

# Physical Science

## 1<sup>st</sup> Semester

CONTENT	DATE
<b>EXPLORATIONS IN PHYSICAL SCIENCE</b>	<b>August 6 - 7</b>
<ul style="list-style-type: none"><li>• What is Science?</li><li>• The Scientific Method</li><li>• Experiment: Making Observations</li><li>• The Metric System</li><li>• Scales</li><li>• Volume</li><li>• Experiment: Determining Volume</li><li>• Mass and Density</li><li>• Experiment: Determining Density</li><li>• Experiment: Density Column</li></ul>	
<b>MOTION AND FORCES</b>	<b>August 10 - September 4</b>
<ul style="list-style-type: none"><li>• Distance and Displacement</li><li>• Speed and Velocity</li><li>• Acceleration</li><li>• Motion Graphs</li><li>• Experiment: Motion Graphs</li><li>• Momentum</li><li>• Project: Virtual lab — Conservation of Momentum</li><li>• Forces</li><li>• Friction</li><li>• Newton's Laws</li><li>• Project: Virtual Lab — Newton's Laws</li><li>• Experiment: Propulsion</li><li>• Centripetal Force</li><li>• Project: Virtual Lab — Circular Motion</li></ul>	
<b>WORK AND ENERGY</b>	<b>September 7- October 2</b>
<ul style="list-style-type: none"><li>• Forms of Energy</li><li>• Work</li><li>• Mechanical Energy</li><li>• Conservation of Energy</li><li>• Experiment: Potential and Kinetic Energy</li><li>• Power</li><li>• Simple Machines; Levers</li><li>• Mechanical Advantage and Efficiency</li><li>• Pulleys; Wheels and Axles</li><li>• Inclined Planes, Wedges, and Screws</li><li>• Project: Virtual Lab — Simple Machines</li><li>• Experiment: Inclined Planes</li><li>• Project: Virtual Lab — Projectiles</li></ul>	

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<b>HEAT FLOW</b>	October 5 - 9
<ul style="list-style-type: none"><li>• Thermodynamics and Entropy</li><li>• Specific Heat Capacity</li><li>• Heat Flow</li><li>• Experiment: Insulators</li><li>• Heating Systems</li><li>• Experiment: Heat and Expansion</li><li>• Cooling and Refrigeration</li><li>• Heat Engines</li></ul>	
<b>WAVES</b>	October 19-November 13
<ul style="list-style-type: none"><li>• Waves and Energy Transfer</li><li>• Types of Waves</li><li>• Properties of Waves</li><li>• Experiment: Changing the Speed of a Wave</li><li>• The Behavior of Waves</li><li>• Sound Vibrations</li><li>• Detecting Sound</li><li>• Project: Virtual Lab — Sound</li><li>• Experiment: Using Vibrations to Produce Sound</li><li>• Doppler Effect</li><li>• Project: Virtual Lab — Doppler Effect</li><li>• Beats, Resonance, and Harmonics</li><li>• Light and the Electromagnetic Spectrum</li><li>• Properties of Light</li><li>• Reflection and Mirrors</li><li>• Experiment: Law of Reflection</li><li>• Lenses</li><li>• Project: Virtual Lab — Light</li></ul>	
<b>ELECTRICITY AND MAGNETISM</b>	November 16-December 11
<ul style="list-style-type: none"><li>• Electricity</li><li>• Experiment: Static Electricity</li><li>• Currents and Circuits</li><li>• Project: Conductors</li><li>• Experiment: Wet Cell</li><li>• Project: Electric Objects</li><li>• Electrical Use and Safety</li><li>• Project: Fuses</li><li>• Magnetism</li><li>• Experiment: Use a Magnet</li><li>• Experiment: Make a Magnet</li><li>• Experiment: Magnetic Poles</li><li>• Experiment: Testing a Magnet</li><li>• Experiment: Generate Electricity</li><li>• Experiment: Electromagnet</li></ul>	

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THE STRUCTURE OF MATTER

January 4 - 29

- The History of Atomic Theory
- Experiment: Atomic Structure
- The Atomic Model
- Elements and Their Properties
- The Periodic Table
- Trends on the Periodic Table
- Experiment: Identifying an Unknown
- Compounds
- Mixtures
- Separating Mixtures
- Experiment: Separating a Mixture

MATTER AND CHANGE

February 1-March 5

- States of Matter
- Changes of State
- Experiment: Graphing Changes of State
- Solutions—The Dissolving Process
- Acids and Bases
- Experiment: The Cabbage Indicator
- Chemical Bonding
- Atomic Structure and Bonding
- Experiment: Chemical Changes
- Chemical Reactions and Conservation of Mass
- Types of Chemical Reactions
- Radioactivity
- Nuclear Reactions
- Experiment: Half-Life
- Nuclear Energy

STATES OF MATTER

March 8-April 23

- Properties of Solids
- Experiment: Comparing Hardness and Density of Solids
- Elasticity and Strength in Solids
- Electrical Conductivity in Solids
- Quiz 1: Solids
- Characteristics of Liquids
- Experiment: Viscosity
- Pressure in Liquids
- Archimedes' Principle and Flotation
- Liquids and Capillary Action
- General Characteristics of Gases
- Pressure and Volume in Gases
- Experiment: Pressure in Gases
- Temperature and Volume Changes in Gases

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CONTENT	DATE
FLEX WEEK	April 26 - 30
EOC REVIEW/EOC ADMINISTRATION	May 3 - 7
SPECIAL PROJECTS	May 10 - 21
FINAL EXAMS	May 24 - 28