Physics 11

Course Outline

Course Overview

Physics 11 explores the world of motion and energy. It is designed to build students' knowledge of core physics concepts. The course focuses on four big ideas. An object's motion can be predicted, analyzed and described. Forces influence the motion of an object. Energy is found in different forms, is conserved, and has the ability to do work. Mechanical waves transfer energy but not matter. Physics 11 emphasizes real-life applications and helps students connect their learning to the world around them. Several virtual labs and one hands-on home lab deepen student understanding of content and scaffold important lab writing skills. Physics 11 provides a solid foundation for students carrying on to physics 12.

Course Content and Suggested Timelines

The suggested timeline is for students aiming to complete the course in one semester (5 months). Double the timeframes for two semesters (10 months).

Unit 1- Introductory Unit – Optional (Suggested time: 1 week)

In this unit, you may review some important math skills so you can be successful in this course. These include: scientific notation, unit conversions, graphing, algebra, and trigonometry.

Unit 2 - Motion (Suggested time: 4 week)

The big idea for this unit is: An object's motion can be predicted, analyzed and described. This unit deals with the concepts that are needed to describe motion, without any reference to forces. You will learn about vector and scalar properties, displacement, velocity, acceleration, and projectile motion. You will also learn how to graph these properties and how to analyze different graphs to determine displacement, velocity and acceleration. In Projectile Motion, you will learn about acceleration due to gravity and how to determine the displacement, velocity and acceleration of a projectile (ie: something thrown, dropped or shot). You will also use vectors and vector components to analyze projectile motion in 2 dimensions.

Unit 3 - Forces (Suggested time: 4 week)

The big idea for this unit is: Forces influence the motion of an object. This unit deals with contact forces and the factors that affect the size and direction of motion. You will learn about Newton's Law of motion, Free Body Diagrams, Net force in balanced and unbalanced systems. You will also learn about resistive forces like friction and spring forces. Additionally you will look at the force of gravity which is an action at a distance force and how it affects objects on Earth and elsewhere in the universe.

Unit 4 - Energy (Suggested time: 4 week)

The big idea for this unit is: Energy is found in different forms, is conserved, and has the ability to do work. In this unit you will learn about different types of energy including simple machines, electrical energy and circuits, Ohm's Law, Kirchhoff's Laws and thermal energy. You will also look at how energy is conserved in a closed system. Finally you will learn about power and how to determine the efficiency of machines.

Unit 5 – Mechanical Waves (Suggested time: 4 week)

The big idea for this unit is: Mechanical waves transfer energy but not matter.
In this unit, you will learn about the properties of waves, how they travel, how they interact with each other and solid objects, and finally take an in-depth look at sound.

Course Materials

A textbook is not required for this course. There is an online textbook for this course that is linked in the lessons.

If you would prefer to have a hard copy textbook then I would recommend **"Physics: Principles and Problems," by Merrill**. If you are a cross-enrolled student, then I would recommend checking with your home school library to see if they can lend you a copy.

The curriculum for this course can be found at: Physics 11 new curriculum

Assessment Information

Show Your Learning	15%
Self-Check Quizzes	15%
Unit Tests	20%
Labs	30%
Midterm Exam	10%
Final Exam	10%

Show Your Learning: (15%)

For each unit there are at least three Show Your Learning assignments. These assignments are displayed on the course website and can be accessed directly from there. You may use your notes and other resources to help you with the assignment. These assignments are to be done on paper so you can show all your work. When you have completed your assignment, you will need to either scan them or photograph the pages so you can upload them directly to Moodle. Once the assignments have been marked you can view the mark and feedback in your gradebook.

Self-Check quizzes: (15%)

At the end of each section you will be given a brief quiz on the topic learned. You may use your notes and other resources to answer them. You have 1 attempt on each quiz. Your quiz mark will be given to you immediately and your gradebook will be updated.

Unit Tests: (20%)

There are four unit tests in this course. Please note that all unit tests are "CLOSED BOOK" tests, which means that you are not permitted to use any other reference materials to help answer the questions. ***You are permitted to use your formula sheet and your calculator***. Your unit tests must be **supervised by a parent or trusted adult.** A supervisor from can be found in the motion unit before you write your first unit test. This needs to be filled out and the passwords will be sent to that supervisor.

Labs: (30%)

Labs are an important part of science and are necessary to build lab-specific skills. This course contains virtual interactive labs as well as one home lab. The virtual interactive labs help you make connections between the course material and real-life physics. In addition, these labs guide you in writing a laboratory report. The home lab is to be done at home and you will be able to choose between several labs. Please note that all lab materials are common materials and the lab is safe to perform at home.

Midterm: (10%)

There will be a midterm exam for physics 11 covering the Motion and Forces units. The exam is CLOSED BOOK, which means that you are not permitted to use any other reference materials to help answer the questions. ***You are permitted to use your formula sheet and your calculator***. Your Midterm exam is to be ***INVIGILATED VIRTUALLY by an EBUS approved invigilator***.

Please **contact me AT LEAST 1 week prior** to when you want to write your midterm exam.

Final Exam: (10%)

There will be a final exam for physics 11 covering the Energy and Mechanical Waves units. The exam is CLOSED BOOK, which means that you are not permitted to use any other reference materials to help answer the questions***. You are permitted to use your formula sheet and your calculator.*** Your Final exam is to be ***INVIGILATED VIRTUALLY by an EBUS approved invigilator.*** Please **contact me AT LEAST 1 week prior** to when you want to write your final exam.

Supervised and Invigilated Exams:

Supervised exams are exams that can be taken at home with parent or other adult supervision. All unit tests are to be supervised by an adult.

Invigilated exams are exams that need to be invigilated by EBUS approved invigilators. There are two invigilated exams for physics 11: the midterm and the final exam.

When students are not meeting the learning outcomes/ falling behind

When students fall behind the expected pace or plan, they will be contacted via email or phone and if there is no improvement or response, parents will also be contacted. If deemed necessary, contact with the student's home school may also occur to help determine a solution.

Students are expected to let the course teacher know when they are struggling with course content. In response, the course teacher will provide appropriate help or strategies to support learning. The course teacher will also provide feedback on course work to support learning and help students improve. Parents will be made aware if their child is actively working but struggling to meet the learning outcomes of the course.

Students falling behind in a manner where it does not appear that they will complete the course within a year will be sent reminder emails. Without a response or renewed efforts in the course, the student may be assigned an F or withdrawn. Should they begin actively working in the course, the student may be given an alternate completion date.

Expectations

- Adhere to the EBUS Academic Integrity Policy
- Contact your teacher when help is needed
- Review feedback from assignments and tests, where applicable
- Work to complete the course in a timely manner
- Communicate respectively
- Review weekly progress reports

Reporting to Parents:

There are 4 term report cards that can be downloaded from the student dashboard. A notice will go out when these report cards are available.

Every week that EBUS is in session the teacher will send out a progress report showing the student's progress.

Contacting Your Teacher:

Please do not hesitate to contact your teacher when help is needed.

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