

**Grade** 3

**Topic** Earth Science, Minerals

**Title** Digging Deeper Into Minerals

**Standards:**

- 3.1.2 Participate in different types of guided scientific investigations, such as observing objects and events and collecting specimens for analysis.
- 3.1.3 Keep and report records of investigations and observations using tools, such as journals, charts, graphs, and computers.
- 3.1.4 Discuss the results of investigations and consider the explanations of others.
- 3.1.5 Demonstrate the ability to work cooperatively while respecting the ideas of others and communicating one's own conclusions about findings.
- 3.2.3 Keep a notebook that describes observations and is understandable weeks or months later.
- 3.2.4 Appropriately use simple tools, such as clamps, rulers, scissors, hand lenses, and other technology, such as calculators and computers, to help solve problems.
- 3.2.6 Make sketches and write descriptions to aid in explaining procedures or ideas.
- 3.2.7 Ask, "How do you know?" in appropriate situations and attempt reasonable answers when others ask the same question.
- 3.4.1 Demonstrate that a great variety of living things can be sorted into groups in many ways using various features, such as how they look, where they live, and how they act, to decide which things belong to which group.
- 3.4.2 Explain that features used for grouping depend on the purpose of the grouping.
- 3.6.3 Explain how a model of something is different from the real thing but can be used to learn something about the real thing.
- 3.6.5 Observe that and describe how some changes are very slow and some are very fast and that some of these changes may be hard to see and/or record.

**Objectives:**

Students explore each mineral to fill out a "mineral profile sheet".

Students apply their observing and describing skills to investigate each of the 12 minerals.

(The properties the student focused on to do this were appearance, texture, ability to transmit light, whether it has magnetism and the shape.)

**Materials:**

- 1 set of 12 Mineral Profile Sheets per student
- 1 cardboard tray per pair of students
- 1 mineral at a time per pair of students, A - L
- 1 pen flashlight per pair of students
- 1 magnet per pair of students

## **Procedures:**

1. Ask students to think about the 12 minerals they observed in the previous lesson. Ask them to focus on one mineral as they think about the following questions:
  - What mineral are we working with, including its name?
  - Does the light shine through mineral? If so, how much – we discussed opaque- transmits no light, translucent- they transmit varying degrees of light and transparent-transmits most or all of the light, and wrote the word and definition on the board to use.
  - What does the mineral feel like?
  - Is the mineral shiny or dull?
  - Is a magnet attracted to the mineral?
  - What is the shape of the mineral?
2. Now ask students to look at mineral A.
3. Students wrote the letter of the mineral in the mineral box. They also identified the name of the mineral (which we had previously done) and wrote it underneath the small box.
4. We then looked at whether the penlight flashlight would shine through the mineral. We decided together which it was, opaque, translucent, or transparent.
5. We then felt the mineral to write its texture. (word choices were on the board – smooth, rough, bumpy, jagged)
6. We looked at its luster. We discussed how it could be shiny, metallic, some parts shiny, streaks, or dull. Students used word bank to decide what theirs was.
7. Next, we took a magnet to see if their mineral had magnetism or not.
8. Finally, they traced the shape of the mineral. Some also wrote the words also. (cube, rectangle, no specific shape)
9. This was repeated with as many minerals as possible (we usually finished 3 or 4 per session).

\*\*Since this was not completed in one session, the students papers were collected and in the next class the same procedure was used until all of the 12 minerals were complete. (The last boxes to be completed on the WS were streak, hardness and smell. We did those three components together in another session or two.) The students were given a cover and students could color it and color the minerals on the profile sheets in the shape box to look like the actual mineral.\*\*

## **Assessment:**

- Mineral Profile Sheet was assessed for accuracy.
- There were 10 areas assessed, each worth 1 point for a total of 10 points. (Some teachers graded spelling as well, then each area was worth two points each, being 20 points.)

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