

Planned Course: Physics I	Course Number: S403	Department: Science	
Unit: Linear Motion	Grade Level: 11-12		
Estimated Time: 6 weeks	Level/Track:	Date Approved: 8/24/09	
PA Academic Standards	Core Concepts (in question format) • Skills/Knowledge	Activities/Strategies/Study Skills (identify some activities as remedial or enrichment activities)	Assessments (include types and topics)

<p>3.1.12 Unifying Themes</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>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>3.4.12 Physical Science, Chemistry and Physics</p> <p>C. Apply the principles of motion and force.</p> <p>3.7.12 Technological Devices</p>	<p>► What is position?</p> <ul style="list-style-type: none"> • identify appropriate coordinate systems. • specify object locations using coordinate systems.. <p>► What is displacement?</p> <ul style="list-style-type: none"> • Define linear displacement. • Calculate linear displacement. • Discern between position and displacement. <p>► What is velocity?</p> <ul style="list-style-type: none"> • Describe average velocity. • Describe instantaneous velocity. • Differentiate between and calculate average velocity and instantaneous velocity. <p>► What is acceleration?</p>	<ul style="list-style-type: none"> • Take notes on explanations from lectures. • Engage in discussions of straight line motion and its causes as far back as Aristotle and ending with Newton. • Demonstrate problem solving techniques at the blackboard. • Do computer research on the building of the "d", "v" and "a" graph Lab assignment" • Answer homework questions from text and/or worksheets. (Ch 2 pgs 23 thru 27, Ch 3 pgs 40 thru 45, Ch 4 pgs 62 thru 67) • Use scientific method while performing laboratory experiments. • In first lab construct "Cutout graphs of "d", "v" and "a" • Study text Chapter(s) 2, 3, 4 "Linear Motion" • Take notes from text 	<ul style="list-style-type: none"> • Completion of homework. • Discussion of homework assignments. • Class participation in discussions of topics surrounding everyday events illustrating the assignments. • Written reports of laboratory exercises. • Class participation • Written Chapter test • Written pop quiz(s) • Written reports of laboratory exercises • Teacher observation of performance in LAB environment. • Computer modeling of problems using IP
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<p>A. Apply advanced tools, materials and techniques to answer complex questions</p> <p>B. Evaluate appropriate instruments and apparatus to accurately measure materials and processes.</p> <p>D. Evaluate the effectiveness of computer software to solve specific problems.</p>	<ul style="list-style-type: none"> • Describe and calculate average acceleration. <p>► What do curves of position v time, velocity v time, and acceleration v time look like when acceleration is constant?</p> <ul style="list-style-type: none"> • Identify constant and zero acceleration by examining graphs of position, velocity or acceleration v time. • Use curves of position v time to model velocity and acceleration through analysis of slope. <p>► How do falling objects behave?</p> <ul style="list-style-type: none"> • Identify "g" as the constant free fall acceleration. • Use equations to calculate displacement and velocity of an object in free fall. 	<p>reading assignments and additional explanations from lectures.</p> <ul style="list-style-type: none"> • Answer homework questions from text and from worksheets. • Perform laboratory exercise(s) dealing with: "Measurement of displacement, velocity and acceleration" 	
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	<ul style="list-style-type: none"> • Use a computer spreadsheet to calculate and create graphs of position, velocity and acceleration v time. 				