

EARTH SCIENCE

GRADE 2

ASSESSMENT PACKET

An introductory course that teaches the big ideas behind rocks, minerals, and the science of the Earth's crust. You'll learn how real scientists identify and compare different types of rocks, and minerals, and soils as you investigate rock formations and learn about the ways we use them as resources in our everyday lives!



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This curriculum is aligned with the National State Standards and STEM for Science.

Educational Goals

To the Teacher/Parent: Kids will demonstrate how well they understand important key concepts from this section. Some kids at this level are not reading quite yet, so you'll need to work together with them and observe them carefully as you go in order to understand what they know as they may not be able to tell you directly.

Overview: Students get to explore the stuff that the earth is made of: rocks, minerals, soils, water, and more in this beginning course in Earth Science. You'll learn how to identify which minerals that look the same but aren't, like gold and pyrite, along with minerals that don't look the same but are, like hematite. You'll also learn about the earth's resources and how we are finding better ways to use them every day!

Here are the scientific concepts:

- How to compare the physical properties of different kinds of rocks and that rock is composed of different combinations of minerals.
- Rocks, water, plants and soil provide many resources including food, fuel, and building materials that humans use.

By the end of the labs in this unit, students will be able to:

- Identify and describe the physical properties of minerals.
- Practice common identification techniques that field scientists use on minerals.
- Explore common ways to utilize renewable and nonrenewable resources, and where these resources can be found.
- Differentiate observation from inference (interpretation) and know scientists' explanations come partly from what they observe and partly from how they interpret their observations.
- Measure and estimate the weight, length and volume of objects.
- Follow a set of written instructions for a scientific investigation.

Earth Science Grade 2 Explorations

Teacher's Outline with Answers

Teacher/Parent: This is not a quiz. This is a chance for you to explore the key concepts with your student to you can understand what they know and where they still need work. Read each question aloud and do the action and invite the students discuss their answers with you to help them answer the questions. Answers and/or experiment references given in parenthesis. If you've completed the lab experiments, then you should have no trouble answering these questions. Feel free to grab the materials you used in the lab experiments as you go through the questions together.

Materials:

- Different rock samples (you can reuse the ones from the lab experiments)
- Unglazed porcelain tile (or bottom of a mug)
- Copper penny
- Steel nail
- Cup of warm water
- Cup of cold water
- Salt or sugar
- Measuring cups or spoons
- Spoon for stirring

Questions to Explore Together:

1. Imagine you have two gold colored samples. One is real gold, and the other is "fool's gold", or pyrite. How can you tell which one is which even though they are the same color? Do this now... (Use the unglazed tile to make marks on from the rocks. Different minerals leave different color trails. For example, real gold leaves a gold streak and pyrite leaves a green-black streak.)
2. Look at your rock samples. Put them in order of hardness. (Refer to *Mohs' Hardness* experiment.)
3. Can you dissolve more salt (or sugar) in warm or cold water? After your initial guess, make two saturated solutions using the cold and warm water separately. (Make a guess first. Then using the measuring cups/spoons, put one tablespoon or $\frac{1}{4}$ cup of salt (or sugar) into each cup and stir. Continue adding salt (or sugar) until there are small undissolved bits at the bottom. Now you have a saturated solution.)
4. Name three different types of crystals you encounter every day. (Salt, sugar, sand, diamond, quartz...)

Earth Science Grade 2 Evaluation

Student Worksheet

(Teacher: You'll need to go over the instructions with the kids and work with them on this part.)

Overview: You're going to show your teacher how much of this science stuff you already know. Choose one of the following activities:

- a. Make up a short story about the earth from the point of view of the minerals and rocks that make up the earth. You can act it out if you want to with costumes and everything.
- b. Draw a poster that teaches how plants store energy. When you're finished, you'll use it to teach your parent or teacher and demonstrate what you've learned.
- c. Using your knowledge from this section, grow a crystal using ingredients from the kitchen (salt, sugar, or laundry soap are good choices. Do not randomly mix together chemicals. You are to create a saturated solution using water and one other substance from the kitchen.) Expand on it to include new discoveries you've made and when it's ready, present it to your teacher and family by explaining not only what you did but also why you did it (why did you choose to make it out of mustard seeds, for example). You can also change what you grow the crystal on (try sponges, dishcloths...) Have fun!