

## AP PHYSICS 2

## SUMMER ASSIGNMENT

Mr. Schembari

The purpose of this summer assignment is to give you, and your teacher, a head start on the early material in your AP Physics course. Many students find AP Physics to be a challenging, time consuming course and will devote many hours of their time over the course of the year.

**This course is for serious students and requires dedication, commitment to hard work and a willingness to be challenged and pushed for the entire year.** The pace of the course will most likely be more rapid than most courses you have taken and will seem overwhelming at times (the breadth and scope of this course covers the content of more than two semesters of college physics). AP Physics is a *college* level course and is well above the level of typical honors or regents level classes. I am certainly here to help you and guide you through this process of learning, but to a large degree, you will be responsible for developing an understanding through your own efforts.

The information contained in this assignment will be *reviewed only briefly* when you come to class the first couple of days, as all students taking AP Physics 2 will have completed AP Physics 1. Thus, the work contained in this assignment should be at your current level of physics. Use the approach to basic problem solving that you have learned in your first year of physics. The assignment begins with an introduction to the mathematics of the course, motion in one and two-dimensions as well as the laws of motion. **If you have not received a textbook yet, please be sure to sign one out from me before the last day of classes.** After you have read the information in the textbook, you will complete the attached assignment that will be collected at the end of the first week of school. **There will be an exam based on the summer work midway through the second week of the school year.** The exam will include all summer work and everything covered in class up to this date. If you have any questions or concerns regarding this summer assignment, you can email me at [dschembari@pelhamschools.org](mailto:dschembari@pelhamschools.org). I will be checking my email *about once a week* throughout the summer.

**You are expected to do this work *on your own*.** Evidence of copied answers will result in penalties for *all* parties involved (not the best way to start the school year). You are also expected to *show all work* for full credit on these problems (where applicable). Neatness counts as well.

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While reading the assigned sections from the textbook, create an in-depth outline on loose-leaf paper, specifically for chapters 4 and 9. The outline will be checked when we get back to school but make sure it is separate from the questions and problems. You will be allowed to use YOUR outline for the reading quizzes that will take place early in the year so the more depth you have the easier those reading quizzes will be.

The following questions and problems should be answered on loose-leaf paper as well. Work should be neat, legible and demonstrate a basic problem solving approach. Any answers to problems without complete worked out solutions will not be accepted for full credit; just as it is for the AP exam. Answers to conceptual questions must be justified with complete sentences

### 1) Chapter 4 – The Laws of Motion

Read sections 4.1-4.6 (Look at the example problems)

**ANSWER THE FOLLOWING QUESTIONS FROM THE BOOK (Pages 116-123)**

Warm-Up Exercises

#3, 4, 6, 9

Conceptual Questions

#1, 3, 10, 12

Problems

#2, 3, 10, 12, 13, 19 (Hint for #19 – The sum of all forces in the x and y direction **must be zero**)

### 2) Chapter 9 – Solids and Fluids

Read sections 9.1, 9.2, 9.4, 9.5 and 9.6 (Look at the example problems)

**ANSWER THE FOLLOWING QUESTIONS FROM THE BOOK (Pages 326-329)**

Warm-Up Exercises

#1, 2, 3, 4, 6, 7 (see page 284 for #4 for the densities of common substances)

Conceptual Questions

1, 2, 3, 5, 10

Problems

#1, 6

### 3) Chapter 15 – Electric Forces and Electric Fields

Read sections 15.1, 15.2, 15.3, 15.4, 15.5 (Look at the example problems)

**ANSWER THE FOLLOWING QUESTIONS FROM THE BOOK (Pages 326-329)**

Warm-Up Exercises

#2, 5, 8, 11

Conceptual Questions

#1, 2, 4, 6, 8, 11, 16

Problems

#1, 7, 15 (for #15 just draw the complete free body diagram on the left sphere of mass  $m$  and set up any equations that could help determine charge **BUT DO NOT SOLVE FOR ANYTHING**) also do #20

### 4) Chapter 18 – Direct Current Circuits

**THERE IS NO READING FOR THIS CHAPTER BUT ANSWER THE FOLLOWING QUESTIONS FROM THE BOOK (Pages 650-652)**

Warm-Up Exercises

#9, 10, 11

Conceptual Questions

#1, 2, 4, 7, 8

Problems

#5 AND FOR BONUS DO #8