**August**

**August 6 -9, 2019: Inquiry**

**August 12-16, 2019: Lab Safety**

**August 19-23, 2019: Asexual/Sexual Reproduction**

**MS CCR Standard: L8.2A** Students will demonstrate an understanding of how sexual reproduction results in offspring with genetic variation while asexual reproduction results in offspring with identical genetic information.

**MS CCR Standard: L8.2A.5** Compare and contrast advantages and disadvantages of asexual and sexual reproduction.

**August 26-30, 2019 and September 2-6, 2019: Inherited/Acquired Traits**

**MS CCR Standard: L8.2A.1** Obtain and communicate information about the relationship of genes, chromosomes, and DNA, and construct explanations comparing their relationship to inherited characteristics.

**MS CCR Standard: L8.2A.2** Create a diagram of mitosis and explain its role in asexual reproduction, which results in offspring with identical genetic information.

**MS CCR Standard: L8.2A.3** Construct explanations of how genetic information is transferred during meiosis.

**MS CCR Standard: L8.2A.4** Engage in discussion using models and evidence to explain that sexual reproduction produces offspring that have a new combination of genetic information different from either parent.

**September 9-13, 2019: Chromosomes**

**MS CCR Standard: L.8.2C** Students will demonstrate an understanding that chromosomes contain many distinct genes and that each gene holds the instructions for the production of a specific protein, which in turn affects the traits of an individual.

 **MS CCR Standard: L.8.2C1** Communicate through diagrams that chromosomes contain many distinct genes and that each gene holds the instructions for the production of specific proteins, which in turn affects the traits of the individual (not to include transcription or translation).

**MS CCR Standard: L.8.2C2** Construct scientific arguments from evidence to support claims about the potentially harmful, beneficial, or neutral effects of genetic mutations on organisms.

**September 16-20, 2019: Genetics**

**MS CCR Standard: L.8.2.B** Students will demonstrate an understanding of the differences in inherited and acquired characteristics and how environmental factors (natural selection) and the use of technologies (selective breeding, genetic engineering) influence the transfer of genetic information.

 **MS CCR Standard: L.8.2.B1** Construct an argument based on evidence for how environmental and genetic factors influence the growth of organisms

**MS CCR Standard: L.8.2.B2** Use various scientific resources to research and support the historical findings of Gregor Mendel to explain the basic principles of heredity.

**MS CCR Standard: L.8.2.B3** Use mathematical and computational thinking to analyze data and make predictions about the outcome of specific genetic crosses (monohybrid Punnett Squares) involving simple dominant/recessive traits.

**MS CCR Standard: L.8.2.B4** Debate the ethics of artificial selection (selective breeding, genetic engineering) and the societal impacts of humans changing the inheritance of desired traits in organisms.

**September 23-27, 2019: Natural Selection/Adaptation/Evolution**

**MS CCR Standard: L.8.4.A** Students will demonstrate an understanding of the process of natural selection, in which variations in a population increase some individuals’ likelihood of surviving and reproducing in a changing environment**.**

**MS CCR Standard: L.8.4.A1** Use various scientific resources to analyze the historical findings of Charles Darwin to explain basic principles of natural selection.

**MS CCR Standard: L.8.4.A2** Investigate to construct explanations about natural selection that connect growth, survival, and reproduction to genetic factors, environmental factors, food intake, and interactions with other organisms.

**MS CCR Standard: L.8.4.B** Students will demonstrate an understanding of how similarities and differences among living and extinct species provide evidence that changes have occurred in organisms over time and that similarity of characteristics provides evidence of common ancestry.

**MS CCR Standard: L.8.4.B1** Analyze and interpret data (e.g. pictures, graphs) to explain how natural selection may lead to increases and decreases of specific traits in populations over time.

 **MS CCR Standard: L.8.4.B2** Construct written and verbal explanations to describe how genetic variations of traits in a population increase some organisms’ probability of surviving and reproducing in a specific environment.

 **MS CCR Standard: L.8.4.B3** Obtain and evaluate scientific information to explain that separated populations, that remain separated, can evolve through mutations to become a new species (speciation).

**MS CCR Standard: L.8.4.B4** Analyze displays of pictorial data to compare and contrast embryological and homologous/analogous structures across multiple species to identify evolutionary relationships.

**September 29-October 4, 2019: Review and Testing (1st Nine Weeks’ Testing)**

**October 7-11, 2019: Earth’s Structure and History**

**MS CCR Standard: E.8.7** Students will demonstrate an understanding of geological evidence to analyze patterns in Earth’s major events, processes, and evolution in history.

**MS CCR Standard: E.8.7.1** Use scientific evidence to create a timeline of Earth’s history that depicts relative dates from index fossil records and layers of rock (strata).

**MS CCR Standard: E.8.7.2** Create a model of the processes involved in the rock cycle and relate it to the fossil record.

**October 14-18, 2019: Earth’s Structure and History**

**MS CCR Standard: E.8.7.3** Construct and analyze scientific arguments to support claims that most fossil evidence is an indication of the diversity of life that was present on Earth and that relationships exist between past and current life forms.

**MS CCR Standard: E.8.7.4** Use research and evidence to document how evolution has been shaped both gradually and through mass extinction by Earth’s varying geological conditions (e.g., climate change, meteor impacts, and volcanic eruptions).

**October 21-25, 2019: Plate Tectonics**

**MS CCR Standard: E.8.9.A** Students will demonstrate an understanding that physical processes and major geological events (e.g., plate movement, volcanic activity, mountain building, weathering, erosion) are powered by the Sun and the Earth’s internal heat and have occurred over millions of years.

**MS CCR Standard: E.8.9.A1** Investigate and explain how the flow of Earth’s internal energy drives the cycling of matter through convection currents between Earth’s surface and the deep interior causing plate movements.

**MS CCR Standard: E.8.9.A2** Explore and debate theories of plate tectonics to form conclusions about past and current movements of rocks at Earth’s surface throughout history.

**MS CCR Standard: E.8.9.A3** Map land and water patterns from various time periods and use rocks and fossils to report evidence of how Earth’s plates have moved great distances, collided, and spread apart.

**October 28-November 8, 2019: Plate Tectonics**

**MS CCR Standard: E.8.9.A4** Research and assess the credibility of scientific ideas to debate and discuss how Earth’s constructive and destructive processes have changed Earth’s surface at varying time and spatial scales.

**MS CCR Standard: E.8.9.A5** Use models that demonstrate convergent and divergent plate movements that are responsible for most landforms and the distribution of most rocks and minerals within Earth’s crust.

 **MS CCR Standard: E.8.9.A6** Design and conduct investigations to evaluate the chemical and physical processes involved in the formation of soils.

 **MS CCR Standard: E.8.9.A7** Explain the interconnected relationship between surface water and groundwater.

**November 11-15, 2019: Natural Resources**

**MS CCR Standard: E.8.9.B** Students will demonstrate an understanding of natural hazards (volcanic eruptions, severe weather, earthquakes) and construct explanations for why some hazards are predictable and others are not.

**MS CCR Standard: E.8.9.B1** Research and map various types of natural hazards to determine their impact on society.

 **MS CCR Standard: E.8.9.B2** Compare and contrast technologies that predict natural hazards to identify which types of technologies are most effective.

**MS CCR Standard: E.8.9.B3** Using an engineering design process, create mechanisms to improve community resilience, which safeguard against natural hazards (e.g., building restrictions in flood or tidal zones, regional watershed management, Firewise construction).\*

**November 18-22, 2019: Waves**

**MS CCR Standard: P.8.6** Students will demonstrate an understanding of the properties, behaviors, and application of waves

**MS CCR Standard: P.8.6.1** Collect, organize, and interpret data about the characteristics of sound and light waves to construct explanations about the relationship between matter and energy.

**November 25-29, 2019: Thanksgiving Holiday Break**

**December 2-6, 2019: Review Earth’s Structure and History**

**MS CCR Standard: E.8.7** Students will demonstrate an understanding of geological evidence to analyze patterns in Earth’s major events, processes, and evolution in history.

**MS CCR Standard: E.8.7.1** Use scientific evidence to create a timeline of Earth’s history that depicts relative dates from index fossil records and layers of rock (strata).

**MS CCR Standard: E.8.7.2** Create a model of the processes involved in the rock cycle and relate it to the fossil record.

**MS CCR Standard: E.8.7.3** Construct and analyze scientific arguments to support claims that most fossil evidence is an indication of the diversity of life that was present on Earth and that relationships exist between past and current life forms.

**MS CCR Standard: E.8.7.4** Use research and evidence to document how evolution has been shaped both gradually and through mass extinction by Earth’s varying geological conditions (e.g., climate change, meteor impacts, and volcanic eruptions).

**December 9-13, 2019: Review Plate Tectonics**

**MS CCR Standard: E.8.9.A** Students will demonstrate an understanding that physical processes and major geological events (e.g., plate movement, volcanic activity, mountain building, weathering, erosion) are powered by the Sun and the Earth’s internal heat and have occurred over millions of years.

**MS CCR Standard: E.8.9.A1** Investigate and explain how the flow of Earth’s internal energy drives the cycling of matter through convection currents between Earth’s surface and the deep interior causing plate movements.

**MS CCR Standard: E.8.9.A2** Explore and debate theories of plate tectonics to form conclusions about past and current movements of rocks at Earth’s surface throughout history.

**MS CCR Standard: E.8.9.A3** Map land and water patterns from various time periods and use rocks and fossils to report evidence of how Earth’s plates have moved great distances, collided, and spread apart.

**MS CCR Standard: E.8.9.A4** Research and assess the credibility of scientific ideas to debate and discuss how Earth’s constructive and destructive processes have changed Earth’s surface at varying time and spatial scales.

**MS CCR Standard: E.8.9.A5** Use models that demonstrate convergent and divergent plate movements that are responsible for most landforms and the distribution of most rocks and minerals within Earth’s crust.

 **MS CCR Standard: E.8.9.A6** Design and conduct investigations to evaluate the chemical and physical processes involved in the formation of soils.

 **MS CCR Standard: E.8.9.A7** Explain the interconnected relationship between surface water and groundwater.

**December 16-20, 2019: Review Natural Resources and Testing (2nd Nine Weeks’ Testing)**

**MS CCR Standard: E.8.9.B** Students will demonstrate an understanding of natural hazards (volcanic eruptions, severe weather, earthquakes) and construct explanations for why some hazards are predictable and others are not.

**MS CCR Standard: E.8.9.B1** Research and map various types of natural hazards to determine their impact on society.

 **MS CCR Standard: E.8.9.B2** Compare and contrast technologies that predict natural hazards to identify which types of technologies are most effective.

**MS CCR Standard: E.8.9.B3** Using an engineering design process, create mechanisms to improve community resilience, which safeguard against natural hazards (e.g., building restrictions in flood or tidal zones, regional watershed management, Firewise construction).\*

**December 23, 2019 – January 3, 2020: Christmas/Winter Break**

**January 6-10, 2020: Waves**

**MS CCR Standard: P.8.6** Students will demonstrate an understanding of the properties, behaviors, and application of waves

**MS CCR Standard: P.8.6.1** Collect, organize, and interpret data about the characteristics of sound and light waves to construct explanations about the relationship between matter and energy.

**January 13-17, 2020: Wave Energy**

**MS CCR Standard: P.8.6.2** Investigate research-based mechanisms for capturing and converting wave energy (frequency, amplitude, wavelength, and speed) into electrical energy.

**January 20-24, 2020: Wave Behavior**

**MS CCR Standard: P.8.6.3** Conduct simple investigations about the performance of waves to describe their behavior (e.g., refraction, reflection, transmission, and absorption) as they interact with various materials (e.g., lenses, mirrors, and prisms).

**January 27-31, 2020: Wave Amplitude and Frequency**

**MS CCR Standard: P.8.6.4** Use scientific processes to plan and conduct controlled investigations to conclude sound is a wave phenomenon that is characterized by amplitude and frequency.

**February 3-7, 2020: Wave Resonance**

**MS CCR Standard: P.8.6.5** Conduct scientific investigations that describe the behavior of sound when resonance changes (e.g., waves in a stretched string and design of musical instruments).

**February 10-14, 2020: Light Waves**

**MS CCR Standard: P.8.6.6** Obtain and evaluate scientific information to explain the relationship between seeing color and the transmission, absorption, or reflection of light waves by various materials.

**February 17-21, 2020: Wave Technology**

**MS CCR Standard: P.8.6.7** Research the historical significance of wave technology to explain how digitized tools have evolved to encode and transmit information (e.g., telegraph, cell phones, and wireless computer networks).

**February 24-28, 2020: Sound/Light Wave**

**MS CCR Standard: P.8.6.8** Compare and contrast the behavior of sound and light waves to determine which types of waves need a medium for transmission.

**MS CCR Standard: P7.5C** Students will demonstrate an understanding of the proper use of the periodic table to predict and identify elemental properties and how elements interact.

**MS CCR Standard: P7.5C1** Develop and use models that explain the structure of an atom.

**March 2-6, 2020: Review/Testing**

**March 9-13, 2020: Spring Break**

**March 16-20, 2020: Review Earth’s Structure and History**

**MS CCR Standard: E.8.7** Students will demonstrate an understanding of geological evidence to analyze patterns in Earth’s major events, processes, and evolution in history.

**MS CCR Standard: E.8.7.1** Use scientific evidence to create a timeline of Earth’s history that depicts relative dates from index fossil records and layers of rock (strata).

**MS CCR Standard: E.8.7.2** Create a model of the processes involved in the rock cycle and relate it to the fossil record.

**MS CCR Standard: E.8.7.3** Construct and analyze scientific arguments to support claims that most fossil evidence is an indication of the diversity of life that was present on Earth and that relationships exist between past and current life forms.

**MS CCR Standard: E.8.7.4** Use research and evidence to document how evolution has been shaped both gradually and through mass extinction by Earth’s varying geological conditions (e.g., climate change, meteor impacts, and volcanic eruptions).

**March 23-April 3, 2020 Review Plate Tectonics**

**MS CCR Standard: E.8.9.A** Students will demonstrate an understanding that physical processes and major geological events (e.g., plate movement, volcanic activity, mountain building, weathering, erosion) are powered by the Sun and the Earth’s internal heat and have occurred over millions of years.

**MS CCR Standard: E.8.9.A1** Investigate and explain how the flow of Earth’s internal energy drives the cycling of matter through convection currents between Earth’s surface and the deep interior causing plate movements.

**MS CCR Standard: E.8.9.A2** Explore and debate theories of plate tectonics to form conclusions about past and current movements of rocks at Earth’s surface throughout history.

**MS CCR Standard: E.8.9.A3** Map land and water patterns from various time periods and use rocks and fossils to report evidence of how Earth’s plates have moved great distances, collided, and spread apart.

**MS CCR Standard: E.8.9.A4** Research and assess the credibility of scientific ideas to debate and discuss how Earth’s constructive and destructive processes have changed Earth’s surface at varying time and spatial scales.

**MS CCR Standard: E.8.9.A5** Use models that demonstrate convergent and divergent plate movements that are responsible for most landforms and the distribution of most rocks and minerals within Earth’s crust.

 **MS CCR Standard: E.8.9.A6** Design and conduct investigations to evaluate the chemical and physical processes involved in the formation of soils.

 **MS CCR Standard: E.8.9.A7** Explain the interconnected relationship between surface water and groundwater.

**April 6-10, 2020: Review Natural Resources**

**MS CCR Standard: E.8.9.B** Students will demonstrate an understanding of natural hazards (volcanic eruptions, severe weather, earthquakes) and construct explanations for why some hazards are predictable and others are not.

**MS CCR Standard: E.8.9.B1** Research and map various types of natural hazards to determine their impact on society.

 **MS CCR Standard: E.8.9.B2** Compare and contrast technologies that predict natural hazards to identify which types of technologies are most effective.

**MS CCR Standard: E.8.9.B3** Using an engineering design process, create mechanisms to improve community resilience, which safeguard against natural hazards (e.g., building restrictions in flood or tidal zones, regional watershed management, Firewise construction).\*

**April 13-17, 2020: Review Waves/ Wave Energy/ Wave Behavior**

**MS CCR Standard: P.8.6** Students will demonstrate an understanding of the properties, behaviors, and application of waves

**MS CCR Standard: P.8.6.1** Collect, organize, and interpret data about the characteristics of sound and light waves to construct explanations about the relationship between matter and energy.

**MS CCR Standard: P.8.6.2** Investigate research-based mechanisms for capturing and converting wave energy (frequency, amplitude, wavelength, and speed) into electrical energy.

**MS CCR Standard: P.8.6.3** Conduct simple investigations about the performance of waves to describe their behavior (e.g., refraction, reflection, transmission, and absorption) as they interact with various materials (e.g., lenses, mirrors, and prisms).

**April 20 - 24, 2020: Review Wave Amplitude and Frequency/ Wave Resonance/ Light Waves**

**MS CCR Standard: P.8.6.4** Use scientific processes to plan and conduct controlled investigations to conclude sound is a wave phenomenon that is characterized by amplitude and frequency.

**MS CCR Standard: P.8.6.5** Conduct scientific investigations that describe the behavior of sound when resonance changes (e.g., waves in a stretched string and design of musical instruments).

**MS CCR Standard: P.8.6.6** Obtain and evaluate scientific information to explain the relationship between seeing color and the transmission, absorption, or reflection of light waves by various materials.

**April 27-May 1, 2020: Review Wave Technology/ Sound/Light Wave**

**MS CCR Standard: P.8.6.7** Research the historical significance of wave technology to explain how digitized tools have evolved to encode and transmit information (e.g., telegraph, cell phones, and wireless computer networks).

**MS CCR Standard: P.8.6.8** Compare and contrast the behavior of sound and light waves to determine which types of waves need a medium for transmission.

**MS CCR Standard: P7.5C** Students will demonstrate an understanding of the proper use of the periodic table to predict and identify elemental properties and how elements interact.

**MS CCR Standard: P7.5C1** Develop and use models that explain the structure of an atom.

**May 4-8, 2020: Review Genetics**

**MS CCR Standard: L.8.2.B** Students will demonstrate an understanding of the differences in inherited and acquired characteristics and how environmental factors (natural selection) and the use of technologies (selective breeding, genetic engineering) influence the transfer of genetic information.

 **MS CCR Standard: L.8.2.B1** Construct an argument based on evidence for how environmental and genetic factors influence the growth of organisms

**MS CCR Standard: L.8.2.B2** Use various scientific resources to research and support the historical findings of Gregor Mendel to explain the basic principles of heredity.

**MS CCR Standard: L.8.2.B3** Use mathematical and computational thinking to analyze data and make predictions about the outcome of specific genetic crosses (monohybrid Punnett Squares) involving simple dominant/recessive traits.

**MS CCR Standard: L.8.2.B4** Debate the ethics of artificial selection (selective breeding, genetic engineering) and the societal impacts of humans changing the inheritance of desired traits in organisms.

**STATE TESTING**