

# Earth Material Detectives

Classify Earth materials by what they are and how people use them.

**4.8.c** “minerals, rocks, and ores; and”

NAME \_\_\_\_\_

DATE \_\_\_\_\_

## 1 READ AND MARK \_\_\_\_\_ Read it twice

**YOUR JOB** Circle each sentence that identifies a named material as a mineral, a rock, or an ore. Number the three circled sentences 1, 2, and 3 in reading order.

### A Find Near the Mountain Stream

- ① Deep below a mountain stream, a worker finds a clear, six-sided crystal. It is quartz, a mineral. A mineral is a natural, nonliving solid with a definite chemical makeup and an orderly crystal structure. Quartz forms when certain materials cool or when mineral-rich water leaves silica behind. People use quartz in glass and some electronic devices.
- ② Nearby, the worker sees granite on the cliff. Granite is a rock, not a mineral. It is made of several minerals joined together, often including quartz, feldspar, and mica. Rocks can form in different ways. Granite forms as melted rock cools slowly underground, so its mineral grains have time to grow large enough to see easily.
- ③ Some materials in the area are ores. An ore is a rock or mineral that contains a useful substance in an amount worth taking from the ground. Chalcopyrite is an ore because it contains copper, a metal people use in wires. Miners remove and process chalcopyrite to get copper. Not every mineral or rock is an ore, because it may not contain a useful material in a large enough amount.

## 2 ANSWER WITH EVIDENCE \_\_\_\_\_ Use the passage

1 What features of quartz show that it is a mineral?

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2 Why is granite a rock instead of a mineral?

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3 How did granite form, and why can its mineral grains be seen easily?

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4 Why is chalcopryite an ore?

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## 3 YOUR TURN \_\_\_\_\_ Your own words

Write exactly three sentences for a class display. In one sentence each, identify quartz, granite, and chalcopryite as a mineral, rock, or ore, and include one fact from the passage about each material.

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**PART 1 • READ AND MARK**

Circle each sentence that identifies a named material as a mineral, a rock, or an ore. Number the three circled sentences 1, 2, and 3 in reading order. Accept any marking that follows this job and points at the right text.

**PART 2 • ANSWERS**

| # | QUESTION                                                             | ANSWER                                                                                                                                       |
|---|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | What features of quartz show that it is a mineral?                   | <b>Quartz is a natural, nonliving solid with a definite chemical makeup and an orderly crystal structure.</b>                                |
| 2 | Why is granite a rock instead of a mineral?                          | <b>Granite is made of several minerals joined together.</b>                                                                                  |
| 3 | How did granite form, and why can its mineral grains be seen easily? | <b>Granite formed when melted rock cooled slowly underground. The slow cooling gave its mineral grains time to grow large enough to see.</b> |
| 4 | Why is chalcopryrite an ore?                                         | <b>It contains copper, a useful metal, in an amount worth taking from the ground.</b>                                                        |

**PART 3 • YOUR TURN (SAMPLE ANSWER)**

Quartz is a mineral with a definite chemical makeup and an orderly crystal structure. Granite is a rock made of several minerals joined together. Chalcopryrite is an ore that contains copper, which people use in wires.

Accept equivalent wording that correctly identifies quartz as a mineral, granite as a rock, and chalcopryrite as an ore. Each display sentence should include an accurate supporting fact from the passage.