The mission of Hermon High School is to prepare students for personal success in college, work, and community.

Conceptual Physics

Instructor:
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This half-year course is designed to introduce the student to the content and applications of physics, to increase the student's confidence in science, and to prepare the student for further study in this field. It will address the Learning Results content standards in the area of physics, including the study of dynamics, kinematics, and wave phenomena and electromagnetism. Topics may include motion, forces, momentum, energy, waves, sound and light, and electricity and magnetism. Laboratory activities will be a major part of this course. Juniors who successfully complete this course will be prepared for more intensive study of physics in their senior year

Graduation Standards (the number of the standard is referenced in the performance indicators listed in each unit):

PHYSICAL SCIENCES STANDARD:
3: ENERGY, WAVES, AND ELECTROMAGNETIC RADIATION
2: FORCES AND MOTION

Unit 1	**Introduction to Physics: Part A Motion**
Summary	• Differentiate between velocity and acceleration • Utilize equations to predict motion • Falling body as a real life example
Performance Indicators Assessed in Unit	2A. Use motion and kinematic equations in one dimension to calculate acceleration, velocity, time, and displacement.

Unit 2	**Introduction to Physics: Part B Force**
Summary	• Define interia • Understand the relationship between Newton's law and Motion • Differentiate between mass and weight
Performance Indicators Assessed in Unit	2C. Use Newton's Laws of Motion to precisely calculate an object's change in motion when a net force is applied.

Unit 3	**Part A Work and Energy**
Summary	• Define common types of energy • Understand the relationship between conservation of energy and Motion • Use conservation of energy concept to explain real world phenomenon
Performance Indicators Assessed in Unit	3A. Understand that all energy can be considered to be either kinetic or potential and can involve both work and power.

Unit 4	Part B Simple Machines and Momentum
Summary	• Define simple machines • Understand the simple machines impact on life • Use the relation between momentum and impulse to explain real world phenomenon
Performance Indicators Assessed in Unit	3B. Demonstrate knowledge of conservation of momentum and impulse.
Unit 5	**Electricity**
Summary	• Define electricity • Relate motion, force and energy to electricity
Performance Indicators Assessed in Unit	3D. Demonstrate series and parallel resistors and accurately calculate voltage, resistance, and current in a circuit.
Unit 6	**Waves and Sound**
Summary	• Define waves • Define wave interactions • Relate wave characteristics to sound and human's perception of sound
Performance Indicators Assessed in Unit	3E. Demonstrate properties of waves and their interactions.