

# Honors Physics 2017-2018

Office Hours M-F 7:15-7:30, Mon, Tues, Thurs 2-3:15

Welcome to **Honors Physics**, version 7.0. Physics is the study of how things in the physical universe work. How do we know how far away the stars are? If the Earth is really spinning, why don't we fly off? How do raindrops make a **rainbow**? In the fall semester we will study astronomy, light, measurement, motion, and forces. In the spring semester we will move into the realm electricity, momentum, energy, gravity and come back full circle to light with waves. We will sprinkle in a little Relativity because time dilation and black holes are too interesting to miss. My goal is to nurture your curiosity while developing your problem solving abilities. Physics is a very visual/graphic subject, and almost every problem in physics benefits from being sketched. We will develop proportional, trigonometric and algebraic thinking. So cool, right? I know! After teaching STEM 9<sup>th</sup> grade students for five years, I have noticed that you are a bright, capable group. Some of you are even motivated. Many Tesla STEM students ask for meaningful, relevant work. Some don't! Either way you are encouraged to ask "How do we know that? Or "Why should we care?"

Course logistics: You will need to check online materials on Haiku daily for assignments and resources. If you don't have access to the Internet at home, let me know right away so I can help you. **You will also need access to a working printer for nightly HW.** You can print assignments off here at school (after 2 pm) if you don't have a working printer at home. If your printer goes on strike, you will need to hand copy the document. We don't have a textbook because we are building our own in the form of our **Physics Journal**.

You will need to bring the following materials to class with you every day:

1. **Calculator**: problem solving is not a spectator sport.
2. **Colored** pens (gel markers work best) for notes and diagrams. You might try Pilot's erasable gel pens.
3. Correction tape (we all make mistakes!)
4. Protractor and cm ruler
5. **Physics Journal**
6. HW (including previous HW from the current unit)

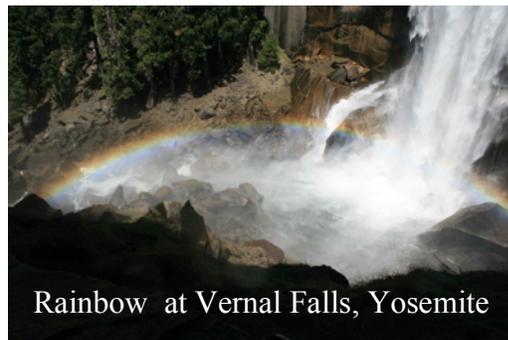
FAQ's:

**Why do physics in 9<sup>th</sup> grade?** –*Physics is a hands-on playground for your mind designed to help you develop the problem-solving attitudes and skills early on in your high school career that you will need for subsequent STEM endeavors. It will also provide the conceptual foundation to enable you to thrive in calculus based AP Physics if you choose to take it later. If you need more convincing, check out [Neil deGrass Tyson's CNN interview](#).*

**Why do we have homework every night?** –*The routine of daily structure helps many students engage with physics more deeply and retain what they learn longer. 30-45 minutes a night is better than several hours once a week.*



Milky Way over Carmel, CA



Rainbow at Vernal Falls, Yosemite

**What do stars and raindrops have in common?**

FAQ's Continued:

**Why don't we have a textbook?** –*Having a textbook to “look up the answer” is counter-productive to the inquiry based approach of this course. Besides, most high school textbooks tend to assume you know too much or too little. Your PJ should help you become better informed than any physics textbook, and you should be able to understand it because **you wrote it!***

**Will studying physics make me smarter?** –*Yes. Although it may make you feel dumber first. It will also help boost your standardized testing scores such as the SAT/ACT.*

**Why am I here?** –*This course is about physics, not metaphysics!*

Your grade is based on straight points, with roughly 45% of the possible points coming from HW, PJ and labs, and 55% from exams. We will be using the standard 10-point STEM grading scale without rounding. There are no make-ups for exams. If you miss an exam, I will replace your missing score with the average of your other exams. If you don't miss any exams, you can replace your lowest exam with the average of your other exams. Midterms and finals cannot be replaced so don't miss them.

Late work can be accepted for legitimate absence and teacher consent. Show me your work on your first day back. Don't get behind: we learn new material everyday and being a day behind can quickly snowball into bewilderment.

Make sure that all the work you submit on labs and exams is your own. Cheating compromises your integrity and undermines your self-confidence. What is cheating? Cheating is submitting someone else's work as your own. Don't risk loss of integrity, credit and damage to your reputation by copying! We will discuss academic integrity in more depth in class if you remind me or someone gets caught!

Advice: You will need to do the [homework](#) every night to succeed in this class. Homework should be done at home, not in your other classes right before it as due. I like my colleagues and I want them to like me. You are encouraged to work together on the HW, however you won't get much benefit mindlessly writing down someone else's HW solution. Be an active member in your group. In class, ask questions if you don't “get it!” Be tenacious about what you don't understand. One of my favorite high school teachers (JB Close) once said that life was about learning to ask the right questions. Help is available before school daily from 7:15-7:30 am, and after school Monday, Tuesday and Thursday from 2-3:15 pm. Some students learn best in the smaller, less formal study sessions outside of class: you could be one of them! Also, a list of peer tutors for physics is available if you need extra attention. Physics is challenging but you can do it! I am looking forward to sharing this incredible subject with you. We are going to have a great year. Excited? Let's get to it!

Sincerely,

Mr. Peter Saxby

[psaxby@lwsd.org](mailto:psaxby@lwsd.org)

(Email is the best way to contact me.)