

Trinity Area School District

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| <p>Course: Earth Science Grade: 6</p> | <p>Overview of Course (Briefly describe what students should understand and be able to do as a result of engaging in this course): Students will have a better understanding of the world in which they live, and the forces, incidents and occurrences that will change that world. ESSENTIAL QUESTIONS ARE INDICATED IN THIS FONT.</p> |
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Overarching Big Ideas, Enduring Understandings, and Essential Questions
 (These “spiral” throughout the entire curriculum.)

| <p>Big Idea (A Big Idea is typically a noun and always transferable within and among content areas.)</p> | <p>Standard(s) Addressed (What Common Core Standard(s) and/or PA Standard(s) addresses this Big Idea?)</p> | <p>Enduring Understanding(s) (SAS refers to Enduring Understandings as “Big Ideas.” EUs are the understandings we want students to carry with them after they graduate. EUs will link Big Ideas together. Consider having only one or two EUs per Big Idea.)</p> | <p>Essential Question(s) (Essential Questions are broad and open ended. Sometimes, EQs can be debated. A student’s answer to an EQ will help teachers determine if he/she truly understands. Consider having only one or two EQs per Enduring Understanding.)</p> |
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| <p>(The first overarching Big Idea goes here.) Processes</p> | <p>(The Common Core Standard(s) and/or PA Standard(s) that addresses the first overarching Big Idea goes here.) S8A.3.3; S8A.3.3.2;S8A.3.2.3; S8C.1.1.2;S8D.1.1.2; S8D.1.1.3</p> | <p>(The Enduring Understanding(s) for the first overarching Big Idea goes here.) A process is a set of skills used to answer questions or to test ideas about the natural world. Processes have steps to follow.</p> | <p>(The Essential Question(s) for the Enduring Understanding(s) for the first overarching Big Idea goes here.) *WHY IS IT IMPORTANT FOR SCIENTISTS TO FOLLOW CERTAIN STEPS IN CONDUCTING AN EXPERIMENT? *WHICH PROCESS DO YOU FEEL HAS THE MOST EFFECT ON ROCKS -- MECHANICAL OR CHEMICAL? *HOW WOULD LIFE ON EARTH CHANGE IF THERE WAS NO WATER CYCLE? What processes do scientists use to perform scientific investigations? Explain the process of sea-floor spreading. Describe the effect that mechanical and chemical weathering has on rocks.</p> |
| <p>(The second overarching Big Idea...)</p> | | | |

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| Systems | S8A.3.1 | A system is the connection of parts that relate to a whole. | <p>* HOW WOULD EARTH BE AFFECTED IF ONE PART OF THE SYSTEM FAILED?</p> <p>*WHAT WOULD HAPPEN IF ONE OF THE PLANETS LEFT ITS ORBIT IN THE SOLAR SYSTEM?</p> <p>What are Earth's major systems and how do they work?</p> |
| Environmental issues | S8B.3.2 | Environments on Earth are affected by natural and man-made processes | <p>*WHAT ADVICE WOULD YOU GIVE TO PEOPLE LIVING IN AN AREA NEAR AN ACTIVE VOLCANO?</p> <p>*HOW DOES CHANGE (NATURAL OR HUMAN MADE) AFFECT ORGANISMS AND THEIR ENVIRONMENT?</p> <p>*WHAT ARE SOME WAYS THAT NATURAL AND HUMAN ACTIONS CAUSE ENVIRONMENTAL CHANGE?</p> <p>*WHAT DO YOU FEEL IS THE WORST POLLUTANT THAT GOES INTO WATER? WHY?</p> <p>*DESCRIBE HOW YOU WOULD GO ABOUT DECREASING/ELIMINATING POLLUTION?</p> <p>*NAME THREE WAYS IN WHICH YOUR COMMUNITY CAN REDUCE ITS IMPACT ON STREAMS AND LAKES.</p> <p>*HOW DO HUMAN ACTIVITIES AFFECT STREAMS AND LAKES?</p> <p>Identify one positive and one negative effect volcanic eruptions have on Earth.</p> |
| Evidence | S8A.1.3.2; S8D.1.1.4 | <p>Evidence is the collection of facts that that accept or reject a hypothesis.</p> <p>Evidence is a fact or body of facts on which a belief or judgment is based.</p> | <p>*SHOULD SCIENTISTS EVER QUESTION "EVIDENCE?"</p> <p>*IN YOUR OPINION, WHAT KIND OF EVIDENCE IS BEST FOR SCIENTISTS TO HAVE, AND WHY?</p> <p>*COULD EVIDENCE PRESENTED BY SCIENTISTS EVER BE WRONG?</p> <p>WHAT EVIDENCE FROM ALFRED WEGENER'S STUDIES SUPPORTS THE THEORY OF CONTINENTAL DRIFT?</p> |

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| | | | <p>What evidence indicates that Earth has a solid inner core and a liquid outer core?</p> <p>What evidence indicates that the Atlantic Ocean is getting wider?</p> |
| Measurement | S8A.2.2 | Measurement is the result of taking the dimensions or limits of an object. | <p>*SHOULD THE UNITED STATES CONVERT ITS SYSTEM OF MEASUREMENT TO METRIC? WHY/WHY NOT?</p> <p>*WHY DO ASTRONOMERS USE LARGER UNITS TO MEASURE DISTANCE IN THE SOLAR SYSTEM?</p> <p>*WHY DO SCIENTISTS WANT TO KNOW THE RATE OF MOVEMENT OF THE CONTINENTS?</p> <p>What rating system do scientists use to record earthquake activity?</p> |
| Properties | S8C.1.1.2 | Density is the amount of mass of a substance in a given volume. | <p>*HOW CAN THE PROPERTY OF DENSITY BE USED IN IDENTIFYING MINERALS?</p> <p>*WHAT ARE SOME SUGGESTIONS YOU WOULD HAVE GIVEN THE PIONEERS TO HELP PREVENT THE DUST BOWL?</p> <p>*WHAT PROPERTIES OF EACH LAYER DETERMINES ITS POSITION INSIDE EARTH?</p> <p>Where is the densest part of Earth?</p> <p>What determines which tectonic plate will subduct when collision occur at plate boundaries?</p> |
| Technology | S8A.1.1.2; S8A.1.2.1;S8A.3.2.1;S8A.3.2.1; | Technology helps scientists better understand the natural world. | <p>*HOW DOES TECHNOLOGY HELP SCIENTISTS IN OBSERVING CONTINENTAL DRIFT?</p> <p>*HOW HAS NEW TECHNOLOGY STRENGTHENED THE THEORY OF PLATE TECTONICS?</p> <p>*SHOULD HUMANS BE ABLE TO CONTROL THE WEATHER?</p> <p>*WHAT ARE THE PROS AND CONS OF CLOUD SEEDING?</p> <p>*HOW HAVE COMPUTERS IMPROVED WEATHER FORECASTS?</p> <p>What instruments do scientists use to monitor plate movement?</p> |

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| Forces | S8C.3.1.1 | A force is anything that changes or tends to change the rest or motion of an object. | <p>*HOW DO ROCKS CHANGE? *WHAT FACTORS CHANGE AS A PLANET ORBITS THE SUN? *HOW WOULD THE SPEED OF A PLANET BE DIFFERENT IF ITS ORBIT WERE A CIRCLE INSTEAD OF AN ELLIPSE? *DOES THE SUN OR THE MOON HAVE A GREATER EFFECT ON EARTH'S TIDES? WHY? *HOW WOULD THE SPEED OF A PLANET BE DIFFERENT IF ITS ORBIT WERE A CIRCLE INSTEAD OF AN ELLIPSE? What forces are responsible for changing Earth's surface? What forces cause a rock to change its shape?</p> |
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Big Ideas, Enduring Understandings, and Essential Questions Per Unit of Study
(These do NOT “spiral” throughout the entire curriculum, but are specific to each unit.)

| Month of Instruction (In what month(s) will you teach this unit?) | Title of Unit | Big Idea(s) (A Big Idea is typically a noun and always transferable within and among content areas.) | Standard(s) Addressed (What Common Core Standard(s) and/or PA Standard(s) addresses this Big Idea?) | Enduring Understanding(s) (SAS refers to Enduring Understandings as “Big Ideas.” EUs are the understandings we want students to carry with them after they graduate. EUs will link Big Ideas together. | Essential Question(s) (Essential Questions are broad and open ended. Sometimes, EQs can be debated. A student’s answer to an EQ will help teachers determine if he/she truly understands. | Common Assessment(s)* (What assessments will all teachers of this unit use to determine if students have answered the Essential Questions?) | Common Resource(s)* Used (What resources will all teachers of this unit use to help students understand the Big Ideas?) |
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| | | | | Consider having only one or two EUs per Big Idea.) | Consider having only one or two EQs per Enduring Understanding.) | | |
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| August/September | <u>NATURE OF SCIENCE</u> | Processes | S8A.2.1.3;S8A.2.1.4; S8A.2.1.5 | A process is a set of skills used to answer questions or to test ideas about the natural world. A process is a set of steps. | *WHY IS IT IMPORTANT FOR SCIENTISTS TO FOLLOW THE STEPS WHEN DOING AN EXPERIMENT? What are the steps in Scientific Inquiry? | Teacher Observation Classroom Participation Labs Projects quizzes Chapter tests Folder Checks Anchors | Textbook and resources i.e. print shop, concepts in motion, etc. Videos Labs Prompts Manipulatives Models Foldables |
| | | Measurement | S8A.2.2.1 | Scientists use the International System of Units because their work is easier to confirm and repeat by their peers. | *SHOULD THE UNITED STATES CONVERT TO THE SI SYSTEM OF MEASUREMENT? WHY/WHY NOT? What causes measurement uncertainty? Why is it important for scientists to use the International System of Units or SI? What are some of the tools scientists use to measure? | | |
| | | Inquiry | S8A.1.1.1;S8A.2.1.1; S8A.2.1.2; S8A.2.1.4 | Science is the investigation and exploration of natural events and the new information from these investigations. | *WHICH OF THE SCIENTIFIC ATTITUDES IS MOST IMPORTANT FOR SCIENTISTS TO USE? WHY? *HOW DO INDEPENDENT VARIABLES AFFECT | | |

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| | | | | | <p>DEPENDENT VARIABLES? *WHICH BRANCH OF SCIENCE INTERESTS YOU? What is Scientific Inquiry? How to scientific law and scientific theory differ? What is the difference between a fact and an opinion? What is the difference between a dependent variable and an independent variable? How is Scientific Inquiry used in real life scientific investigations? Why do scientists use models to aid in their research?</p> | | |
| September/ October | <u>EARTH'S STRUCTURE</u> | System | S8A.3.1.1 | Earth consists of interacting systems that exchange matter and energy. | <p>*GIVE AN EXAMPLE OF HOW ONE PART OF EARTH IS AFFECTED BY AN EVENT IN ANOTHER PART? How are Earth's natural objects and materials organized into groups? How is Earth structured?</p> | <p>Teacher Observation Classroom Participation Labs Projects quizzes Chapter tests Folder checks Anchor</p> | <p>Textbook and resources i.e. print shop, concepts in motion, etc. Videos Labs Prompts Manipulatives Models Foldables</p> |
| | | Interior | S8A.3.1.2 | | | | |

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| | | | | <p>Earth is comprised of four layers, with each layer being of a different composition and density.</p> | <p>*DO YOU THINK IT IS IMPORTANT THAT SCIENTISTS KNOW ABOUT THE COMPOSITION OF EARTH'S INTERIOR? WHY/WHY NOT? What are the interior layers of the Earth? How do scientists use seismic waves to determine the composition of the interior layers?</p> | | |
| | | Evidence | S8A.1.3.2 | <p>Evidence is a fact or body of facts on which a belief or judgment is based.</p> | <p>*COULD THE EVIDENCE PRESENTED BY SCIENTISTS EVER BE WRONG? EXPLAIN. What evidence indicates that Earth has a solid inner core and a liquid outer core? Where is the densest part of Earth?</p> | | |
| | | Properties | S8C.1.1.2 | <p>Each of Earth's layers has a different composition and relative density.</p> | <p>*WHAT PROPERTIES OF EACH LAYER DETERMINES ITS POSITION INSIDE EARTH?</p> | | |
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| November/ December | <u>PLATE</u> <u>TECTONICS</u> | Evidence | S8D.1.1.4 | Alfred Wagener presented evidence to support his hypothesis that all continents were a part of a supercontinent called Pangaea, drifted apart, and are continuing to drift apart. | <p>*WOULD YOU HAVE SUPPORTED WAGENER IN HIS PRESENTATION OF EVIDENCE? WHY/WHY NOT? *HOW HAS NEW TECHNOLOGY STRENGTHENED THE THEORY OF PLATE TECTONICS? *WHAT DO YOU THINK FOSSILS CAN TELL US ABOUT EARTH'S PAST?</p> <p>Why did scientists question the continental drift theory? What was Wagener's evidence for continental drift? What evidence convinced scientists that that the continents were moving? How did Wagener use fossils as evidence of continental drift?</p> | <p>Teacher Observation Classroom Participation Labs Projects quizzes Chapter tests Folder checks Anchors</p> | <p>Textbook and resources i.e. print shop, concepts in motion, etc. Videos Labs Prompts Manipulatives Models Foldables</p> |
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| | | Process | S8D.1.1 | Sea-floor spreading was the missing information that could explain the drifting of the continents. | <p>*EXPLAIN WHY SEA-FLOOR SPREADING IS CONSIDERED A PROCESS.</p> <p>*WHAT EVIDENCE IS USED TO SUPPORT SEA-FLOOR SPREADING? HOW DO CONTINENTS MOVE OVER EARTH'S SURFACE?</p> <p>Explain what occurs during sea-floor spreading.</p> | | |
| | <u>EARTH DYNAMICS</u> | Boundaries | S8D.1.1.2 | Plate boundaries are the areas where two or more tectonic plates interact. | <p>*WHY IS IT IMPORTANT FOR SCIENTISTS TO KNOW WHERE PLATE BOUNDARIES ARE LOCATED?</p> <p>What are the three types of plate boundaries? Explain the difference in the movement of the three types of plate boundaries? Describe the type of stress that creates each of the plate boundaries.</p> | <p>Teacher Observation Classroom Participation Labs Projects quizzes Chapter tests Folder checks Anchors</p> | <p>Textbook and resources i.e. print shop, concepts in motion, etc. Videos Labs Prompts Manipulatives Models Foldables</p> |

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| | | Measurement | S8A.1.3.2;S8A.2.2.2 | Earth's continents are slowly moving away from each other, towards each other or past each other. | *WHY DO SCIENTISTS WANT TO KNOW THE RATE OF MOVEMENT OF THE CONTINENTS? *USING THE FORMULA RATE EQUALS DISTANCE DIVIDED BY TIME, CALCULATE HOW FAR A SPECIFIC CONTINENT HAS MOVED WITHIN A SPECIFIC TIME. | | |
| | | Technology | S8C.3.1.1;S8A.1.1.4 | Technology helps scientists better understand the natural world. | *WHAT TECHNOLOGIES HAVE ASSISTED SCIENTISTS WITH SUPPORTIVE EVIDENCE THAT CONTINENTS DRIFT? | | |
| | | Forces | S8D.1.1.2 | Earth's surface is shaped by plate motions. | *HOW DO ROCKS CHANGE? | | |
| | | Landforms | S8D.1.1.2 | A landform is a feature of topography formed by the processes that shape Earth's surface. | *HOW DO MOUNTAINS FORM AND CHANGE OVER TIME? Identify a hot spot, a volcanic arc, a folder mountain, and a fault-block mountain. | | |

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| December/ January | <u>EARTHQUAKE</u> | Earthquakes | S8C.3.1 | Scientists use wave motion, wave speed, and the type of material that the waves travel through to classify seismic waves. | *TWO HUNDRED YEARS AGO, HOW WOULD YOU HAVE EXPLAINED AN EARTHQUAKE? Describe the three types of seismic waves. How do scientists use seismic waves to determine the epicenter of an earthquake? | Teacher Observation Classroom Participation Labs Projects quizzes Chapter tests Folder checks Anchors | Textbook and resources i.e. print shop, concepts in motion, etc. Videos Labs Prompts Manipulatives Models Foldables |
| | | Faults | S8A.D.1.1.2 | A fault is a crack in the Earth's surface. | *IF YOU LIVED NEAR A FAULT, HOW WOULD YOU ATTEMPT TO EARTHQUAKE PROOF YOUR HOUSE? Identify the three types of faults and the stress that causes each. | | |
| | <u>VOLCANOES</u> | Volcanoes | S8D.1.1.2;S8C.1.1.2; S8A.3.3.2;S8A.3.2.3 | Volcanoes are in many places worldwide and are constantly shaping and reshaping Earth's crust. | *DO YOU AGREE THAT VOLCANOES ARE A CONSTRUCTIVE FORCE? WHY/WHY NOT? How do volcanoes form? What factors contribute to the eruption style of a volcano? How are volcanoes classified? | Teacher Observation Classroom Participation Labs Projects quizzes Chapter tests Folder checks Anchors | Textbook and resources i.e. print shop, concepts in motion, etc. Videos Labs Prompts Manipulatives Models Foldables |
| | | Properties | S8C.1.1.2 | The properties of magma will determine the type of eruption. | | | |

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| February | | Eruptions | S8B3.2.1 | The result of a volcanic eruption can affect all life on Earth. | <p>*WHAT AFFECT DOES VISCOSITY HAVE ON MAGMA?</p> <p>*WHICH EFFECT OF A VOLCANIC ERUPTION IS THE MORE IMMEDIATE DANGER -- LAVA FLOWS OR ASHFALL? WHY? Identify one positive and one negative effect of volcanic eruptions.</p> | | |
| February/ March | <u>ROCKS AND THE ROCK CYCLE</u> | Rocks | S8D.1.1.1 | <p>Rocks are everywhere.</p> <p>Rocks are classified by grain size, grain shape and mineral composition.</p> <p>Rocks enable scientists to understand ancient environments.</p> | <p>*WHY DO SCIENTISTS AND GEOLOGISTS STUDY ROCKS? How are rocks classified? Why is it that we usually do not see the changes that happen in the rock cycle?</p> | <p>Teacher Observation Classroom Participation Labs Projects quizzes Chapter tests Folder checks Anchors</p> | <p>Textbook and resources i.e. print shop, concepts in motion, etc. Videos Labs Prompts Manipulatives Models Foldables</p> <p>Textbook and resources</p> |

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| | <u>WEATHERING AND SOIL</u> | <p>Process</p> <p>Properties</p> | <p>S8D.1.1.2;S8D.1.1.3</p> <p>S8D.1.1.3</p> | <p>Weathering is the mechanical and chemical processes that change objects on Earth’s surface over time.</p> <p>The many types of soil possess properties that enable it to be identified.</p> | <p>*WHY IS WEATHERING CONSIDERED A PROCESS?</p> <p>How does weathering break down or change rock?</p> <p>Describe the effect that mechanical and chemical weathering has on rocks.</p> <p>*WHAT ARE SOME SUGGESTIONS YOU WOULD HAVE GIVEN THE PIONEERS TO HELP PREVENT THE DUST BOWL?</p> <p>List the soil properties that can be observed and measured.</p> <p>Why is it that we usually do not see the changes that happen in the rock cycle?</p> <p>How did the pioneers abuse the soil of the plains?</p> | <p>Teacher Observation Classroom Participation Labs Projects quizzes Chapter tests Folder checks Anchors</p> | <p>i.e. print shop, concepts in motion, etc. Videos Labs Prompts Manipulatives Models Foldables</p> |
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| | <u>EARTH'S WATER</u> | Process | S8D.1.3.1 | The water cycle is the process by which water constantly moves through the hydrosphere. | *WHY IS THE WATER CYCLE CONSIDERED A PROCESS? *HOW WOULD LIFE ON EARTH CHANGE IF THERE WAS NO WATER CYCLE? Explain the steps as water cycles through Earth's hydrosphere. What is the energy source for the water cycle? *WHAT ROLE DOES WATER PLAY IN REGULATING EARTH'S TEMPERATURE? Name some ways that water's structure determines its unique properties. Name some ways that water's structure determines its unique properties. How does the density of water at 0degrees C differ from the density of liquid at 4 degreesC? Why is it unusual that ice floats? | Teacher Observation Classroom Participation Labs Projects quizzes Chapter tests Folder checks | Textbook and resources i.e. print shop, concepts in motion, etc. Videos Labs Prompts Manipulatives Models Foldables |
| | | Properties | S8C.1.1.2; S8D.1.3.2;S8D.1.3.2 | Water has unusual properties because of its molecules. | | | |

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| April/May | FRESHWATER | Environmental issues | S8A.1.2.2; S8D.1.3 | Water pollution occurs when substances that harm water quality enter a body of water. | *WHAT DO YOU FEEL IS THE WORST POLLUTANT THAT GOES INTO WATER? WHY? DESCRIBE HOW YOU WOULD GO ABOUT DECREASING/ELIMINATING POLLUTION? Why is water quality important? | Teacher Observation Classroom Participation Labs Projects quizzes Chapter tests Folder checks | Textbook and resources i.e. print shop, concepts in motion, etc. Videos Labs Prompts Manipulatives Models |
| | Streams/lakes | | | | | | |
| | Groundwater and Wetlands | Environmental issues | S8A.1.2.2;S8A.1.2.4; S8D.1.3.3 | People depend on streams and lakes for their water supplies. | *NAME THREE WAYS IN WHICH YOUR COMMUNITY CAN REDUCE ITS IMPACT ON STREAMS AND LAKES. *HOW DO HUMAN ACTIVITIES AFFECT STREAMS AND LAKES? What is the difference between runoff and a stream? | Teacher Observation Classroom Participation Labs Projects quizzes Chapter tests Folder checks | Textbook and resources i.e. print shop, concepts in motion, etc. Videos Labs Prompts Manipulatives Models |
| | | Groundwater | S8D.1.3.3 | People in many areas of the world rely on groundwater for their water supply. | *WHAT CONCERNS WOULD YOU HAVE IF YOU WERE BUILDING A HOUSE IN THE COUNTRY AND WOULD BE USING WELL WATER? | | |

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| April/May | <u>WEATHER</u> | Wetlands Variables | S8D.1.3.3. S8D.1.3.1;S8D.2.1.2; S8D.2.1.3 | Wetlands are areas of land that are saturated with water for part or all of the year. Weather is the atmospheric conditions, along with short-term changes, of a certain place at a certain time. | What enables water to flow through rock and sediment? Name the water zones associated with groundwater. *HOW WOULD YOU CONVINC THE GOVERNMENT TO RESTORE SOME WETLAND AREAS? Why are wetlands important? WHY IT IS IMPORTANT FOR SCIENTISTS TO LEARN ABOUT AND PREDICT THE WEATHER? HOW DO YOU USE INFORMATION GIVEN IN A WEATHER FORECAST? HOW ARE SCIENTISTS INVESTIGATING THE LINK BETWEEN GLOBAL WARMING AND HURRICANES? What variables are used to describe weather? | Teacher Observation Classroom Participation Labs Projects quizzes Chapter tests Folder checks | Textbook and resources i.e. print shop, concepts in motion, etc. Videos Labs Prompts Manipulatives Models |
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| | | Patterns | S8D.2.1.1;S8D.2.1.3 | Weather patterns are driven by the movement of air masses. | <p>WHY IS IT IMPORTANT TO UNDERSTAND HOW SEVERE WEATHER FORMS? HOW DOES UNDERSTANDING WEATHER PATTERNS HELP MAKE PREDICTING THE WEATHER MORE ACCURATE? What drives weather patterns?</p> | | |
| | | Technology | S8A.1.2.4;S8A.1.2.1S8A.2.2.3 | Technology has aided scientists in predicting the weather. | <p>*SHOULD HUMANS BE ABLE TO CONTROL THE WEATHER? "WHAT ARE THE PROS AND CONS OF CLOUD SEEDING? "HOW HAVE COMPUTERS IMPROVED WEATHER FORECASTS?</p> | | |

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| June | Tides | Forces | S8D.3.1.1;S8D.3.1.2;S8D.3.1.3 | The gravitational pull of the Moon, and the Sun on Earth produce tides. | <p>“DOES THE SUN OR THE MOON HAVE A GREATER EFFECT ON EARTH'S TIDES? WHY? “COULD TIDES BE USED TO CREATE ELECTRICITY? WHY/WHY NOT? What causes tides?</p> | <p>Teacher Observation Classroom Participation Labs Projects quizzes Chapter tests Folder checks</p> | <p>Textbook and resources i.e. print shop, concepts in motion, etc. Videos Labs Prompts Manipulatives Models</p> |
| | <u><i>The Solar System</i></u> | Measurement | S8A.2.2.1;S8A.2.2.2 | Some units are better than others for certain measurements. | <p>*WHY DO ASTRONOMERS USE LARGER UNITS TO MEASURE DISTANCE IN THE SOLAR SYSTEM? What is an astronomical unit and why is it used?</p> | | |
| | | Structure | S8D.3.1.2;S8D.3.1.3 | The solar system is the Sun and the group of objects that move around it. | <p>*WHAT OBJECT IN THE SOLAR SYSTEM WOULD YOU LIKE TO SEE THAT YOU HAVEN'T?</p> | | |

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| | | Forces | S8D.3.1.2 | The Sun's gravitational force pulls each planet toward the Sun. | <p>“WHAT IS THE DIFFERENCE BETWEEN THE SUN AND THE OBJECTS THAT ORBIT IT?”</p> <p>“WHAT FACTORS CHANGE AS A PLANET ORBITS THE SUN?”</p> <p>“HOW WOULD THE SPEED OF A PLANET BE DIFFERENT IF ITS ORBIT WERE A CIRCLE INSTEAD OF AN ELLIPSE?”</p> <p>What causes planets to orbit the Sun?</p> <p>Why is the period of revolution different for each of the planets?</p> | | |
| | | System | S8D.3.1.3 | Earth is one of many objects that orbit Sun. | <p>“WHAT CHARACTERISTICS MAKE THIS A SYSTEM?”</p> <p>“WHAT WOULD HAPPEN IF A PLANET WERE TO LEAVE ITS ORBIT?”</p> <p>How are asteroids, planets, and dwarf planets different?</p> | | |

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| | | Planets | S8D.3.1.3 | <p>Eight planets orbit the Sun, each with their own unique characteristics.</p> <p>Space is observed using both Earth-and Space-based instruments.</p> | <p>“WHAT MIGHT HAPPEN ON EARTH IF THE AMOUNT OF CARBON DIOXIDE IN THE ATMOSPHERE INCREASED?</p> <p>“HOW DO THE CHARACTERISTICS OF THE INNER PLANETS DIFFER FROM THOSE OF THE OUTER PLANETS?</p> <p>“WHAT DOES THE RECLASSIFICATION OF PLUTO TELL YOU ABOUT THE NATURE OF SCIENCE?</p> <p>“WHY DO SCIENTISTS USE THE PRESENCE OF WATER TO DETERMINE WHETHER IT MAY BE POSSIBLE FOR A PLANET TO SUPPORT LIFE?</p> <p>DO YOU AGREE THAT PLUTO SHOULD HAVE BEEN RECLASSIFIED?</p> <p>Why is there life on Earth?</p> | | |
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| | | Technology | S8A.2.2.3 | | SHOULD THE UNITED STATES CONTINUE TO USE OUR TAX DOLLARS TO EXPLORE THE OBJECTS IN SPACE? WOULD YOU BE WILLING TO TRAVEL TO ONE OF THE PLANETS TO START A NEW COLONY? WHY/WHY NOT? | | |
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* Some teachers may need to think about the assessments and resources used in order to determine the Big Ideas, Enduring Understandings, and Essential Questions embedded in their courses. At this point in your curriculum mapping, you might want to ignore the “Common Assessments” and “Common Resources Used” columns. However, you may use them if you wish.