

Third Grade: Adjectives with Rocks

Standards

Earth and Space Science 1: Earth's nonliving resources have specific properties.

Science Inquiry and Applications: Employ simple equipment and tools to gather data and extend senses.

Objectives

Students will...

Use the new vocabulary words to describe their observations

Explain the importance of using scientific language to communicate their thoughts

Investigate two characteristics of rocks: luster and hardness

Vocabulary

Adjective

Characteristics

Hardness

Luster

Materials

The book *A Rock is Lively* by Diana Hutts Aston

A mineral kit, which you can find online or at Walmart

Post-it notes

Preparation

Print out the luster guide and Mohs Hardness Scale.

Set up the stations: each station will have a pair of rocks and a copy of the luster guide and Mohs Hardness Scale. You can have as many stations as you like. Make sure to assign each rock a number.

1) Mini lesson

a) Hook: Read *A Rock is Lively* by Diana Hutts Aston.

(5 minutes)

b) Talk about the describing words in the book. Introduce the term *adjective*. Tell the students that we use adjectives to talk about the *characteristics* of different things in our lives. Ask the students to think of different characteristics of people: hair color, height, favorite food...

c) Explain to the students that when scientists make observations, they, too, use special terms to describe what they see. There are lots of different types of rocks, and they each have their own *characteristics*. Two of these characteristics are

luster and *hardness*. Today, you will be investigating the luster and hardness of different rocks.

- d) Explain that some rocks are harder than others. In the 1700s, a German scientist named Friederich Mohs developed a scale that scientists use to describe the hardness of different rocks. You can find the scale here: <https://www.nps.gov/articles/mohs-hardness-scale.htm>. You can figure out how hard a rock is by using one to scratch the surface of another. Rocks can scratch the surface of any rock that has a lower hardness than itself. So by experimenting, you can pinpoint where a rock is on the Mohs Hardness Scale.
- e) *Luster* is another characteristic of rocks. There is no scale for luster, but you can still figure out the identity of a rock by comparing its luster to a luster guide. You can find one here: http://www.minsocam.org/msa/collectors_corner/id/mineral_id_keyi3.htm. Scientists have special adjectives, like vitreous and translucent, to describe luster. Look through the luster guide together and read all of the adjectives.

(20 minutes)

2) Experiment

- a) Time to experiment! Each student will visit all of the stations. At each station, they will first examine the two rocks' lusters. They will compare their lusters to the luster guide and choose the adjective that best describes the rocks. Next, they will try to use one rock to scratch the surface of the other, and vice versa. In their notebook, they will record which rock is harder.

(30 minutes)

- b) Once everyone has visited all the stations, the teacher will call the class together and compile everyone's data. For the Mohs Hardness Scale, the teacher will collect everyone's data using post-it notes pasted on the board. There will be 1 post it note per rock in the experiment. The teacher will write the number of each rock on the post it notes. Then, the teacher will start with rock number one, and ask the students to look through their notes and raise their hand if they can tell the class which rock was able to scratch the surface of rock number one. The teacher will arrange the post it notes accordingly from left to right: the softest rock is on the left, and the hardest rock is on the right.

(10 minutes)

- c) Lastly, the teacher will help the students figure out the names of each rock using their conclusions from the luster test and the Mohs Hardness Scale. They will record their findings in the following poem, which is written for ten rocks:

_____ is a vitreous rock, you can tell from its gorgeous sheen,
It's harder than _____, but softer than _____, and I think that it's pretty neat!
_____ is just the opposite, a comparison with greasy butter's quite accurate,

For it's softer than _____, and though it is pretty, I don't think I'll keep it in my pocket.
_____ is pearly, reflecting all kinds of glittery light,

It's harder than _____, and softer than _____, and quite a wondrous sight.

_____, on the other hand, is remarkably dull, it doesn't have any kind of shine at all,

It's harder than _____, and softer than _____, and coarse to the touch all in all.

_____ is a similar rock, with nearly no luster nor shine,

It's softer than _____ and crumbles so fast that it turns into sand in no time.

_____ is a waxy rock, it is smooth but hard to the touch,

It's harder than _____, but softer than _____, and I can see why people like it so much.

_____ is a metallic rock, shiny and reflective and splendid,

It's harder than _____, but softer than _____, and would be cool to wear in a pendant.

_____ is a resinous rock, cloudy, semi translucent, and smooth,

It's harder than _____, but softer than _____, and it's quite pretty to tell you the truth.

_____ is an iridescent rock, as its many layers reflect light in rainbows,

It's harder than _____, but softer than _____, and it seems like it might even glow.

_____ is a silky rock, it looks like it is made of fine fiber strands,

It's harder than _____, but softer than _____, and fits in the palm of my hand.

(10 minutes)

Finally, the teacher will congratulate the students for using scientific adjectives to help them make observations and figure out the identity of each rock!