** CABRILLO HIGH SCHOOL**

*Home of the Conquistadores*

**Science/AP Physics 1: 2019-2020/Semester 1 and 2**

**Mrs. Phillips**

*e-mail: phillips.tracy@lusd.org*

phone: 742-2900

Office Hours: Before School: 7:20 – 7:40

7th Period and after school: 1:45 – 3:00

**Introduction**

Physics deals with the behavior and structure of matter. The field of physics is divided into the categories of motion, fluids, heat, sound, light, electricity, magnetism, and modern physics. The principal aim of physics (as with all science) is to search for order in our observations of the world around us. This search leads to the formulation of mathematical laws which model the processes governing the physical world. Physics is thus a highly numerical science; the laws and theories of physics are written in the “language” of math.

This course is based on the California state standards and College Board standards for advanced physics. It is designed to be the equivalent of the first semester of a general physics course usually taken during the first year of college. The pace of this course is quick and any student who has chosen to enroll must take the responsibility upon themselves to keep up. In addition to class time, it will be assumed that students will devote time out of class (daily) to studying and working on problems. As with any college class, it will take a great deal of commitment to complete this course successfully.

**Course objectives/key learning outcomes**

Upon completion of this course students will be able to:

1. Identify how physical laws explain the occurrence of certain natural processes.
2. Develop a working knowledge of physics related vocabulary.
3. Demonstrate an ability to apply mathematical models and equations to observed natural occurrences.
4. Demonstrate and ability to apply logic and critical thinking skills to scientific problems and to appropriately apply the scientific method.
5. Demonstrate an ability to apply basic learned physical laws to more advanced technological situations.

**Sequence of topics/units**

Semester 1:

Kinematics in One Dimension – August/September

Kinematics in Two Dimensions – September

Dynamics - October

Circular Motion and Gravitation – November

Energy – November/December

Semester 2:

Momentum - January

Rotational Motion – January/February

Simple Harmonic Motion - February

Waves and Sound - March

Electrostatics - April

DC Circuits – April

**Assignments/Projects**

Within each unit there will be at least one laboratory project and exam. There will also be a cumulative final exam at the end of the semester. In semester 2 there will also be a Roller Coaster Project where students will design and construct a functional roller coaster. In addition, the AP Exam will be administered in May by the College Board.

**Instructional Materials**

Students will be provided with a consumable workbook and lab book and a text will be provided for home use. A copy of the textbook will also be available for in class use as well.

Text: ***Physics: Principles with Application****; Giancoli, Douglas*

**Instructional Structure of the Class**

During each class the previous night’s homework will be reviewed and new material presented. Labs, designed to support the presented material and develop critical thinking skills, will be given (on average) weekly. Tests and/or quizzes will be given during and at the end of each instructional unit. Students are encouraged to work cooperatively on both the labs and class work.

**Progress Monitoring**

Grades will be based on the total points earned on tests (70%), labs (15%), and class and homework (15%). The grading scale is as follows:

90 - 100 % A

80 – 89 % B

70 – 79 % C

60 – 69 % D

Grades will be updated weekly and posted on Zangle as well as in the classroom.

**Homework Policy**

Homework will be assigned daily. The intent of homework is not to keep students busy but to provide the necessary practice to master a difficult subject. Students are expected to turn in their own work (not “borrowed” work from other students or from the internet). Students will not be graded based on “right or wrong” answers but on effort. Late work will be accepted if submitted with a ticket.

**Support/Intervention**

I am available before school or after school for help. In addition, all class notes and assignments can be accessed from my faculty page on the Cabrillo website ( [www.lusd.org/chs](http://www.lusd.org/chs) ).

**Classroom Norms**

As this is a lab class, all lab safety rules outlined in class must be strictly adhered to. In addition, students are expected to follow the classroom norms listed below:

Be Prompt – in your seat when the bell rings

Be Prepared – bring materials to class EVERYDAY

Be Productive – turn **cell phones off**, follow directions, and do not leave the room without

permission

Be Positive – have a good attitude

Be Polite – be kind to others

Five tickets will be issued to each student at the beginning of the semester. Tickets will be forfeited for tardiness, to turn in late work, or for behavioral infractions. Tickets remaining at the end of the semester can be redeemed for extra credit. Tickets will be taken from students who fail to meet these expectations.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Student Signature Date**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Parent Signature Date**