

## Wallenpaupack Area School District

### Wallenpaupack Area High School

Course Title: Physics II

Length of Course: 1 Semester

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#### District Policies:

##### **Academic Integrity:**

Academic integrity is essential to the success of an educational community. Students are responsible for learning and upholding professional standards of research, writing, assessment, and ethics in their areas of study. Written or other work which students submit must be the product of their own efforts and must be consistent with appropriate standards of professional ethics. Academic dishonesty, which includes cheating, plagiarism, multiple submissions and other forms of dishonest or unethical behavior, is prohibited.

##### **Assessment:**

The goal of grading is to report student progress and achievement to the parents to strengthen the home-school connection. The grade should accurately reflect the student's performance in mastering the PA Standards and the WASD curriculum.

##### **Attendance:**

Regular school attendance is vitally important to academic success. Not only does attendance reinforce and enrich the learning process; it also establishes patterns and attitudes that will carry forward into adult work habits. Regular, consistent attendance is a prerequisite to successful school life. Children should be absent only in cases of illness or emergency.

##### **Special Education:**

Our commitment to each student is to ensure a free appropriate public education which begins with the general education setting, with the use of Supplementary Aids and Services. Inclusive education describes the successful education of all students with the appropriate supports and services to participate in and benefit from the general classroom settings and other educational environments.

#### Course Description:

Physics II continues the study of physics with laboratory experiences. The course is a survey of fluid mechanics, thermodynamics, waves, sound, light, optics, electricity, magnetism, and modern atomic and subatomic physics.

#### Pennsylvania State Standards:

All WAHS courses are aligned to the PA State Standards and Common Core Standards, where applicable.

#### Major Activities:

- Supervised self-paced physics laboratory work in groups
- Group projects and individual projects
- Cooperative learning groups
- Board demonstrations
- Physics text reading and review
- Guided practice and class work problems
- Class demonstrations
- Homework
- Teacher-made chapter tests and quizzes
- Laboratory formal reports
- Final Exam

#### Student Responsibilities:

##### **General Expectations:**

- The student is responsible for maintaining a copious notebook for this course.
- A scientific calculator is also a necessity. It is recommended that every student owns his/her own calculator so the student can be familiar with how it works and be able to use it at home.
- The student is responsible to bring his/her textbook, notebook, calculator and writing utensil everyday to class.
- Work will not be accepted written in red pen, or any other light color. Work is expected to be legible and written with proper spelling and grammar. Improper abbreviations (e.g. b4, u, b/c etc) should not be used in written work.
- Appropriate classroom behavior is expected. As always, the most important rule is to **respect** others. This applies to the instructor as well as students.

- Science *is* questioning what you don't know. Asking a question when one does not understand is expected and extremely encouraged.
- Throughout the course, we will be using equipment that can be both fragile and expensive. The student is expected to respect the room and the equipment s/he uses in this class. As this class deals with focusing light rays, hot liquid, electricity, and nuclear physics, any student who willfully does unsafe things during labs will be given a zero. Continual problems will result in alternative assignments

**Attendance expectations:**

Physics is not a spectator sport, which means that to really learn physics you need to get deep into it, by doing hands-on activities like labs and projects and learning problem solving skills and doing homework problems. Attending class is the easiest way to achieve these goals. Studying often is necessary, and study skills may need to be adjusted. Often, missing lectures or labs will mean you miss vital information about the topics we are studying.

**Homework expectations:**

Much of the homework assigned in this class will be reading sections in the book and practice problems based on this reading and lecture. The student is expected to read each section assigned before the topics are discussed in class in order to have a basic understanding of the topic before in depth overview in class. Notes on the reading will often be required. All homework will be checked and will be part of your grade.

**Make-up work:**

The student is responsible for material and assignments covered in class regardless of absence. It is the student's responsibility to check with the teacher or online grading system to ascertain what assignments were missed. The student will have an amount of days equal to the amount of missed days to make up the assignment(s) missed.

- If a student misses class on a day of a test or quiz, the student will be expected to make up that test or quiz the next day the student returns.
- If a student misses class on a day of a lab, the student will have one week upon return to arrange a time to make up the lab.
- If a student misses class on a day any other assignment (homework, project, etc) is due, the student will be expected to turn it in on the first day the student returns.

**Late work:**

Late work will result in a deduction of points. This will vary by the assignment and the amount of days it is late.

A due date to an assignment or project may be moved based on the teacher's discretion or loss of days due to weather/in-school activities.

**Assessment:**

**Grading Components:**

This class uses a point system for its grading. The amount of points each assignment is worth will vary on length and importance. Grading will be recorded in the electronic grading system and will be updated regularly.

The student will be graded on the following components: Homework, Class work, Labs, Quizzes, and Projects. Summative Quizzes and Labs make up the majority of the grade. A typical project will be around 50 points. A quiz can range from 20 – 60 points. Labs can range from 10 – 40 points. Homework and class work range from 5 – 20 points.

Academic Integrity is expected to be upheld and will be monitored throughout the semester.

- Cheating is defined as copying from another on a test, quiz, lab, worksheet, assigned problems, or any other assignment. The student is reminded that there is a difference between "working together" and "copying." If the teacher determines that the student copied an assignment, the copier and the person he/she copied from may be penalized and the assignments may be reduced to zeroes.
- All written and project work submitted must be original work. This includes all captions for pictures in reports or on any posters. Changing a few words in a sentence, reorganizing parts of sentences, or altering sentence order in a paragraph does not constitute original work. Where appropriate, all sources used must be cited in proper format. If requested, the student must be able to produce all the sources that were used. Failure to produce sources when requested may result in a zero.

**Content Pacing Guide:**

<b>Topic</b>	<b>Major Assignments</b>	<b>Estimated Time</b>
Kinetic Molecular Theory and Fluid Mechanics	Gas Law Problems, Buoyancy Problems, Gas Law Labs, Summative Quiz	6 Blocks
Heat and Temperature	Heat and Energy Problems, Phase Change and Latent Heat Problems, Heat and Latent Heat Labs, Linear Expansion Lab, Summative Quiz	10 Blocks
Thermodynamics	1 <sup>st</sup> and 2 <sup>nd</sup> Law Problems, Mechanical Equivalent of Heat Lab, Summative Quiz	4 Blocks
Waves	Basic Wave Math Problems, Wave Interaction Problems, Waveport Tuning Fork Lab, Slinky Lab, Waveport Interference Lab, Standing Wave Activity, Summative Quiz	5 Blocks
Sound	Doppler Effect and Sound Speed Problems, Sound Intensity Problems, Harmonics Problems, Harmonics Waveport Lab, Beats Lab, Summative Quiz	5 Blocks
Light and Reflection	History of Light Activity, EM Spectrum Activity, Illumination Problems, Reflection and Mirror Problems, Optics Kit Reflection Labs, Polarization and Color Questions, Optics Kit Polarization and Color Labs, Summative Quiz	10 Blocks
Refraction	Refraction Problems, Lens Problems, Optics Kit Refraction Labs, Summative Quiz	6 Blocks
Diffraction and Interference	Diffraction Questions, Interference Problems, Optics Kit Diffraction and Interference Labs, Summative Quiz	4 Blocks
Electrostatics	Electrostatics Labs, Coulomb's Law Problems, Electric Field Problems, Electric Field Demonstrations, Summative Quiz	5 Blocks
Electric Energy and Current	Potential Difference Problems, Capacitance Problems, Current Resistance and Ohm's Laws Problems, Voltage Current and Capacitance Demonstrations, Electric Power Problems, Summative Quiz	5 Blocks
Circuits	Drawing Circuits Activity, Parallel/Series Problems, Circuit Kit Labs, Summative Quiz	8 Blocks
Magnetism	Magnetic Field Demonstrations, Magnetic Flux and Magnetic Force Problems, Solenoid Demonstrations, Chapter Quiz	4 Blocks
Electromagnetic Induction	Magnetic Induction Questions, Generator/Motor Activities, AC Circuit and Transformer Problems, EM Waves Questions, Summative Quiz (All Magnetism)	6 Blocks
Atomic Physics	Quantization of Energy Problems, Photoelectric Effect Problems, Quantum Mechanics Problems, Summative Quiz	5 Blocks
Subatomic Physics	Rest Energy Problems, Einstein Movie Activity, Nuclear Decay Problems, Particle Physics Research/Presentation Activity	5 Blocks
Final Exam with Review		2 Blocks