**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-LS1-1MS-LS1-2MS-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 Traits20 | MS-LS3-1MS 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-1.3MS-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 notesTrace pathway of bloodParts of blood notes-Kahoots-Web-quest-Ed-Puzzle- Bill Nye  **Respiratory system**Intro notesLung capacity lab-Straw Activity Lab-Kahoots-Web-quest-Ed-Puzzle- Bill Nye  **Excretory system**Intro notesKidney lab-Kahoots-Web-quest-Ed-Puzzle- Bill Nye  | Human Body Corporation ProjectCirculatory system quizExcretory system quizDigestive system quizRespiratory system quizNervous system quizCell Model LabCell Story |
| February | Unit 4:Earth Science | MS ESS 1.4MS ESS 2.1MS ESS 2.2MS 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 labErosion and Weathering quizSugar Cube LabPlate Tectonics Lab Earth science test |
| February | Unit 5: Fossil Record  through evolution | MS LS 4.1MS LS 4.2MS 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 TimelinesBiochemical proof for evolutionEmbryo DevelopmentVestigial Structures -Kahoots-Web-quest-Ed-Puzzle- Bill Nye | Fossil record and Evolution quiz |
| March | Unit 6: Natural Selection and Adaptation | MS LS 4.4MS 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 NyeField Trip Opportunity to Planetarium | Natural Selection and Adaptation TestDesign a Best Project |
| April | Unit 7: Energy flow in Ecosystems | SCI.MS-LS1-6SCI.MS-LS1-7 | -Photosynthesis and cycles of matter-How food is rearranged in chemical reactions-Plants use energy from light | Introduction notesElodea labVirtual labCarbon cycle comic stripsKahoots-Web-quest-Ed-Puzzle- Bill Nye  | Photosynthesis quizVirtual Labs |
| May | Unit 8: Ecosystem Interactions , Energy and Dynamics | SCI.MS-LS2-1SCI.MS-LS2-3SCI.MS-LS2-4SCI.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 notesMark and recapture lab-Population goldfish lab-Biodiversity notesKahoots-Web-quest-Ed-Puzzle- Bill Nye | Food webs and energy pyramid testEcology Vocab Quiz-Cycles quiz-Symbiosis project |
| May  | Unit 9:Environmental Resources and Stability on Earth | MS-ESS3-1MS-ESS3-2MS-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 resourcesKahoots-Web-quest-Ed-Puzzle- Bill Nye | Global warming assessmentResource quizEvaluate green energy |
| June | Unit 10:Human Impact on the environment and design solutions | MS-ESS3-3MS-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  |