


Seventh Grade Science Curriculum Bundle #1

Title		Suggested Dates
Nature of Science		Aug 25-Sept11 (9 days)

Big Idea/Enduring Understanding	Guiding Questions
Scientists approach problems systematically and use specific tools to solve problems.	What are scientific methods? What are effective ways to communicate results? How do we choose the appropriate tools used to collect data?

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>7.1 Conducts field and laboratory investigations following home and school safety procedures and environmentally appropriate and ethical practices.</p> <p>7.1A Demonstrate safe practices during field and laboratory investigations.</p>	<p>Including</p> <ul style="list-style-type: none"> --- Indoor/outdoor safety --- Recognize problems and how to prevent accidents --- Recognize safety symbols and what appropriate action to take --- Safety contract <p>In accordance with the Texas Safety Standards</p> <p><u>Teacher Note:</u> Safety skills and process TEKS should be embedded and reinforced throughout the year.</p>	<p>One week is allotted for beginning of the school year activities.</p> <p>AVID Activity for beginning of school—“Tower Building OR “All About Me.”</p> <p><u>Vocabulary:</u> Scientific Method, Models, Direct Evidence, Indirect Evidence,</p> <p>Texas Safety Standards</p> <p>PISD Safety Rules and Contract</p> <p>Lab-Equipment Lab</p> <p>Lab Equipment PPT</p> <p><u>AVID Activity:</u> Writing in Science page 24 “Brief Autobiography”</p>
<p>7.1 Conducts field and laboratory investigations following home and school safety procedures and environmentally appropriate and ethical practices.</p> <p>7.1B Make wise choices in the use and conservation of resources and the disposal and recycling of materials.</p>	<p>Including</p> <ul style="list-style-type: none"> --- Knowledge of items appropriate for recycling, reuse, and disposal 	

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<p>7.2 Uses scientific methods during fields and laboratory investigations.</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</p> <ul style="list-style-type: none"> --- 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>AVID Activity- Writing in Science pages 55-94 ““Experimental Design Lab Report Activities”</p> <p>Uncovering Student Ideas in Science, Keeley, Vol. 3 #13, “What is a Hypothesis?”</p> <p>Technology: Create a Graphic Organizer and a Poster http://movies.atomiclearning.com/k12/1a_escape_wrd04</p>
<p>7.2 Uses scientific methods during fields and laboratory investigations.</p> <p>7.2 B Collect information by observing and measuring.</p>	<p>--- --- (Pre-AP: May emphasize using probeware in a variety of situations)</p> <ul style="list-style-type: none"> --- 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><u>Teacher note:</u> 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>7.2 Uses scientific methods during fields and laboratory investigations.</p> <p>7.2 C Analyze and interpret information to construct reasonable explanations from direct and indirect evidence.</p>	<p>Including</p> <ul style="list-style-type: none"> --- Identify the relationship between independent variable and dependent variable as observed from data collection/data tables. 	<p>AVID Activity- Writing in Science pages 29-30 “Comparative Analysis”</p> <p>Identify Independent and Dependent Variables Independent and Dependent Variables Practice</p> <p>Spongebob Scientific Method Spongebob Scientific Method Variables 1 &2</p>
<p>7.2 Uses scientific methods during fields and laboratory investigations.</p> <p>7.2 D Communicate valid conclusions.</p>	<p>Including</p> <ul style="list-style-type: none"> --- 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>AVID Activity- Reading in Science pages 111-132 “ Additional Active Reading Graphic Organizers”</p>
<p>7.2 Uses scientific methods during fields and laboratory investigations.</p> <p>7.2E Construct simple graphs, tables, maps, and charts using tools including computers to organize, examine and evaluate data.</p>	<p>Including</p> <ul style="list-style-type: none"> --- Spreadsheets and Graphs --- Graphing calculators or computer software with probeware 	

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<p>7.3 Uses critical thinking and scientific problem solving to make informed decisions.</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><u>Teacher Note:</u> Correlate to strengths and limitations of models.</p> <p>Relate to labs throughout the year. Should emphasize the nature of scientific explanations: testability, repeatability, evidence, and predictive nature.</p>	
<p>7.3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>7.3B Draw inferences based on data related to promotional materials for products and services.</p>		
<p>7.3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>7.3 C Represent the natural world using models and identify their limitations.</p>	<p>Such as</p> <p>--- Compare and contrast models used with the real world item or concept under investigation</p> <ul style="list-style-type: none"> • Volcano model • Human Body (prosthetic limbs ...) • Earthquakes • <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>7.3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>7.3D Evaluate the impact of research on scientific thought, society, and the environment.</p>	<p>--- Current events</p> <p>Current events should relate to the topic being studied.</p>	
<p>7.3 Uses critical thinking and scientific problem solving to make informed decisions.</p> <p>7.3E Connect Grade 7 science concepts with the history of science and contributions of scientists.</p>	<p>Including</p> <p>--- Newton</p> <p><u>Teacher Note:</u> Other scientists may include Galileo</p>	

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<p>7.4 Knows how to use a variety of tools and methods to conduct science inquiry.</p> <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>Including: triple beam balance, hand lens, compound microscope; stereoscope; temperature probes, pH probe, timers; stopwatches</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>7.4 Knows how to use a variety of tools and methods to conduct science inquiry.</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"> • Mean • Median • mode • mode <p><u>Teacher Note:</u> Be prepared to teach some math skills throughout the year.</p>	