

*Welcome to AP Physics 1! This is a freshman level, algebra-based college physics course. We will be spending most of next year investigating relationships between various properties of objects or system, what we call variables (because they can change). We need to have a tool to describe these relationships and to apply them to other situations. That tool is mathematics. In fact, one of the most famous physicists, Sir Isaac Newton, developed calculus along with his scientific work so he would have a way to describe natural laws and make predictions. Even though **AP Physics 1 doesn't require that you know any calculus, it does require that you have mastered the fundamentals of Algebra and Geometry.** The goal of the summer work is to make sure you review the math needed to learn physics.*

FOR STUDENT TO DO: Please email Mrs. Engleman with your school email address and she will add you to the OneNote to get your Summer Work in the class OneNote so you can work digitally. Otherwise, you can download it from the school website.

Follow the tutorials embedded in the modules and work all the problems.

During the first week of class you will take a math review quiz with this content. If you have problems, see the linked videos and you can email me. It is designed to take at least 3 hours, so please make sure you do not wait until the last minute. These are your first grades of the semester, so start off on a good note.

I look forward to a great year with you!

Mrs. Engleman

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Scientific notation	5 min 8 min	https://www.youtube.com/watch?v=WwmJ5nMmigQ https://www.youtube.com/watch?v=1jDfRhMI0z4	<ul style="list-style-type: none"> • how to get numbers in sci. not. • how to use sci. notation on your calculator
Trig review	10 min	https://www.youtube.com/watch?v=lQt2p2bhXuc	<ul style="list-style-type: none"> • solving for sides of a right triangle given 1 side and an angle • Solving for the angle given 2 sides
Algebra Review (more trig review)	20 min	https://www.youtube.com/watch?v=zO5MbHL58jI	<ul style="list-style-type: none"> • solving simultaneous equations • more trig review
Converting units within the metric system Converting units using dimensional analysis (factor label method)	15 min 30 min	https://www.youtube.com/watch?v=W5xyF-mwitU Go to 1. click on learn 2. do 3 one step practices 3. do 3 multistep practices 4. do 3 double unit practices 5. do 3 squared and cubed practices http://joneslhs.weebly.com/	<ul style="list-style-type: none"> • metric to metric unit conversion using dimensional analysis • converting from English to metric units (in \rightarrow cm) • converting derived units (m/s \rightarrow miles/hr) • converting squared and cubed units (cm³ \rightarrow in³) • converting squared and cubed units (cm³ \rightarrow in³)

Vector Addition Basics	11 min	https://www.youtube.com/watch?v=pimr9I92GZY	<ul style="list-style-type: none"> • steps to graphical and algebraic addition of vectors • multiplying vectors • negative vectors
Finding vector magnitude and direction	4 min	https://www.youtube.com/watch?v=WxWJorOVIj8	• how to use trig to find the resultant vector magnitude and direction
Finding components of a resultant vector	3 min	https://www.youtube.com/watch?v=-fbCI2qcgRk	• how to taking the resultant and angle and split it up into the x and y components
Finding resultant of 3 or more vectors	15 min	https://www.youtube.com/watch?v=g_TnqKX5ybY	• how to solve problems with more than two vectors