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period_____

Physics Syllabus - 2019 - Semester 1

Physics with Brian expands on our lived experience by studying the phenomena that surround us everyday. Learning physics is a journey that makes just about everything in life easier to understand, but another added benefit is the growth in a persons's ability to think critically about systems, whether it is a bike that needs fixing, a budget that needs balancing, or even the kinesthetics of the body. **NEW: I am requiring an organized notebook that includes: Table of contents, page numbers, glossary, formula sheet/pages, labeled sections for labs, independent notes, class notes. See my webpage for research supporting this requirement.**

Topics of Study

How are scientific measurements made in various dimensions?
Students may be familiar with tools for measuring in one dimension, such as rulers or a stopwatch, but life happens in two, three, and even four dimensions. It is important to start the year with a solid footing in understanding measurement through practice as well as how math like trigonometry comes alive through physics. In physics we care a lot about **units**, **measurement**, and **vectors**!

What is position, velocity, and acceleration, and how are they related?
In physics, this is called **kinematics**. Students will emerge with better spatial awareness, an understanding of real-life math application, and a huge step ahead if they choose to pursue calculus.

Can we use kinematics to understand the world better? Have you ever wondered how a pole vault is possible, how fast you can throw something, or needed a simple method to determine height? With **2-dimensional kinematics** we can find unknown information when we understand the relationships between variables (yes this is algebra, and yes it is easier when we are seeing and doing it ourselves!).

How does the world work? This is really not an exaggeration. From the moon landing to every single component of any machine in your daily life[1], **Newtonian Mechanics** is all you need to know. Never slip on ice, break something, or perform an impressive physical feat without being able to explain it again!

Grading

Tests and Quizzes **~40%** Final **10%**
Remember, stress destroys test performance. We will work on diminishing stress by preparing adequately for each test. Even then, physics is hard so please don't expect perfection! It is important to face difficulty before getting into the real world or college, and Physics will give you this wonderful opportunity! There will be interactive, group, online, and performance-based

[1]Ok, not cell phones or GPS. Satellites must take Einstein's Special Relativity into account.

test/quiz components in addition to standard calculations and written responses. **Each test will include the opportunity to earn bonus test points by competing a review assignment.**

Labs **~30%**
It is hard to learn science without engaging in the process! Labs will include a variety of activities, observations, experiments, projects, and simulations. Simply following instructions is not a good way to learn, so students must take the responsibility to engage in the process of science by producing meaningful work that uses their own words to reflect, explain, question, or expand upon the topic. Remember, every new life experience involves the same scientific process, so committing to quality work in class will improve your real life!

Assignments **~20%**
We need practice to build physics skills! We will also correct assignments in class. Full points are awarded for corrected problems, as long as you have tried each problem before class!

Other

Excused Absence Only - Late Work
I will accept late assignments up to 5 school days after the absence and we will arrange labs or alternative assignments to be completed within 5 school days. Turn in late work directly to Brian. **Please meet with Brian to arrange work for extended absences in advance!!** Unexcused absences will not receive full credit (barring exceptional excuses)!

Academic Honesty
Never copy work. **Do not copy** from other students, and do not cut and paste from digital sources **as this will earn a 0%**. If you completed work with the help of a source (like wikipedia, or your friend Cary) then AT LEAST give them credit by writing a name, website, or ideally a complete citation/reference. Pictures need credit too! If you ever notice Brian presenting work without a reference, point out the egregious error to the class and you will earn a bonus!

Required Materials
-100 page composition notebook or similar (available at Steller store)
-calculator (scientific or graphing, lenders are available… but familiarity prevents errors)

Please sign below if you have read this document and agree to the expectations

STUDENT_____DATE_____

PARENT/GUARDIAN_____ DATE_____