



**Science  
Pre-Advanced Placement  
Physics**

<b>Unit Name: Lab &amp; Math Skills</b>		<b>First 9 Weeks, Days to Teach: Ongoing throughout year</b>	
<b>Date Taught</b>	<b>TEKS and AP Required Elements</b>	<b>Content/Vocabulary</b>	<b>Guiding Questions</b>
	<p>1(A) demonstrate safe practices during field and laboratory investigations.</p> <p>1(B) make wise choices in the use and conservation of resources and the disposal or recycling of materials.</p>	<p>Safety equipment, identify lab equipment, safe laboratory techniques.</p>	<p>What laboratory equipment can you locate and identify?</p> <p>How can safe and unsafe laboratory procedures be determined?</p>
	<p>2(A) plan and implement experimental procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;</p> <p>2(B) make quantitative observations and measurements with precision;</p> <p>2(D) communicate valid conclusions;</p> <p>2(F) read the scale on scientific instruments with precision.</p>	<p>Use of appropriate laboratory skills and techniques.</p>	<p>Is this a safe lab procedure?</p> <p>Is this a valid conclusion?</p> <p>How can you develop a lab procedure to test a problem?</p>



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	<p>2(C) organize, analyze, evaluate, make inferences, and predict trends from data.</p> <p>2(E) graph data to observe and identify relationships between variables; and</p> <p>2(A) generate and interpret graphs describing motion including the use of real-time technology.</p>	<p>Generate and interpret graphs including real-time data from labs. Independent/dependent variables, best fit line, area under curve, slope, scale, interpolation, and extrapolation.</p>	<p>What does the slope indicate on the graph?</p> <p>How can you interpolate and extrapolate data from a graph?</p> <p>How can you explain significance of area under the curve?</p>
	<p>3(B) express laws symbolically and employ mathematical procedures including vector addition and right-triangle geometry to solve physical problems.</p> <p>I. Introductory Operations</p> <ul style="list-style-type: none"> <li>A. Force Concept Inventory</li> <li>B. Metric System, measurement, significant digits</li> <li>C. Powers of ten and scientific notation</li> <li>D. Calculator Skills</li> </ul>	<p>Measurements, accuracy, precision, significant digits, dimensional analysis, area, volume, density, exponents, manipulating variables, magnitude, direction, resolve components and vectors.</p>	<p>How can you make accurate and precise measurements and convert units?</p> <p>How can you resolve vector components?</p>