Course Overview - Physics
2020-2021
💯Instructor - Doug Forrest 💯
Email - doug_forrest@plsd.us Google Classroom code: **zshll33**
Website - www.pickphysics.com
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Course Overview

Welcome to phsyics! Physics is a fundamental science that often serves as a basis for other sciences such as chemistry and biology, so it's a bit odd in high school that it's often taken by juniors and seniors. The focus of the course will be for you to demonstrate the process skills, lab skills, and content understanding to become a scientifically aware citizen and realize how physics is something you use every day. My hope is for you to become better at critical thinking, understanding scientific claims and uncertainty, asking scientific questions and to be able to use your skills to test those questions you do have.

Course Objectives

By the end of this class, you [or your child] will be able to:

- Demonstrate active learning online (or in class) by participating in synchronous class sessions, asking questions about activities and assignments, and completing asynchronous assignments.
- Explain possible errors and uncertainties in lab experiments as well as compare outcomes of online simulations with likely outcomes in a hands-on lab.
- Represent scientific understanding in multiple ways including graphically, with diagrams, by using data tables, and with verbal or video explanations.
- Communicate an understanding of content topics in written form and verbally (via videos or conferencing). Content will be elaborated later, but includes the topics of: Experimental Design and Scientific reasoning, Kinematics (1-Dimensional motion), Vectors and Trigonometry, Forces and Newton's Laws, Momentum, Projectiles and Circular Motion, Energy and Work, Electrostatics, and Electric Circuits
- Apply your understanding of physics either with building projects and design challenges (if in person) and/or independently chosen research projects (if we have remote instruction).
- When presented with a traditional in-class activity, students will be able to propose or design a remote instruction alternative that will allow them to gain a similar understanding.

Logistics

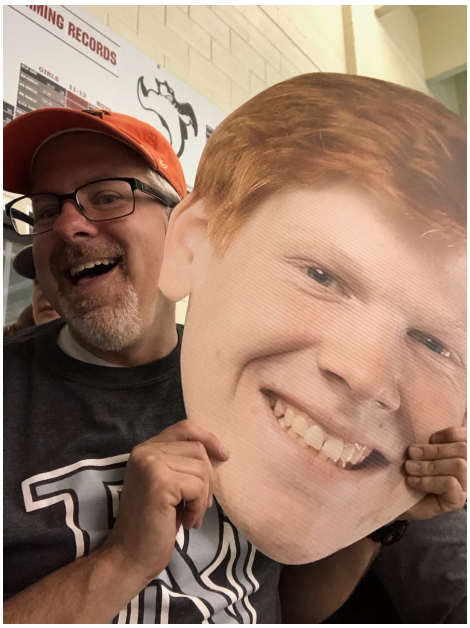
Sunday evening	Assignments/agenda for the week will be posted by this time.
Monday, Tuesday	**Cohort A** will be in class and **Cohort B** will be working on online assignments
Wednesday	Virtual (online assignments) for all students, and PM time to have virtual office hours or Google Meet with groups or individuals. Wednesday online assignments are to be completed the same day, unless noted.
Thursday, Friday	**Cohort B** will be in class and **Cohort A** will be working on online assignments

- **Virtual assignments (M, T or Th, F) → Due Monday following the week assigned at 11:59 PM**
- **In person assignments → Due dates may vary based on cohort**
- **Wednesday virtual assignments → Should be completed on Wednesday if possible, if not by the following Monday at 11:59 PM**

Please note that the virtual assignments (either Thursday-Friday or Monday-Tuesday depending on your cohort) are things you should **attempt on the day they are assigned**. You may complete them early of course. The reason these virtual assignments aren't due until the Monday of the following week is so that each cohort will have a chance to see me in person after the assignment date, in case there are clarifications that aren't easily answered remotely.

Teacher Bio

Hi, I'm Doug Forrest! This is my 27th year teaching in Pickerington and I'm really excited to have you in class this year. I really enjoy getting to know my students as individuals and still communicate with students from every year that I've taught. If any of you have Mr. Oakes for math - I had him as a freshman my very first year teaching! The photo to the right is of me holding up the FatHead of a student last year when I went to his senior night swim meet - he did NOT expect that! I love to be able to attend events (although I know there will probably be a lot of limitations on that this school year) and know what your interests are. I'll ask you about this in a questionnaire in the first week of class.. Click on the video link here to learn a bit more about me!
[Welcome to Physics video!]



💻 Course Communication	
Class announcements and weekly agenda	I'll post these in our Google Classroom, and also on the 'Physics' page of my website, which is a public site that parents can view and is linked here [https://www.pickphysics.com], you'd go to the 'Physics' drop down menu. I'll also send out Remind messages. To sign up for the Remind account (parents are welcome to do this as well as students) see this document. [Link to Remind form on my website]
Email/Personal Messages	There are two really good ways to reach me. • The first is via the Remind App, with a link to the same form as above [Remind Sign Up]. This is an application you can put on your phone, which I encourage, and/or your ChromeBook. The nice thing about Remind is that I can communicate with entire classes of students, smaller groups, or with you as an individual. You can also send me messages through here, which I normally check until 10 PM on school nights. Also, all phone numbers remain anonymous with Remind, even

	if you have it push to your phone as a text message. ● The other good way to reach me is through email. My email is doug_forrest@plsd.us, and I check it several times a day including at the start of the school day. I normally don't check email in the evenings, so if you wish to contact me then, use Remind. If you leave a private message for me in Google Classroom, I'll get that, but it's not as quick as either Remind or email. Note: It may take up to 24 hours to receive a reply during the week and 48 hours on the weekend, although normally I'm a lot quicker than that, especially with Remind. So try not to wait until the last minute to send a message if you need help. Early in the year, I'll pass around a sheet for students to list their cell #'s for those wanting to participate in a "phone tree". Oftentimes, students really benefit from contacting their peers outside of class!
General Questions	If you have a question about the course or an assignment, I encourage you to post your question in the Google Classroom "stream." The stream is visible to the entire class community, so I encourage you to both ask and answer questions there. If a classmate asks a question and you know the answer, please jump in and help them out! If we have a "phone tree", you can also use that to text them, but you won't get the benefit of the entire class seeing the message. Also, please use our synchronous "office hours" as a place to ask questions. If we go entirely virtual, these times will be expanded. Since students are expected to be there for help, it can be a great place to ask general questions.
Online Discussions	Online discussions are an important opportunity for you to interact with and learn from your peers - normally small (lab) group discussions, presenting whiteboards, and whole class discussions are a primary way science classes learn, and I want to try and model that as much as possible for us during remote instruction as well as continue those things when we are together in person. The class will regularly engage in conversations about the course content and lab simulations. You will receive credit for your participation in these academic discussions through several Habits of Mind learning standards in synchronous online meetings, online asynchronous discussions, and in person by interacting with your classmates and instructor. You are expected to post thoughtful, respectful, and well-written responses to the discussion questions that are posted in the Google Classroom Stream, and reply thoughtfully to at least two other students per discussion.

💬 Participation Policy

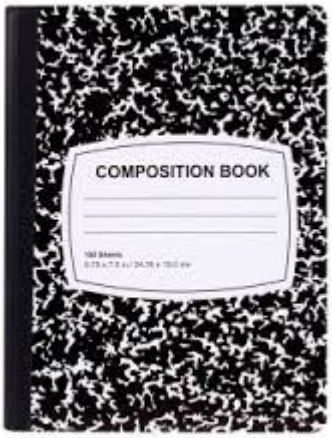
You'll need to be present in all synchronous meetings if we have those, or let me know via message why you aren't there - preferably before the meeting - so I can note your attendance. I expect you to ask questions during these, and hope you can also offer your own insights and experiences. You'll be expected to participate by attempting all assigned work as well, and to let me know if you have problems. Often I'll ask a few short questions in a Google Form to check for your understanding or if you have questions. It'll also be **critical** for you to discuss online simulations and activities we do, often as a small group and then later as a part of the class. Science is truly a collaborative process, and we need to use each other to help us develop a deeper understanding. I care far less about

your lab/simulation results than I do about how well you can analyze those results and discuss possible errors and uncertainties with your classmates.
At the end of each quarter, I'll assign you a Performance Rubric where you evaluate your participation throughout the quarter as related to the Habits of Mind standards, and I give specific feedback to you. Part of that Rubric will also be for you to also evaluate my participation, feedback and performance.

Required Texts, Materials, and Online Accounts

We'll be using a lot of online resources this year, but these are the things you'll need to start off. I'll get you another document with tutorials about other applications, websites, and accounts in a little while, but these are critical to start. We'll end up getting signed up for these (for the ones that need an account) over the first week or two of class and learn to use other tools, applications, and websites as we go along. All of them are things I've tried over the years and these are the best resources for our online class this year.

- Our primary reading source will be the Physics Classroom. This has easy to understand text in their Tutorial section, as well as practice problems, Interactives (lab activities) and Concept Builders. Each student will sign up for an account for the Concept Builders a few weeks into the course, which will make it easier for you to do the Concept Builders. At times I may ask you to read from other sources or a PDF document, which I'll post on my website and in Google Classroom.



- You'll need your ChromeBook and something to record timing data, such as the stopwatch on your phone. There's also online stopwatches if you don't have a phone with one. You should have somewhere organized to write down and record your work, as often in physics it's easier to write some things down by hand and take a picture of your work than typing out your work. Your lab fee will provide for a quad-ruled composition book similar to the one at right, so you do NOT need to buy one of these.

- You'll need to sign up for a Remind account [Remind account sign up]

- Your code for our Google Classroom is [**zshll33**] → Note that the first five characters are letters, the last two characters are numbers. Here's a link to that Google Classroom as well.

- I'll need to create an account for our Standards Based Grading gradebook if we go that route. (See grading section). If we proceed, at some point you'll need to show evidence of being able to log in to that account. For right now, you can overview the site here: SBGBook

Schedule

Each week or two, I'll provide you with a syllabus on Google Classroom and on my website for upcoming assignments. However, you can get a general idea of what we'll be doing with the units shown below (which is subject to change!)

Cohort A (we need a nickname!): In person instruction on Monday and Tuesday, virtual instruction Wednesday, Thursday, and Friday.

Cohort B (we need another nickname!): Virtual instruction Monday, Tuesday, and Wednesday. In person instruction on Thursday, and Friday.

- **Virtual assignments (M, T or Th, F) → Due Monday following the week assigned at 11:59 PM, but you should start working on them on or before the day they are assigned in the syllabus**
- **In person assignments → Due dates may vary based on cohort**
- **Wednesday virtual assignments → Should be completed on Wednesday if possible, if not by the following Monday at 11:59 PM**
- **Office hours are from 2:00 - 3:00 PM on Wednesdays, although you are free to contact me through Remind or email at many other times**

Overall content and layout of the course is shown below, with topics in the order I think (as of August 25) that will make the most sense to students

- Introduction, Experimental Design, Graphing and Data Representation, and Scientific Modeling and Methodology
- Using vectors and Trigonometry
- Forces, Newton's Laws, Free Body Diagrams and Freefall
- Momentum, Impulse and Collisions
- 1-Dimensional Motion, Kinematics Graphs, and Mathematical Applications (both constant velocity and accelerated motion (3-5 weeks). *NOTE: This will likely cross from 1st semester into 2nd semester.*
- 2-Dimensional Motion and Universal Gravitation
- Energy Conservation and Transfer
- Charge and Electrostatics
- DC Circuits

A complete list of the standards and overall goals for each topic are attached, based on experience from last year. However, they're subject to change since we want to be fair to students and are unsure how the hybrid, completely virtual, or completely in-person instruction will look this year. Students and parents can go here Standards for Standards Based Grading , or to my website under 'files'.

📝 Grading Policy
I'd like to use something in this course that I've used the past two years in my first-year Physics courses called Standards-Based Grading (SBG). However, to do this I need your input and understanding so we'll really need to have a detailed class synchronous discussion within the first week or two of the course. If students agree to using SBG, it'll probably look similar to last year, and I'll attach a document for that here [Standards based Grading Policy 2019-2020]. I'll post this year's final SBG policy after our discussions. Highlights of last year's SBG are as follows: • Each graded assignment has standards that will be listed on that assignment. All standards will be scored out of 10 points, and you normally will be scored a 10, 8, 6, 5 in each standard or a 0 only if you did not make an attempt. Large assessments, such as a test, might have four standards. Smaller assessments, such as labs or an online discussion, might have anywhere from one to five standards depending on the amount of detail in the assignment. • Standards will include (i) Content Standards, (ii) Habits of Mind Standards to assess participation and involvement, and (iii) Lab Skills, Scientific Reasoning, and Technology Skills Standards.

- For most standards (Content and Habits of Mind), your current grade in each standard will be an average of your most recent score in that standard and your highest score in that standard. For Lab Skills standards, your current grade in each standard will be an average of all your scores in the standard and your best score in the standard.
- Sample rubrics for what it looks like to score a 10, 8, 6, or 5 in a standard are included in the SBG document, and if I will use a rubric for a specific assignment I'll include that in the electronic version of the assignment.
- The SBGBook gradebook will give you a current overall average based on the standards we've assessed up to that point, and once a week I'll update Infinite Campus to reflect your current grade in SBGBook. Infinite Campus will also have a note directing parents to SBGBook if they wish to see more details.
- For me to get you timely feedback, I need to have graded assignments turned in on time. So please get assignments in when they are due - I normally will have clear due dates for all graded assignments and it won't be a short turnaround such as just a day's notice. For tests or quizzes, you'll need to take these during the testing window provided, which will be clearly stated. Whether that's in person, on Illuminate, or as Google Form/Google Quiz will depend on the assessment. For other assignments, you'll only be able to earn up to an 8/10 on any standard if they are submitted late, or a 5/10 if you submit the assignment after I've handed it back - this gives me the incentive to get you feedback and return things quickly - unless you contact me well in advance (not just 10 minutes!) to explain why you can't complete the assignment. Remember for Google Classroom assignments, to click 'submit'.
- Retakes. You can submit to reassess up to one standard a week. Last year I had a hard copy of a form for this, and this year I'll be making a Google Form, although for now this is a PDF [Reassessment Request Form]. Generally retakes would be for content standards and, less likely, for lab skills standards since we'll be having assignments with those all year. Since for most standards your current score is an average of your best and most recent score, retaking a standard can be very helpful. Requests for retaking a standard will need to be submitted within 48 hours of when you get an assessment turned back to you, and my feedback on the form will let you know what work you need to do to attempt the retake as well as a time for doing so.

💡Student Code of Conduct

Remote instruction generally isn't easy for students, and we need to really help each other out. It's going to be important to have proper conduct when we're interacting online, and to be respectful, kind, and understanding of each other. You'll actually be evaluated on this to an extent in the Habits of Mind standards each quarter in the Performance Rubric mentioned earlier. If students act inappropriately online, I'll try to speak (in person or virtually) with the student first, contact a parent, and if needed contact an administrator. Normally I don't have a problem with this, but I do want to be clear that we need to be professional and courteous when interacting with each other - that goes for me too!

It's a lot easier for students to plagiarize (copy) others' work with remote instruction, but it's absolutely not correct to take credit for another's work. My job as a teacher is to help you learn and understand the world around you through physics, and I can't do that if you misrepresent what you know. Early in the year we'll have a discussion and assignment about Academic Integrity (or, if you're a pessimist, Academic Misconduct). It's really important, and often students going to college get into trouble by not understanding that. As I said, we'll definitely spend time on this topic early in the year.

If we have synchronous (all at the same time) online Google Meets, I'll need you to be there at that time unless you contact me ahead of time. Normally it's nice if we can show our faces, but I'm not sure if that should be a requirement or not? Maybe that's one of our first discussion points. Also, we need to exhibit the same level of respect and professionalism with each other online as if we were in class, meaning to use appropriate language, be attentive, interact with our peers and instructors professionally, etc.

As a teacher, I need to do my best to help you instructionally, and while I'm not available 24 hours a day, I will respond as quickly as I reasonably can to your questions and I'll try and be flexible when it comes to online instruction - especially at the beginning of the year as we ALL have a lot to learn. In class, I'll try and make it worth your while to come to school and have interactive activities, labs, and discussions. Of course I also want to keep you safe. We all have different amounts of anxiety when it comes to interacting with others during the time of COVID-19, and if for any reason you think I am not doing enough to keep you safe (either by my actions or those of your classmates) please let me know! Again, trying to balance safety with in-person instruction is something new to all of us, and I'm open to suggestions and constructive criticism.

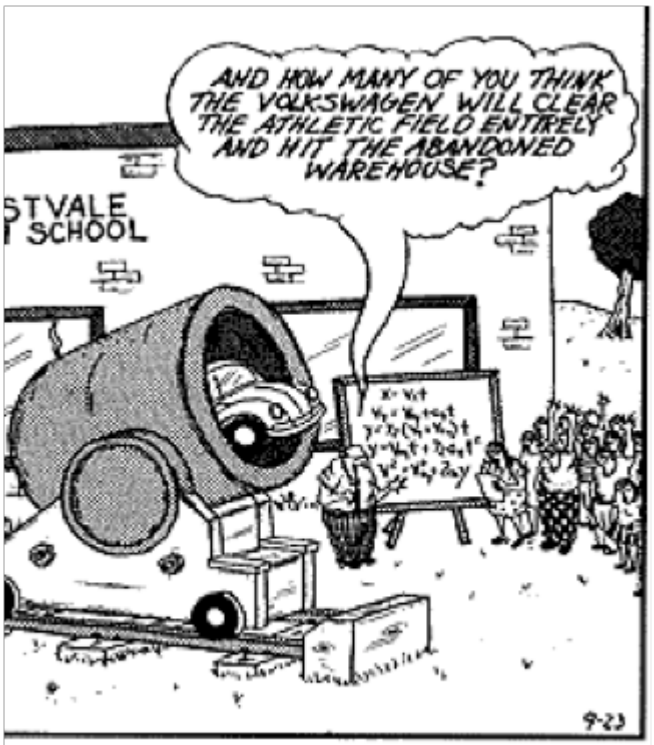
I certainly want us to stay in school and not go all virtual, so one thing we really need to remember is to sanitize regularly and avoid handling things unless we need to. This year, passes are ONLY to the restroom, at least at the start of the year. Make sure you wash your hands often and for 20 seconds, and use hand sanitizer and/or wash your hands before and after you touch equipment/materials in the classroom. I'll try and have a place where you can put things that have been used on a given day so that other classes won't use the same items, and I'll either sanitize them or let them 'age out' for at least three days.

🙋‍♀️ Attendance Policy

As we start with the hybrid model, students who are having virtual days will need to log in to Infinite Campus each day (maybe for each period?). If students haven't done their virtual work, teachers can then go back (within seven days) and mark that student as absent. Since most virtual assignments will be due Mondays, that's when I'll check to make sure you completed things, and that's when I will change your attendance if those assignments are not completed.
For our in-class days, please be here each day you are healthy since we have so little time together on the hybrid model. If you miss class, I'll try and have as much as possible available both as a hands-on and online activity, although in-class discussion isn't something you can really make up. I will try to be here every day as well. (I'm taking my vitamins!)

Final thoughts

I'm so happy to have you in physics class! Really. I've missed teaching in person, and I've missed the interactions with students. I really want physics to be a positive experience for you and for me. I work really hard, and I'm open to learning new things. One of the reasons I love teaching as a career is *my students teach me so much*, especially about technology. For us to have the positive experience I know we can, I really need your help to be active and involved in class as much as possible, as well as very involved with remote instruction. I need you to give me feedback to help me improve how I do my job so I can help you learn better. Most of all I need you to give this remote instruction a shot and to keep a positive outlook. We can do this! I promise I'll do my best to give each of you feedback and try my best to make you feel welcome in class. And a little humor never hurts either! Now let's get started!



Thanks to the innovative labs of teacher Doug Forrest, physics quickly became Westvale High's most popular course.