

## FIND THE MINERALS IN THE ROCKS

### STANDARDS

See summary of National Science Education Standards.  
 Original: <http://books.nap.edu/readingroom/books/nses/>

Standard Concept	General standard	Specific standard	General standard	Specific standard	General standard	Specific standard
Grade Level		K-4		5-8		9-12
Science as inquiry (A)	Abilities ... to do ... inquiry	A.1.4.1	Abilities ... to do ... inquiry	A.1.8.1	Abilities ... to do ... inquiry	A.1.12.1
		A.1.4.2		A.1.8.2		A.1.12.2
		A.1.4.3		A.1.8.3		A.1.12.3
		A.1.4.4		A.1.8.4		A.1.12.4
		A.1.4.5		A.1.8.5		A.1.12.5
				A.1.8.6		A.1.12.6
				A.1.8.7		
	Understandings about ... inquiry	A.2.4.1	Understandings about ... inquiry	A.2.8.1	Understandings about ... inquiry	A.2.12.2
		A.2.4.2		A.2.8.2		
		A.2.4.3		A.2.8.4		
		A.2.4.4		A.2.8.5		
		A.2.4.5				
		A.2.4.6				
Physical Science (B)	Properties of ... materials	B.1.4.1				
		B.1.4.2				
Earth Science (D)	Properties of Earth materials	D.1.4.1	Structure of Earth system	D.1.8.4		



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### INTRODUCTION

Rocks are made up of minerals. Different types of rocks are defined by the types and sizes of minerals that make up the rocks. The properties of the rocks are determined, in turn, by the minerals and the way the minerals are incorporated into the rocks.

### OBJECTIVES:

- To look more closely at rocks
- To see the connection between minerals and rocks
- To use mineral composition to describe and identify rocks

### MATERIALS:

- Paper
- Pencils
- Hand lens
- Ruler
- Assorted coarse-grained rocks, e.g., granite, sandstone, gneiss
- Rocks with some visible crystals such as porphyritic volcanic rocks
- Rocks with no visible minerals, e.g., obsidian, shale.

### PROCEDURE: (Student Instructions)

- 1) Look for minerals in the coarse-grained rocks.
- 2) Measure them.
- 3) Draw them, with labels and measurements.
- 4) Repeat with the porphyritic volcanic rocks and with the rocks without visible minerals.

### EVALUATION:

- 1) Organize the rocks according to the sizes of mineral grains in the rock.
- 2) Write descriptions of the various types of rocks in terms of the mineral size

### OPTIONS

- 1) Investigate the physical properties of the various types of rocks. For each rock, consider the following:
  - a) Does the rock crumble easily?
  - b) If possible, try to break the rock with a rock hammer. Wear Safety Glasses.
- 2) Describe each rock in terms of the physical properties.
- 3) Organize the rocks according to physical properties.
- 4) How does that organization correlate with the organization of the rocks according to sizes of mineral grains?



USEFUL REFERENCE:

GeoMan's Mineral and Rock Glossary

<http://jersey.uoregon.edu/~mstrick/MinRockID/MinRockGloss.html>

