



**Catholic  
Memorial**  
HIGH SCHOOL

## Year Long Course Plan

**Department: Science**

**Course: General Physics 752/753**

**Essential Learning Outcomes:** After successfully completing this course, students will be able to:

- I. Demonstrate an understanding of:
  - a. Scientific facts and concepts
  - b. Scientific methods and techniques
  - c. Scientific terminology
  - d. Methods of presenting scientific information.
- II. Apply and use:
  - a. Scientific facts and concepts
  - b. Scientific methods and techniques
  - c. Scientific terminology to communicate effectively
  - d. Appropriate methods to present scientific information.
- III. Construct, analyze and evaluate:
  - a. Hypotheses, research questions and predictions
  - b. Scientific methods and techniques
  - c. Scientific explanations.
- IV. Demonstrate the personal skills of cooperation, perseverance and responsibility appropriate for effective scientific investigation and problem solving.
- V. Demonstrate the manipulative skills necessary to carry out scientific investigations with precision and safety.

<i>Quarter 1</i>	<i>Quarter 2</i>
<p><b>Unit 01: Physics and physical measurement</b></p> <ul style="list-style-type: none"> <li>• The realm of physics</li> <li>• Measurement and uncertainties</li> <li>• Vectors and scalars</li> </ul> <p><b>Unit 02: Mechanics</b></p> <ul style="list-style-type: none"> <li>• Kinematics</li> <li>• Forces and dynamics</li> <li>• Work, energy and power</li> <li>• Uniform circular motion</li> </ul>	<p><b>Unit 03: Thermal physics</b></p> <ul style="list-style-type: none"> <li>• Thermal concepts</li> <li>• Thermal properties of matter</li> </ul> <p><b>Unit 04: Oscillations and waves</b></p> <ul style="list-style-type: none"> <li>• Kinematics of simple harmonic motion (SHM)</li> <li>• Energy changes during simple harmonic motion (SHM)</li> <li>• Wave characteristics</li> <li>• Wave properties</li> </ul>
<i>Quarter 3</i>	<i>Quarter 4</i>
<p><b>Unit 05: Electric currents</b></p> <ul style="list-style-type: none"> <li>• Electric potential difference, current and resistance</li> <li>• Electric circuits</li> </ul> <p><b>Unit 06: Fields and forces</b></p> <ul style="list-style-type: none"> <li>• Electric force and field</li> <li>• Magnetic force and field</li> </ul> <p><b>Unit 07: Atomic and nuclear physics</b></p> <ul style="list-style-type: none"> <li>• The atom</li> <li>• Radioactive decay</li> <li>• Nuclear reactions, fission and fusion</li> </ul>	<p><b>Unit 08: Energy, power and climate change</b></p> <ul style="list-style-type: none"> <li>• Energy degradation and power generation</li> <li>• World energy sources</li> <li>• Fossil fuel power production</li> <li>• Non-fossil fuel power production</li> <li>• Greenhouse effect</li> <li>• Global warming</li> </ul> <p><b>Unit 10: Relativity and particle physics</b></p> <ul style="list-style-type: none"> <li>• Introduction to relativity</li> <li>• Concepts and postulates of special relativity</li> <li>• Relativistic kinematics</li> </ul>

Template: Center for Catholic School Effectiveness 2006