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**From the Math and Science Departments:  
Summer Suggestions to Build Up Freshman Math and Science Skills**

**Students interested in refining math skills over the summer have several options:**

- Tri-C Publications have prepared inexpensive summer study workbooks for various levels of math. They are designed for use by the student at home three or four times a week for ten weeks. Workbooks are available to order at [http://www.summerskills.com/summerskillsbooks/math\\_books](http://www.summerskills.com/summerskillsbooks/math_books).
- Online mathematics review is readily available. The sites below are organized by course and topic.  
<https://www.khanacademy.org/math>  
Select your most recent math course to review important concepts and complete practice problems.  
<http://www.coolmath.com/algebra/index.html>  
Review key concepts related to a chosen topic and then complete self-checking online problems.  
<https://www.kutasoftware.com/>  
Select your most recent math course under the *Free Worksheet* tab to choose among problem practice sets organized by concept.
- A TI-84 Plus CE or TI-84 Plus C Silver Edition calculator is required for both math and science courses. If you see a good deal on one early in the summer, you may want to purchase it right away. Although you will learn how to use it in class, you may want to familiarize yourself with it over the summer. For information on this calculator, go to <http://education.ti.com/en/us/products/calculators/graphing-calculators>. Calculator tutorials can be accessed at [www.atomiclearning.com/k12/en/ti\\_84c](http://www.atomiclearning.com/k12/en/ti_84c).

**Overall preparation for Physics is very simple.**

- As you go through the summer, be aware of how you use your senses to gain knowledge. Think about how things, living or nonliving, change. Here are some questions to consider:
  - ✓ What do I know by using my senses?
  - ✓ Are my senses reliable? What do I do if they are not?
  - ✓ How do I know that something is true?
  - ✓ What role does math play in science?
  - ✓ How would you describe something like a tree or particular animal? What is important in your description so that a person from another planet could understand the thing you are describing well?
  - ✓ Why does a particular thing exist and how did it come to be?

These questions are really not so simple but are very profound. Gaining practice in thinking about these kinds of questions is the key to really thinking deeply in physics, in science and in general. They will prepare you for studying physics concepts successfully. You may also want to read the Science Department Philosophy and Mission as listed in the *Curriculum Guide* to see how these questions are relevant for all science courses.

- Graphing skills will be used in all forms in science—graphing points, determining slope and equations of lines (and some curves for Honors Physics). This is a good area on which to concentrate if you would like to get ahead.
- Almost all science uses dimensional analysis. If you are interested in learning how to use this method before learning it in Physics, you might want to check out this website (there are lots of other good sites out there as well) <http://www.alysion.org/dimensional/fun.htm>
- Are you interested in seeing what physics is all about? Perhaps you might enjoy these sites: <https://phet.colorado.edu>  
-any YouTube video by Paul Hewitt, a well known physics teacher and textbook author