

CONTENT AREA: Science

GRADE LEVEL: 7th

UNIT/ ESSENTIAL QUESTION	APPROX. START TIME	APPROX. END TIME	TEXT/RESOURCES	TARGETED UNDERSTANDING (PURPOSE)	CONTENT STANDARD(S)	PERFORMANCE EXPECTATION
<p>Thermal Energy Unit</p> <p>What are some of Earth's energy sources?</p> <p>How do we measure thermal energy?</p> <p>How is heat transferred from one object to another?</p>	9/15	10/15	Mcgraw Hill	<p>Thermal energy is transferred out of hotter regions or objects and into colder ones by convection, conduction, and radiation.</p> <p>The change in the average kinetic energy of the particles is measured by the temperature of the sample.</p>	<p>7.MS-PS3-1</p> <p>7.MS-PS3-3</p> <p>7.MS-PS3-4</p> <p>7.MS-PS3-6(MA)</p>	Design, build and test solar oven
<p>Bridge Technology Unit</p> <p>What are some of the challenges bridge builders face?</p> <p>What are the benefits of different shapes common in trusses?</p>	10/15	11/15	Mcgraw Hill	<p>Structural systems work together to serve a structural function. Provide examples of physical structures and relate their design to their intended use. Construct a prototype of a solution to a design problem.</p> <p>Evaluate competing solutions to a given design problem.</p>	<p>7.MS-ETS3-4(MA)</p> <p>7.MS-ETS3-5(MA)</p> <p>7.MS-ETS1-7(MA)</p> <p>7.MS-ETS1-2</p>	<p>Large Frame Manipulative</p> <p>Small Frame Manipulative</p> <p>West Point Bridge</p> <p>STEM Lab bridge Build</p> <p>Building Big website</p>

<p>Geological Events Unit</p> <p>How is data used to predict future catastrophic events?</p> <p>How is technology used to collect and analyze data created by catastrophic events?</p>	11/15	12/15	Mcgraw Hill	Obtain and communicate information on how data from past geologic events are analyzed for patterns and used to forecast the location and likelihood of future catastrophic events.	7.MS-ESS3-2	<p>Mt Rainier Eruption Project</p> <p>Epicenter Simulation Paper Labs</p> <p>Data Collection Over Time Extended Activity</p>
<p>Water Unit</p> <p>How does fresh water cycle on Earth?</p> <p>How does the flow of river water affect the landscape?</p>	12/15	1/15	Mcgraw Hill	<p>The Earth's surface has changed over scales that range from local to global in size.</p> <p>Gravity drives the water cycle.</p> <p>Conservation technologies can mitigate the impact of increases in human population and consumption of fresh water.</p>	<p>7.MS-ESS2-2</p> <p>7.MS-Ess2-4</p> <p>7.MS-ESS3-4</p>	<p>Erosion Presentation</p> <p>Water Cycle Diagrams</p> <p>STEM Stream Table</p> <p>Water Conservation Technology Models (Demo and Student project)</p>
<p>Ecosystem Unit</p> <p>How do living things affect one and other?</p> <p>How do energy and matter move through ecosystems?</p>	1/15	2/15	Mcgraw Hill	<p>Animal behaviors and plant structures increase the probability of reproduction.</p> <p>Relationships between organisms can be competitive, predatory, parasitic, and mutually beneficial.</p> <p>Matter and energy are transferred among living and nonliving parts of an ecosystem.</p>	<p>7.MS-LS1-4</p> <p>7.MS-LS2-2</p> <p>7.MS-LS2-3</p>	<p>Biome Food Web Research Project</p> <p>Future is Wild Project</p> <p>Online Food Web Simulators</p> <p>Symbiosis Slide Show</p> <p>Plum Landing PBS ecosystem</p>

<p>Aquaponics Unit</p> <p>How can aquaponics provide food now and for future generations?</p> <p>How does aquaponics allow us to conserve resources, such as soil, water and reduce the carbon footprint associated with agriculture?</p>	2/15	3/7	Mcgraw Hill	<p>Disruptions to biological components of an ecosystem can lead to shifts in all its populations. Ecosystems can be designed and protected through research and experimental modeling. Changes to the biodiversity may limit the availability of resources for other organisms.</p>	<p>7.MS-LS2-1</p> <p>7.MS-LS2-4</p> <p>7.MS-LS2-5</p> <p>7.MS-LS2-6</p>	<p>Classroom Aquaponics STEM Lab Set Up</p>
<p>Electricity Unit</p> <p>How are electricity and magnetism related?</p> <p>How does an electric circuit work?</p>	3/7	4/1	Mcgraw Hill	<p>The distance and magnitude of electric charge affects the strength of electric forces. Fields exist between objects with mass, between magnetic objects, and between electrically charged objects.</p>	<p>7.MS-PS2-3</p> <p>7.MS-PS2-5</p>	<p>Electromagnet / Motor Design Lab</p> <p>Intro to Circuits</p> <p>Iron Filings Lab</p> <p>Balloon Lab / Demo</p> <p>Van de Graaff Gen Demo</p>
<p>Communications Unit</p> <p>What is the most efficient way to move a payload over a distance?</p> <p>How do we communicate with different devices that employ various types of waves?</p>	4/1	4/15	Mcgraw Hill	<p>Communication systems are composed of a series of components. Transportation systems are designed to move people and goods using a variety of vehicles and devices and propulsion methods.</p>	<p>7.MS-ETS3-1</p> <p>7MS-ETS3-2</p> <p>7.MS-ETS3-3</p> <p>7.MS-ETS1-4</p>	<p>Design a transportation device Lab - generate / analyze data</p> <p>Musical Instrument Lab</p> <p>Wave Tank Lab / Demos</p>

<p>Physics of Motion Unit</p> <p>How is energy conserved in a transformation?</p> <p>What is the relationship between kinetic energy, mass and speed of an object?</p>	4/15	6/7	Mcgraw Hill	<p>Kinetic energy, mass, and speed of an object are related. Potential energy between two objects depends on distance. Energy of an object is converted between kinetic and potential energy with losses due to friction.</p>	<p>7.MS-PS3-1 7.MS-PS3-2 7MS-PS3-5 7MS-PS3-7(MA)</p>	<p>Run computer simulations</p> <p>Pendulum Lab</p> <p>Demos: Ball bounce, elastics, ramps</p> <p>Water Bottle Rockets</p>
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