

POR Lab Physics

2020-2021

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Course Overview

This year we will focus on General Physics. Physics is a fundamental science which is concerned with understanding the natural phenomena that occur in the world that surrounds us. Physics is based on experimental observations, predictions, and quantitative measurements. The fundamental laws of physics are expressed in the language of mathematics which provides a connection between experiment and theory. We hope that in spite of the unusual learning environment this year you will find this class to be an exciting and enjoyable experience.

Course Objectives

This course focuses on the concepts and applications of physics, including laboratory investigations and the use of basic algebra skills. You will gain an understanding of the laws of physics that surround you and of the concepts underlying the phenomena of motion, force, energy, matter, waves, and electricity, and magnetism. Due to the slower pace we may not be able to cover every unit that you see below.

- **Course outline:**
- Unit 1: Mathematical Tools in Physics and Experimental Design.
- Unit 2: One-Dimensional Kinematics
- Unit 3: Vectors
- Unit 4: Two-Dimensional Kinematics
- Unit 5: Dynamics 1 (no acceleration)
- Unit 6: Dynamics 2
- Unit 7: Circular Motion and Gravitation
- Unit 8: Work, Energy, Power
- Unit 9: Linear Momentum
- Unit 10: Harmonic Motion and Waves
- Unit 11: Sound
- Unit 12: Geometric Optics
- Unit 13: Electromagnetic Radiation and Wave Optics
- Unit 14: Static Electricity and Electric Fields
- Unit 15: Current Electricity
- Unit 16: Magnetism

Logistics

Daily	Assignments for the week will be posted.
Cohort A Monday and Tuesday Cohort B Thursday and Friday Wednesdays all students	Video conferencing sessions will take place during class period scheduled time. Google Meet Times: Period 6 Tuesday/Friday 12:50-1:10 Wednesday 9:54-10:20
Due Date	Due dates will be posted for each assignment in google classroom.
Wednesday	Virtual office hours from 12:30 to 2:09. We will answer messages and emails at other times when we are not actively instructing. We will be checking email and google hangouts frequently.

Teacher Bios

My name is Mrs. Melikhova. I have been teaching Physics at Matawan Regional High School since 2011. My previous teaching experience includes teaching Physical Science at Monmouth County Vocational School District and Algebra at Brookdale Community College. I received my Master's Degree in Physics and Teaching from Moscow Pedagogical State University. I consider Physics as one of the most important subjects that every student can benefit from.

My name is Mr. Fitzgerald. This is my fourth year at MRHS. I earned my bachelor's degree in Ecology, Evolutionary Science and Natural Resources from Rutgers University and my Masters in Teaching from Monmouth University. I am currently enrolled in an online Master's program in Environmental Science at Johns Hopkins University where I have had to use Physics to determine the motion of ocean waves and atmospheric circulation.

📁 Course Communication	
Class Announcements	Will be posted in google classroom
Email/Personal Messages	<p>jmelikhova@marsd.org cfitzgerald@marsd.org</p> <p>When writing a message, please follow the expectations below:</p> <ul style="list-style-type: none"> • Include your name, the class name, subject of the message (e.g., Heather Smith--Lab Physics Pd6--Please go over problem solving steps) • Be specific about what problem you need help with. <p><u>Note:</u> It may take up to 24 hours to receive a reply during the week and 48 hours on the weekend, so please do not wait until</p>

	the last minute to send a message if you need help.
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!
Online Discussions	<p>Online discussions are an opportunity for you to interact with and learn from your peers. The class will regularly engage in discussions. You will receive credit for your participation in these academic discussions.</p> <p>You are expected to post thoughtful, respectful, and well-written responses to the discussion questions and reply thoughtfully to at least two other students per discussion.</p>

Participation Policy

You are expected to log in to virtual lessons, check google classroom daily for assignments. Complete assignments on time. Check your email and Google Hangouts daily for messages from teachers.

Required Texts, Materials, and Online Accounts

Textbook: Hewitt, Paul G. *Conceptual Physics*. - Pearson - Prentice Hall

Ability to access google classroom, google meet and google handouts, print materials and create a PDF file. :

During virtual learning, you will be responsible for creating a folder on Google Drive to store your work. This will act as your “digital binder”. A video will be posted on google classroom showing you how to make these folders and the way we want it organized. You will be given at least a two day’s notice of “binder checks” where we will check to make sure everything is organized in the proper fashion. A well organized binder will help you immensely for assessments and will better help us help you.

Required Materials:

- ✓ **1.5” 3 ring loose-leaf binder with 5 tabs** (for organizing papers)
- ✓ Scientific calculator
- ✓ Pen and pencil (pencils are required for graphing)
- ✓ Ruler (with metric scale)

Binder Organization:

Your papers ought to be organized by units in the following categories.

1) Notes 2) Practice Problems 4) Classwork/Homework 5) Summary

You must be able to find a required paper in your binder.

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 Schedule		
Dates/Week #	Unit/Topic/Subject	Required Reading/ Course Content
9/15/20- 9/21 Week 1	Class Expectations Rules and procedures Scientific Thinking and Experimental Design	Check Google Classroom

 Grading Policy
<p style="text-align: center;">Grading for the course is:</p> <p>Assessments.....30%</p> <p>Labs/Projects30%</p> <p>Homework/Classwork/Notebook/Participation40%</p> <p style="text-align: center;">Assignment values will be posted in assignment description IEP and 504 accommodations will be met.</p>

Student Expectations

Students are expected to respond respectfully to posts of other students.

- 1) Assignments will be posted on Google Classroom. You may either print out the assignment, write the responses, and scan them back in or type them onto a separate Google Doc. Regardless of if you are typing or handwriting, you **MUST SHOW YOUR WORK!** If an answer is given with no shown work that question will be marked wrong. If you are typing your answers, a video will be posted on Google Classroom showing the format we want.
- 2) Papers with **no name** on them will receive an automatic **zero**.
- 3) Assignments will have a deadline. A failure to submit the work by the deadline without any advance notice by you or your parent will result in loss of one letter grade per day.

Homework:

- In physics, when you solve problems, it is important to **show your work**, not just the answer. **You won't get credit for the numerical answer without the work.** More guidelines on how to show the work will be provided during the course.
- Some answers for practice problems will be posted on the Google Classroom. If only the numerical answer is posted, you are still responsible for showing your work.
- Each homework assignment should be dated and done on a **separate page**.

Notebook:

- You are encouraged to take notes and organize materials properly (refer to the binder organization section). All your work must be dated.

Help and Resources

When you need help:

If you are having difficulties with an assignment, we are available via Google Meet and email for extra help.

Resources:

School Website Mrs. Melikhova's page and google classroom (rubrics, worksheets, answers)

<https://www.aplusphysics.com>

<https://www.physicsclassroom.com/> (textbook, practice problems, simulation)

<https://www.khanacademy.org/science/physics> (Extra information, videos, and practice problems)