



**Hull High School  
Introductory Physics Syllabus  
2021-2022**

**Class Information:**

Mr. Keith McKay

Room C109

Phone: 781-925-3000 ext. 2125

Email: [kmckay@town.hull.ma.us](mailto:kmckay@town.hull.ma.us) (parents/guardians)

Email: [kmckay@hullpublicschools.us](mailto:kmckay@hullpublicschools.us) (students)

**Dear Students, Parents, and Guardians,**

**My name is Mr. McKay, and I will be your Introductory Physics teacher for the 2021-2022 school year. This will be my fourth year teaching at Hull High School; I previously worked as a chemist for over 10 years, but in 2017 I decided to leave the commercial science industry to become a teacher. You will find that I am passionate and enthusiastic about all types of science, and my goal is to inspire others to become interested in science as well. I look forward to working with you as we all prepare for the 2022 Science MCAS!**

**Sincerely, Mr. McKay**

**COURSE OVERVIEW:**

The purpose of Introductory Physics is to provide science students with the tools to develop a foundational understanding of the physical world. In this course, students will study both conceptual and mathematical physics. Key topics that will be covered include motion and forces in one dimension, Newton's laws of motion, mechanical energy, work and power, thermal energy and heat, electricity and magnetism, mechanical waves, and electromagnetic waves. This course will stress laboratory investigation, the use of technology in science, critical-thinking and problem-solving skills. Instruction will consist of lectures, demonstrations, class discussions, independent work, and laboratory activities. This course is aligned with the 2016 Massachusetts Science and Technology/Engineering Curriculum Framework and will prepare students for the 2022 Introductory Physics MCAS exam.

## **COURSE MATERIALS:**

### **Textbook/Notebook**

This course will be based on the OpenStax High School Physics online textbook. A PDF file of this book will be posted on Google Classroom, and sections may be viewed at any time using a web browser (this is recommended). Students will also build their own personal physics notebooks using Google Classroom.

The OpenStax textbook can be found here: <https://openstax.org/details/books/physics>

### **Calculator**

Scientific calculators will be available in the classroom for students if needed, and students may use the Desmos calculator on their Chromebooks. Cell phone calculators will not be allowed to be used in class at any time. If students would like to purchase their own scientific calculators, a TI-30XIIS is recommended.

### **Chromebook**

Students will use their Chromebook/Google Classroom and various apps to organize class materials and to complete assignments. It is recommended that students provide a cover/case for their Chromebooks, a USB or Bluetooth mouse, and a pair of compatible headphones or earbuds.

## **ABSENCES:**

If a student is absent, the Hull High School policy is that they have double the number of days of absence to make up the work. Students are responsible for checking Google Classroom and Aspen to find any assignments that were missed during an absence. If you have any questions, please email me or speak with me immediately after returning to school.

## **GENERAL RULES AND EXPECTATIONS:**

As part of the Hull High School Academic Expectations, students will be competent problem solvers, effective writers and readers, and capable users of technology. Students are expected to attend class daily, be on time for class, and arrive prepared to learn. It is also expected that students will respect themselves and each other, take pride in their work, and always put forth their best effort. Cell phones are not allowed in class unless permitted by the teacher during special circumstances. Food is not allowed in class. Drinks are allowed if they are stored in a suitable container. Students in this course are required to come to class with all necessary materials including a charged Chromebook. Plagiarism of any form will not be tolerated. Separate sets of guidelines will be provided to outline detailed rules/expectations and day-to-day classroom procedures. Health precautions such as wearing a mask and practicing social distancing must be followed according to current guidelines.

**AFTER SCHOOL HELP AND MAKEUPS:**

I am available at the end of most school days unless there is a faculty meeting. If you have questions or need extra help, please do not hesitate to stop by. If you need to make up a missed test or lab, please speak with me ahead of time.

**COURSE CALENDAR:**

The following calendar is my estimate of when we will cover topics throughout the year. This calendar is subject to change based on class needs and our school schedule. Cumulative MCAS practice tests may be given at any time during the year. Instead of a standard final exam, a final project will be assigned after the science MCAS has been completed.

|                                 |                                    |
|---------------------------------|------------------------------------|
| <b><i>September</i></b>         | Intro to High School Science       |
| <b><i>October</i></b>           | Motion in One Dimension            |
| <b><i>November/December</i></b> | Forces and Newton's Laws of Motion |
| <b><i>January</i></b>           | Mechanical Energy                  |
| <b><i>February</i></b>          | Thermal Energy                     |
| <b><i>March</i></b>             | Waves                              |
| <b><i>April/May</i></b>         | Electricity and Magnetism          |
| <b><i>May</i></b>               | Wrap Up and MCAS Review            |
| <b><i>June</i></b>              | Intro Physics MCAS                 |
| <b><i>June</i></b>              | Final Project                      |

## **GRADING POLICY:**

Students will complete a wide range of assignments in this class including warm-ups, exit tickets, notes, classwork/homework, lab investigations, tests, and written assignments. Assignments are designed to help students understand new concepts and vocabulary, as well as to practice the skills that they will learn in Introductory Physics. Work may be accepted after assigned due dates for reduced credit. Grades will be posted regularly on Aspen, and I will use the following special codes: **A** (absent, counts as zero but can be made up for full credit), **M** (missing assignment, counts as a zero), and **R** (received but not graded). Acts of plagiarism will result in zeros for grades that cannot be made up, as well as possible administrative action.

### **Science Notebook**

Each day, students may complete a warm-up at the beginning of class and an exit ticket at the end of lessons. Students will also complete class notes after lessons and glossaries at the end of units. Notebook grades will be based on warm-up/exit ticket participation as well as completion of class notes and glossaries. Science Notebook assignments will be graded as **✓+** (100), **✓** (85), **✓-** (70) or **Not Accepted** (0). Late assignments will be graded as 75, 60, or 50 respectively. Science Notebooks will account for **20%** of a student's term grade.

### **Classwork/Homework and Lab Investigations**

Classwork/Homework will be given to practice new vocabulary and concepts, and may consist of worksheets, problem sets, multiple choice or open-response questions, math practice, and writing assignments. Classwork/Homework assignments will be graded as **✓+** (100), **✓** (85), **✓-** (70) or **Not Accepted** (0). Late assignments will be graded as 75, 60, or 50 respectively and may not be accepted after they have been reviewed in class. Lab investigations will happen as often as possible during the school year. As part of a lab, students may complete pre-lab questions, a procedure, observations, measurements, calculations, post-lab questions, and a conclusion. Grades for labs that are submitted late will be reduced by 30 points. Classwork/Homework and Lab Investigations will account for **50%** of a students' term grade.

### **Quizzes**

Open note quizzes will be given as often as possible. Quizzes may or may not be announced in advance. Point values for questions will be indicated on the quiz. Quizzes will account for **10%** of a students' term grade.

### **Tests**

Tests will be given at the end of each unit, and I will always try to announce them at least one week in advance. Tests will be aligned with lesson objectives and may consist of multiple-choice questions, short-answer questions, and larger open response questions. Point values for questions will be indicated on the test. After tests have been graded and returned to the class, test corrections may be allowed to recover missed points. Tests will account for **20%** of a students' term grade.