Dear Incoming Ninth Grader,

On behalf of the Menlo Science Department, I would like to personally welcome you to Menlo School. You have an exciting four years ahead of you, and we hope that your science experience will be engaging, fun and illuminating. I would like to take a few moments of your time to help you prepare for your first day of school.

What supplies do I need for the first day of school?

- ❑ Pencil and binder: Hopefully it goes without saying that you will need pencils and binders for all your courses. You'll be getting a lot of handouts (worksheets, labs, study guides, etc.) and you'll need a way to keep everything organized and in one place.
- ❑ Calculator: You are expected to bring your calculator to class every day. If you don't already have one, please purchase a TI-84 series calculator (this model is required by the Menlo Math Department). Since all Menlo students have this calculator, it is imperative that you **write your name on your calculator.**
- ❑ Protractor: Please get a 180°, 6-inch protractor (about $2).
- ❑ Textbook: The textbook for Physics is *Conceptual Physics* by Paul G. Hewitt (ISBN13: 978-0-13-364749-5). One option for purchasing this book is through MBS Direct.
- ❑ People's Physics Book: The Menlo physics teachers have published a workbook entitled *The People's Physics Book*. This workbook is sold at the Menlo Campus Store at our cost (approximately $13.50 per semester).

What do I need to know in preparation for Physics?

There are no prerequisites to 9th Grade Physics and we do not expect students to have studied physics in middle school. That being said, there are some general skills that we expect you to be familiar with. Please review the attached *9th Grade Physics Preparation Topics* sheet and make sure you are comfortable with the material. If are you having difficulty, then please let your instructor know on the first day of school.

Please don't hesitate to contact me if you should have any questions. See you on August 22!

Sincerely,
Marc Allard
Chair, Upper School Science Department
Menlo School
650.330.2001 ext. 2286
marc.allard@menloschool.org

9th Grade Physics Preparation Topics

There are no prerequisites to 9th Grade Physics; however, it should come as no surprise that math is an important tool in science. Please review the following items and try to assess how comfortable you are with each. If you are struggling with some (or all), then please inform your instructor on the first day of school (or you can email me at any time).

Conversions: Do you know how to do basic conversions (e.g. feet to meters)? You don't need to memorize the actual conversion ratio; however, you should know how to do a conversion given the ratio.

- *Example 1:* If 1 pound equals 4.45 Newtons, then how many pounds are in 87 Newtons?
- *Ex. 2:* How many minutes are in 42 days? (1 day = 24 hrs, 1 hr = 60 minutes)

Metric Conversions: The entire course is taught using the metric system. You will be provided with a table of metric conversions and prefixes; however, you should memorize the following:

- 100 cm = 1 m
- 1 cm = 10 mm
- 1 m = 1,000 mm
- 1 kg = 1000 g (or 1 km = 1,000 m)

Scientific Notation: Some of the numbers that we use are either extremely large or extremely small, and thus we have no choice but to express them in scientific notation. You should be able to express numbers in scientific notation and know how to enter numbers into your calculator using scientific notation (using the "EE" key). For the latter, please refer to your calculator's user guide.

- *Ex. 3:* Write 57,000,000 in scientific notation.
- *Ex. 4:* Write 0.000000018 in scientific notation.
- *Ex. 5:* Using your calculator, solve the following: $(9.0 \times 10^{7})(3.2 \times 10^{-4}) = $ _____

Basic Algebraic Expressions: Given a formula such as $v = d/t$ (*velocity = distance/time*), can you solve for any one variable?

- *Ex. 6:* If $d = 6$, and $t = 2$, solve for v.
- *Ex. 7:* If $v = 21$, and $t = 4$, solve for d.
- *Ex. 8:* If $v = 21$, and $d = 88$, solve for t.

Answers:
1. 19.55 lbs.
2. 60,480 minutes
3. 5.7×10^{7}
4. 1.8×10^{-8}
5. 2.88×10^{4}
6. 3
7. 84
8. 4.19