

DEPARTMENT: SCIENCE	COURSE TITLE. EARTH SCIENCE A (HONORS) COURSE NUMBER: 218
GRADE(S): 9-12	PRE-REQUISITES (IF ANY):

UNIT	LENGTH	CONTENT	SKILLS	METHODS OF ASSESSMENT	FRAMEWORK STRAND(S) & STANDARD(S)
Rocks and Minerals	15 days	<ul style="list-style-type: none"> • Chemical controls on mineral properties. • Special properties of minerals. • Mineral assemblages and specific rock types. • Rock formation and the rock cycle. • Human use of rocks and minerals. 	<ul style="list-style-type: none"> • Familiarity and use of the Periodic Table of Elements. • Identification and classification of unknown rocks and minerals. • Use of tertiary diagrams for classification. • Note taking. • Maintenance of notebook. 	<ul style="list-style-type: none"> • Mineral and rock identification labs • Rock cycle lab • Quizzes and tests • Homework • Class discussions • Independent research • Organization and quality of notebook 	3.8 3.9 3.10 1.14
Tectonic Activity (Volcanoes, Earthquakes, and Plate Tectonics)	15 days	<ul style="list-style-type: none"> • Volcanic and plutonic activity. • Earthquake occurrences, magnitudes, and locations. • Impact of volcanoes and earthquakes on human society. • Seismic waves and the interior structure of the Earth. • Development of the theory of Plate Tectonics. • Evidence supporting the theory of Plate Tectonics. • Driving forces, processes, and effects of tectonic activity. • Faulting and folding of rocks. 	<ul style="list-style-type: none"> • Graphing • Plotting locations using latitude and longitude. • Use of a drawing compass. • Safe laboratory procedures. • Data analysis. • Synthesis of disparate information. • Modeling of processes. • Note taking. • Maintenance of notebook. 	<ul style="list-style-type: none"> • Location of an epicenter activity • Earthquake magnitude worksheet • S and P wave exploration • Convection in the mantle lab • Quizzes and tests • Homework • Class discussions • Independent research • Organization and quality of notebook 	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"> • Processes, products, and effects of physical and chemical weathering. • Soil formation and classification of soils. • The roles of ice, wind, water, and gravity in causing erosion. • Local effects of such. 	<ul style="list-style-type: none"> • Field observation and synthesis of information. • Laboratory procedures and data analysis. • Modeling of processes. • Note taking. • Maintenance of notebook. 	<ul style="list-style-type: none"> • Abrasion lab • Cemetery field trip • Fluvial processes lab • Quizzes and tests • Homework • Class discussions • Organization and quality of notebook 	3.1 3.2 1.14

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