


## Seventh Grade Science Curriculum Bundle #4

<b>Title</b>		<b>Suggested Dates</b>
Structures of Matter		Oct 26 – Nov13 (12 days)

<b>Big Idea/Enduring Understanding</b>	<b>Guiding Questions</b>
Compounds are composed of elements and have unique physical and chemical properties different from their component elements.	Why aren't compounds on the periodic table (ex: H <sub>2</sub> O)? What are examples of everyday chemical changes?

The resources included here provide teaching examples and/or meaningful learning experiences to address the District Curriculum. In order to address the TEKS to the proper depth and complexity, teachers are encouraged to use resources to the degree that they are congruent with the TEKS and research-based best practices. Teaching using only the suggested resources does not guarantee student mastery of all standards. Teachers must use professional judgment to select among these and/or other resources to teach the district curriculum.

<b>Knowledge &amp; Skills with Student Expectations</b>	<b>Specificity &amp; Examples</b>	<b>Suggested Resources</b> (Read the note above)
<p><b>7.7 The student knows that substances have physical and chemical properties</b></p> <p>7.7C Recognize that compounds are composed of elements.</p>	<p>Including</p> <ul style="list-style-type: none"> <li>--- Elements &amp; their symbols</li> <li>--- Compounds &amp; their formulas</li> <li>--- Compounds in photosynthesis</li> </ul> <p>--- Use everyday substances and a periodic table to identify elements: Examples:</p> <ul style="list-style-type: none"> <li>NaCl—sodium chloride (table salt)</li> <li>CO<sub>2</sub>—Carbon dioxide</li> <li>C<sub>6</sub>H<sub>2</sub>O—<i>isopropyl alcohol (rubbing alcohol)</i></li> <li>H<sub>2</sub>—hydrogen gas</li> <li>O<sub>2</sub>—oxygen gas</li> <li>N<sub>2</sub>—nitrogen gas</li> <li>H<sub>2</sub>O<sub>2</sub>—hydrogen peroxide</li> <li>NaHCO<sub>3</sub>—sodium hydrogen carbonate (baking soda)</li> <li>HC<sub>2</sub>H<sub>3</sub>O<sub>2</sub>—acetic acid (vinegar)</li> <li>C<sub>12</sub>H<sub>22</sub>O<sub>11</sub>—sucrose (table sugar)</li> <li>H<sub>2</sub>O—water</li> <li>CO—carbon monoxide</li> </ul> <p><i>organic compounds contain carbon and other elements such as hydrogen, oxygen, phosphorus, nitrogen, or sulfur large molecules are broken into smaller molecules (carbohydrates into sugars)</i></p>	<p><b>Vocabulary:</b> Compounds, Elements, Periodic Table of Elements,</p> <p>Nettrekker Chemistry Scavenger Hunt The Atom PPT Everyday Chemical and Physical Changes Chemical &amp; Physical Changes Foldable</p> <p>Technology- Graph elements using excel showing Atomic Mass. Students will graph the atomic mass of the elements showing a relationship between mass and location on the Periodic Table of Element.</p> <p>AVID Activity- Writing in Science pages 22-23 “Pre-write and Quickwrite</p> <p><b>Uncovering Student Ideas in Science</b>, Keeley, Vol. 4, #5, “Salt Crystals”</p>
<p><b>7.1 Conducts field and laboratory investigations following home and school safety procedures and environmentally appropriate and ethical practices.</b></p>	<p>Including</p> <ul style="list-style-type: none"> <li>--- Chemical Safety</li> <li>--- Recognize problems and how to prevent accidents</li> </ul>	<p><a href="#">Texas Safety Standards</a></p>

## Seventh Grade Science Curriculum Bundle #4

<p>7.1A Demonstrate safe practices during field and laboratory investigations.</p>	<p>--- Recognize safety symbols and what appropriate action to take            ---Safety contract            In accordance with the Texas Safety Standards</p> <p>Teacher Note: Safety skills and process TEKS should be embedded and reinforced throughout the year</p>	
<p><b>7.1 Conducts field and laboratory investigations following home and school safety procedures and environmentally appropriate and ethical practices.</b></p> <p>7.1B Make wise choices in the use and conservation of resources and the disposal and recycling of materials.</p>	<p>Including            --- Knowledge of items appropriate for recycling, reuse, disposal</p>	
<p><b>7.2 Uses scientific methods during fields and laboratory investigations.</b></p> <p>7.2A Plan and implement descriptive and simple experimental investigations including asking well-defined questions, formulating testable hypotheses, and selecting and using equipment and technology.</p>	<p>Including            --- probeware for data collection            --- using a standard lab report format            --- manipulated and responding variables            --- Emphasis should be on scientific methods and should build understanding of the variety of methods and their suitability for various tasks</p>	<p>AVID Activity- Writing in Science pages 55-94            ““Experimental Design Lab Report Activities”</p>
<p><b>7.2 Uses scientific methods during field and laboratory investigations.</b></p> <p>7.2 B Collect information by observing and measuring.</p>	<p>--- --- (Pre-AP: May emphasize using probeware in a variety of situations)            --- Measurement using a variety of metric units            --- conversion from one metric unit to another            --- Using data tables to graph data            --- Using graphs to create data tables</p> <p>Measurement exercises should progress across the middle school grade levels and begin by developing conceptual understanding. In 7th grade additional units can be learned, as well as the metric prefix system.</p>	<p>AVID Activity- Writing in Science pages 26-28            “ Observation Narrative”</p>
<p><b>7.2 Uses scientific methods during field and laboratory investigations.</b></p> <p>7.2 C Analyze and interpret information to construct reasonable explanations from direct and indirect evidence.</p>	<p>Including            --- Identify the relationship between independent variable and dependent variable as observed from data collection/data tables.</p>	<p>AVID Activity- Writing in Science pages 29-30            “Comparative Analysis”</p>
<p><b>7.2 Uses scientific methods during field and laboratory investigations.</b></p> <p>7.2 D Communicate valid conclusions.</p>	<p>Including            --- writing in complete sentences            --- paragraphs that utilize a restatement of the hypothesis            --- communicating effectively in writing            --- identify sources of error and estimate their effect</p>	<p>AVID Activity- Reading in Science pages 111-132            “ Additional Active Reading Graphic Organizers”</p>
<p><b>7.2 Uses scientific methods during field and</b></p>	<p>Including</p>	

## Seventh Grade Science Curriculum Bundle #4

<p><b>laboratory investigations.</b></p> <p>7.2 E Construct simple graphs, tables, maps, and charts using tools including computers to organize, examine and evaluate data.</p>	<p>--- Spreadsheets and Graphs --- Graphing calculators or computer software with probeware</p>	
<p><b>7.3 Uses critical thinking and scientific problem solving to make informed decisions.</b></p> <p>7.3A Analyze, review, and critique scientific explanations, including hypotheses and theories as to their strengths and weaknesses using scientific evidence and information.</p>	<p>Teacher Note: Correlate to strengths and limitations of models.</p> <ul style="list-style-type: none"> <li>• Periodic Table of Elements</li> <li>• Elements</li> <li>• Compounds</li> </ul> <p>Relate to labs throughout the year. Should emphasize the nature of scientific explanations: testability, repeatability, evidence, and predictive nature.</p>	
<p><b>7.3 Uses critical thinking and scientific problem solving to make informed decisions.</b></p> <p>7.3B Draw inferences based on data related to promotional materials for products and services</p>		
<p><b>7.3 Uses critical thinking and scientific problem solving to make informed decisions.</b></p> <p>7.3 C Represent the natural world using models and identify their limitations.</p>	<p>Such as --- Compare and contrast models used with the real world item or concept under investigation</p> <ul style="list-style-type: none"> <li>• Periodic Table of Elements</li> <li>• Elements</li> <li>• Compounds</li> </ul> <p><i>use models to represent aspects of the natural world such as human body systems and plant and animal cells; identify advantages and limitations of models such as size, scale, properties, and materials;</i></p>	
<p><b>7.3 Uses critical thinking and scientific problem solving to make informed decisions.</b></p> <p>7.3 D Evaluate the impact of research on scientific thought, society, and the environment.</p>	<p>--- Current events- Chemistry</p>	
<p><b>7.3 Uses critical thinking and scientific problem solving to make informed decisions.</b></p> <p>7.3 E Connect Grade 7 science concepts with the history of science and contributions of scientists.</p>	<p>Including</p> <ul style="list-style-type: none"> <li>• Famous chemist</li> </ul>	<p><u>AVID Activity</u>: Writing in Science page 24 “Brief Autobiography”.</p> <p><a href="http://en.wikipedia.org/wiki/List_of_chemists">http://en.wikipedia.org/wiki/List_of_chemists</a> Famous chemists</p>
<p><b>7.4 Knows how to use a variety of tools and methods to conduct science inquiry.</b></p>	<p>Including: triple beam balance, hand lens, compound microscope; stereoscope; temperature probes, pH probe,</p>	

## Seventh Grade Science Curriculum Bundle #4

<p>7.4A Collect, analyze, and record information using tools including beakers, petri dishes, meter sticks, graduated cylinders, weather instruments, timing devices, hot plates, test tubes, safety goggles, spring scales, magnets, balances, microscopes, telescopes, thermometers, calculators, field equipment, compasses, computers, and computer probes.</p>	<p><b>timers; stopwatches</b></p> <p><i>use appropriate tools to collect, record, and analyze information, including life science models, hand lens, stereoscopes, microscopes, beakers, Petri dishes, microscope slides, graduated cylinders, test tubes, meter sticks, metric rulers, metric tape measures, timing devices, hot plates, balances, thermometers, calculators, water test kits, computers, temperature and pH probes, collecting nets, insect traps, globes, digital cameras, journals/notebooks, and other equipment as needed to teach the curriculum</i></p>	
<p><b>7.4 Knows how to use a variety of tools and methods to conduct science inquiry.</b></p> <p>7.4B collect and analyze information to recognize patterns such as rates of change</p>	<p>--- Calculate range          --- Calculate average          --- Use decimals system rather than fractions</p> <ul style="list-style-type: none"> <li>• Mean</li> <li>• Median</li> <li>• mode</li> <li>• mode</li> </ul> <p>Teacher Note: Be prepared to teach some math skills throughout the year.</p>	
<p><b>7.5 Knows that equilibrium of a system may change.</b></p> <p>7.5 A Describe how systems may reach equilibrium such as when a volcano erupts.</p>	<p>Such as          --- Compounds making up elements</p>	