

## Course Description:

MS Environmental Science (2 of 2) focuses on physical science concepts from physics to chemistry. This course begins with an introduction to the history of physics. Then, the course explores the fundamentals of physics, including graphing and Newton’s laws of motion. The second half of the course begins with an introduction to the history of the study of chemistry. The course then explores the different properties of matter, elements, compounds, and mixtures. MS Environmental Science (2 of 2) ends with a brief look at the current research that is taking place in these two areas of science.

## Course Objectives:

- Apply scientific processes to conduct investigations.
- Use logical thinking to identify relationships and draw conclusions.
- Examine how investigations and research in the physical sciences are important to gaining historical perspective and understanding the societal value of scientific advances.
- Evaluate topics in the physical sciences and chemistry to better understand motion, graphing, electricity, magnetism, energy, matter, elements, compounds, and mixtures.

## Required Materials:

In course.

## Schedule of Work:

Unit 1: Physics: Intro to Physics	Unit 2: Physics: Forces and Newton’s Laws	Unit 3: Physics: Electricity, Magnetism, and Energy	Unit 4: Chemistry: Matter and Properties	Unit 5: Chemistry: Elements, Compounds, Mixtures	Unit 6: Chemistry: Wrap Up
<ul style="list-style-type: none"> <li>• The Ancient Origins of Physics</li> <li>• The Scientific Revolution</li> <li>• Displacement</li> <li>• Velocity and Speed</li> <li>• Graphing Displacement</li> <li>• Graphing Velocity</li> <li>• Acceleration</li> </ul>	<ul style="list-style-type: none"> <li>• Position-Time Graphs of Complex Motion</li> <li>• Velocity-Time Graphs of Complex Motion</li> <li>• Contact and Field Forces</li> <li>• Friction</li> <li>• Inertia and the First Law of Motion</li> <li>• Balanced and Unbalanced Forces</li> <li>• Acceleration and Newton’s Second Law of Motion</li> <li>• Solving Problems with Newton’s Second Law</li> </ul>	<ul style="list-style-type: none"> <li>• Newton’s Third Law</li> <li>• Solving Problems with Newton’s Laws</li> <li>• Magnets and Magnetic Fields</li> <li>• Electricity and Magnetism</li> <li>• Potential and Kinetic Energy</li> <li>• Conservation of Energy</li> <li>• Waves and Their Properties</li> <li>• Behaviors of Waves</li> <li>• Applications of Waves</li> </ul>	<ul style="list-style-type: none"> <li>• Chemistry’s Ancient Origins</li> <li>• Chemistry Until Modern Times</li> <li>• Density</li> <li>• States of Matter</li> <li>• Physical Properties</li> <li>• Changes of State</li> <li>• Chemical Properties</li> <li>• Evidence of Chemical Change</li> </ul>	<ul style="list-style-type: none"> <li>• Elements</li> <li>• Atoms</li> <li>• Development of the Periodic Table</li> <li>• Trends in the Periodic Table</li> <li>• Groups in the Periodic Table</li> <li>• Elements and Compounds</li> <li>• Modeling Compounds</li> <li>• Mixtures</li> <li>• Solutions</li> </ul>	<ul style="list-style-type: none"> <li>• Chemical Reactions</li> <li>• Examples of Chemical Reactions</li> <li>• Oxidation</li> <li>• What are Acids and Bases?</li> <li>• The pH Scale</li> <li>• Modern Physics</li> <li>• Modern Chemistry</li> </ul>