology | -Intro to genetics notes  -Super Hero lab/Monsters Inc  -Punnett square intro  -Sponge bob genetics  - Observing Traits Lab  -Sex-linked traits notes  -Sex-linked traits lab  - Introduction to Asexual and Sexual Reproduction and Mutations  -Mutations lab  - Click and Clone lab  -Biotechnology and GMO/Gene Therapy  Notes  -GMO Debate  -Kahoots  -Ed-Puzzle  -Virtual Labs  -Web-quest | -Vocab Quiz  -Mendel Project  -Punnett square quiz  -Labs  -Human Inheritance  quiz  -Genetics Test  -Class Discussion |
| December & January | Unit 3: Human Body | MS-LS-1.3  MS-LS-1.8 | Connection of the systems to each other    **Nervous System**  - types of Neurons  -Parts of the brain  -Memory storage  -disorders  -stem cell research    **Muscular System**  -Types of muscles  -Voluntary vs. involuntary  -Disorders    **Digestive System**  -Parts and functions  -Mechanical vs. chemical  -disorders    **Circulatory system**  -Parts and functions  - heart  - Disorders  -Parts of blood  -Blood types    **Respiratory System**  -Parts and functions  -Disorders  -Lung capacity      **Excretory System**  -Parts and functions  -Disorders | Levels of organization intro and graphic organizer      **Nervous system**  -Intro to nervous system notes  -Sense of touch lab  - Reaction time lab  -Kahoots  -Brain Games  -Ed-Puzzle  - Bill Nye      **Muscular system**  -Intro notes  -Types of tissue lab  -Disorder notes  -Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye    **Digestive system**  -Intro notes  -Measurement Lab  -Fun and Gross  -Digestion chart  - Kahoots  -Ed-Puzzle  - Bill Nye    **Circulatory System**  Intro notes  Trace pathway of blood  Parts of blood notes  -Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye      **Respiratory system**  Intro notes  Lung capacity lab  -Straw Activity Lab  -Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye      **Excretory system**  Intro notes  Kidney lab  -Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye | Human Body Corporation Project  Circulatory system quiz  Excretory system quiz  Digestive system quiz  Respiratory system quiz  Nervous system quiz  Cell Model Lab  Cell Story |
| February | Unit 4:  Earth Science | MS ESS 1.4  MS ESS 2.1  MS ESS 2.2  MS ESS .3 | History of earth  -Flow of Energy  -Cycle of matter  -Distribution of Fossils  -Continental shapes  -Sea floor spreading  -Plate Tectonics  -Earth quakes  -Mountain chains  -Plate Boundaries  -Weathering  -Erosion  -Same fossils in Africa and NJ  -Evidence of plate movement  -Convection currents | Rock Intro Notes  -Mystery Rock Lab  -Sugar Cube Rock lab  -Weathering and Erosion lab  -Plate Tectonics notes  -Mapping earthquakes and volcanoes  -Fossil notes  -Create a fossil lab  -Fossil identification lab  -Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye | Rock cycle  Rock Cycle lab  Erosion and Weathering quiz  Sugar Cube Lab  Plate Tectonics Lab  Earth science test |
| February | Unit 5: Fossil Record  through evolution | MS LS 4.1  MS LS 4.2  MS LS 4.3 | Distribution of Fossils  -Identify “key events” in the evolution of life on Earth  .  -Explain how evolution is linked to how closely two species are related.  -Fossil record shows diversity  -Embryological development  -Fossil dating  -Are birds and dinosaurs related  -What factors cause adaptations in organisms | The History of Life on Earth: DVD    Evolutionary Theories  - comparing the evolutionary theories of Lamarck and Darwin      -Class discussion about fossils, examples, what they show about evolution, why there are gaps in the fossil record.    -Geological time Webquest  -Creating Timelines  Biochemical proof for evolution  Embryo Development  Vestigial Structures    -Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye | Fossil record and Evolution quiz |
| March | Unit 6: Natural Selection and Adaptation | MS LS 4.4  MS LS 4.5  MS LS 4.6 | Genetic variations can change a population size    Humans can influence variations within a species    Natural selection and evolution are closely linked | Intro notes  -Bird beak Lab  -Peppered moth lab  -Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye  Field Trip Opportunity to Planetarium | Natural Selection and Adaptation Test  Design a Best Project |
| April | Unit 7: Energy flow in Ecosystems | SCI.MS-LS1-6  SCI.MS-LS1-7 | -Photosynthesis and cycles of matter  -How food is rearranged in chemical reactions  -Plants use energy from light | Introduction notes  Elodea lab  Virtual lab  Carbon cycle comic strips  Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye | Photosynthesis quiz  Virtual Labs |
| May | Unit 8: Ecosystem Interactions , Energy and Dynamics | SCI.MS-LS2-1  SCI.MS-LS2-3  SCI.MS-LS2-4  SCI.MS-LS2-5 | -Biotic and abiotic factors  -Energy Pyramids  -Food webs  -Cycles  -Biodiversity  -Dynamics of Ecosystems  - endangered species  - three major divisions in abiotic environments | Levels of organization notes  -Food web and energy pyramids practice  -Kelp forest lab  -Cycle notes  -Cycle comic strips  -Symbiosis notes  -Symbiosis card lab  -Symbiosis wanted poster  -Sampling population notes  Mark and recapture lab  -Population goldfish lab  -Biodiversity notes  Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye | Food webs and energy pyramid test  Ecology Vocab Quiz  -Cycles quiz  -Symbiosis project |
| May | Unit 9:  Environmental Resources and Stability on Earth | MS-ESS3-1  MS-ESS3-2  MS-ESS3-4 | -Natural Hazards and weather    -Some events are predictable, others are not    -Renewable and nonrenewable resources    -Human population growth and its effect on the environment    Changes to the environment can affect many species | Renewable and nonrenewable resources notes    -Oil Spill lab  -Oil rig lab    -Global warming notes  -Global warming lab  -Water quality Lab  -Natural resources  Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye | Global warming assessment  Resource quiz  Evaluate green energy |
| June | Unit 10:  Human Impact on the environment and design solutions | MS-ESS3-3  MS-ETS1-2 | Humans and the environment    -Similarities and differences between alternative energy    -Pollution    -Land uses    - Extinction of species    -Discussing What Can Be Done About Mass Extinction  -Invasive Species | Environmental Issues notes  -Human population growth graphing  -Forest and fisheries notes    -Wind Turbine competition    Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye | Wind Turbine Lab |