

Marietta City Schools Pacing Guide

Subject: 7th Grade Accelerated Science (Follows 8th Grade Standards)

Grade Level: 7th Grade

Time Frame: Year Long

Month / Week	CCS Benchmarks	Skills/Activities	Resources	Assessment
Chapter 1 Aug- Sept	<p>ID questions to be answered through scientific investigation. (SIA.1)</p> <p>Design/conduct a scientific investigation. (SIA.2)</p> <p>Use appropriate tools to gather data/info. (SIA.3)</p> <p>Analyze/ interpret data. (SIA.4)</p> <p>Develop descr's, models, expl's, & pred's. (SIA.5)</p> <p>Connect evidence & explanations. (SIA.6)</p> <p>Recognize alt. exp./pred. (SIA.7)</p> <p>Communicate scientific proc. & expl. (SIA.8)</p>	<p>This short chapter focuses on reviewing the goals of science, the scientific method, and lab safety skills.</p> <p>Students will carry out example experiments where they will go through and explain the different steps of the scientific method.</p>	<p>Teacher created notes</p> <p>Teacher developed labs and activities.</p> <p>Supplemental Web Videos</p> <p>Online scientific simulation activities</p>	<p>Summative and Formative Assessment used appropriately</p>
Chapter 2 Earth's Interior and Plate Tectonics Sept-Oct	<ul style="list-style-type: none"> •Know the similarities and differences between plate tectonics and continental drift •Be familiar with Alfred Wegener and the evidence for continental drift. <ul style="list-style-type: none"> o Understand the importance of the magnetic bands in the ocean floor and how they form. •Know how old scientific evidence suggests the Earth is (4.6 billion years old) •Understand planetary differentiation and how the layers of the Earth change gradually and not suddenly. •Be able to describe Uniformitarianism •Know about what supercontinents are including Pangea, Gondwanaland, and Laurasia •Define and understand convection currents. Be able to identify convection based on an image or picture •Understand how scientists now about Earth's interior •Know the layers of the mechanical and compositional structures of the Earth. Be familiar with the materials that make up each layer. •Be able to define P-waves and S-waves and identify 	<p>Students will carry out experiments to help explain and understand Earth's Interior.</p> <p>Other activities will be completed to help understand similarities and differences with seismic waves and continental drift/plate tectonics.</p>	<p>Teacher created notes</p> <p>Teacher developed labs and activities.</p> <p>Supplemental Web Videos</p> <p>Online scientific simulation activities</p>	<p>Summative and Formative Assessment used appropriately</p>

	P-waves and S-waves based on images			
Chapter 3 Plate Boundary Interactions Oct-Nov	<ul style="list-style-type: none"> •Know the differences between oceanic and continental crust. •Know the driving force that makes the tectonic plates move in the first place. •Know the three types of plate boundaries: convergent, divergent, and transform. Be able to identify them from a diagram and able to describe what happens at the boundary <ul style="list-style-type: none"> o Know the subtypes for type of plate boundary •Know which plate boundaries typically create trenches, which create mountains, and which create volcanoes. Your diagram images will help with this. •Make sure you know each of the following terms; subduction, rift valley, archipelago, Ring of Fire, deformation •Know the difference between a hanging and a foot wall •Know the difference between fault lines and plate boundaries •Know the difference between a fault and a fold in rock layers •Know the three different forms of rock stress we discussed: compression, tension, and shearing. •Know the three different types of faults: normal, thrust/reverse, strike-slip/lateral. Make sure you know which kind of stress is related to each of the faults. Make sure you can understand pictures and diagrams of faults. 	<p>Students will carry out experiments to help explain and understand plate boundary interactions.</p> <p>Other activities will be completed to help understand similarities and differences between plate boundaries and different types of faults.</p>	<p>Teacher created notes Teacher developed labs and activities. Supplemental Web Videos Online scientific simulation activities</p>	<p>Summative and Formative Assessment used appropriately</p>
Chapter 4 Plate Boundary Features Nov -Dec	<ul style="list-style-type: none"> •Know what a earthquake is and what causes earthquakes to occur. •Know the differences between p-waves, s-waves, and surface waves •Understand what a seismometer is •Know what the Richter Scale is and how the scale works. •Understand what the focus and epicenter of an earthquake is and the difference between the two •Know what a tsunami is <ul style="list-style-type: none"> o Be aware of what causes tsunamis o Know the warning signs of a tsunami •Know what a volcano is and what causes them to form <ul style="list-style-type: none"> o Know the positives and negatives of volcanoes 	<p>Students will carry out experiments to help explain and understand geological features caused by plate boundaries.</p> <p>Other activities will be completed to help understand similarities and differences between body waves and surface waves</p>	<p>Teacher created notes Teacher developed labs and activities. Supplemental Web Videos Online scientific simulation activities</p>	<p>Summative and Formative Assessment used appropriately</p>

	<ul style="list-style-type: none"> ○ Know what a caldera is. •Know how Hawaii was formed and the definition of hot spots. •Understand what a geyser is. •Difference between magma and lava 			
<p>Chapter 5 Weathering and Erosion Dec</p>	<ul style="list-style-type: none"> •Know the similarities and differences between weathering, erosion, and deposition. •Understand terms such as mass movement and alluvium •Know the differences between mechanical and chemical weathering •Be able to explain what climate conditions allow chemical and mechanical weathering to occur at a faster rate. •Know how surface area affects the rate of weathering. •Know how to erosion can be caused by water, ice, wind, and gravity. ○ Know how the speed of wind or water affects the size of sediment picked up ○ Know how different areas of a river bend can more or less erosion •Know what a glacier is and how it forms. ○Be able to describe and identify the 6 types of glacial landforms •Understand how to read topographical maps 	<p>Students will carry out experiments to help explain and understand how weathering, erosion, and deposition shape the surface of the Earth</p> <p>Other activities will be completed to help understand similarities and differences between weather/erosion caused by water, wind, gravity, or ice.</p>	<p>Teacher created notes Teacher developed labs and activities. Supplemental Web Videos Online scientific simulation activities</p>	<p>Summative and Formative Assessment used appropriately</p>
<p>Chapter 6 Earth's History Jan</p>	<ul style="list-style-type: none"> •Understand uniformitarianism. ○ Know different aspects of Earth's past that uniformitarianism helps geologists understand Earth's past •Know the differences between absolute and relative age. •Be able to connect radioactive/radiometric dating to absolute age. •Understand what the law of superposition is and how it is related to finding the relative ages of rocks and fossils. •Know what an index fossil is and what qualities make a good index fossil. •Be able to identify, describe, and explain what causes faults, intrusions, and unconformities. •Know that Earth's climate has changed in the past, is changing today, and will continue to change in the future. 	<p>Students will carry out experiments to help explain and understand how the Earth has changed as well as the evidence scientists use to support those changes.</p> <p>Other activities will be completed to help understand similarities and differences between relative and absolute dating</p>	<p>Teacher created notes Teacher developed labs and activities. Supplemental Web Videos Online scientific simulation activities</p>	<p>Summative and Formative Assessment used appropriately</p>

	<ul style="list-style-type: none"> ○ Know evidence do scientists use to figure out what a past climate may have looked like • Know that Anthropogenic Global Climate Change is human caused climate change. ○ Understand what the greenhouse effect is • Be aware of what an ice core is and the different information scientists can collect from ice cores. • Be familiar with reading cross sections of rock layers ○ Be able to determine which layers, fossils, and features are the youngest/oldest ○ Be able to compare layers, fossils, and features found at several different cross sections. • Understand how to read topographical maps ○ Know the following terms: contour lines, index contour lines, contour interval ○ Know how to identify which areas are steeper on a topographical map. 			
<p>Chapter 7 Genetics and Heredity Jan-Feb</p>	<ul style="list-style-type: none"> • Know who Gregor Mendel is, be familiar with his research on pea plants, and why his research was important to our modern understanding of genetics and heredity. • Understand the definitions of heredity, genetics, genes, alleles, codominance, and incomplete dominance • Be able to describe the law of segregation as well as what dominant and recessive alleles are. • Understand the difference between a trait being heterozygous (hybrid), homozygous dominant (purebred dominant), and homozygous recessive (purebred recessive). • Be able to identify and know the differences between a genotype and a phenotype. • Know how to make a Punnett square to predict the probability of traits in offspring. ○ Be prepared to make/understand a Punnett square involving codominance. For example, blood type is codominant. • Know what a pedigree chart is and how to read it. Be able to use this chart to predict both genotypes and phenotypes of future offspring as well as persons already on the chart. 	<p>Students will carry out experiments to help explain and understand the relationships between genetics and heredity</p> <p>Other activities will be completed to help understand similarities and differences between dominant and recessive traits as well as Mendel's Principles of Heredity</p>	<p>Teacher created notes Teacher developed labs and activities. Supplemental Web Videos Online scientific simulation activities</p>	<p>Summative and Formative Assessment used appropriately</p>
<p>Chapter 8 Reproduction Feb-Mar</p>	<ul style="list-style-type: none"> • Know that the fossil record provides evidence that most of the living species on Earth have gone extinct and that life has gotten more complex over time 	<p>Students will carry out experiments to help explain and understand how different organisms have different means</p>	<p>Teacher created notes Teacher developed labs and activities. Supplemental Web Videos</p>	<p>Summative and Formative Assessment used</p>

	<ul style="list-style-type: none"> •Be able to define reproduction and know the differences between asexual and sexual reproduction •Be familiar with the positives and the negatives of both asexual and sexual reproduction. •Know how changes in geography or environment can lead to speciation •Be familiar with terms like chromosomes, crossing over, fertilization, and DNA. •Know what gametes are including the difference between eggs and sperm •Understand the difference between parent and daughter cells •Know the two types of cellular division discussed in class: mitosis and meiosis. This includes understanding the similarities and differences between the two. <ul style="list-style-type: none"> ○ Be able to identify each process based on images and diagrams •Know how many daughter cells are produced during mitosis and meiosis <ul style="list-style-type: none"> ○ Know which process have daughter cells that are identical to the parent cell and which process has daughter cells that have a fewer number of chromosomes than the parent cell. 	<p>of reproduction that are necessary for the continuation of their species.</p> <p>Other activities will be completed to help understand similarities and differences between meiosis and mitosis as well as sexual and asexual reproduction.</p>	<p>Online scientific simulation activities</p>	<p>appropriately</p>
<p>Chapter 9 Motion and Forces Mar-April</p>	<ul style="list-style-type: none"> •Be able to define and identify motion and reference points •Make sure you know how to define force, inertia, and Newton's first and third laws. •Know how to identify equal but opposite reaction forces in a given situation. •Be familiar with the difference between contact and noncontact forces. •Be able to define, list, and identify the contact and noncontact forces we discussed in class. •Understand that noncontact forces have a field of influence around them. This field decreases in strength as you move farther away. •Have a general idea of what magnetic and electrical fields of influence look like. •Define net force and be familiar with how an object with a net force of 0 and how an object with a net force that is not 0 behaves. •Define free-body diagrams and be able to read and create your own. 	<p>Students will carry out experiments to help explain and understand the relationships between motion and the forces associated with it.</p> <p>Other activities will be completed to help understand similarities and differences between contact and noncontact forces.</p>	<p>Teacher created notes Teacher developed labs and activities. Supplemental Web Videos Online scientific simulation activities</p>	<p>Summative and Formative Assessment used appropriately</p>

<p>Chapter 10 Potential Energy April-May</p>	<ul style="list-style-type: none"> •Understand and be able to define energy, potential energy, and kinetic energy •Be prepared to identify areas of high/low potential energy and areas of high/low kinetic energy on a diagram or in a scenario •Be familiar with all 5 types of potential energy that we discussed in class. •Know that gravitational potential energy is affected by height and mass •Understand what voltage is. •Be able to identify areas of high/low electrical potential energy (voltage) and areas of high/low magnetic potential energy •Make sure you understand chemical potential energy. This involves energy being stored in the bonds between atoms. <ul style="list-style-type: none"> o Understand that stored chemical potential energy is usually releases as thermal energy (heat) o Chemical potential energy is typically released whenever matter changes chemically. (like wood changing into ash). •Know the basics of how a typical electrical generator and electrical motor works. <ul style="list-style-type: none"> o Know what mechanical energy is 	<p>Students will carry out experiments to help explain and understand the relationships between energy and motion</p> <p>Other activities will be completed to help understand similarities and differences between the different forms of potential energy.</p>	<p>Teacher created notes Teacher developed labs and activities. Supplemental Web Videos Online scientific simulation activities</p>	<p>Summative and Formative Assessment used appropriately</p>
<p>Chapter 11 Moon and the Seasons May</p>	<ul style="list-style-type: none"> •Know how much of the solar system's mass is made up by the Sun. •Understand what an orbit is and how it relates to the movement of objects in the solar system. •Know the difference between a solar flare and a sun spot. •Understand the leading theory on how the Moon formed •Know the difference between a lunar and a solar eclipse. •Know how to draw and identify diagrams of both solar and lunar eclipses •Be able to identify the difference between the umbra and penumbra of the an eclipse •Know the tilt of Earth and how it affects the seasons of the planet. 	<p>Students will carry out experiments to help explain and understand the relationships between the Sun, the Earth, and the Moon</p> <p>Other activities will be completed to help understand similarities and differences between solar and lunar eclipses as well as what causes the different seasons on Earth.</p>	<p>Teacher created notes Teacher developed labs and activities. Supplemental Web Videos Online scientific simulation activities</p>	<p>Summative and Formative Assessment used appropriately</p>

