



Marietta City Schools

District Unit Planner

Everything on the unit planner must be included in the unit curriculum approval statement.

Science Grade 6

Unit title	<i>Earth's Changing Landscape- Part 2 Rocks and Minerals</i>	MYP year	1	Unit duration (hrs)	22.5 Hours
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Mastering Content and Skills through INQUIRY (Establishing the purpose of the Unit): *What will students learn?*

GSE Standards

Standards

S6E5. Obtain, evaluate, and communicate information to show how Earth's surface is formed.

- b. Plan and investigate the characteristics of minerals and how minerals contribute to rock composition.
- c. Construct an explanation of how to classify rocks by their formation and how rocks change through geologic processes in the rock cycle.
- d. Ask questions to identify types of weathering, agents of erosion and transportation, and environments of deposition. (Clarification statement: Environments of deposition include deltas, barrier islands, beaches, marshes, and rivers.)
- e. Develop a model to demonstrate how natural processes (weathering, erosion, and deposition) and human activity change rocks and the surface of the Earth.
- g. Construct an argument using maps and data collected to support a claim of how fossils show evidence of the changing surface and climate of the Earth
- h. Plan and carry out an investigation to provide evidence that soil is composed of layers of weathered rocks and decomposed organic material

[GSE Sixth grade clarifications](#)

Prior Student Knowledge: (REFLECTION – PRIOR TO TEACHING THE UNIT)

- S3E1.** Obtain, evaluate, and communicate information about the physical attributes of rocks and soils. a. Ask questions and analyze data to classify rocks by their physical attributes (color, texture, luster, and hardness) using simple tests. (Clarification statement: Mohs scale should be studied at this level. Cleavage, streak, and the classification of rocks as sedimentary, igneous, and metamorphic are studied in sixth grade.)
- b. Plan and carry out investigations to describe properties (color, texture, capacity to retain water, and ability to support growth of plants) of soils and soil types (sand, clay, loam).
 - c. Make observations of the local environment to construct an explanation of how water and/or wind have made changes to soil and/or rocks over time. (Clarification statement: Examples could include ripples in dirt on a playground and a hole formed under gutters.)
- S3E2.** Obtain, evaluate, and communicate information on how fossils provide evidence of past organisms. a. Construct an argument from observations of fossils (authentic or reproductions) to communicate how they serve as evidence of past organisms and the environments in which they lived.

b. Develop a model to describe the sequence and conditions required for an organism to become fossilized. (Clarification statement: Types of fossils (cast, mold, trace, and true) are not addressed in this standard.)

S6E5. Obtain, evaluate, and communicate information to show how Earth's surface is formed.

a. Ask questions to compare and contrast the Earth's crust, mantle, and inner and outer core, including temperature, density, thickness, and composition.

Concepts/Skills to be Mastered by Students

- Mineral Formation
- Rock Strata
- Rock Cycle
- Weathering
- Erosion
- Land Features
- Deposition

Key Vocabulary: (KNOWLEDGE & SKILLS)

Minerals, Rocks, Igneous (Intrusive, Extrusive), Magma, Lava, Sedimentary, Compaction, Cementation, Metamorphic, Pressure, Heat, Rock Cycle, Weathering, Physical/Mechanical (Ice wedging, Abrasion, Pressure release (exfoliation), Plant root growth, Animal burrowing), Chemical (Oxidation (rust), acid rain, Lichen), Erosion (Mass wasting, V and U valley), Deposition (deltas, barrier islands, beaches, rivers, marshes), Formation, Sediment, Humus, Soil Horizon, Soil Profile, Topsoil, Chemical pollutants, Conservation (Terracing, Windbreaks, Contour plowing, Crop rotation, Conservation tillage)

Year-Long Anchoring Phenomena: (LEARNING PROCESS)

Earth is the only planet in our solar system that is able to support life.

Unit Phenomena (LEARNING PROCESS)

Indian Springs ([GaDOE Instructional Segment](#))

[Ellison Cave](#) - In this video of Cloudland Canyon, Allen Padgett from the Department of Natural Resources explains how caves and valleys in North Georgia were formed.

Possible Preconceptions/Misconceptions: (REFLECTION – PRIOR TO TEACHING THE UNIT)

- Students may think that shiny objects are all minerals and dull ones are rocks.
- Students may classify all rocks or minerals using only physical characteristics (color, weight, shape)
- Students may believe that rocks and minerals are the same thing.
- Students may not realize how much they use and need minerals and rocks.
- Students may think that all rocks are the same and made by the same process.

Key concept	Related concept(s)	Global context
Change Change is a conversion, transformation, or movement from one form, state, or value to another. Inquiry into change	Transformation (MYP) Energy (MYP/CCC)	Scientific and Technical Innovation Students will explore the natural world and its laws, the interaction between people and the natural world, how

involves understanding and evaluating causes, processes, and consequences.		humans use their understanding of scientific principles, the impact of scientific and technological advances on communities and environments, the impact of environments on human activity, how humans adapt environments to their needs.
Statement of Inquiry		
Scientific and technical innovations allow us to visualize, model, and explain changes to the Earth's surface.		
Inquiry questions		
<p>Factual—</p> <p>What are the characteristics of rocks and minerals? What is soil made of?</p> <p>Conceptual—</p> <p>How do rocks change?</p> <p>Debatable-</p> <p>Should farmers be held responsible for damage related to soil erosion?</p>		
MYP Objectives	Assessment Tasks	
<i>What specific MYP objectives will be addressed during this unit?</i>	<i>Relationship between summative assessment task(s) and statement of inquiry:</i>	<i>List of common formative and summative assessments.</i>

Sciences	<p>MYP B- b. Plan and carry out an investigation of the contribution of minerals to rock composition. - Analyze and interpret data to construct an explanation- Classify rocks and minerals: students will analyze and interpret data on the different types of rocks and minerals to classify them. How do geologists classify rocks and minerals?</p> <p>MYP C- h. Plan and investigate to provide evidence that soil comprises layers of weathered rocks and decomposed organic material. -- Plan and carry out an investigation- Students will devise a list of characteristics to determine the type of each soil sample. Why are different types of soil composed of different items?</p>	<p><u>Formative Assessment(s):</u></p> <p>Common Formative Assessments:</p> <ol style="list-style-type: none"> 1. Rock Cycle 2. Weathering, Erosion, Deposition, and Soil <p><u>Summative Assessment(s):</u></p> <p>Rock Summative Assessment</p>
<p align="center">Approaches to Learning (ATL)</p>		
<p>Category: Thinking Cluster: Critical-Thinking Skill Indicator: Use models and simulations to explore complex systems and issues. Gather and organize relevant information to formulate an argument.</p>		

<u>Learning Experiences</u>		
Objective or Content	Learning Experiences	Personalized Learning and Differentiation
B. Plan and investigate the characteristics of minerals and how minerals contribute to rock composition.	Be a Geologist: Students will categorize rocks and mineral samples by their characteristics (Include some samples, which can be online, from 6th-grade SS countries).	Scaffold notes and peer support for special education and ESOL
C. Construct an explanation of how to classify rocks by their formation and how rocks change through geologic processes in the rock cycle.	Rock Cycle Activity- Students will plan and investigate to explain the rock cycle.	Scaffold notes and peer support for special education and ESOL
e. Develop a model to demonstrate how natural processes (weathering, erosion, and deposition) and human activity change rocks and the surface of the Earth.	Weathering, erosion, and deposition Observation and Inquiry Activity- Students will explore the school grounds to identify examples of and ask questions about their observations of weathering, erosion, and deposition.	Scaffold notes and peer support for special education and ESOL
Content Resources		
Discovery Education Science Techbook - Unit 3 Rock Cycle, Unit 4 Weathering and Erosion, Unit 5 Natural Resources, Unit 1 Earth's History		