


## 8<sup>th</sup> Grade Curriculum Bundle #7

<b>Title</b>		<b>Suggested Dates</b>
The Environment: Atmosphere and Weather		1/5-1/29 (16 days)

Big Idea/Enduring Understanding	Guiding Questions
<p>Recognizing patterns helps predict what will occur the next time and what can change over time.</p> <p>Radiant energy from the sun creates temperature differences in water, land and the atmosphere which drive local, regional and long global patterns of atmospheric circulation like climate and short global patterns known as weather like storms, hurricanes, tornadoes</p>	<p>How can we observe the effect of the Sun’s energy on the Earth’s surface and atmosphere?</p> <p>Why is it important to collect and communicate weather information?</p> <p>What technology insures clean air resources for me?</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><b>8.12 The student knows that cycles exist in Earth systems.</b></p> <p>8.12C Predict the results of modifying the Earth's <u>nitrogen</u>, <u>water</u>, and carbon cycles.</p>	<p style="color: red;">Including:</p> <ul style="list-style-type: none"> <li>--- Predict how modifications in these cycles would affect human or plant life</li> <li>--- Air pollution</li> <li>---Water cycle</li> <li>---Nitrogen cycle</li> </ul> <p style="color: red;"><u>Teacher Note:</u> Review TEK 6.14C; Use combination of all three systems. Describe solar energy as the driving force behind weather and ocean systems.</p>	<p style="color: red;"><b><u>VOCABULARY:</u></b> Coriolis Effect, meteorology, meteorologist, relative humidity, climate, El Nino, La Nina, nitrogen cycle, acid rain, ozone, global warming, greenhouse gases, water cycle, Fahrenheit, Celsius, hurricane, cyclones, typhoons, pollution, point source and non-point source pollution, cold front, warm front, occluded front, stationary front, barometric pressure, sling psychrometer, anemometer, barometer, acid rain, flash flooding, porosity, permeability, saturation, and tornadoes.</p> <p>AVID Activity- Writing in Science pages 22-23 “Pre-write and Quickwrite”</p> <p><b><u>CORE ACTIVITY:</u></b> Traveling Nitrogen Passport Activity</p> <p><b><u>CORE ACTIVITY:</u></b> Earth Cycle Power point and Notes</p> <p>“Modeling The Water Cycle” Water Cycle Demo @ <a href="http://science-class.net">http://science-class.net</a></p> <p>Composition of Air</p>
<p><b>8.10 The student knows that complex interactions occur between matter and energy.</b></p>	<p style="color: red;">Including:</p> <ul style="list-style-type: none"> <li>---The Coriolis Effect on air and ocean current</li> <li>---Air masses and fronts</li> </ul>	<p><b><u>CORE ACTIVITY:</u></b> LTF #27: Relative Humidity Life/Earth p.556</p>

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<p>8.10B Describe interactions among solar energy, weather, and ocean systems.</p>	<p>---Clouds ---Relative humidity</p> <p><u>Teacher Note:</u> Use combination of all three systems. Describe solar energy as the driving force behind weather and ocean systems.</p> <p>Examples: Severe weather (hurricanes, tornadoes), El Nino, La Nina, flash flooding</p>	<p><b>CORE ACTIVITY:</b> Modeling El Nino In A Bowl @ <a href="http://science-class.net">http://science-class.net</a></p> <p>Relative Humidity Problems</p> <p>Modeling Air Masses and Fronts @ <a href="http://science-class.net">http://science-class.net</a></p> <p><a href="#">Hurricane Activity Hyperlink</a></p> <p>Energy Transfer in the Atmosphere Graphic Organizer</p> <p>Hurricane Life</p>
<p><b>8.14 The student knows that natural events and human activities can alter Earth systems.</b></p> <p>8.14C Describe how human activities have modified soil, water, and <u>air quality</u>.</p>	<p><u>Including:</u> Environmental problems such as</p> <ul style="list-style-type: none"> <li>• Acid rain</li> <li>• Ozone layer depletion</li> <li>• Fertilizer run-off</li> <li>• Greenhouse gases</li> <li>• Global Warming</li> </ul> <p>Environmental solutions: --- Laws --- Reduce/reuse/recycle --- reclamation projects --- water treatment &amp; disease reduction</p> <p><u>Teacher Note:</u> Re-introduce the pH scale (acid rain).</p> <p><i>Recognize human dependence on ocean systems and explain how human activities such as runoff, artificial reefs, or use of resources have modified these systems.</i></p>	<p><b>CORE ACTIVITY:</b> Heating the Earth @ <a href="http://science-class.net">http://science-class.net</a></p> <p>PREAP: LTF # 30: Are You Meeting the Kyoto Protocol Life/Earth p. 595</p> <p>PREAP: LTF # 31: Acid Rain Drops Keep Falling On My Head Life/Earth p. 600</p> <p>Greenhouse Effect Lab and Greenhouse Effect Power point</p> <p>Greenhouse Activity</p> <p>Human Impact on Environment Chart</p> <p>Pollution Resources (subfolder)</p>
<p><b>8.1 The student conducts field and laboratory investigations using safe environmentally appropriate and ethical practices.</b></p> <p>8.1A Demonstrate safe practices during field and laboratory investigations.</p>	<p><u>Including:</u> --- Lab Cleanup Procedures --- Chemical and waste disposal --- Equipment cleaning and storage ---Safety contract</p> <p>In accordance with the Texas Safety Standards: : <a href="#">Pflugerville ISD :: Online Curriculum :: Science</a></p> <p><u>Teacher Note:</u> Safety skills and process TEKS should be embedded and reinforced throughout the year.</p>	<p><a href="#">Texas Safety Standards</a></p>

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<p><b>8.1 The student conducts field and laboratory investigations using safe environmentally appropriate and ethical practices.</b></p> <p>8.1B Make wise choices in the use and conservation of resources and the disposal and recycling of materials.</p>	<p>Including:            --- Point Source and Non-point source examples</p>	
<p><b>8.2 The student uses scientific inquiry methods during fields and laboratory investigations.</b></p> <p>8.2A Plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting and using equipment and technology.</p>	<p>Such as:            --- Design their own experiments            --- Emphasis should be on scientific methods and should build understanding of the variety of methods and their suitability for various tasks.</p> <p><u>Teacher Note:</u> It is recommend that students create and design at least 2 labs/experiments</p>	<p>AVID Activity- Writing in Science pages 55-94            “Experimental Design Lab Report Activities”</p>
<p><b>8.2 The student uses scientific inquiry methods during fields and laboratory investigations.</b></p> <p>8.2B Collect information by observing and measuring</p>	<p>Including:            --- Measuring temperature/relative humidity using a sling psychrometer</p> <p>--- Using dimensional analysis to convert from English to metric units such as Fahrenheit to Celsius and vice versa.</p> <p>--- (Pre-AP: Emphasis on using probeware in a variety of situations)</p> <p><u>Teacher Note:</u> Measurement exercises should progress across the middle school grade levels and begin by developing conceptual understanding. In 8<sup>th</sup> grade, students can begin to convert from one unit to another.</p>	<p><b>CORE ACTIVITY:</b> Holt Math Skills for Science #35: Using Temperature Scales</p> <p>AVID Activity- Writing in Science pages 26-28            “ Observation Narrative”</p>
<p><b>8.2 The student uses scientific inquiry methods during fields and laboratory investigations.</b></p> <p>8.2C Organize, analyze, evaluate, make inferences and predict trends from direct and indirect evidence.</p>	<p>Including:            --- graph interpretation and extrapolation using weather maps            ---predicting outcomes based on weather maps</p>	<p><b>TECHNOLOGY:</b> Adopt-A-City @ <a href="http://www.middleschoolscience.com">www.middleschoolscience.com</a></p> <p>AVID Activity- Writing in Science pages 29-30            “Comparative Analysis”</p>
<p><b>8.2 The student uses scientific inquiry methods during fields and laboratory investigations.</b></p> <p>8.2D Communicate valid conclusions.</p>	<p>Including:            --- Experimental conclusions            --- Supporting conclusions with data            --- Analyze error sources and fix experiment to reduce outside variables            --- Graph/Chart/Table extrapolation for conclusion            --- Analysis of graphs</p>	<p>AVID Activity- Reading in Science pages 111-132            “ Additional Active Reading Graphic Organizers”</p>

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<p><b>8.2 The student uses scientific inquiry methods during fields and laboratory investigations.</b></p> <p>8.2E Construct simple graphs, tables, maps, and charts using tools including computers to organize, examine and evaluate data.</p>	<p>Such as:            --- Bar graphs, line graphs, pie charts, data tables and determine which is best for each set of data.</p> <p><u>Teacher Note:</u> Examples may include Beaufort Wind scale, Hurricane scale, Fujita (tornado) scale, weather maps.</p>	<p>PREAP: Graphing Calculators-Linear Regression            Greenhouse Effect</p> <p>Graphing the Atmosphere @ <a href="http://science-class.net">http://science-class.net</a>            (review from 6<sup>th</sup> grade content)</p> <p>Hurricane Data-use to graph</p> <p>Weather WS-Graph</p> <p>Rainfall Graph</p> <p><b>Science Graphing Pack</b>            -What's Polluting the Air Graph?            -The Temperature of Earth's Atmosphere Graph            -Winter Chill Graph            -Sunny Skies, Cloud Skies Graph</p>
<p><b>8.3 The student uses critical thinking and scientific problem solving to make informed decisions.</b></p> <p>8.3C Represent the natural world using models and identify their limitations.</p>	<p>Including:            --- Distinguish between limitations and advantages of models</p> <p>Such as:            --- tornado models, computer generated hurricane models, cloud chamber</p> <p><i>Use models to represent aspects of the natural world such as an atom, a molecule, space, or a geologic feature.</i></p> <p><i>Identify advantages and limitations of models such as size, scale, properties, and materials.</i></p>	
<p><b>8.3 The student uses critical thinking and scientific problem solving to make informed decisions.</b></p> <p>8.3D Evaluate the impact of research on scientific thought, society, and the environment.</p>	<p><u>Teacher Note:</u></p> <p>Do a current event impact analysis that looks at how scientific research has impacted thought, society and the environment. Such as how the Great Galveston Hurricane of 1900 and its historical impact invoked changes in today's weather forecasting.</p>	<p><u>AVID Activity:</u> Writing in Science page 24 "Brief Autobiography".</p>
<p><b>8.3 The student uses critical thinking and scientific problem solving to make informed decisions.</b></p> <p>8.3E Connect Grade 8 science concepts with the history of science and contributions of scientists.</p>	<p>Such as:            --- Coriolis, Mario Molino</p>	

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<p><b>8.4 The student knows how to use a variety of tools and methods to conduct science inquiry.</b></p> <p><b>8.4A</b> Collect, record, and analyze information using tools including beakers, petri dishes, meter sticks, graduated cylinders, weather instruments, hot plates, dissecting equipment, test tubes, safety goggles, spring scales, balances, microscopes, telescopes, thermometers, calculators, field equipment, computers, computer probes, water test kits, and timing devices.</p>	<p>Such as: <b>Barometer, anemometer, sling psychrometer</b></p> <p><i>Use appropriate tools to collect, record, and analyze information, including lab journals/notebooks, anemometers, psychrometers, spectroscopes, and other equipment as needed to teach the curriculum.</i></p>	
<p><b>8.4 The student knows how to use a variety of tools and methods to conduct science inquiry.</b></p> <p>8.4B Extrapolate from collected information to make predictions.</p>	<p>Such as:          --- extrapolating using graph and data tables to predict expected results.</p>	