

Third Grade

Unit 4: Rocks and Minerals



Essential Questions

Science

- What are minerals?
- What are rocks?
- How are rocks and minerals alike and different?
- How do scientists classify rocks?
- How do scientists classify soils?
- How is soil formed?
- How do wind and water change rocks and soil over time?

Math

- What happens when your units of measure change?
- Why is it important to know the mass of an object?
- In what ways can we determine the mass of an object?
- What units are appropriate to measure mass?
- How are units in the same system of measurement related?
- What strategies could you use to figure out the mass of multiple objects?
- How are tables, bar graphs, and line plot graphs useful ways to display data?
- How can you use graphs to answer a question?
- How can graphs be used to display data gathered from a survey?

Social Studies

- What landforms can we find on our Earth?
- How do our landforms affect our daily lives?
- Why is it important to know our location in comparison to other cities in Georgia?
- What are some different landforms found on the Earth?
- How are landforms different across the Earth?
- What are the major oceans and continents on Earth?
- Where are the major oceans and continents on Earth?

Enduring Understandings

Science

- The earth is composed of mineral elements.

Rocks are composed of one or more minerals.
Rocks have physical characteristics (shape, color, texture).
Scientists classify rocks by using observation and simple tests.
Soil is composed of weathered rock, air, water, and humus.
There are three basic types of soil, each with different characteristics.
Scientists classify soils by observation and simple tests.

Math

Mass and liquid volume are important parts of everyday life and can be determined a variety of ways.
Larger units can be subdivided into equivalent units (partition).
The same unit can be repeated to determine the measure (iteration).
There is a relationship between the size of a unit and the number of units needed (compensatory principle).
Charts, tables, line plot graphs, pictographs, Venn diagrams, and bar graphs may be used to display data.
One way to compare data is through the use of graphs.
The scale increments used when making a bar graph is determined by the scale intervals being graphed.

Real World Connection/PBL:

In this Project-based Learning experience, students explore their local environment and describe conditions within a habitat that are beneficial for living things and those that are not good for living things. Individually, students will formulate and write a Habitat Report in which they introduce their chosen zoo animal, their opinion for the best habitat, and supply reasons that support the opinion, and provide a concluding statement or section. As teams, students will create and present their Habitat Plan "Sales Pitch" to zookeepers and local zoology students/professors as a team. Students will collaborate with local recycling agents, local zookeepers, and local zoology students to perform research to help support their opinions.

STEM Careers

Hydrogeological/Geochemical Engineer
Oiler
Underground Miner
Geologist
Geomechanics Scientist
Biogeochemist
Hydrogeologist
Geophysicist

Geoscientist

Vocabulary

Science

Rocks, soils, minerals, hardness scale, characteristics, scratch test, attributes of rocks, shape, color, texture, attributes of soils, texture, grain/particle size, color, absorption

Math:

chart, compare, data, equal to, less than, more than, same, table, tally mark

Science Standards

S3E1

Students will investigate the physical attributes of rocks and soils.

- Explain the difference between a rock and a mineral
- Recognize the physical attributes of rocks and minerals using observation (shape, color, texture) measurement, and simple tests (hardness)
- Use observation to compare the similarities and differences of texture, particle size, and color in topsoil (such as clay, loam potting soil, and sand).
- Determine how water and wind can change rocks and soil over time using observation and research.

Technology (websites and 21st Century Tools)

Presentation Development

Engineering (Implementation of STEM)

Habitat Restoration Engineer

Ecosystem Restoration Engineer

Ecologist

Environmental Engineer

Industrial Engineer

Mathematics

MGSE3.MD.2

Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one - step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.

Represent and interpret data.

MGSE3.MD.3

Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one-and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent 5 pets.

MGSE3.MD.4

Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units -whole numbers, halves, or quarter.

Social Studies Integration

S3G1

The student will locate major topographical features.

c. Locate the equator, prime meridian, and lines of latitude and longitude on a globe.

SS3G2

The student will describe the cultural and geographic systems associated with the historical figures in

SS3H2

a. Identify on a political map specific locations significant to the life and times of these historic figures.

b. Describe how place (physical and human characteristics) had an impact on the lives of these historic figures.

c. Describe how each of these historic figures adapted to and was influenced by his/her environment.

d. Trace examples of travel and movement of these historic figures and their ideas across time.

e. Describe how the region in which these historic figures lived affected their lives and had an impact on their cultural identification

SS4G1

The student will be able to locate important physical and man-made features in the United States.

a. Locate major physical features of the United States; include the Atlantic Coastal Plain, Great Plains, Continental Divide, the Great Basin, Death Valley, Gulf of Mexico, St. Lawrence River, and the Great Lakes.

Reading/Writing Integration

ELA3R3a reads a variety of texts...,

ELA3R3g summarizes text content,

ELA3R3h interprets information from illustrations, charts, graphs...,

ELA3W1c writes text...to address the topic,

ELA3W1d uses organizational patterns for conveying information,

ELA3W1j uses a variety of resources to research and share information on a topic,

ELA3LSV1b recall, interprets and summarizes information presented orally,

ELA3LSV1d listens to and views a variety of media to acquire informatio

