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](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](http://www.minsocam.org/msa/collectors_corner/id/mineral_id_keyi3.htm).
Scientists have special adjectives, like vitreous and translucence, to describe luster. Look through the luster guide together and read all of the adjectives.

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 splendent,
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!