



Physics
Course Syllabus 2021-2022
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Course Description

This course explores the core topics associated with forces and interactions, energy, and waves and their technological applications. The relationships between key physical and earth science principles are also featured, including plate tectonics and space systems. Successful completion of this course earns one required science credit. (Prerequisite: Algebra II)

Goals for Student Learning & Course Outline

Unit 1- Kinematics I

Constant Velocity, Acceleration, Free Fall

Unit 2- Kinematics II

Vector Addition, Projectile Motion

Unit 3- Forces and Laws of Motion

1st Law Inertia/Equilibrium, 2nd Law $F=ma$, Friction, Inclined Planes, 3rd Law Action and Reaction Pairs, Uniform Circular Motion, Centripetal Acceleration, Centripetal Force, Universal Law of Gravitation and Kepler's Laws

Unit 4- Work Energy and Power

Work, Energy, Potential Energy (Gravitational and Elastic), Kinetic Energy, Energy Conversions, Energy Conservation, and Mechanical Energy, Work Kinetic Energy Theorem, Earth's Energy Budget, Kinetic Energy of Crater Impact Lab, Power

Unit 5- Momentum and Collisions

Momentum and Changes in Momentum, Momentum-Impulse Change Theorem, Conservation of Momentum, Collisions- (Elastic, Inelastic, and Perfectly Inelastic)- And Energy Conservation with, each, Plate Tectonics and Collisions Lab

Unit 6- Electricity and Magnetism

General Electrostatics, Static Electricity, Coulomb's Law, Electric Field, Ohms' Law, Circuits, Magnetic Fields- current and field strengths, Electric motor

Unit 7- Waves

Simple Harmonic Motion, Mass-Spring System (Hooke's Law), Pendulum, Longitudinal and Transverse Waves, Wave Properties, $v=\lambda f$, Interference, Standing Waves, Sound Waves, Speed of Sound in Air & Triangulating Sound Source, Seeing What You Hear Lab, Doppler Shift, Light Waves, Reflection, Spherical Mirrors, Refraction (Earth's Layers Lab), Total Internal Refraction, Lenses, Telecommunications, EM Technological Devices Research Project, Star Formation, Big Bang Theory (revisit Doppler Shift)

Textbook and Materials

Hewitt, Conceptual Physics (Hard copy)

<https://flexbooks.ck12.org/cbook/ck-12-physics-flexbook-2.0/?referrer=special> (online)

- Paper, pencil/pen, scientific calculator, and closed-toed shoes (no sandals or flip-flops) for some activities.
- Class Documents – All copies of class documents, including chapter outlines and lab manual activities, will be provided. It is each student's responsibility to bring these documents to class each day.
- Three Ring Binder – All classroom documents should be organized in a 2-3 inch three-ring binder that is used only for physics.

HCPS Grading Policy

Examples of Product, Process, and Practice		
PRODUCT (50%) <i>Culminating Demonstration of Knowledge</i>	PROCESS (30%) <i>Addressing Specific Short-Term Learning Outcomes</i>	PRACTICE (20%) <i>Building Attitudes, Habits, and Skills</i>
Does it measure how well students achieved specific learning goals, standards, and/or competencies?	Does it provide feedback to students regarding growth towards the attainment of specific learning goals, standards and competencies?	Does it allow students to practice skills and/or reinforce content learning?
<ul style="list-style-type: none">• Primarily completed in presence of teacher• Rubric aligned to standards• Accuracy graded	<ul style="list-style-type: none">• Primarily completed in presence of teacher• Rubric aligned to standards• Accuracy graded	<ul style="list-style-type: none">• Graded for completion and participation

****Extra credit will not be given for non-academic purposes****

Absent Work Policy

All assignments should be submitted on time. Students will be given the number of class periods equal to the number of lawful class periods absent to turn in completed make up assignments without penalty.

Late Work Policy

All assignments should be submitted on time in order to earn full credit. Any assignment, (*product, process, or practice*) will be allowed to be turned in late for one letter grade deduction from the grade a student earns on the assignment. In order to earn credit for late assignments, students must submit assignments by the end of the day on Wednesday (except for the last week of the quarter) following the designated HAC update. Students are only able to submit

assignments that have an established due date within the grading window before the designated HAC update. Assignment that are turned in for late credit will be identified by a footnote in HAC to include a statement about the deduction of a letter grade due to the lateness of the assignment.

Grading Window	Designated HAC Update	Late Work Due Date
September 8- September 24	September 24	September 29
September 27- October 13	October 13	October 20
October 14- October 29	October 29	November 5 (Friday)
November 8- November 19	November 19	November 24
November 22- December 10	December 10	December 15
December 13- January 13	January 13	January 21 (Friday)
January 24- February 11	February 11	February 16
February 14- February 25	February 25	March 2
February 28- March 11	March 11	March 16
March 14- March 25	March 25	March 31 (Thursday)
April 1- April 22	April 22	April 27
April 25- May 6	May 6	May 11
May 11- May 20	May 20	May 25

Academic Integrity

Academic integrity is taking responsibility for the quality and completion of one's own work. Academic dishonesty is taking someone else's work and claiming it as one's own. Students at Bel Air High School are responsible for knowing what is considered to be Academic Dishonesty and the subsequent consequences. More information can be found in the BAHS Student Planner.

Classroom Rules and Procedures

- Always try your best
- Listen and follow directions
- Be respectful to the teacher and other students
- Safety First: Keep hands, feet, and objects to yourself

Cell Phone Policy

- Students will place their cellphones in a teacher designated area as they enter each classroom. Teachers will review with students the specific location for each room. The phones will remain in the teacher designated area unless teachers explicitly tell students to take out the phones for instructional use.
- Cellphones will remain in the teacher designated area during bathroom visits, assemblies and trips to the nurse/counseling office/main office.
- Cellphones will be retrieved from the teacher designated area at the end of class at the direction of the teacher.
- School-appropriate cellphone use is permitted during class changes and lunch. Students are not permitted to make phone calls during school hours.
- If the cell phone policy is violated, it is a referable offense.