

Hanover Park Regional High School District
Hanover Park High School and Whippany Park High School

June 2011

Dear AP Physics Student and Parents,

Please accept this letter as notification to each family regarding what will be expected of your son/daughter over the summer. It has become necessary to implement a summer assignment to fully prepare your child for the Advanced Placement (C [Calculus based]) Physics Exam that will be administered during May of 2012.

The A.P. Physics course is designed for the student who is intending to major in a science or engineering in college or is highly motivated to accept the challenge of a college level course at the high school level. The course is comprised to two sections: mechanics and electricity and magnetism. The A.P. exam is a rigorous exam that covers all of the material that would be covered in the first year (two-semester) college physics course. Colleges give up to 15 hours of credit for grades of 3, 4, and 5 on the final AP exams.

Each student will receive a copy of the text and the summer assignment. The chapters are primarily a review of material covered in Honors Physics; however, a small amount of Calculus (differentiation and integration) is incorporated in Chapter 2 (one dimensional motion). The students will be responsible for reading the chapters and answering the assigned questions. The assignments must be completed and brought to the first day of class (Thursday, September 8th). The students have the entire summer to complete the assignment, so **INCOMPLETE OR LATE ASSIGNMENTS WILL NOT BE ACCEPTED (no excuses)!** The first few days of class will be devoted to an overview of the assigned material and questions with additional time devoted to basic integration and differentiation. At the end of the first week of school, students will take a unit test on these chapters. It is critical that the students are comfortable with this material in order to succeed in the course.

I look forward to working with both you and your child in the forthcoming school year. Please feel free to contact me at diminsavage@hpreg.org or leave a message at the school at (973-887-0300) if you have any questions. I will get back to you as soon as possible.

Sincerely,

Diane Minsavage
A.P. Physics Teacher

AP PHYSICS

UNIT 1 / CHAPTER 1: PHYSICS AND MEASUREMENT

I. OVERVIEW

Physics deals with matter, energy, and the motion of particles and waves. In order to measure these phenomena, systems of units must be brought into use. In this unit we will review the metric system, scientific notation, and significant figures.

II. OBJECTIVES

Upon completion of this unit, the student should have an understanding of the following topics:

1. Standards of length, mass and time
2. The building blocks of matter
3. Density
4. Dimensional analysis
5. Conversion of units
6. Estimates and order-of magnitude calculations
7. Significant figures

III. ASSIGNMENTS (CHAPTER 1, TEXT)

Read pages 1 – 17

Solve Problems 1, 3, 8, 10, 12, 15, 17, 19, 20, 29, 31, 34,
42, 46, 50 – 52, 55, 58, 61, 67

AP PHYSICS

UNIT 1 / CHAPTER 2: MOTION IN ONE DIMENSION

I. OVERVIEW

In this chapter and the next we will be concerned with the description of motion (kinematics) without worrying about its causes. We will confine ourselves to motion along a straight line. To simplify our discussion we will start with objects which can be described as occupying one geometric point.

II. OBJECTIVES

Upon completion of this chapter the student should have an understanding of the following topics:

8. Average speed, displacement, and velocity of a particle
9. Slope
10. Instantaneous velocity and speed
11. Acceleration
 - a. Average
 - b. Instantaneous
12. Motion diagrams
13. Motion with constant acceleration
14. Kinematic formulas
15. Freely falling objects
16. Integration

III. ASSIGNMENTS (CHAPTER 2, TEXT)

Section 1: Read pages 23 – 34
Solve Problems 1 - 5, 7 – 9, 11 - 18

Section 2: Read pages 35 – 43
Solve Problems 20 – 25, 27 – 32, 34 – 36, 40, 41, 43 – 45, 47

Section 3: Read pages 43 – 46
Solve Problems 53 - 55, 57, 59, 67, 69