

<b>Course: Chemistry</b>			<b>Designated Six Weeks: Sixth Six Weeks</b>		
<b>Unit: Nuclear Chemistry &amp; Careers in Chemistry</b>			<b>Days to teach: 13 Days</b>		
<b>TEKS/Prerequisites</b>	<b>Guiding Questions</b>	<b>Assessment</b>	<b>Vocabulary</b>	<b>Instructional Strategies/ELPS</b>	<b>Resources/ Weblinks</b>

<b>Nuclear Chemistry</b>					<b>Days to Teach: 7 Days</b>
<p><b>TEKS:</b> 12 A, 12B, 12C</p> <p>(12) Science concepts. The student understands the basic processes of nuclear chemistry. The student is expected to:</p> <p>(A) describe the characteristics of alpha, beta, and gamma radiation; <i>(EOC Supporting Standard)</i></p> <p>(B) describe radioactive decay process in terms of balanced nuclear equations; and <i>(EOC Readiness Standard)</i></p> <p>(C) compare fission and fusion reactions. <i>(EOC Supporting Standard)</i></p> <p><b>Prerequisites</b> Atomic numbers, subatomic particles</p> <p><b>College and Career Readiness Standards</b></p> <p>K. Nuclear Chemistry</p> <p>1.Understand radioactive decay</p>	<p><b>Guided questions:</b></p> <p>What is a half-life?</p> <p>How do you solve half-life problems?</p> <p>What is the difference between fission and fusion?</p> <p>How do you evaluate commercial applications of nuclear chemistry?</p> <p>What are the types of radioactive decay?</p> <p>How do the mass and penetrability of the types of radioactive decay compare to one another?</p> <p><b>Specificity:</b> Describe fusion and fission using nuclear reactions Describe the characteristics of alpha, beta, and gamma particles Balance nuclear equations</p>	<p>Which of the following forms of radiation has the greatest penetrating power? A. Alpha B. Beta <b>C. Gamma</b> D. Positron</p> <p>Which of the following uses nuclear fusion to produce energy? A. Nuclear reactor B. Linear accelerator C. Nuclear submarine <b>D. sun</b></p>	<p>Radioactivity</p> <p>Radioactive Decay</p> <p>Half-life</p> <p>Nuclear Fission</p> <p>Nuclear Fusion</p>	<p><b>ELPS:</b> <a href="http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html">http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html</a> 3D – Question Answer 3E - Think, pair, share 4K – lab</p> <p>Project on Nuclear Chemistry</p> <p><b>Teacher Notes:</b> Have the students work on group projects dealing with any topic related to nuclear chemistry. Teacher must develop the grading rubric and share it with the students prior to the project being assigned.</p>	<p>Textbook: <b>Modern Chemistry</b>, Holt, 2002.</p> <p><a href="#">Radioactive Dating Game</a></p> <p>Radioactive Dating <a href="http://serc.carleton.edu/quantskills/methods/quantlit/RadDecay.html">http://serc.carleton.edu/quantskills/methods/quantlit/RadDecay.html</a></p> <p>Types of Radioactive Particles <a href="http://www2.slac.stanford.edu/vvc/theory/nuclearstability.html">http://www2.slac.stanford.edu/vvc/theory/nuclearstability.html</a></p> <p>Balancing Nuclear Reactions <a href="http://people.wcsu.edu/nigroa/CHE%20111/Lectures/Chapter%2022%20Nuclear%20Chemistry.pdf">http://people.wcsu.edu/nigroa/CHE%20111/Lectures/Chapter%2022%20Nuclear%20Chemistry.pdf</a></p>

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<b>Chemistry and Your Future</b>			<b>Days to Teach: 6 Days</b>		
<p><b>TEKS: 3A-F</b>            (3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</p> <p>(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;</p> <p>(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;</p> <p>(C) draw inferences based on data related to promotional materials for products and services;</p> <p>(D) evaluate the impact of research on scientific thought, society, and the environment;</p> <p>(E) describe the connection between chemistry and future careers</p> <p>(F) research and describe the history of chemistry and contributions of scientists</p>	<p><b>Guided questions:</b></p> <p>Using current research findings to make informed decisions</p> <p>development of atom and the periodic table</p> <p>environmental impact of pollutants like CFC, sulfur dioxide, etc.</p> <p>environmental impact of acid rain</p> <p>What kinds of careers are available in chemistry?</p> <p><b>Specificity:</b></p> <p>Using current research findings to make informed decisions</p> <p>Using current research findings to make informed decisions</p> <p>development of atom and the periodic table</p> <p>environmental impact of pollutants like CFC, sulfur dioxide, etc.</p>	<p>Describe the impact of chemistry on society.</p> <p>Who are the major contributors of our modern atomic theory?</p>	<p>Atomic Theory</p> <p>Discovery of atomic structure</p> <p>Modern atomic structure</p> <p>Organic chemistry</p> <p>Analytical chemistry</p> <p>Inorganic chemistry</p> <p>Physical chemistry</p>	<p><b>ELPS:</b></p> <p><a href="http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html">http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html</a></p> <p>3F – structured conversation</p> <p>4F – graphic organizers</p>	<p><a href="#">Careers in Chemistry</a></p> <p>Science Careers  <a href="http://sciencecareers.sciencemag.org/">http://sciencecareers.sciencemag.org/</a></p>