# Lesson 1: Rock and Mineral Identification

## Objective:

The objective of this lesson is to explore the properties of mineral and rock samples.

Students will examine rocks to be able to identify several key properties each holds. Students will use touch/and or sound to differentiate between samples provide.

## NGSS:

ESS2.A: Earth Materials and Systems

## Essential Question:

1. How can various characteristics help to identify rocks and minerals?

## Materials:

* Mineral/rock samples that exemplify the properties to be explored. Possible examples include talc, graphite, halite, calcite, gypsum, quartz, fluorite, garnet, orthoclase, plagioclase, hornblende, biotite, muscovite, galena, pyrite, sandstone, limestone, granite, basalt, marble, slate, and shale.
* A small jewelry box labeled with a number in print or braille for each sample
* Paper or recording device for students to record their observations

*Note*. If you do not have a rock and mineral kit available at your school, you could contact the U. S. Geological Services for a kit or your state department of natural resources.

## Directions:

1. Ask students how they could differentiate between various rocks and minerals without having a key or knowing their name. [Answers vary.]
2. Discuss with students how they will be using touch and sound to differentiate between samples. Tell them that they can tap the rocks/minerals on their desks (not too hard), or they could touch them to determine overall feel or scrape a small part of the rock or mineral to see what happens.
3. Pass out the rocks and minerals that you have for the students.
4. Tell students to make sure to record their observations of each box given. They should number their paper based upon the number of boxes they will explore and then, beside each number, record their observations.
5. Have students use touch and/or sound to differentiate between samples. Some examples may require some manipulation (scratch tests).

## Examples:

* “greasy” feel (talc, graphite)
* “softness” (how it feels to test with a fingernail)
* hardness (how it feels to test on a scratch plate)
* crystal shape and/or cleavage
* conchoidal fracture (lack of cleavage)
* specific gravity (how heavy/light)
* texture (for clastic vs. crystalline rocks)
* crystal size (intrusive vs. extrusive rocks)
* acid test (whether a fizzing reaction can be heard)
* slate vs. shale (thump with your knuckle/on a table—slate will ring, shale is dull)
* Discuss with your students how they would begin to classify each rock/ mineral sample. [Answers will vary.]

## Extension Activity:

Challenge your students to create a dichotomous key for each of their samples.