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| *Name:* | *Grade Level:* | *Subject Area/Course* |
| **Scott Brever** | **11 & 12th** | **Earth / Space Science** |

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| ***Q & W*** | | ***CONTENT & SKILLS*** | ***STRATEGIES & RESOURCES*** | ***ASSESSMENTS/***  ***ACTIVITIES*** | ***STATE / National Standards*** |
| Q1  W1 | Chapter 27.1 – “Characteristics of Stars”   * Describe how astronomers determine the composition and surface temperature of a star. * Explain why stars appear to move to an observer on the earth. * Name and describe the way astronomers measure the distance from the earth to the stars. * Explain the difference between absolute magnitude and apparent magnitude. | * Non-Linguistic Representation (Parallax and H-R Lab) * Higher Order Questioning (Spectral Analysis Lab) * Reciprocal Teaching (Star Magnitude Lab) * Inference Chart (27.1 Review Worksheet) | * **Spectral Analysis Lab and Report** * **Parallax Activity and Report** * **Star Magnitudes Lab and Report** * **Hertzsprung-Russell Diagram Activity** * **Ch 27.1 Review Worksheet** * **Chapter 27.1 Quiz** | **The Nature of Science and Engineering**  9.1.3.4.2. - Select and use appropriate numeric, symbolic, pictorial, or graphical representation to communicate scientific ideas, procedures and experimental results.  9.1.3.4.5 - Demonstrate how unit consistency and dimensional analysis can guide the calculation of quantitative solutions and verification of results.  9.1.1.2.1 - Formulate a testable hypothesis, design and conduct an experiment to test the hypothesis, analyze the data, consider alternative explanations and draw conclusions supported by evidence from the investigation.  9.1.3.4.4 - Relate the reliability of data to consistency of results, identify sources of error, and suggest ways to improve data collection and analysis. |
| Q1  W2 | Chapter 27.2 – “Stellar Evolution”   * Describe how a proto-star develops into a star. * Explain how a main-sequence star generates energy. * Describe the possible evolution of a star during and after the giant stage. | * Non-Linguistic Representation (Stellar Evolution Poster) * Graphic Organizer (Stellar Evolution Concept Map) * Inference Chart (27.2 Review Worksheet) | * **Stellar Evolution Concept Map** * **Stellar Evolution Poster** * **Chapter 27.2 Review Worksheet** * **Chapter 27.2 Quiz** | **The Universe**  9.3.3.3.2 - Explain how gravitational clumping leads to nuclear fusion, producing energy and the chemical elements of a star.  **The Nature of Science and Engineering**  9.1.1.2.2 - Evaluate the explanations proposed by others by examining and comparing evidence, identifying faulty reasoning, pointing out statements that go beyond the scientifically acceptable evidence, and suggesting alternative scientific explanations. |
| Q1  W3 | Chapter 27.3 – “Star Groups”   * Describe the characteristics that identify a constellation. * Describe the three main types of galaxies. * Explain the big bang theory.   Chapter 1.3 – “Birth of a Theory: The Big Bang”   * Distinguish between a hypothesis, a theory, and a scientific law. * Describe the Doppler effect. * Summarize the big bang theory of the origin of the universe. * List evidence for the big bang theory. | * Higher Order Questioning (Constellation Lab) * Story / Character Map (Constellation Paper) * Non-Linguistic Representation (Milky Way Activity and Collected Wisdom Timeline) * Reciprocal Teaching (Big Bang Lab) * Inference Chart (27.3 Review Worksheet) | * **Constellation Lab and Report** * **Constellation Paper** * **Big Bang Balloon Lab** * **Milky Way Galaxy Activity** * **“Collected Wisdom” Video Timeline** * **Ch 27.3 Review Worksheet** * **Chapter 27.3 Quiz** | **The Nature of Science and Engineering**  9.1.1.2.3 - Identify the critical assumptions and logic used in a line of reasoning to judge the validity of a claim.  9.1.1.1.6 - Describe how changes in scientific knowledge generally occur in incremental steps that include and build on earlier knowledge.  9.1.1.1.7 - Explain how scientific and technological innovations, as well as new evidence, can challenge portions of, or entire accepted theories and models including, but not limited to: cell theory, atomic theory, theory of evolution, plate tectonic theory, germ theory of disease, and the big bang theory.  9.1.3.4.6 - Analyze the strengths and limitations of physical, conceptual, mathematical and computer models used by scientists and engineers.  **The Universe**  9.3.3.3.1 - Explain how evidence, including the Doppler shift of light from distant stars and cosmic background radiation, is used to understand the composition, early history and expansion of the universe. |
| Q1  W4 | Chapter 28.1 – “Structure of the Sun”   * Explain how the sun converts matter into energy in its core. * Compare the radiative and convective zones of the sun. * Describe the three layers of the sun’s atmosphere. | * Compare and Contrast (Radiative and Convective Zones) * Story / Character Map (Atmospheric Sun Story) * Attribute Wheel (Sun’s Atmosphere) * Inference Chart (Ch 28.1 Review) | * **Atmospheric Sun Story** * **Chapter 28.1 Review Worksheet** | **The Nature of Science and Engineering**  9.1.3.4.1 - Describe how technological problems and advances often create a demand for new scientific knowledge, improved mathematics and new technologies.  **The Universe**  9.3.3.3.2 - Explain how gravitational clumping leads to nuclear fusion, producing energy and the chemical elements of a star. |
| Q1  W5 | Chapter 28.2 – “Solar Activity”   * Explain how sunspots are related to powerful magnetic fields on the sun. * Compare prominences and solar flares. * Describe how the solar wind can cause auroras on the earth. | * Venn-Diagram (Prominences and Solar Flares) * Non-Linguistic Representation (Sun Spot Activity and Solar Viewer Lab) * Inference Chart (Chapter 28.3 Review Worksheet) | * **Sun Spot Activity** * **Solar Viewer Lab and Drawings** * **Chapter 28.2 Review Worksheet** | **The Nature of Science and Engineering**  9.1.3.4.2 - Determine and use appropriate safety procedures, tools, computers and measurement instruments in science and engineering contexts.  9.1.1.2.1 - Formulate a testable hypothesis, design and conduct an experiment to test the hypothesis, analyze the data, consider alternative explanations and draw conclusions supported by evidence from the investigation. |
| Q1  W6 | Chapter 28.3 – “Formation of the Solar System”   * Explain the nebular theory of the origin of the solar system. * Describe how the planets developed. * Describe the formation of the land, the atmosphere, and the oceans of the earth. | * Inference Chart (Video Timeline and Ch 28 Review Worksheet) | * **The Birth of Earth Video Timeline Worksheet** * **Ch 28.3 Review Worksheet** * **Chapter 28 Test** | **The Universe**  9.3.3.2.1 - Describe how the solar system formed from a nebular cloud of dust and gas 4.6 billion years ago.  9.3.3.2.2 - Explain how the Earth evolved into its present habitable form through interactions among the solid earth, the oceans, the atmosphere and organisms. |
| Q1  W7 | Chapter 29.1 – “Models of the Solar System”   * Compare the models of the universe developed by Ptolemy and Copernicus. * Summarize Kepler’s three laws of planetary motion.   Chapter 2.2 – “Movements of the Earth”   * Describe the earth’s revolution and rotation. * Tell why the seasons change. * Explain how the sun is used as a basis for measuring time. | * Higher Order Questioning (Kepler’s Laws Worksheet) * Venn Diagram (Solar System Models) * Attribute Wheel (Kepler’s Three Laws) * Inference Chart (Ch 29.1 Review Worksheet) | * **Kepler’s Laws Equation Worksheet** * **Chapter 29.1 Review Worksheet** | **The Nature of Science and Engineering**  9.1.1.1.1 - Explain the implications of the assumption that the rules of the universe are the same everywhere and these rules can be discovered by careful and systematic investigation.  9.1.1.1.2 - Understand that scientists conduct investigations for a variety of reasons, including: to discover new aspects of the natural world, to explain observed phenomena, to test the conclusions of prior investigations, or to test the predictions of current theories.  **The Universe**  9.3.3.2.3 - Compare and contrast the environmental conditions that make life possible on Earth with conditions found on the other planets and moons of our solar system. |
| Q1  W8 | Chapter 29.2 – “The Inner Planets”   * Identify the basic characteristics of Mercury and Venus. * Identify the basic characteristics of Earth and Mars   Chapter 29.3 – “The Outer Planets”   * Identify the basic characteristics of Jupiter and Saturn. * Identify the basic characteristics of Uranus, Neptune, and Pluto. | * Graphic Organizer (Terrestrial and Jovian Planets) * Reciprocal Teaching (Planet Density Lab) * Inference Chart (Ch 29.2 / 29.3 Worksheet) | * **Planet Brochure Project** * **Solar Stew Planet Densities Lab and Report** * **Chapter 29.2 and 29.3 Review Worksheet** | **The Nature of Science and Engineering**  9.1.3.1.2 - Identify properties of a system that are different from those of its parts but appear because of the interaction of those parts.  **The Universe**  9.3.3.2.3 - Compare and contrast the environmental conditions that make life possible on Earth with conditions found on the other planets and moons of our solar system. |
| Q1  W9 | Chapter 29.4 – “Asteroids, Comets, and Meteoroids”   * Describe the physical characteristics of asteroids and of comets. * Compare and contrast meteoroids, meteorites, and meteors. | * Venn Diagram (Asteroids vs. Comets) * Compare / Contrast Analysis (Meteors) | * **Chapter 29 Review** * **Chapter 29 Test** | **The Universe**  9.3.3.2.3 - Compare and contrast the environmental conditions that make life possible on Earth with conditions found on the other planets and moons of our solar system. |
| Q2  W1 | Chapter 30.1 – “The Earth’s Moon”   * List the five kinds of lunar surface features. * Describe the interior of the moon. * Summarize the four stages in the development of the moon.   Chapter 17.1 – “Determining Relative Age”   * State the principle of uniformitarianism. * Explain how the law of superposition can be used to determine the relative age of rocks. * Compare three types of unconformity. * Apply the law of crosscutting relationships to determine the relative age of rocks.   Chapter 17.2 – “Determining Absolute Age”   * Summarize the limitations of using the rates of erosion and deposition to determine the absolute age of rocks. * Describe the formation of varves. * Explain how the process of radioactive decay can be used to determine the absolute age of rocks. | * Attribute Wheel (Lunar Surface Features) * Non-Linguistic Representation (Moon Stages of Development) * Higher Order Questioning (Half Life Penny Lab) * Inference Chart (Ch 30.1 / 17.1 / 17.2 Review Worksheet) | * **Interactive Transparency Worksheet (Earth-Moon System)** * **Chapter 30.1 Review Worksheet** * **Half-Life Penny Lab and Report** * **Chapter 17.1 / 17.2 Review Worksheets** | **The Nature of Science and Engineering**  9.1.1.1.5 - Identify sources of bias and explain how bias might influence the direction of research and the interpretation of data.  9.1.1.2.1 - Formulate a testable hypothesis, design and conduct an experiment to test the hypothesis, analyze the data, consider alternative explanations and draw conclusions supported by evidence from the investigation.  9.1.3.4.4 - Relate the reliability of data to consistency of results, identify sources of error, and suggest ways to improve data collection and analysis.  9.1.1.2.3 - Identify the critical assumptions and logic used in a line of reasoning to judge the validity of a claim.  **The Universe**  9.3.3.2.3 - Compare and contrast the environmental conditions that make life possible on Earth with conditions found on the other planets and moons of our solar system.  **Earth Structure and Processes**  9.3.1.3.1 - Use relative dating techniques to explain how the structures of the Earth and life on Earth have changed over short and long periods of time. |
| Q2  W2 | Chapter 30.2 – “Movements of the Moon”   * Describe the orbit of the moon around the earth. * Explain why eclipses occur.   Chapter 30.3 – “The Lunar Cycle”   * Describe the phases of the moon. * Explain how calendars are based on the movements of the earth and the moon. | * Inference Chart (Ch 30.2 / 30.3 Review Worksheets) * Non-Linguistic Representation (Moon Phases Drawings) * Higher Order Questioning (Moon Phases Activity) | * **Chapter 30.2 and 30.3 Review Worksheets** * **Interactive Transparency Worksheet (Solar and Lunar Eclipses and Moon Phases)** * **Moon Phases Activity and**   **Report** | **The Nature of Science and Engineering**  9.1.1.1.5 - Identify sources of bias and explain how bias might influence the direction of research and the interpretation of data.  **The Universe**  9.3.3.2.3 - Compare and contrast the environmental conditions that make life possible on Earth with conditions found on the other planets and moons of our solar system. |
| Q2  W3 | Chapter 30.4 – “Satellites of Other Planets”   * Compare the characteristics of the two moons of Mars. * Compare the Galilean moons and the rings of Jupiter with the moons and rings of the other outer moons.   Chapter 2.3 – “Artificial Satellites”   * Compare two types of satellite orbits. * Discuss ways in which satellites are used to study the earth | * Venn Diagram (Moons of Mars) * Compare / Contrast Analysis (Galilean Moons) * Inference Chart (Ch 30.4 / 2.3 Review Worksheets) | * **Moon Paper and Report** * **Chapter 30.4 and 2.3 Review Worksheets** * **Chapter 30 Test** | **The Nature of Science and Engineering**  9.1.2.1.2 - Recognize that risk analysis is used to determine the potential positive and negative consequences of using a new technology or design, including the evaluation of causes and effects of failures.  9.1.2.1.3 - Explain and give examples of how, in the design of a device, engineers consider how it is to be manufactured, operated, maintained, replaced and disposed of.  **The Universe**  9.3.3.2.3 - Compare and contrast the environmental conditions that make life possible on Earth with conditions found on the other planets and moons of our solar system. |
| Q2  W4 | Chapter 23.1 – “Characteristics of the Atmosphere”   * Discuss the composition of the earth’s atmosphere. * Explain how two types of barometers work. * Describe the layers of the atmosphere. * Identify the weather conditions that increase the effects of air pollution.   Chapter 23.2 – “Solar Energy and the Atmosphere”   * Explain how radiant energy reaches the earth. * Describe how visible light and infrared energy warm the earth. * Summarize the processes of radiation, conduction and convection. | * Venn Diagram (Aneroid and Mercurial Barometers) * Attribute Wheel (Atmospheric Layers) * Higher Order Questioning (Barometer and Visible / Infrared Light Lab) * Graphic Organizer (Radiation, Conduction, Convection) * Inference Chart (Ch 23.1 / 23.2 Review Worksheets) | * **Interactive Transparency Worksheets (Composition of the Atmosphere / Atmospheric Cycles / Layers of the Atmosphere)** * **Barometer Lab and Report** * **Chapter 23.1 and 23.2 Review Packets** * **Interactive Transparency Worksheet (Electromagnetic Spectrum)** * **Visible / Infrared Light Activity and Report** | **The Nature of Science and Engineering**  9.1.1.2.1 - Formulate a testable hypothesis, design and conduct an experiment to test the hypothesis, analyze the data, consider alternative explanations and draw conclusions supported by evidence from the investigation.  **Interdependence Within the Earth System**  9.3.2.3.1 - Trace the cyclical movement of carbon, oxygen and nitrogen through the lithosphere, hydrosphere, atmosphere and biosphere.  **Interdependence Within the Earth System**  9.3.2.1.1 - Compare and contrast the energy sources of the Earth, including the sun, the decay of radioactive isotopes and gravitational energy.  9.3.2.2.1 - Explain how Earth's rotation, ocean currents, configuration of mountain ranges, and composition of the atmosphere influence the absorption and distribution of energy, which contributes to global climatic patterns.  **Human Interactions with Earth Systems** 9.3.4.1.2 -Explain how human activity and natural processes are altering the hydrosphere, biosphere, lithosphere and atmosphere, including pollution, topography and climate. |
| Q2  W5 | Chapter 23.3 – “Winds”   * Describe the global patterns of wind. * Describe some factors that create local wind patterns.   Chapter 24.1 – “Atmospheric Moisture”   * Explain how water vapor enters the air. * Explain the meaning of humidity and describe how it is measured. * Describe what happens when the temperature of air decreases at or below the dew point. | * Compare / Contrast Analysis (Land and Sea Breezes) * Inference Chart (Ch 23.3 / 24.1 Review Worksheets) * Venn Diagram (Relative vs. Absolute Humidity) * Reciprocal Teaching (Dew Point and Relative Humidity Lab) | * **Interactive Transparency Worksheets (Global Winds / Humidity)** * **Chapter 23.3 Review Packet** * **Chapter 23 Test** * **Dew Point and Relative Humidity Lab** * **Chapter 24.1 Review Worksheet** | **The Nature of Science and Engineering**  9.1.3.4.2. - Select and use appropriate numeric, symbolic, pictorial, or graphical representation to communicate scientific ideas, procedures and experimental results.  9.1.1.2.1 - Formulate a testable hypothesis, design and conduct an experiment to test the hypothesis, analyze the data, consider alternative explanations and draw conclusions supported by evidence from the investigation.  **Interdependence Within the Earth System**  9.3.2.2.1 - Explain how Earth's rotation, ocean currents, configuration of mountain ranges, and composition of the atmosphere influence the absorption and distribution of energy, which contributes to global climatic patterns. |
| Q2  W6 | Chapter 24.2 – “Clouds and Fog”   * List the conditions that must exist for a cloud to form. * Identify the types of clouds. * Describe four ways fog may form.   Chapter 24.3 – “Precipitation”   * Describe the various types of liquid and solid precipitation. * Compare the two processes that cause precipitation. * Describe how rain may be produced artificially. * Describe how precipitation is measured. | * Graphic Organizer (Cloud Types) * Attribute Wheel (Forms of Fog) * Reciprocal Teaching (Cloud Formation Activity) * Higher Order Questioning (Super-cooling Lab) * Inference Chart (Ch 24.2 / 24.3 Review Worksheets) | * **Cloud Formation Activity** * **Super-cooling Lab** * **Chapter 24.2 and 24.3 Review Worksheets** * **Chapter 24 Test** | **The Nature of Science and Engineering**  9.1.1.2.1 - Formulate a testable hypothesis, design and conduct an experiment to test the hypothesis, analyze the data, consider alternative explanations and draw conclusions supported by evidence from the investigation.  9.1.1.2.3 - Identify the critical assumptions and logic used in a line of reasoning to judge the validity of a claim.  9.1.1.1.6 - Describe how changes in scientific knowledge generally occur in incremental steps that include and build on earlier knowledge.  **Human Interactions with Earth Systems**  9.3.4.1.1 - Analyze the benefits, costs, risks and tradeoffs associated with natural hazards, including the selection of land use and engineering mitigation. |
| Q2  W7 | Chapter 25.1 – “Air Masses”   * Explain how an air mass forms. * List and describe the types of air masses that usually affect the weather of North America.   Chapter 26.1 – “Factors That Affect Climate”   * Explain how latitude determines the amount of solar energy received on earth. * Describe how the different rates at which land and water are heated affect climate. * Explain the effects of topography on climate.   Chapter 25.2 – “Fronts”   * Compare the characteristic weather patterns of cold fronts with those of warm fronts. * Describe how a wave cyclone forms. * Describe the stages in the development of hurricanes, thunderstorms, and tornadoes. | * Attribute Wheel (Types of Air Masses) * Higher Order Questioning (Air Mass and Front Lab) * Inference Chart (Ch 25.1 / 26.1 Review Worksheets) * Graphic Organizer (Types of Fronts) * Inference Chart (Ch 25.2 Review Worksheet) | * **Air Masses and Fronts Lab and Report** * **Chapter 25.1 Review Worksheet** * **Chapter 26.1 Review Worksheet** * **Chapter 25.2 Review Worksheet** | **The Nature of Science and Engineering**  9.1.1.2.3 - Identify the critical assumptions and logic used in a line of reasoning to judge the validity of a claim.  9.1.1.1.6 - Describe how changes in scientific knowledge generally occur in incremental steps that include and build on earlier knowledge.  9.1.3.4.4 - Relate the reliability of data to consistency of results, identify sources of error, and suggest ways to improve data collection and analysis.  **Interdependence Within the Earth System**  9.3.2.2.1 - Explain how Earth's rotation, ocean currents, configuration of mountain ranges, and composition of the atmosphere influence the absorption and distribution of energy, which contributes to global climatic patterns.  **The Nature of Science and Engineering**  9.1.1.2.1 - Formulate a testable hypothesis, design and conduct an experiment to test the hypothesis, analyze the data, consider alternative explanations and draw conclusions supported by evidence from the investigation. |
| Q2  W8 | Chapter 25.3 – “Weather Instruments”   * Describe the types of instruments used to measure air temperature and wind speed. * Describe the instruments used to measure upper-atmospheric weather conditions.   Chapter 25.4 – “Forecasting the Weather”   * Explain how a weather map is made. * Describe the steps involved in preparing a weather forecast. | * Non-Linguistic Representation (Surface Weather Analysis Chart Activity) * Graphic Organizer (Weather Instruments) * Inference Chart (Ch 25.3 / 25.4 Review Worksheets) | * **Reading a Weather Map Worksheet** * **Surface Weather Analysis Chart Activity** * **Chapter 25.3 and 25.4 Review Worksheets** * **Chapter 25 Test** | **The Nature of Science and Engineering**  9.1.3.1.3 - Describe how positive and/or negative feedback occur in systems.  9.1.3.4.2. - Select and use appropriate numeric, symbolic, pictorial, or graphical representation to communicate scientific ideas, procedures and experimental results.  9.1.1.1.6 - Describe how changes in scientific knowledge generally occur in incremental steps that include and build on earlier knowledge.  **Interdependence Within the Earth System**  9.3.2.2.1 - Explain how Earth's rotation, ocean currents, configuration of mountain ranges, and composition of the atmosphere influence the absorption and distribution of energy, which contributes to global climatic patterns. |
| Q2  W9 | Chapter 4.1 – “Continental Drift”   * Explain Wegener’s hypothesis of continental drift. * List evidence for Wegener’s hypothesis of continental drift. * Describe seafloor spreading.   Chapter 4.2 – “The Theory of Plate Tectonics”   * Summarize the theory of plate tectonics * Compare the characteristic geologic activities that occur along the three types of plate boundaries. * Explain the possible role of convection currents in plate movements. * Summarize the theory of microplate terranes. | * Higher Order Questioning (Plate Tectonics Lab) * Reciprocal Teaching (Convection Currents Lab) * Inference Chart (Chapter 4.1 Review Worksheet) * Attribute Wheel (Evidence for Continental Drift) * Inference Chart (Chapter 4.2 Review Worksheet) | * **Plate Tectonics Lab and Report** * **Convection Currents Lab and Report** * **Chapter 4.1 Review Worksheet** * **Chapter 4.2 Review Worksheet** * **Chapter 4 Quiz** | **Earth Structure and Processes**  9.3.1.1.3 - Describe how the pattern of magnetic reversals and rock ages on both sides of a mid-ocean ridge provides evidence of sea-floor spreading.  9.3.1.1.4 - Explain how the rock record provides evidence for plate movement.  9.3.1.1.5 - Describe how experimental and observational evidence led to the theory of plate tectonics.  **Earth Structure and Processes**  9.3.1.1.1 - Compare and contrast the interaction of tectonic plates at convergent and divergent boundaries.  9.3.1.1.2 - Use modern earthquake data to explain how seismic activity is evidence for the process of subduction.  **Interdependence Within the Earth System**  9.3.2.1.2 - Explain how the outward transfer of Earth’s internal heat drives the convection circulation in the mantle to move tectonic plates.  **The Nature of Science and Engineering**  9.1.1.1.7 - Explain how scientific innovations, as well as new evidence, can challenge accepted theories and models. |
| Q2  W10 | Chapter 17.3 – “The Fossil Record”   * Describe four ways in which entire organisms can be preserved as fossils. * List four examples of fossilized traces of organisms. * Describe how index fossils can be used to determine the age of rocks.   Chapter 18.2 – “Geologic History”   * Identify the characteristics of Precambrian rock. * Explain what scientists have learned from the geologic record about life during the Paleozoic era. * Explain what scientists have learned from the geologic record about life during the Mesozoic era. * Explain what scientists have learned from the geologic record about life during the Cenozoic era. | * Graphic Organizer (Fossil Formation) * Attribute Wheel (Geologic History Eras) * Inference Chart (Chapter 17.3 and 18.2 Review Worksheets) * Non-Linguistic Representation (Geologic Time Scale Activity) | * **Chapter 17.3 Review Worksheet** * **Geologic Time Scale Activity** * **Chapter 18.2 Review Worksheet** * **Fossil and Geologic History Quiz** | **Earth Structure and Processes**  9.3.1.3.2 - Cite evidence from the rock record for changes in the composition of the global atmosphere as life evolved on Earth.  9.3.1.3.1 - Use relative dating techniques to explain how the structures of the Earth and life on Earth have changed over short and long periods of time.  **Interdependence Within the Earth System**  9.3.2.2.2 - Explain how evidence from the geologic record, including ice core samples, indicates that climate changes have occurred at varying rates over geologic time and continue to occur today.  **The Nature of Science and Engineering**  9.1.3.4.2. - Select and use appropriate numeric, symbolic, pictorial, or graphical representation to communicate scientific ideas, procedures and experimental results.  9.1.1.1.7 - Explain how scientific and technological innovations, as well as new evidence, can challenge portions of, or entire accepted theories and models |