

## Grade 7 Science

Diary map is based on the 2015-2016 school year. Information may change year to year. Months are guidelines and items may be done at different times of the year.

Month	Essential Questions	Content	Skills	Assessment	Resources	Technology
First Semester	<p><b>Science Night</b> How can the scientific method allow me to solve a question that I have?</p>	<p><b>Science Night</b> -Question -Hypothesis -Research -Controlled Experiment -Record Data -Analyze Results -Draw Conclusion -Inferencing</p>	<p><b>Science Night</b> -Understand the steps of the scientific method and how they can be implemented to solve a question in the real world -Design a controlled experiment and test it -Create a lab report -Create a display board to present results of experiment</p>	<p><b>Science Night</b> -Display board -Lab report -Oral presentation of results</p>	<p><b>Science Night</b> -Lab packet and rubric (teacher created)</p>	<p><b>Science Night</b> -iPad</p>
Aug-Sept.	<p><b>Scientific method</b> How can scientific method be used to solve a question?</p> <p><b>Lab Safety</b> How can I be safe in the lab classroom?</p>	<p><b>Scientific Method</b> -Question -Hypothesis -Research -Controlled Experiment -Record Data -Analyze Results Draw Conclusion -Inferencing</p> <p><b>Lab Safety</b> -First aid kit -Eye wash and chemical shower -Lab safety rules</p>	<p><b>Scientific Method</b> -Understand the steps of the scientific method and how they can be implemented to solve a question -Design a controlled experiment -Understand how to take organized notes in science class -Identify the differences in independent and dependent variables and constants</p> <p><b>Lab Safety</b> -Model appropriate lab safety rules and procedures</p>	<p><b>Scientific Method</b> -Magazine ad independent and dependent variable identification -Paper towel lab -Test (teacher created)</p> <p><b>Lab Safety</b> -Behavior within a lab -Test (teacher created) -Lab safety QR code stations</p>	<p><b>Scientific Method</b> -Teachers Pay Teachers: Paper towel lab -Materials (teacher created)</p> <p><b>Lab Safety</b> -Teachers Pay Teachers: Lab safety rules PowerPoint</p>	<p><b>Scientific Method</b> -Computer -Elmo -Projector -SMART Board -PowerPoint</p> <p><b>Lab Safety</b> -Computer -Elmo -Projector -SMART Board -PowerPoint</p>

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Oct. – Nov.	<p><b>Lithosphere</b> How do Earth’s internal processes affect what occurs on the crust?</p> <p>How are different types of rocks formed and changed through Earth’s processes?</p> <p>How do rocks, continental shapes, and seafloor structures provide evidence of plate motion?</p>	<p><b>Lithosphere</b> -Lithosphere -Plate Tectonics -Pangea -Seafloor Spreading -Mantle -Crust -Inner and Outer Core -Convergent, Divergent, Transform Boundary -Subduction -Deep Ocean Trench -Igneous -Metamorphic -Sedimentary -Compaction and Cementation -Erosion, weathering, deposition</p>	<p><b>Lithosphere</b> -Model and assess how Earth’s lithosphere has changed over millions of years and what will occur in the future -Model and compare how igneous, metamorphic, and sedimentary rocks are created and how they interact together</p>	<p><b>Lithosphere</b> -Foldable -Weathering and erosion activity cards -Anchor charts (teacher created) -Bread lab -Rock cycle journey lab -Graham cracker lab -Delta Science Module: Earth Processes (2011) -Test (teacher created)</p>	<p><b>Lithosphere</b> -Various pictures -Prentice Hall <i>Earth Science</i> (2002) -Glencoe Science <i>Earth Science</i> (2002) -Delta Science Module: Earth Processes (2011)</p>	<p><b>Lithosphere</b> -Computer -Elmo -Projector -SMART Board -PowerPoint -iPad -Kahoot</p>
Dec. – Jan.	<p><b>Natural Hazards: Earthquake</b> How does an earthquake occur?</p> <p>How can Quincy residents prepare and be educated in various ways on Earthquakes?</p>	<p><b>Natural Hazards: Earthquake</b> -Fault -Stress -Normal Fault -Strike-Slip Fault -Reverse Fault -New Madrid Fault -P wave -S Wave -Seismometer</p>	<p><b>Natural Hazards: Earthquake</b> -Determine what types of structures best withstand an earthquake -Locate and determine the location of an earthquake’s epicenter and focus -Compare the different ways scientists measure seismic activity based upon pictures of past earthquakes -Compare the difference between the movement and speed of P and S waves</p>	<p><b>Natural Hazards: Earthquake</b> -Marshmallow Building Lab -Clay Modeling Lab -P and S waves Lab -Rate earthquakes based upon pictorial damages -Educational fliers for the city of Quincy</p>	<p><b>Natural Hazards: Earthquake</b> -Prentice Hall <i>Earth Science</i> (2002) -Teachers Pay Teachers -Materials (teacher created)</p>	<p><b>Natural Hazards: Earthquake</b> -Computer -Elmo -Projector -SMART Board -PowerPoint -iPad -YouTube</p>

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Feb.	<p><b>Hydrosphere</b> What is the hydrosphere and what are the differences in the many different types of bodies of water?</p> <p>How does water cycle through the Earth in an un-ending cycle that is powered by the sun?</p> <p>What are the causes of water pollution?</p> <p>How does unequal heating and the rotation of the Earth cause oceanic circulation such as el nino, ocean currents, and waves?</p>	<p><b>Hydrosphere</b> -Evaporation -Condensation -Precipitation -Runoff - Well -Aquafer -Current -Wave -El Nino -River -Lake -Ocean -Tributary -Creek -Saltwater -Groundwater -Freshwater -Glacier -Stream -Watershed -Pond</p>	<p><b>Hydrosphere</b> -Research the causes of water pollution in various areas of the Midwest and in other countries -Explore how water rises and returns back to Earth -Explore how wells can be used to retrieve water from aquifers -Determine the location of aquifers in Illinois -Explore how waves are formed through the transfer of energy, not the movement of water -Predict the movement of an object as it flows through ocean currents -Discuss the reasons and effects El Nino has on weather</p>	<p><b>Hydrosphere</b> -Test (teacher created) -Water Cycle lab -Well lab -Aquifer Lab -Water Pollution Lab -Wave stations (teacher created) -Rubber duck lab</p>	<p><b>Hydrosphere</b> -Materials (teacher created) -Prentice Hall <i>Earth Science</i> (2002) -Glencoe Science <i>Earth Science</i> (2002)</p>	<p><b>Hydrosphere</b> -Computer -Elmo -Projector -SMART Board -PowerPoint -iPad -YouTube</p>
March	<p><b>Atmosphere</b> How do air masses change weather conditions?</p>	<p><b>Atmosphere</b> -Cold Front -Warm Front -Current -Air Pressure -Local Winds -Global Winds -Precipitation -Temperature -Humidity -Air Masses -Air Particles -Layers of the Atmosphere</p>	<p><b>Atmosphere</b> -Explain how air pressure and fronts can determine weather patterns -Understand that the Earth's atmosphere has many different layers and each layer has different qualities</p>	<p><b>Atmosphere</b> -Barometric reading lab -Reading a weather map worksheet -Weather map prediction project -Test (teacher created)</p>	<p><b>Atmosphere</b> -Materials (teacher created) -Prentice Hall <i>Earth Science</i> (2002) -Glencoe Science <i>Earth Science</i> (2002)</p>	<p><b>Atmosphere</b> -Computer -Elmo -Projector -SMART Board -PowerPoint -iPad -YouTube</p>

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April	<p><b>Natural Resources/ Human Impact/</b> What is the reasoning behind the uneven distribution of Earth’s energy resources due to past geologic processes?</p> <p>How can individuals minimize the impact on the environment by using less fossil fuels through the use of renewable resources?</p> <p>How do various renewable resources work and what are the pros and cons of usage of each of these types?</p> <p>How has the increase in the human population affected the amount of resources that are available to individuals?</p>	<p><b>Natural Resources</b> -Natural Resource -Renewable Resource -Nonrenewable Resource -Coal -Oil -Natural Gas -Fracking</p>	<p><b>Natural Resources/ Human Impact/</b> -Hypothesize the reasoning behind the uneven distribution of fossil fuels based on knowledge from the year -Research in order to understand about renewable energy that is available to humans, including the history, pros, cons and how it works -Understand the formation of coal, oil, and natural gas</p>	<p><b>Natural Resources/ Human Impact/</b> -Worksheets (teacher created) -Test (teacher created) -Labs (teacher created) -Project (teacher created) -Wind turbine lab -Solar House Lab -Population Consumption lab</p>	<p><b>Natural Resources/ Human Impact/</b> -Materials (teacher created)</p>	<p><b>Natural Resources/ Human Impact/</b> -Computer -Elmo -Projector -SMART Board -PowerPoint -iPad -YouTube)</p>
May	<p><b>Ecosystems</b> What evidence is there to prove the effects of the rise in global temperature over the past century?</p> <p>How can population numbers of organisms be affected by resource availability and changes</p>	<p><b>Ecosystems</b> -Biodiversity -Ecosystem -Biotic -Abiotic -Community -Habitat -Population -Producer -Consumer -Decomposer</p>	<p><b>Ecosystems</b> -Explore the causes and effects in the rise of global temperatures -Identify various components of an ecosystem -Explore the effects of predator and prey numbers in an ecosystem -Identify and construct</p>	<p><b>Ecosystems</b> -Test (teacher created) -Biodiversity lab -Ecosystem walk -Predator/Prey Simulation -Flow of Energy lab</p>	<p><b>Ecosystems</b> -Materials (teacher created)</p>	<p><b>Ecosystems</b> -Computer -Elmo -Projector -SMART Board -PowerPoint -iPad -YouTube</p>

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	<p>in the physical or biological components?</p> <p>How do organisms interact across multiple ecosystems?</p> <p>How do the living and nonliving parts of an ecosystem interact?</p>	<p>-Predator</p> <p>-Prey</p>	<p>the flow of energy in a given ecosystem</p>			