

## **Physical Science Curriculum Overview**

### **Description:**

The Physical Science course includes a variety of topics: the scientific method, standards of measurement, force, work, energy, motion, velocity, acceleration, waves, sound, electricity, phases of matter, classification of matter, atomic structure, and chemical bonds. The course topics are directly correlated to the "Massachusetts Curriculum Framework in Science." As such, the students will be prepared to take the Introduction to Physics MCAS exam. Students will conduct experiments to enhance their learning experience.

### **Learning Experiences:**

- Make observations, raise questions and formulate hypotheses.
- Students use basic algebra skills to solve scientific problems.
- Students write informative essays on Newton's laws and thermal energy transfer.
- Students communicate scientific ideas through writing and graphing.
- Students conduct hands-on and virtual laboratory experiments.
- Students gather and take notes from science textbook and other sources.
- Students keep an organized, chronological binder of all notes, handouts, laboratories, and assessments.

## Content Outline:

### Term 1

Scientific Skills: measurement techniques, unit conversions, scientific problem solving

Motion: frames of reference, scalars and vectors, calculating motion

### Term 2

Forces: Newton's laws, free-body diagrams, friction, gravity, momentum

Work and Power: work-energy theorem,

Energy: forms of energy, law of conservation of energy, energy-mass relationship

### Term 3

Thermal Energy: movement of heat, kinetic theory of matter

Waves: mechanical waves, sound

### Term 4

Electricity and Magnetism: static electricity, electric circuits, electromagnetism

Matter: structure of atom, periodic table |

## Resources Used:

- |Wysession, Frank, & Yancopoulos. Physical Science: Concepts in Action. Pearson. 2009.
- Pearson SuccessNet Online: <http://www.pearsonsuccessnet.com>
- E-Instruction Student Response Systems
- Vernier Data Collection Laboratory Systems and Probeware
- Massachusetts Department of Education Science and Technology/Engineering Curriculum Frameworks |

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