


Chemistry Curriculum Bundle #1

Title		Suggested Dates
Safety and Measurements		8/25 – 9/11 (9 days)

Big Idea/Enduring Understanding	Guiding Questions
Science is a process of inquiry that includes repeatable observations and testable hypotheses.	<p>Why are safety protocols necessary?</p> <p>Why is measurement important in science?</p>

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.

Knowledge & Skills with Student Expectations	District Specificity/Examples	Suggested Resources (See note above)
<p>1 For at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices.</p> <p>1A Demonstrate safe practices during field and laboratory investigations.</p>	<p>Including</p> <ul style="list-style-type: none"> • Describe safety rules, such as heating safety, acid/base safety, and broken glass • Interpret and read chemical and safety labels • Identify and explain purpose of lab equipment such as beakers, graduated cylinders, thermometers, pH paper/litmus paper, triple beam/electronic balance, and burets 	<p><u>Texas Safety Standards</u> Coding Diamond Presentation MSDS-Labels Presentation MSDS Reading and Interpreting Lab</p> <ul style="list-style-type: none"> • MSDS Ammonium Nitrate Aldon • MSDS Ammonium Nitrate Flinn • MSDS cupric sulfate Aldon • MSDS Phosphorus Flinn • NFPA Hazard Diamond <ul style="list-style-type: none"> ○ Hazard info <p>Safety Flinn Scientific, Inc. <u>http://www.flinnsci.com/Sections/Safety/safety.asp</u> Flinn Safety DVD</p> <p>Lab: Bunsen Burner Technique Lab See chemistry resource folder</p> <p>Following Directions Lab See chemistry resource folder</p> <p>Safety Poster Activity See chemistry resource folder</p> <p>I Have Who Has_LabEquipment Fun and Games in Chemistry Claudia Wallace and Jane Smith</p>

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<p>1 For at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices.</p> <p>1B Make wise choices in the use and conservation of resources and the disposal or recycling of materials</p>	<p>Such as</p> <ul style="list-style-type: none"> • Disposal of chemicals and nuclear waste 	<p>Video: Chem Games</p>
<p>2 Uses scientific methods during fields & laboratory investigations.</p> <p>2A Plan and implement investigative procedures including asking questions, formulating testable hypothesis</p> <p>3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>3A Analyze, review, and critique scientific explanations, including hypothesis and theories, as to their strengths and weaknesses using scientific evidence and information</p>	<p>Including</p> <ul style="list-style-type: none"> • Identify control variable, independent variable, and dependent variable • Apply the scientific method to various hypotheses • Be able to choose the appropriate lab equipment/technology to use in their experiment • Be able to design an experiment given a problem 	<p>Lab: How to Write a Procedure See chemistry resource folder</p>
<p>2 Uses scientific methods during fields & laboratory investigations.</p> <p>2B Collect data and make measurements with precision</p> <p>2C Express and manipulate chemical quantities using scientific conventions and mathematical procedures such as dimensional analysis, scientific notation, and significant figures.</p>	<p>Including</p> <ul style="list-style-type: none"> • Use lab equipment such as graduated cylinders, burets, and balances to make measurements • Identify the precision/accuracy of different lab equipment such as beakers vs. graduated cylinders • Understand significant figures in relation to precision of a measurement • Identify the number of significant figures in a number • Describe the SI base units • Apply the rules of significant figures in calculations (PAP) <p><i>collect data and make measurements with accuracy and precision</i></p>	<p>Accuracy vs. Precision Lab See chemistry resource folder</p> <p>Significant Squares Fun and Games in Chemistry Claudia Wallace and Jane Smith</p>
<p>2 Uses scientific methods during fields & laboratory investigations.</p> <p>2D Organize, analyze, evaluate, make inferences, and predict trends from data.</p>	<p>Including</p> <ul style="list-style-type: none"> • Convert units using dimensional analysis (Option - introduce mole for use on mole day) • Draw line graphs • Analyze graphs • Extrapolate and interpolate graphs 	<p>Metric Conversions Puzzle Fun and Games in Chemistry Claudia Wallace and Jane Smith</p> <p>Lab: Measurement-Birdhouse See chemistry resource folder</p>

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<p>2 Uses scientific methods during fields & laboratory investigations.</p> <p>2E Communicate valid conclusions.</p>	<p>Including</p> <ul style="list-style-type: none"> • Lab reports, presentations, written or oral projects, etc. <p><i>communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphs, journals, summaries, oral reports, and technology-based reports</i></p>	<p>Writing Guide for Chemistry http://www.chem.orst.edu/writing/WritingGuide2000.htm</p>
<p>3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>3B Make responsible choices in selecting everyday products and services using scientific information.</p>	<p>Including</p> <ul style="list-style-type: none"> • Using current research findings to make informed decisions 	
<p>3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>3C Evaluate the impact of research on scientific thought, society, and the environment.</p>	<p>Including</p> <ul style="list-style-type: none"> • Using current research findings to make informed decisions 	<p>Carbon dioxide Greenhouse effect http://science.howstuffworks.com/question445.htm</p>
<p>3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>3D Describe connection between chemistry and future careers.</p>	<p>Including</p> <ul style="list-style-type: none"> • development of atom and the periodic table • environmental impact of pollutants like CFC, sulfur dioxide, etc. 	<p>Careers in Chemistry (American Chemical Society) http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_SUPERARTICLE&node_id=1188&use_sec=false&sec_url_var=region1</p>