

<b>Planned Course: Physics I</b> <b>Unit: External and Internal Forces</b>	<b>Course Number: S403</b> <b>Grade Level: 11-12</b>	<b>Department: Science</b>	
<b>Estimated Time: 5 weeks</b>	<b>Level/Track:</b>	<b>Date Approved: 8/24/09</b>	
<b>PA Academic Standards</b>	<b>Core Concepts (in question format)</b> • Skills/Knowledge	<b>Activities/Strategies/Study Skills</b> (identify some activities as remedial or enrichment activities)	<b>Assessments</b> (include types and topics)

<p>3.1.12 Unifying Themes</p> <p>B. Apply concepts of models as a method to predict and understand science and technology.</p> <p>C. Assess and apply patterns in science and technology.</p> <p>D. Analyze scale as a way of relating concepts and ideas to one another by some measure.</p>	<p>► What causes an object to change its state of motion?</p> <ul style="list-style-type: none"> <li>• Understand that objects do not change their motion unless forced to.</li> <li>• Describe and discuss examples of the types of forces (contact, field).</li> <li>• Describe inertia as described in Newton's 1st Law.</li> </ul>	<ul style="list-style-type: none"> <li>• Take notes on explanations from lectures.</li> <li>• Engage in discussions of Forces and their behavior.</li> <li>• Demonstrate problem solving techniques at the blackboard.</li> <li>• Do computer research on Friction, Normal force etc. ending with Universal gravity.</li> <li>• Answer homework questions from text and/or worksheets. (Ch 5 pgs 81 thru 85, Ch 6 pgs 99 thru 105, Ch 7 pgs 118 thru 123, Ch 13 pgs 255 thru 261)</li> <li>• Use scientific method while performing laboratory experiments.</li> <li>• In first lab construct do an analysis of coefficient of friction of various surfaces.</li> <li>• Study text Chapter(s) 5, 6, 7, 13 "Forces"</li> <li>• Take notes from text reading assignments and additional explanations</li> </ul>	<ul style="list-style-type: none"> <li>• Completion of homework.</li> <li>• Discussion of homework assignments.</li> <li>• Class participation in discussions of topics surrounding everyday events illustrating the assignments.</li> <li>• Written reports of laboratory exercises.</li> <li>• Class participation</li> <li>• Written Chapter test</li> <li>• Written pop quiz(s)</li> <li>• Written reports of laboratory exercises</li> <li>• Teacher observation of performance in LAB environment.</li> <li>• Computer modeling of problems using IP</li> </ul>
<p>3.2.12 Inquiry and Design</p> <p>A. Evaluate the nature of scientific and technological knowledge.</p> <p>B. Evaluate experimental information for appropriateness and adherence to relevant science processes.</p> <p>C. Apply the elements of scientific inquiry to solve multi step problems.</p>	<p>► What is the difference between Net Force and Force?</p> <ul style="list-style-type: none"> <li>• Construct force and free body diagrams.</li> <li>• Calculate net force in two dimensions.</li> </ul> <p>► How is Newton's 2nd Law used?</p> <ul style="list-style-type: none"> <li>• Describe the proportional relationship between acceleration, net force and mass of an object.</li> </ul>		

<b>Planned Course: Physics I</b>	<b>Course Number: S403</b>	<b>Department: Science</b>	
<b>Unit: External and Internal Forces</b>	<b>Grade Level: 11-12</b>		
<b>Estimated Time: 5 weeks</b>	<b>Level/Track:</b>	<b>Date Approved: 8/24/09</b>	
<b>PA Academic Standards</b>	<b>Core Concepts (in question format)</b>	<b>Activities/Strategies/Study Skills</b>	<b>Assessments</b>
	<ul style="list-style-type: none"> <li>Skills/Knowledge</li> </ul>	(identify some activities as remedial or enrichment activities)	(include types and topics)

<p>D. Analyze and use the technological design process to solve problems.</p> <p>3.4.12 Physical Science, Chemistry and Physics</p> <p>C. Apply the principles of motion and force.</p>	<ul style="list-style-type: none"> <li>Describe and use Newton's 2nd Law to describe Net Force.</li> </ul> <p>► How do various forces work together to form Net Force?</p> <ul style="list-style-type: none"> <li>Describe normal force, support force and frictional forces.</li> <li>Perform calculations of coefficient of friction as well as frictional forces.</li> <li>Describe the unique difference between static and kinetic friction.</li> </ul> <p>► What is pressure?</p> <ul style="list-style-type: none"> <li>Describe pressure as force divided by area.</li> <li>Differentiate between force and pressure providing clear examples.</li> <li>Describe the behavior of pressure in a confined fluid.</li> </ul>	<p>from lectures.</p> <ul style="list-style-type: none"> <li>Answer homework questions from text and from worksheets.</li> <li>Perform laboratory experiments dealing with: <ul style="list-style-type: none"> <li>Hooke's Law</li> <li>Symmetrical Forces</li> <li>Asymmetrical Forces</li> <li>Horizontal Forces</li> <li>Newton's 2<sup>nd</sup> Law</li> <li>Friction</li> <li>Center of Gravity</li> </ul> </li> </ul>	
---	---	---	--