



**PHYSICS—Mrs. Hedwall**  
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**Grade Level:** 11-12 High School

**Subject Area:** Science

**Course Number:** S405111

**Course Title:** Physics

**Course Length:** Full Year

**Prerequisite:** Physical Science or Chemistry, Algebra I

**Course Description:**

Physics is a year long laboratory course that focuses on forms of energy and their interactions. It investigates motion, forces, conservation of energy, momentum, heat, waves, light, magnetism and electricity. Critical thinking, mathematical problem solving, group projects and laboratory work are integral parts of this course. This course prepares students for future science classes in high school, college or vocational school.

**Standards and Benchmarks:**

The standards addressed in this course are the Minnesota Academic Science Standards for 9-12 Physics and Selected Nature of Science and Engineering Standards. These standards and benchmarks are covered in the following units.

**Aligned Learning Curriculum Guide:**

Unit	Time
Nature of Science and Measurement	2 weeks
Force and Motion	10 weeks
Energy and momentum – including potential and kinetic energy	5 weeks
Magnetism and Electricity	7 weeks
Waves	7 weeks
Heat	2 weeks
Engineering – Embedded in at least 2 additional units	3 weeks

**Scope and Sequence:**

Physics is an elective course that builds on the knowledge and skills from Physical Science. It prepares students for future high school and post-secondary science courses.

**Content-based Instructional Practices:**

This course uses inquiry activities, in an experimental setting, with strong emphasis on the content and the process of science. Students will explore physical and earth science concepts through both group and individual work. Activities may include laboratory experiments (both inquiry and structured), lectures, class discussions, demonstrations, mathematical problem solving, hands-on activities, projects, presentations, and engineering design activities (such as mousetrap cars or rockets)

**Assessments (on-going, formative and summative):**

Instruction should include formative assessment of prior knowledge, individual development of concepts and effectiveness of instruction. Examples of formative and summative assessments in this course can include informal observations, discussions with students, projects, laboratory reports, student demonstrations, oral presentations, portfolios/notebooks, quizzes and tests.

**Instructional Materials:**

Conceptual Physics, Hewitt

### **Technology and Internet:**

Students will use measurement/data-gathering equipment and Internet resources. Where appropriate and available, students and teachers should use electronic sensors and probes, electronic meters, computer simulations, multi-media presentations and electronic whiteboards.

### **Grading Policy:**

Accelerated Physics will follow the Highland Park Senior High School grading policy, with 20% Formative work and 80% Summative work.

Grades will be based on the following items:

Formative: Practice Problems, some of the lab work

Summative: Weekly Quizzes, Unit Exams, Midterm/Final exams, Projects, some of the lab work.

### **General Classroom Expectations**

Attend class every day

Be on time and prepared (**notebook, pencil, calculator, textbook, iPad**)

Be respectful of classmates and equipment

Come to class ready to learn

Take pride in your work and do your best

Be open to new ideas and be a good listener

Be willing to try things that may seem difficult

Always participate with the highest academic integrity and honesty

THINK and work hard...no giving up!

Have fun!

**Lab safety procedures are expected to be followed.** Students are expected to follow instructions and behave in a responsible manner. A copy of the lab safety expectations page is available in schoology or a printed copy may be requested from Ms. Hedwall

Topics are generally structured in in 2-week blocks to bring some predictability to the schedule and to help make sure students understand a topic before adding another layer or new direction to it.

*It is easier to keep up, than it is to catch up.* It is expected you are in class and using time wisely. Support resources are available in schoology. Please communicate with Ms. Hedwall if extra support is needed.

For specific information on assignments, as well as to follow your students grade, please access Schoology. If you have questions about the progress of your student, please feel free to contact me.

We're looking forward to a fantastic year!

PS: We would love help providing Batteries (AAA and 9V) and masking tape for lab work. If it is possible for you to donate either of these, we would greatly appreciate it ☺