

MINERAL RESOURCES

Subject

Basic science

Prepared By

[Instructor Name]

Grade Level

5

Overview

This lesson plan covers teaching content for;

1. Mineral resources
2. Identification of mineral resources in Nigeria

Objectives

Students should be able to;

1. Define a mineral resource.
2. Students will be able to identify the main mineral resources present in the Earth.

Activity Starter/Instruction

1. Start off the lesson with a fictional narrative about my walk home from work. *"Yesterday, I decided to walk home because it was a beautiful day. As I was walking home, I stopped several times because I noticed some things on the ground. First I came across this (fluorite.) I was drawn to its glassy green color so I picked it up. Then, a little further down the road, I came across this a yellow, dull looking item. As I continued my walk home, I kept finding more and more interesting things (now i pull out a bucket containing a variety of different minerals). When I got home, I realized I had a large collection of minerals and thought it was best to group (classify) them so I could keep track of them. The problem was, I had so many of them, I didn't know where to begin so I am going to ask you to help me. "*
2. At this time get the map of Nigeria listing the mineral resources in each state; consult the additional resources for an internet link where you can get that.

Teacher Guide

Day 1/ Lesson 1: 15 Mins

1. Begin by defining the term mineral on the board. I.e. mineral-a naturally made solid particle that has a regular arrangement of particles.
2. Break down the meaning of this definition because it can be complex for some students to understand.
3. Explain that minerals are not man-made substances nor plant or animal, meaning they have never been alive. Each mineral is a mix of different chemicals and arranged in certain ways and found in rocks and soil.
4. Continue explaining, "Scientists identify minerals by their physical properties, the way it looks, tastes, feels, or smells. Specific properties used to identify minerals include luster, streak, cleavage, shape, texture, and hardness."
5. Ask for student volunteer who will read loudly the mineral resources you have written on the board
6. Explain to students the uses of each mineral resource. For example

Materials Required

- science journal
- rock collections
- hand lens

Additional Resources

https://www.nasa.gov/pdf/326862main_Moo
<https://www.otffeo.on.ca/en/wp-content/uploads/sites/2/2014/07/Grade-4-Le>
<https://ecosystems.psu.edu/youth/sftrc/envir>
<https://www.wyomingmining.org/resources/e>

Additional Notes

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3. List on the board mineral resources we have in Nigeria.

Guided Practice

Day 2/ Lesson 2: 20 Mins

1. Set up mineral stations for each mineral the students are to identify. If necessary, some stations may have two minerals to identify.
2. Each station should be equipped with one each of the following items: Glass plate Penny, Streak plate (white unglazed porcelain), Magnet, Water, Balance Scale, Graduated cylinder (for specific gravity test), Steel Nail
3. Divide students into equal groups. Have the number of student groups match the number of mineral stations.
4. Distribute a Mineral Worksheet and Mineral Background sheet to each student. Have students read the Mineral Background sheet.
5. Assign each group to a mineral station and have students move to their assigned station to begin testing. Have the students perform the physical property tests listed on the Mineral Background sheet. Have students record the test results on the Mineral Worksheet.
6. Rotate the student groups through each of the work stations, performing the tests at each station. Allow 5 to 10 minutes per mineral per station.
7. Hand out Mineral Identification Sheets. (These sheets will be prepared by the

petroleum and natural gas, bitumen, coal. Iron ore, gypsum, gold, zinc and lead, gemstones etc

7. Once we finish the reading, I tell the students three more properties and have them record them in their booklet. Shape- a mineral's shape will cause it to break in certain patterns. Texture- the way a mineral feels when touched: gritty or sandy, waxy, smooth, sticky powdery, sharp etc. Smell- the odor of a mineral: Earthy, sour, sweet, rotten egg, etc

Guided Practice

Day 3/ Lesson 3: 15 Mins

1. Arrange students in small groups
 2. Give them all pictures of various stages in the extraction and production process and have them place them in order from the raw material to the finished product
 3. Encyclopedia Britannica has some good pictures that show the copper process.
 4. This will get the students thinking about the steps of taking a product from raw to processed state.
 5. Later in the lesson, they will consider the costs and benefits of this process
 6. Each small group will now list as many things around the classroom that are comprised of rocks and minerals (examples- chalk board, concrete walls, drywall, flooring, desk legs, fixtures, etc.)
 7. Ask for an example from each group and make a class list of materials in the classroom environment that contain
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teacher depending on the minerals available to use in the class. The sheets should include the name of the minerals and their physical properties.)

8. Have students compare their test results with the Mineral Identification Sheet. Can the students correctly name each of the minerals using their test results? Write the name of the mineral on the Mineral Worksheet.

rocks and minerals.

Assessment Activity

Assessment Activity

Summary
