



# 3rd Grade - Science - Unit 1: Rocks and Minerals

Unit: Science, Grade(s) 3

Grade 3: Rocks and Minerals

Duration: 9 Weeks

## Unit

### Scope and Sequence

#### Topic: Rocks and Minerals

Duration: 9-10 Weeks

#### Performance Objectives

##### SWBAT:

- Differentiate between rocks and minerals IOT classify them by their properties.
- Relate the physical properties of rocks IOT determine their potential uses.
- Identify the environmental conditions during the formation of rock IOT identify them as sedimentary, igneous, or metamorphic rock.
- Observe the physical changes that occur in rocks and minerals IOT describe the results of weathering and erosion.

#### Key Terms and Definitions

**cleavage**-the process by which a mineral splits along a definite line.

**conglomerates**-a type of rock formed from rounded pieces of other rock

**erosion**- wear away (soil, rock, or land).

**geologist**-a scientist who studies rocks and minerals to learn more about the history of our earth

**glassy** -shiny and smooth

**hardness**-property of a mineral. Hardness is tested by scratching a mineral sample with different objects. The harder a mineral, the more difficult it is to scratch.

**identifying color**-the color of a mineral in powder form; determined by performing a streak test

**igneous** -a type of rock that forms when melted rock cools

**lodestone**-a form of the mineral magnetite; contains iron and acts as a magnet

**luster**-a property of a mineral. Luster is described by how the mineral reflects light.

**magma**-melted rock that is underground

**rock cycle**-The process by which rocks change to form new rocks. The changes in rocks are caused by many things, including heat, rain and snow, and underground pressure

**sedimentary**-a type of rock formed from sediments that are carried by wind or water, dropped, and cemented or packed together.

**weathering**- to age and break down as a result of the effects of wind, rain and ice.

#### Essential Questions

How is inquiry used to investigate our environment?

How do rocks and minerals cycle through our environment?

What are the similarities and differences between rocks and minerals?

How are rocks and minerals used?

What story of Earth's history can we gather from rocks and minerals?

How is weathering the preparation for erosion?

How does the study of rocks give us clues about the composition of the earth?

**Starting Points**

Many students are interested in rocks. Start by brainstorming and class discussions to allow them to share their ideas and questions about rocks. Studying properties of the Earth's materials follows a pattern in which students observe, describe, record and discuss their findings. Student should have the opportunity to solve problems, conduct experiments, or interpret and organize data using samples of various rocks and minerals in the classroom. Have them explore a sample or rocks and discuss their similarities and differences. As they do the teacher can assess the student's observing, describing and recording skills.

**Instructional Resources****Unit Assessment Questions**

[Click here](#) for assessment questions aligned to each objective in this unit. Use these questions as planning tools, formative assessment items, exit slip questions, or unit test questions.

Can be found in local library:

Non-Fiction

*Peterson First Guide Rocks and Minerals*, Frederick Pough

*A DK Pocket: Rock and Minerals*, Sue Fuller

*Eyewitness Books: Rocks and Minerals*, R.F.Symes

Videos:

YouTube:

<https://www.youtube.com/watch?v=XxoSUgIqQF0>

Other:

*Earth Science in Action-Minerals*, Schlessinger Science Library

*Weathering and Erosion*, Schlessinger Science Library

*All about Rocks and Minerals*, Earth Science for Children

Websites:

<http://www.ck12.org/earth-science/>

<http://interactivesites.weebly.com/rocks-and-minerals.html>

<http://www.rockhoundkids.com/>

<http://www.sciencekids.co.nz/sciencefacts/earth/rocksandminerals.html>

<http://www.kidsloverocks.com/>

**Slide shows of rocks, minerals, and rock cycle**

<http://www.scholastic.com/teachers/activity/rocks-minerals-and-landforms-12-studyjams-interactive-science-activities>

**Rock discovery lesson, including PDF handouts**

<http://www.uen.org/Lessonplan/preview.cgi?LPid=16293>

**Using a science journal to write about rock observations**

<http://www.readwritethink.org/classroom-resources/lesson-plans/does-garden-grow-writing-846.html?tab=1#tabs>

**Photos of common rock types**

<http://geology.com/rocks/>

**Sugar cube rock cycle activity**

<http://www.shellyssciencepot.com/Worksheets/RockCycle/Lab%20-%20Sugar%20Rock%20Cycle.pdf>

**Sample rock cycle activities**

<http://www.brightubeducation.com/lesson-plans-grades-1-2/60435-crayon-rock-cycle-plus-a-delicious-activity/>

**Bill Nye rocks and soil video**

<https://vimeo.com/117845069>



**Magic School Bus rocks and rolls video**

[https://www.youtube.com/watch?v=shf9tIC\\_Ddc](https://www.youtube.com/watch?v=shf9tIC_Ddc)

**Exploring rocks and minerals video**

<https://www.youtube.com/watch?v=F11-GE7YWuc>

**Eligible Content**

- S4.C.1.1 Describe observable physical properties of matter.
- S4.C.1.1.1 Use physical properties (e.g., mass, shape, size, volume, color, texture, magnetism, state (i.e., solid, liquid, and gas), conductivity (i.e., electrical and heat) to describe matter.
- S4.C.1.1.2 Categorize/group objects using physical characteristics.

**PA Standards**

- PA:3.3.3 Science as Inquiry
  - Understand that all scientific investigations involve asking and answering questions and comparing the answer with what is already known.
  - Use simple equipment (tools and other technologies) to gather data and understand that this allows scientists to collect more information than relying only on their senses to gather information.
  - Use data/evidence to construct explanations and understand that scientists develop explanations based on their evidence and compare them with their current scientific knowledge.
- PA: 3.3.3.A1 Explain and give examples of the ways in which soil is formed.
- PA:3.3.3.A2 Identify the physical properties of minerals and demonstrate how minerals can be tested for these different physical properties.

**Next Generation Science Standards**

- 3-5-ETS1 Engineering Design Technological design is a creative process that can result in new inventions and innovations.
- 3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

**Common Core Standards**

- CCSS.ELA-LITERACY.SL.3.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 3 topics and texts*, building on others' ideas and expressing their own clearly.

**Additional Properties**

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