

**Life Science – Grade 6
Standard 1**

Standard: 1. Classify organisms into the currently recognized kingdoms according to characteristics that they share. Be familiar with organisms from each kingdom
Essential Guiding Question: What is the purpose of classifying organisms into kingdoms?
Focus Questions: What are the five kingdoms we recognize today? How has our understanding changed? What are the five kingdoms?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will understand the fungi kingdom including the different kinds of fungi, how they get energy, and how they reproduce	Explore Media Inquiry Observation Yeast and Sugar Water Activity Growing Mold Making Bread Note-Taking and Summarization of Videos Research Individual Fungi	Concept Test on Standard 1 Teacher Observation Performance Task	Microorganisms Video (Mark Twain Media Inc.) Bacteria Fungi Posters Text: Harcourt Science – A38-A57	September - October

**Life Science – Grade 6
Standard 2**

Standard: 2. Recognize that all organisms are composed of cells, and that many organisms are single-celled (unicellular), e.g., bacteria, yeast. In these single-celled organisms, one cell must carry out all of the basic functions of life
Essential Guiding Question: Why is a cell called the basic building block of life?
Focus Questions: What is a cell? What is a single-celled organism? How are plant cells and animal cells different?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
<p>Students will understand that single-celled organisms can function independently</p> <p>Students will be able to articulate that though that cells of humans and other multi-celled organisms do not function independently, they have organelles that do specific tasks</p>	<p>Access Prior Knowledge</p> <p>Media Inquiry</p> <p>Investigation Method</p> <p>Make Models of Plants and Animal Cells</p> <p>Make Flashcards of Organelles and Life Processes</p> <p>Observe and Draw One-Celled Pond Organism under Microscope</p> <p>Write summary</p>	<p>Unit Test on Standard 2-7</p> <p>Performance Task</p> <p>Teacher Observation</p> <p>Uses Equipment Properly</p>	<p>Microorganisms Video (Mark Twain Media, Inc.)</p> <p>Video – cells</p> <p>Text Harcourt Science – A6-A11</p>	<p>September-October</p>

**Life Science – Grade 6
Standard 3**

Standard: 3. Compare and contrast plant and animal cells, including major organelles (cell membrane, cell wall, nucleus, cytoplasm, chloroplasts, mitochondria, vacuoles)
Essential Guiding Question: What is the difference between plant and animal cells?
Focus Questions: In what way are plant and animal cells alike? In what way are they different? What do the different organelles do?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will learn the different organelles and be able to show the differences between plant and animal cells	Read Text Discussion Experiment - Use Plastic Bag with Jell-O and a Grape to Model Cell, Cytoplasm, and Nucleus	Teacher Observation	Text: Harcourt Science – A8-A9	September - October

**Life Science – Grade 6
Standard 4**

Standard: 4. Recognize that without cells, many of the basic functions of organisms (e.g., extracting energy from food and getting rid of waste) are carried out. The way in which cells function is similar in all living organisms
Essential Guiding Question: In what ways are all cells alike, whether they are from single-celled or multi-celled organisms?
Focus Questions: What are the basic functions or the different parts of cells?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will learn the purpose of a cell's organelles	Read Text Discussion	Questions on Concept Test Teacher Observation	Text: Harcourt Science – A8-A9	September - October

**Life Science – Grade 6
Standard 5**

Standard: 5. Describe the hierarchical organization of multi-cellular organisms from cells to tissues to organs to systems to organisms
Essential Guiding Question: How do the smallest units of life build into complex organisms with trillions of cells?
Focus Questions: What is a cell? What is a tissue? What is an organ? What is a system? What is an organism? How are all these related?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will understand that cells are building blocks of tissue, tissue is the building block of organs, related organs create systems, and multi-cellular organisms live because their systems take care of their physical needs	Text Video	Teacher Observation Questions on Unit Test	Text: Harcourt Science	September - October

**Life Science – Grade 6
Standard 7**

Standard: 7. Recognize that every organism requires a set of instructions that specifies its traits. These instructions are stored in the organism’s chromosomes. Heredity is the passage of these instructions from one generation to another
Essential Guiding Question: Why do humans have human offspring that look like the parents, and dogs give birth to dogs?
Focus Questions: What is a trait? How is it passed to offspring? What system does an organism use to store this information? What is heredity?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will understand what traits are and how they are passed along Students will understand the concept of heredity and chromosomes	Read Text Lecture Discussion Access Prior Knowledge	Questions on Unit Test	<u>The Gene Scene</u> insert to Scholastic News Text: Harcourt Science – A24- A31	September - October

**Life Science – Grade 6
Standard 8**

Standard: 8. Recognize that hereditary information is contained in genes located in the chromosomes of each cell. A human cell contains about 30,000 different genes on 23 different chromosomes
Essential Guiding Question: What are genes and chromosomes?
Focus Questions: What is heredity? What is the relationship between genes and chromosomes? Where are they located?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will understand that the nucleus of an organism’s cell contains chromosomes, which contain genes that carry the instructions for creating a new organism	Read Text Lecture Discussion Field Lesson Activities with Live Organisms Observation Salt Marsh Field Trip with Pre-lesson Murals of Vernal Pool, Barrier Beach, Kettle Pond, Intertidal Zone	Teacher observation; performance task; rubric	Handouts; text: Harcourt <u>Science</u> C6-C11; guest	September -October

**Life Science – Grade 6
Standard 13**

Standard: 13. Give examples of ways in which organisms interact and have different functions within an ecosystem that enable the ecosystem to survive

Essential Guiding Question: How do the living parts of an ecosystem relate to each other?

Focus Questions: What happens if the balanced parts of an ecosystem become imbalanced?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will understand that the different populations of an ecosystem need to be balanced in order for the ecosystem to thrive	Read Text Lecture Discussion Field Lesson Activities with Live Organisms Salt Marsh Field Trip with Pre-Lesson Murals of Vernal Pool, Barrier Beach, Kettle Pond, Intertidal Zone	Teacher Observation Performance Task Rubric	Handouts Text: Harcourt Science – C6-C11; guest	September - October

**Life Science – Grade 6
Standard 14**

Standard: 14. Explain the roles and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web
Essential Guiding Question: How is energy transferred in a food web?
Focus Questions: What is a producer? What is a decomposer? What is a consumer? What kind of energy is transferred? What is it used for? How much is available to the next recipient? Where does it first come from?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will thoroughly understand and be able to describe energy transfer from the sun to the producers, producers to consumers, dead producers and consumers to decomposers, remains back to producers	Read Text Lecture Discussion Field Lesson Activities with Live Organisms Observation Inquiry Cooperative Research Graphics that Shows Food Web on Murals	Teacher observation; performance task; rubric	Handouts; text: Harcourt <u>Science</u> C6-C11; guest teachers; invasive organisms handout.	September - October

**Life Science – Grade 6
Standard 15**

Standard: 15. Explain how dead plants and animals are broken down by other living organisms and how this process contributes to the system as a whole
Essential Guiding Question: What happens to the bodies of dead plants and animals?
Focus Questions: What does it mean to decompose? What are the different kinds of detritivores? Why is the process of decomposition important?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will understand that molecules would not be returned to the food web if decomposers did not break down dead bodies (which is critical to the food chain process)	Read Text Lecture Discussion Field Lesson Activities with Live Organisms Observation Inquiry Cooperative Research Graphics that Shows Food Web on Murals Salt Marsh Field Trip with Pre-Lesson Murals of Vernal Pool, Barrier Beach, Kettle Pond, Intertidal Zone	Teacher Observation Performance Task Rubric	Handouts Text: Harcourt Science – C6-C11 Guest Teachers Invasive Organisms Handout	September-October

**Life Science – Grade 6
Standard 16**

Standard: 16. Recognize that producers (plants that contain chlorophyll) use the energy from sunlight to make sugars from carbon dioxide and water through a process called photosynthesis. This food can be used immediately, stored for later use, or used by other organisms
Essential Guiding Question: Would life on earth be possible without organisms that can use the sun’s energy to live?
Focus Questions: What is necessary for plants to perform photosynthesis? How is the sun necessary for humans to live?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will understand that solar energy is the engine of life on this planet and that nearly the entire food chain relies on this source to live	Read Text Lecture Discussion Field Lesson Activities with Live Organisms Observation Inquiry Cooperative Research Graphics that Shows Food Web on Murals Salt Marsh Field Trip with Pre-Lesson Murals of Vernal Pool, Barrier Beach, Kettle Pond, Intertidal Zone	Teacher observation; performance task; rubric	Handouts; text: Harcourt <u>Science</u> C6-C11; guest teachers; invasive organisms handout.	September - October

**Earth & Space Science – Grade 6
Standard 1**

Standard: 1. Recognize, interpret, and be able to create models of the earth’s common physical features in various mapping representations, including contour maps
Essential Guiding Question: How can people show what the surface of the earth is like to other people?
Focus Questions: What are the different kinds of maps that show the earth’s contours? What do the links on a topographic map mean? What do the symbols mean?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
<p>Students will demonstrate understanding of the basics of a contour map and be able to create on correctly</p> <p>Students will be able to use the appropriate scale to determine distance</p> <p>Students will be able to use the appropriate scale to determine distance.</p> <p>Students will create a small clay landscape cut into layers to represent topographical maps.</p> <p>Students will create an imaginary island with correct contour lines and written description</p>	<p>Access Prior Knowledge</p> <p>Cooperative Learning</p> <p>Exploration</p> <p>Create a Topographic Map (using a cake tin with a plastic cover, clay, water, and transparency marker)</p> <p>Student will Plan a “Trip” from One City to Another Using Different Types of Maps</p> <p>.</p>	<p>Projects</p> <p>Teacher Observation performance</p> <p>Concept Test</p>	<p>Material from USGS and AAA</p> <p>Posters</p>	<p>November – mid-January</p>

**Earth & Space Science – Grade 6
Standard 2**

Standard: 2. Describe the layers of the earth, including the lithosphere, the hot convecting mantle, and the dense metallic core
Essential Guiding Question: What is the earth like under the surface?
Focus Questions: What are tectonic plates? What are the layers of the earth? How are the layers different from each other? What are the results of the movement of tectonic plates?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
<p>Students will be able to identify the four layers of the earth</p> <p>Students will understand how profoundly the movement of tectonic plates has changed the earth's surface over time</p> <p>Students will create a poster depicting the layers of the earth</p>	<p>Access Prior Knowledge</p> <p>Reading Text</p> <p>Discussion.</p>	<p>Project-Based.</p>	<p>Our Solar System by Rebecca Stark</p> <p>Thinking about Science Series</p> <p>Text Harcourt Science D2</p>	<p>November-mid-January</p>

**Earth and Space Science – Grade 6
Standard 3**

Standard: 3. Differentiate among radiation, conduction, and convection, the three mechanisms by which heat is transferred through the earth’s system
Essential Guiding Question: How does heat move from one place to another?
Focus Questions: What is radiation? What is conduction? What is convection? How does understanding the differences among them affect designing and planning?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
<p>Students will understand that radiation does not require a medium to travel</p> <p>Students will understand that conduction occurs molecule by molecule and that convection occurs when heated gas or liquid moves</p> <p>Students will investigate and construct plate tectonics to solar ovens and global currents</p> <p>Students will describe transfer of energy</p> <p>Students will be able to model energy transfer as radiation, conduction, or convection</p>	<p>Reading Text</p> <p>Lecture</p> <p>Discussion</p> <p>Graphic Organizer</p>	<p>Concept test; teacher observation.</p>	<p>Text Harcourt <u>Science</u> E74; solar over handout (see tech. unit)</p>	<p>November-mid-January</p>

**Earth & Space Science – Grade 6
Standard 4**

Standard: 4. Explain the relationship among the energy provided by the sun, the global patterns of atmospheric movement, and the temperature differences among water, land, and atmosphere
Essential Guiding Question: How do radiation, convection, and conduction affect life on the surface of the planet?
Focus Questions: What happens when uneven heating occurs in the atmosphere and in large bodies of water?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
<p>Students will understand that heat transfer causes wind and water currents which affects weather and climate changes</p> <p>Students will be able to demonstrate that the energy for these changes comes first from the sun</p> <p>Students will create land and sea breezes</p>	<p>Reading Text</p> <p>Investigation</p> <p>Access Prior Knowledge</p> <p>Observation</p>	<p>Observation</p> <p>Projects</p>	<p>Text Harcourt Science C92-C105; posters</p>	<p>November - mid-January</p>

**Earth & Space Science – Grade 6
Standard 5**

Standard: 5. Describe how the movement of the earth’s crustal plates causes both slow changes in the earth’s surface (e.g., formation of mountains and ocean basins) and rapid ones (e.g., volcanic eruptions and earthquakes)
Essential Guiding Question: How does the movement of tectonic plates affect the earth’s surface?
Focus Questions: Do tectonic plates affect people? What are slow and fast processes? Can people have any affect on the plates?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
<p>Students will understand that the movement of the plates causes seafloor spreading, volcanoes, and earthquakes</p> <p>Students will be able to describe how the surface of the earth can change in monumental ways both slowly and quickly because of the movements of the plates</p>	<p>Read Text</p> <p>Access Prior Knowledge</p> <p>Lecture</p> <p>Discussion</p> <p>Creation of a Pangaea Flipbook and Pangaea Puzzle</p>	<p>Teacher Observation</p> <p>Projects</p>	<p>Text Harcourt Science D12-D19</p> <p>Read The Big Wave</p>	<p>November-mid-January</p>

**Earth & Space Science – Grade 6
Standard 6**

Standard: 6. Describe and give examples of ways in which the earth’s surface is built up and torn down by natural processes, including deposition of sediments, rock formation, erosion, and weathering
Essential Guiding Question: How does wind, water, heat, and pressure change the different components of earth’s surface?
Focus Questions: What is deposition? What are sediments? What is erosion? What is weathering? How do slow processes affect life on the earth’s surface.

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
<p>Students will gain a deeper understanding of slow earth processes</p> <p>Students will be able to construct a rock cycle diagram</p>	<p>Reading Text</p> <p>Access Prior Knowledge.</p>	<p>Teacher Observation</p> <p>Concept Test</p>	<p>Text Harcourt Science D36-D67</p>	<p>November - mid-January</p>

**Earth & Space Science – Grade 6
Standard 8**

Standard: 8. Recognize that gravity is a force that pulls all things on and near the earth toward the center of the earth. Gravity plays a major role in the formation of the planets, stars, and solar system and in determining their motions
Essential Guiding Question: What is the role of gravity in the motions of the planets and stars?
Focus Questions: What is a solar system? What is a galaxy? How big does something have to be to have gravity? What is a solar system? What is an orbit?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
<p>Students will demonstrate knowledge of the “<i>Laws of Motion</i>”</p> <p>Students will understand that objects in motion will go in a straight line unless they are captured by the gravity of a larger object</p>	<p>Ongoing Integration with Other Units</p> <p>Discuss Gravity in Context of Potential Energy</p>	<p>Teacher Observation</p> <p>Performance</p>	<p>Text</p> <p>Laws of Motion Poster</p>	<p>November-mid-January</p>

**Earth & Space Science – Grade 6
Standard 9**

Standard: 9. Describe lunar and solar eclipses, the observed moon phases, and tides. Relate them to the relative positions of the earth, moon, and sun
Essential Guiding Question: What affect does the moon and the sun have on the surface of the earth?
Focus Questions: What cycles occur as a result of the fact that the earth orbits the sun and the moon orbits the earth? What are tides? What are the phases of the moon? How do moon phases relate to the tides?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
<p>Students will understand that the earth’s water is pulled by both the sun and the moon</p> <p>Students will gain a basic understanding of how tides work</p> <p>Students will be able to construct tidal amplitude</p>	<p>Read Text</p> <p>Lecture</p> <p>Discussion</p> <p>Field Lesson</p> <p>Graphs and Graphic Sources</p>	<p>Concept Test</p> <p>Projects</p> <p>ORQ</p>	<p>Tides at the Seashore (Silver Burdell and Ginn)</p> <p>Newspaper Tide Tables</p>	<p>November - mid-January</p>

<p>graphs</p> <p>Students will construct eight panel paragraphs about tides and the moon</p> <p>Students will be able to physically model with sun in center of the globe and shadows</p>	<p>Media Inquiry</p>			
---	----------------------	--	--	--

**Earth & Space Science – Grade 6
Standard 10**

Standard: 10. Compare and contrast properties and conditions of objects in the solar system (i.e., sun, planets, and moons) to those on earth (i.e., gravitational force, distance from the sun, speed, movement, temperature, and atmospheric conditions)
Essential Guiding Question: How are the sun, the planets, and the moon different from earth?
Focus Questions: Could people live on the sun, the moon, or the planets? Why or why not?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will demonstrate basic knowledge of the properties and conditions of the sun, the moon, and the planets and how they are like the earth and different from the earth	Read Text Access Prior Knowledge Field Lesson Plant Walk – “Earth as a Peppercorn”	Teacher Observation Active Participation	Our Solar System by Rebecca Stark Thinking About Science Series	November - mid-January

**Earth & Space Science – Grade 6
Standard 11**

Standard: 11. Explain how the tilt of the earth and its revolution around the sun result in an uneven heating of the earth, which in turn causes the seasons
Essential Guiding Question: Why does the earth have different seasons?
Focus Questions: In what ways does the tilt of the earth affect life on earth? At what angle does the earth get the most intense radiation from the sun? What does length of day have to do with seasons?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources
<p>Students will demonstrate understanding of how the tilt of the earth and its revolution around the sun causes seasons</p> <p>Students will critically examine and discard incorrect explanations for the seasons such as earth having an elliptical orbit around the sun</p>	<p>Lecture</p> <p>Discussion</p> <p>Access Prior Knowledge</p> <p>Create Graphic Sources</p> <p>Radiant Energy Activity (use flashlight, colored pencils, and graph paper to depict the sunlight at various line of latitude)</p>	<p>Concept Test</p> <p>Performance</p> <p>Teacher Observation</p> <p>Unit Test</p>	<p>Reasons for the Seasons by GEMS</p> <p>Access to Google Earth</p> <p>Text Harcourt Science D94-D99</p>

**Earth & Space Science – Grade 6
Standard 12**

Standard: 12. Recognize that the universe contains many billions of galaxies, and that each galaxy contains many billions of stars
Essential Guiding Question: What is a galaxy?
Focus Questions: What is the size relationship between a galaxy and a solar system? How can one capture and understand concepts that are beyond our reference, such as billions and billions?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will fully understand and internalize the difference between a galaxy and a solar system	Read Text Lecture Discussion	Teacher Observation	Our Solar System by Rebecca Stark Reading Street Basal Series Leveled Readers	November - mid- January

**Physical Science – Grade 6
Standard 1**

Standard: 1. Differentiate between weight and mass, recognizing that weight is the amount of gravitational pull on an object
Essential Guiding Question: What is weight and how is it different from mass?
Focus Questions: What is weight? What is mass?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will understand that mass is a constant but weight depends on the gravity of the object pulling on it	Lecture Discussion Access Prior Knowledge	Part of Unit Concept Test Teacher Observation	Posters Test: Harcourt Science F6-F11	March – mid-May

Standard 2

Standard: 2. Differentiate between volume and mass. Define density
Essential Guiding Question: What is the difference between volume and mass?
Focus Questions: What is volume? What is mass? What is density? How are they related?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
<p>Students will understand that volume is an amount of space, mass is how tightly matter is packed into a space, and density is how tightly packed molecules are</p>	<p>Lecture</p> <p>Discussion</p> <p>Access Prior Knowledge</p> <p>Relate to Global Currents/Tectonic Plates/Heat</p> <p>Transfer Layering Colored Water</p> <p>Relate to Hot Air Balloon Activity</p>	<p>Part of Unit Concept Test</p> <p>Teacher Observation</p>	<p>Posters</p>	<p>March – mid-May</p>

**Physical Science – Grade 6
Standard 3**

Standard: 3. Recognize that the measurement of volume and mass requires understanding of the sensitivity of measurement tools (e.g., rulers, graduated cylinders, balances) and knowledge and appropriate use of significant digits.
Essential Guiding Question: How do scientists measure things?
Focus Questions: What is the metric system? How do rulers, instruments like graduated cylinders, and balances use the metric system?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will be able to practice using scientific instruments appropriately and accurately	Posters Lectures Discussion General Labs and Activities	Teacher Observation		March – mid-May

**Physical Science – Grade 6
Standard 4**

Standard: 4. Explain and give examples of how mass is conserved in a closed system.
Essential Guiding Question: What is the Law of Conservation of Matter?
Focus Questions: What is a closed system?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will be exposed to and understand the concept of conservation of matter	Lecture Discussion Activities: Making Popcorn	Teacher Observation		March – mid-May

**Physical Science – Grade 6
Standard 5**

Standard: 5. Recognize that there are more than 100 elements that combine in a multitude of ways to produce compounds that make up all of the living and nonliving things that we encounter
Essential Guiding Question: What is the universe made of?
Focus Questions: What is an element? What is a compound? What are atoms? What are molecules?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will understand that there are more than 100 elements that combine to make up all matter	Media Inquiry Research Performance Task Making Choices Activity Elementary Puzzle Match Game Element Bingo	Part of Unit Test Molecularium.com- Students Sell an Element to Governors of a Space Colony on Mars (research and presentation)	Handouts Text: Harcourt Science E12-E19 Posters Mars Video Molecularium, Atom Worksheet	March – mid-May

**Physical Science – Grade 6
Standard 6**

Standard: 6. Differentiate between an atom (the smallest unit of an element that maintains the characteristics of that element) and a molecule (the smallest unit of a compound that maintains the characteristics of that compound)
Essential Guiding Question: How do atoms make up molecules?
Focus Questions: What is an atom? What is a molecule?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will become familiar with the basic structure of an atom and how atoms combine to form molecules	Discussion Worksheets	Part of Unit Concept Test	Text: Harcourt Science E6-E11, E22-E223	March – mid-May

**Physical Science – Grade 6
Standard 7**

Standard: 7. Give basic examples of elements and compounds
Essential Guiding Question: What are some of the most common elements and compounds?
Focus Questions: What is a simple compound?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will gain knowledge of the simpler and more common elements and compounds	Read Text Discussion	Part of Unit Assessment	Chem4kids.com Posters	March – mid-May

**Physical Science – Grade 6
Standard 8**

Standard: 8. Differentiate between mixtures and pure substances
Essential Guiding Question: What does it mean to be a pure substance?
Focus Questions: What is a mixture?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will understand the concept of mixtures and pure substances	Read Text Discuss	Part of Unit Assessment	Chem4kids.com Posters	March – mid-May

**Physical Science – Grade 6
Standard 9**

Standard: 9. Recognize that a substance (element or compound) has a melting point and a boiling point, both of which are independent of the amount of the sample
Essential Guiding Question: What does is mean to melt or boil?
Focus Questions:

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will learn that matter melts or boils at specific temperatures	Research Individual Elements Performance Task	Performance Assessment Teacher Observation	Text Harcourt Science E23-E27	March – mid-May

**Physical Science – Grade 6
Standard 10**

Standard: 10. Differentiate between physical changes and chemical changes
Essential Guiding Question: What are physical and chemical changes?
Focus Questions: What is the difference between a physical and chemical change?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will understand that there are physical changes and chemical changes	Read Text	Part of Unit Assessment	Chem4kids.com Text: Harcourt Science E46-E57	March – mid-May

**Physical Science – Grade 6
Standard 11**

Standard: 11. Explain and give examples of how the motion of an object can be described by its position, direction of motion, and speed
Essential Guiding Question: How can motion be described?
Focus Questions:

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will be able to describe the motion of an object	Read Text	Part of Unit Assessment	Text Harcourt Science F12-F18	March – mid-May

**Physical Science – Grade 6
Standard 13**

Standard: 13. Differentiate between potential and kinetic energy. Identify situations where kinetic energy is transformed into potential energy and vice versa
Essential Guiding Question: What is kinetic and potential energy?
Focus Questions: What are the different kinds of kinetic energy? What are the different kinds of potential energy? What is the Law of Conservation of Energy?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will be able to understand the concept that kinetic energy is moving energy and that potential energy is stored	Demonstration Discussion Activities: Using balloon, Cup, Marble, Ruler, and Tape Students will Design a Structure to make the Marble Roll and Describe the Transfer of Energy Beakman's Motor Demos of Solar Panel, Cars Rolling, Rubber Bands Shooting	Performance Assessment Teacher Observation Journal of Daily Observations of Energy Transformations	Text Harcourt Science E76-E77	March – mid-May

**Physical Science – Grade 6
Standard 14**

Standard: 14. Recognize that heat is a form of energy and that temperature change results from adding or taking away heat from a system
Essential Guiding Question: Why does matter become cooler and warmer?
Focus Questions:

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will understand the cause of changes in temperature	Discussion Reading	Part of Unit Test	Text Harcourt Science E78-E81	March – mid-May

**Physical Science – Grade 6
Standard 15**

Standard: 15. Explain the effect of heat on particle motion through a description of what happens to particles during a change in phase
Essential Guiding Question: What happens when atoms and molecules gain or lose energy?
Focus Questions: What are states of matter? What is density?

Learning Expectations and Course Specific Goals	Instructional Strategies	Assessment Techniques	Materials, Supplies and Resources	Pacing Guide
Students will be able to explain particle changes in a sophisticated manner	Discussion Reading	Part of Unit Test		March – mid-May