


Sixth Grade Science Curriculum Bundle # 1

Title	Suggested Dates
Beginning of Year Activities & Science Process 	August 25-September 11 (9 days)

Big Idea/Enduring Understanding	Guiding Questions
Problem solving involves the scientific method.	<p>How is the scientific method used in everyday life?</p> <p>Are all parts of the scientific method always used?</p> <p>Why is the metric system used 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	Specificity & Examples	Suggested Resources (Read the note above)
<p>6.1 Conducts field and laboratory investigations following home and school safety procedures and environmentally appropriate and ethical practices.</p> <p>6.1A Demonstrate safe practices during field and laboratory investigations.</p>	<p>Including:</p> <ul style="list-style-type: none"> --- Introduce Safety Contract --- Location of safety equipment --- Safety procedures <p><u>Teacher Note:</u> Safety skills and process TEKS should be embedded and reinforced throughout the year.</p>	<p>Note: One week has been allotted for Beginning of the Year Procedures</p> <p>AVID Activity- "Tower Building" OR "All About You"</p> <p>Vocabulary: independent variable, dependent variable, controlled variable, hypothesis, scientific method, physical model, conceptual model, mathematical model</p> <p>AVID Activity- Writing in Science pages 22-23 "Pre-write and Quickwrite"</p> <p>Texas Safety Standards</p> <p>District safety contract & Power Point (found on PISD secondary science website)</p> <p>Teach safety symbols and review these with each lab (ex. see textbook, chapter 1).</p> <p>Gateway Book TE page 5-9, SE pages 5-7 Safety Lab Station</p> <p>Technology: Computer Lab and Internet Safety</p>

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<p>6.1 Conducts field and laboratory investigations following home and school safety procedures and environmentally appropriate and ethical practices.</p> <p>6.1B Make wise choices in the use and conservation of resources and the disposal and recycling of materials.</p>	<p>Including: --- Recycling lab materials</p>	<p>Emphasize recycling of materials with each lab/activity.</p> <p>Set up recycling receptacles in the classroom (if possible) for paper, plastic, aluminum, etc.</p>
<p>6.2 Uses scientific methods during fields and laboratory investigations.</p> <p>6.2A 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: ---Introducing scientific method --- Independent and dependent variables --- Controls --- Procedures --- Materials --- Using a standard lab report format</p> <p>Teacher Note: Emphasize that not all parts of scientific method may be used for every investigation and the ones that are used depends on the task</p>	<p>Uncovering Student Ideas in Science, Keeley, Vol. 3, #12, “Doing Science”</p> <p>Use any type of lab to teach Scientific Method</p> <p>Penny Test Lab pg.39 (AP Strategies-Laying the Foundation Chemistry & Physics)</p> <p>AVID Activity- Writing in Science pages 55-94 ““Experimental Design Lab Report Activities”</p>
<p>6.2 Uses scientific methods during fields and laboratory investigations.</p> <p>6.2B Collect information by observing and measuring.</p>	<p>Including: ---Introduction to data charts and tables --- Collecting information using the metric system</p> <ul style="list-style-type: none"> • Introduce metric system (which will be used in all bundles) DO NOT TEACH CONVERSION. <p>--- Pre-AP: Emphasis on using probeware in a variety of situations</p> <p>Teacher Note: New TEK 2010-2011-<i>Collect and record data using the International System of Units (SI) and qualitative means, such as label drawings, writing, and graphic organizers.</i></p>	<p>Any lab involving students observing and recording observations into data charts</p> <p>Exploring the Unseen Lab pg. 26 (Holt-Holt Science & Technology Grade 6)</p> <p>Mini Metric Olympics Lab http://www.uark.edu/~k12info/teacher/workshops/AIMS-lessons/mini-metrics.pdf</p> <p>-Conduct lab focusing on the scientific method. Include the following steps:</p> <ul style="list-style-type: none"> -problem -hypothesis -conduct experiment (this includes items listed under “district specificity/examples” column) -analyze data (include data table & graph) -conclusion <p>-Example lab found at: http://misterguch.brinkster.net/pplane.pdf</p> <p>Scientific method resource: http://www.sciencebuddies.org/mentoring/project_scienti</p>

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		fic_method.shtml www.brainpop.com ; Search Scientific Method AVID Activity- Writing in Science pages 26-28 “ Observation Narrative”
6.2 Uses scientific methods during fields and laboratory investigations. 6.2C Analyze and interpret information to construct reasonable explanations from direct and indirect evidence.	Including: --- Look for trends and/or patterns specific in the data and/or graph --- Enforce direct and indirect evidence.	-Emphasize data collection using the metric system and decimals. -Teach specific lessons about how to make data tables, line graphs, and bar graphs using data collected in the classroom. Include appropriate labeling of x-axis and y-axis. AVID Activity- Writing in Science pages 29-30 “Comparative Analysis”
6.2 Uses scientific methods during fields and laboratory investigations. 6.2D Communicate valid conclusions.	Including: --- Relate conclusion to hypothesis/problem --- Identify sources of error/ways to improve investigation --- Communicate conclusion effectively in writing	AVID Activity- Reading in Science pages 111-132 “ Additional Active Reading Graphic Organizers”
6.2 Uses scientific methods during fields and laboratory investigations. 6.2E Construct simple graphs, tables, maps, and charts using tools including computers to organize, examine and evaluate data.	Including: --- Organization of data <ul style="list-style-type: none"> • data charts --- Graphing data-bar graph & line graph ---Reinforce Math’s Bundle 1 introduction of graphing ---Apply terms Independent and dependent variables to labeling the x-axis/y-axis and in the title ---identify appropriate use of different types of data representation	- Any activities involving collecting and graphing data - Graphing Data Lab pg. 602 (Holt-Holt Science & Technology Grade 6)
6.3 Uses critical thinking and scientific problem solving to make informed decisions. 6.3A Analyze, review, and critique scientific explanations, including hypotheses and theories as to their strengths and weaknesses using scientific evidence and information.	Teacher Note: Emphasize the nature of scientific explanations: testability, repeatability, evidence, predictive nature.	

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<p>6.3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>6.3B Draw inferences based on information related to promotional materials for products and services.</p>	<p>Such as: --- Product labels and promotional material- emphasize the meaning of the labels</p>	<p>Teach How to Read a food label using website: http://www.nhlbi.nih.gov/chd/Tipsheets/readthelabel.htm</p> <p>Activity- Reading Food Labels (adapt to sixth grade level) using website: http://www.ctb.com/media/mktg/terranova/other_media/rt_activities/act_4-5science.pdf</p> <p>Project Wild “Lobster in Your Lunch Box”</p> <p>Textbook Worksheet 38 “ Knowing Nutrition”</p>
<p>6.3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>6.3C Represent the natural world using models and identify their limitations.</p>	<p>Including: ---Introduce the following types of models and include advantages/limitations of each</p> <ul style="list-style-type: none"> • Conceptual • Mathematical • Physical 	
<p>6.3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>6.3D Evaluate the impact of research on scientific thought, society, and the environment.</p>	<p>Including: --- Introduce desired format for current event</p>	<p>AVID Activity: Writing in Science page 24 “Brief Autobiography”</p>
<p>6.3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>6.3E Connect Grade 6 science concepts with the history of science and contributions of scientists.</p>	<p>Such as: --- Galileo → Father of Scientific Method</p>	<p>http://www.scientificmethod.com/sm5_smhistory.html History of the scientific method</p>
<p>6.4 Knows how to use a variety of tools and methods to conduct science inquiry.</p> <p>6.4A 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>Introduce: --- Journals/notebooks --- Data collection tools as appropriate</p>	<p>http://www.pflugervilleisd.net/curriculum/science/elem.cfm How to use Science Notebooks in the classroom</p>

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<p>6.4 Knows how to use a variety of tools and methods to conduct science inquiry.</p> <p>6.4B Identify patterns in collected information using percent, average, range, and frequency.</p>	<p>Including: --- Use descriptive statistics including frequency, range, median, and mode (percent will come later to reinforce Math's Bundle 4)</p> <p><u>Teacher Note:</u> Data needs to be in metric system and decimals rather than fractions.</p>	
<p>6.5 The student knows that systems may combine with other systems to form a larger system.</p> <p>6.5B Describe how the properties of a system are different from the properties of its parts.</p>	<p>Including: ---Scientific Method as a system and is made up of individual parts.</p>	