

Montclair High School

Course Syllabus

Department: Science

Course: Geoscience

Level: Honors

Credits: 5

Course Description:

This full year course introduces students to proper laboratory procedures and scientific methodology through an investigation of the Earth and Space based on a physical science perspective. The connection of our physical environment to deeper scientific principles and concepts will be developed through a thematic approach. Through this approach, students will be able to better understand their physical environment and the science behind the processes at work. They will apply physical science concepts to explain natural systems. They will learn to organize and analyze data through mathematical equations, to read and draw conclusions from a science text, and to write individual lab reports.

Standards:

NGSS:

PS 1-1, 1-2, 1-3, 1-8, 2-1, 3-5, 4-1, 4-3, 4-4

ESS 1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 2-1, 2-2, 2-3, 2-4, 2-5, 3-2, 3-4, 3-5

Anchor Text(s):

Text Title	Publisher/Author	Year/Edition	ISBN	Text Distribution
Earth Science	Pearson/Tarbuck	2015/4 th Edition	0-13-348037-2	Class set/online

Supplementary Materials:

For this course, you will need a notebook or binder exclusively reserved for Geoscience, as well as a scientific calculator. Additionally, it is highly suggested that students have a folder or binder where they can keep all of their handouts and worksheets.

Units of Study:

<ul style="list-style-type: none"> • Unit 1: Geochemistry <ul style="list-style-type: none"> • States of Matter • Atoms • The Periodic Table • The Structure of Matter • Minerals 	<ul style="list-style-type: none"> • Unit 3: Geomorphology & Climate <ul style="list-style-type: none"> • Motion & Forces • Natural Hazards • Geomorphology & Volcanology • Meteorology & Climate • Weathering & Erosion
<ul style="list-style-type: none"> • Unit 2: Continental Dynamics <ul style="list-style-type: none"> • Geologic Time Scale • Rocks • Plate Tectonics • Radioactive Decay • Seismology 	<ul style="list-style-type: none"> • Unit 4: Astrophysics <ul style="list-style-type: none"> • Origin of the Universe • Life Cycle of Stars and the Sun • Waves & Nature of Light • Newtonian Gravitation & Kepler’s Laws

Proficiencies:

By the end of this course, students will:

- Identify the steps of the scientific method and understand how this is used to solve problems including the use of controls, variables, and negative results.
- Identify the properties of matter and the structure of an atom
- Use scientific instruments correctly.
- Apply the metric system.
- Integrate algebraic and geometric principles into solving science problems.
- Describe and identify the types of bonding and chemical reactions.
- Apply physical principles to astronomical events.
- Understand the origin and evolution of Earth systems including the hydrologic cycle, rock cycle, weather, and plate tectonics.
- Identify different types of energy
- Apply chemical and physical properties to Earth Science topics
- Describe the nature of light and its behavior
- Identify common mineral and rock types of the New York/New Jersey metro area.

Evaluation & Assessment:

Several approaches to student assessment are used to evaluate student proficiency. These include tests, quizzes, homework, labs, projects, and classwork.

- Tests and Projects 40%
- Labs 25%
- Quizzes 20%
- Homework and Classwork 15%

Safety:

“Prior to beginning any lab activities, all students must have submitted a Safety Contract which has been duly signed by both the student and their parent/guardian. This contract will be kept on file by the teacher for the duration of the course.” Not adhering to the safety contract will result in a loss of credit for the lab.