

<b>DEPARTMENT: SCIENCE</b>	<b>COURSE TITLE. EARTH SCIENCE A (COLLEGE PREPARATORY)</b> <b>COURSE NUMBER: 216</b>
<b>GRADE(S): 9-12</b>	<b>PRE-REQUISITES (IF ANY):</b>

<b>UNIT</b>	<b>LENGTH</b>	<b>CONTENT</b>	<b>SKILLS</b>	<b>METHODS OF ASSESSMENT</b>	<b>FRAMEWORK STRAND(S) &amp; STANDARD(S)</b>
Rocks and Minerals	15 days	<ul style="list-style-type: none"> <li>• Chemical controls on mineral properties</li> <li>• Special properties of minerals</li> <li>• Mineral assemblages and specific rock types</li> <li>• Rock formation and the rock cycle</li> <li>• Human use of rocks and minerals</li> </ul>	<p>Students will:</p> <ul style="list-style-type: none"> <li>• Demonstrate familiarity with and ability to use the Periodic Table of Elements.</li> <li>• Identify and classify unknown rocks and minerals.</li> <li>• Take accurate notes.</li> <li>• Maintain notebook.</li> </ul>	<ul style="list-style-type: none"> <li>• Mineral and rock identification labs</li> <li>• Rock cycle lab</li> <li>• Quizzes and tests</li> <li>• Homework</li> <li>• Class discussions</li> <li>• Independent research</li> <li>• Organization and quality of notebook</li> </ul>	3.8 3.9 3.10 1.14
Tectonic Activity (Volcanoes, Earthquakes, and Plate Tectonics)	15 days	<ul style="list-style-type: none"> <li>• Volcanic activity</li> <li>• Earthquake occurrences, magnitudes, and locations</li> <li>• Impact of volcanoes and earthquakes on human society</li> <li>• Seismic waves and the interior structure of the Earth</li> <li>• Development of the theory of Plate Tectonics</li> <li>• Evidence supporting the theory of Plate Tectonics</li> <li>• Driving forces, processes, and effects of tectonic activity</li> </ul>	<p>Students will:</p> <ul style="list-style-type: none"> <li>• Graph correctly.</li> <li>• Plot locations using latitude and longitude.</li> <li>• Use a drawing compass.</li> <li>• Practice safe laboratory procedures.</li> <li>• Perform data analysis.</li> <li>• Synthesize disparate information.</li> <li>• Model processes.</li> <li>• Take accurate notes.</li> <li>• Maintain notebook.</li> </ul>	<ul style="list-style-type: none"> <li>• Location of an epicenter activity</li> <li>• Earthquake magnitude worksheet</li> <li>• S and P wave exploration</li> <li>• Quizzes and tests</li> <li>• Homework</li> <li>• Class discussions</li> <li>• Organization and quality of notebook</li> </ul>	3.13 3.14 3.15 3.18 3.19 3.20 3.21 3.22 1.3 1.14
Weathering and Erosion (Streams, Glaciers, and Mass Movements)	10 days	<ul style="list-style-type: none"> <li>• Processes, products, and effects of physical and chemical weathering</li> <li>• Soil formation and classification of soils</li> <li>• The roles of ice, wind, water, and gravity in causing erosion</li> <li>• Local effects of such</li> </ul>	<p>Students will:</p> <ul style="list-style-type: none"> <li>• Perform field observation and synthesize information.</li> <li>• Perform laboratory procedures and data analysis.</li> <li>• Model processes.</li> <li>• Take accurate notes.</li> <li>• Maintain notebook.</li> </ul>	<ul style="list-style-type: none"> <li>• Abrasion lab</li> <li>• Cemetery field trip</li> <li>• Fluvial processes lab</li> <li>• Quizzes and tests</li> <li>• Homework</li> <li>• Class discussions</li> <li>• Organization and quality of notebook</li> </ul>	3.1 3.2 1.14

Groundwater	5 days	<ul style="list-style-type: none"> <li>• The hydrologic cycle</li> <li>• The flow and storage of water underground</li> <li>• Porosity and permeability of soils</li> <li>• The impact of groundwater on humans and the human impact on groundwater</li> </ul>	<p>Students will:</p> <ul style="list-style-type: none"> <li>• Prepare contour map of groundwater levels.</li> <li>• Collect and analyze data.</li> <li>• Calculate percentages and rates.</li> <li>• Graph correctly.</li> <li>• Model processes.</li> <li>• Take accurate notes.</li> <li>• Maintain notebook.</li> </ul>	<ul style="list-style-type: none"> <li>• Mapping activity</li> <li>• Porosity/permeability lab</li> <li>• Quizzes and tests</li> <li>• Homework</li> <li>• Class discussions</li> <li>• Organization and quality of notebook</li> </ul>	<p>3.6 3.7 1.14</p>
Geologic Time and Local Geologic History	10 days	<ul style="list-style-type: none"> <li>• Geologic Time Table and Earth History</li> <li>• Absolute v/s relative dating</li> <li>• Radiometric dating</li> <li>• Index fossils as tools to determine age of rocks</li> <li>• Structures and age relations within rock formations</li> <li>• Geologic History of the Pioneer Valley</li> </ul>	<p>Students will:</p> <ul style="list-style-type: none"> <li>• Synthesize disparate information.</li> <li>• Demonstrate problem solving ability.</li> <li>• Calculate scale sizes.</li> <li>• Model concepts.</li> <li>• Take accurate notes.</li> <li>• Maintain notebook.</li> </ul>	<ul style="list-style-type: none"> <li>• Geologic time model</li> <li>• Age relation worksheets and models</li> <li>• Quizzes and tests</li> <li>• Homework</li> <li>• Class discussions</li> <li>• Organization and quality of notebook</li> </ul>	<p>3.11 3.12 1.14</p>