**Honors Science 8 Pacing Guide 2019**

**Course: Honors Science 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 | MS-LS1-1  MS-LS1-2 | -Organisms are made of cells  -Microscopes  -Living vs. non-living  - Cell Theory  -Organelles  -Plant and animal cells  -Transport in cells  -Osmosis and Diffusion | Metric System notes  -Conversion between English and metric system  -Microscope notes  -Microscope Mania  - Microscope Measurement lab  -Letter e lab  - Characteristics of life notes  - Lab on Characteristics of Life  -Cell notes  - Cell Theory Lab  -Cell model lab  -Plant and animal cell lab  -Cell Illustrations  - Cell Story  - Osmosis notes  -Osmosis Egg Lab  -Design your own lab  - NewsEla  -Kahoots  -Ed-Puzzle  -Virtual Labs | Metric Quiz  Microscope labs  -Microscope quiz  - Characteristics of life project  -Cell Model lab  -Cell Quiz  -Cell Story  - Create your own experiment project |
| November | Unit 2: Genetics and Traits | MS-LS3-1  MS LS 3.2 | DNA in our cells  -Sexual Reproduction  -Asexual reproduction  -Punnett Squares  -Di-hybrids  -Co-dominance  -Sex-linked traits  --Mutations  -Genes  -Genetic Disorders  -GMO’s  -Biotechnology | Intro to genetics notes  -Super Hero lab  -Punnett square intro  -Dragon Genetics lab  -Sponge bob genetics  -Di-hybrid genetics  -Corn Crop Genetics  -DNA lab  -Sex-linked traits notes  -Sex-linked penny lab  -DNA on a chain lab  - Introduction to Asexual and Sexual Reproduction and Mutations  -Sexual and Asexual lab  - Click and Clone lab  DNA and Protein Synthesis  -Code Busters Lab  -Biotechnology  notes  -Biotechnology viewpoint research ( Pick a side)  - Corriel Field Trip  -NewsELA  -Kahoots  -Ed-Puzzle  -Virtual Labs  -Web-quest | Vocabulary  Quiz  -Punnett square quiz  -Labs  -Blood type quiz  -Genetics Test  -Gmo essay  -Cotton Candy Grapes NewsELA |
| 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 | Muscular system  -Intro notes  -Types of tissue lab  -Blinking lab  -Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye    Digestive system  -Intro notes  -Enzyme  lab  -Digestion chart  - Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye    Circulatory System  Intro notes  Heart  Essay  Trace pathway of blood  Heart Dissection lab  Parts of blood notes  Blood transfusion lab  -Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye      Respiratory system  Intro notes  Lung capacity lab  -Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye  Excretory system  Intro notes  Urine lab  -Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye | 3-D Organ Project  Circulatory system quiz  Excretory system quiz  Digestive system quiz  Respiratory system quiz  Nervous system quiz  Design a helmet challenge  Digestion Story Project  Human Body Test  Informational Text |
| February | Unit 4:  Earth Science | MS ESS 1.4  MS ESS 2.1  MS ESS 2.2  MS ESS 2.3 | --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  -Explore Rocks in New Jersey  -Weathering and Erosion lab  -Plate Tectonics notes  -Notes on Earth’s Core (energy) through convection currents  -Mapping earthquakes and volcanoes  -Convection Currents Lab  -Fossil notes  -Create a fossil lab  -Fossil identification lab  -Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye | Rock cycle quiz  Erosion and Weathering quiz  Labs  Earth science test  Informational Text |
| March | Unit 5: Fossil Record  through evolution | MS LS 4.1  MS LS 4.2  MS LS 4.3 | 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  -History of Life on Earth | The History of Life on Earth: DVD    Evolutionary Theories  - comparing the evolutionary theories of Lamarck and Darwin    -Compare and summarize the theories of Lamarck and Darwin    -Class discussion about fossils, examples, what they show about evolution, why there are gaps in the fossil record.    -Evolution of Dragon Fossils activity    -Evidence from Anatomy and Embryology (all video clips come from PBS evolution at http://www.pbs.org/wgbh/evolution/library/04/index.html )    The Great Fossils Find Lab  -Dig for Fossils Lab  -Geological Timeline    -Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye | Fossil record and Evolution quiz  Informational Text  Labs |
| 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  -Toothpick Fish Lab  - Natural Selection Virtual Lab  -Peppered moth lab  -Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye  -Informational Text | Design your species STEM lab  Vocabulary Quiz  Labs  Natural Selection and Adaptation Test |
| 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  Chromatography lab  Virtual lab  Ball and stick model  Carbon cycle games  Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye | Labs  Informational Text  Quiz |
| April   & 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 | Levels of organization notes  -Food web and energy pyramids practice  -Owl pellet lab  -Animal Cracker  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 | Food webs and energy pyramid test  -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 non-renewable resources notes  -Oil Spill lab    -Global warming notes  -Global warming lab  -Water quality Lab  -Crystal Creek Lab  -Natural resources  Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye | Global warming assessment  Resource quiz  Evaluate green energy  Pick a Side Project |
| 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 | Environmental Issues notes  -Human population growth graphing  - Water Pollution Lab  -Wind Turbine competition    Kahoots  -Web-quest  -Ed-Puzzle  - Bill Nye | Solar car project    Human impact test |