

Earth Science Grade 4 Evaluation

Teacher Section

Overview Kids will demonstrate how well they understand important key concepts from this section.

Suggested Time 90 minutes

Objectives Students will be tested on the key concepts of geology:

- Minerals are the building blocks of rocks.
- Rocks are usually composed of two or more minerals (once in a while, rocks can be made from just one, but usually it's two or more).
- Minerals are naturally occurring nonliving solids made from a single kind of material.
- Minerals have a regular internal arrangement of atoms and molecules (called crystals).
- Each mineral has its own unique combination of different chemical elements.
- When atoms and molecules combine to make a mineral, they form a type of crystal.
- Each mineral has a unique set of properties and can be identified using a series of standardized tests.

Materials

- Coin
- Steel nail
- Plate glass
- Ceramic Tile (2)
- Handheld magnifier
- Scale
- Graduated cylinder or Pyrex glass 4-cup measuring cup
- Calculator
- Longwave UV light
- Shoebox
- Razor
- Tape
- Small bottle of acetic acid or distilled vinegar
- Disposable pie pan
- Disposable gloves
- Goggles

Rock Samples

- Talc
- Quartz
- Apatite
- Calcite
- Pyrite
- Hematite (red)
- Hematite (gray)
- Jasper
- Pumice
- Fluorescent minerals (3)
- Limestone
- Coquina
- Sandstone
- Optional: Meteorites (stony, iron)
- Optional: Tektite
- Optional: Magnet

Lab Preparation

1. Print out the student worksheets for the lab practical, homework assignment, and quiz
2. Prepare the lab stations for the lab practical. Refer to the student data worksheets for setup information.

Lesson: The students are taking two tests today: the quiz and the lab practical. The quiz takes about 20 minutes, and you'll find the answer key to make it easy to grade.

Lab Practical: Students will demonstrate that they know how to follow a set of written instructions for scientific investigation, identify and describe the physical properties of minerals, practice common identification techniques that field scientists use on minerals, Follow a set of written instructions for a scientific investigation, and measure or calculate the weight and volume of objects.

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Student Worksheet

Overview: Today, you're going to take two different tests: the quiz and the lab practical. You're going to take the written quiz first, and the lab practical at the end of this lab. The lab practical isn't a paper test – it's where you get to show your teacher that you know how to do something.

Lab Test & Homework

1. Your teacher will ask you to share how much you understand about Earth Science. Since science is so much more than just reading a book or circling the right answer, this is an important part of the test to find out what you really understand.
2. While you are waiting to show how much of this stuff you already know, you get to choose which homework assignment you want to complete. The assignment is due tomorrow, and half the credit is for creativity and the other half is for content, so really let your imagination fly as you work through it. Choose one:
 - a. Write a short story or skit about minerals from the perspective of the rock itself (like marble or granite). You'll read this aloud to your class.
 - b. Make a poster that teaches one of the main concepts of geology you enjoyed most. When you're finished, you'll use it to teach to a class to younger students and demonstrate the principles that you've learned.
 - c. Write and perform a poem or song about your favorite type of rock (fluorite, gypsum, conglomerate...). This will be performed for your class.