**Teacher: Activity for Mohs Scale Exploration**

**Learning Objectives**

1. Students will be able to distinguish different properties of rocks and minerals
2. Students will assess the hardness of rocks and minerals, then interpret what this means in comparison to other rocks and minerals
3. Students can classify rocks based on rock properties

**Materials for Each Group**

1. Magnifying Glass
2. Copper Penny
3. Steel Nail
4. Square Glass Plate
5. Duct tape to tape edges of glass
6. Steel File
7. Any other items you would like to use to test hardness
8. Rocks that students bring from home
9. Masking tape or labels
10. Sharpie or pen that can be used to label rocks
11. Colored pencils for sketches in lab

**Procedure**

1. Ask students to bring four rocks of different colors to class from home

2. For setup, make sure that you have enough of the above available supplies so that each group can have one of each. Tape the edges of the glass with duct tape to prevent injury.

2. Divide students up into groups reasonable for class size

3. Ask students to observe different properties of the rocks they have chosen (EX: color, luster, texture…)

4. Have students record observations

5. Ask students to make predictions about the hardness’ of their chosen rocks

6. Have students test hardness of rocks using items selected from Mohs scale from softest to hardest (EX: use fingernail first, then the copper penny, steel nail, etc.)

7. Have students record estimated hardness’ of rocks

8. Ask students to place rocks in order from softest to hardest

**Safety Information**

Caution: items such as steel nails and glass plates can cause injury to students. If a student is injured from one of these items, be sure to use the appropriate protocol in treating students of injury.

**Answer Key for Worksheet**

Note: It is important to make sure that students understand the relationship between different rocks and items relative to Mohs Scale. Answers to the questions on the following worksheet are subjective, and should be graded as such.

1. How did the properties of each of your rocks differ from the others?

Answer should include differences between rocks such as (but not limited to) color, luster, texture, shape, density, and hardness. Students’ rocks will be different, so answers will vary

2. How does using items based on Mohs Scale make it easier to find the hardness of rocks and minerals?

Mohs scale is based on commonly-found rocks and household items, so the convenience of the items used in testing hardness makes it relatively easy to find hardness. It is also convenient that the hardness of rocks and minerals can be determined by using other rocks and minerals.

3. What makes it possible to use rocks to test the hardness of other rocks?

If one rock is harder than the other, it will scratch it. Likewise, if a rock is softer or the same hardness of another rock, it will not scratch it. Because of this, knowing the relative hardness of one rock can allow for the testing of the hardness of another rock.

4. If two rocks will not scratch each other, what does this say about the hardness comparison of the rocks?

If two rocks will not scratch each other, that means that they are of the same hardness.

5. Jason decides to pick four rocks up from outside of his house and put the rocks in order from softest to hardest. He labels the rocks A, B, C, and D. Rock A scratches B and C, but not D. B scratches C, but none of the others. D scratches A. Help Jason put the rocks in order from softest to hardest.

Softest \_\_\_C\_\_\_ 2 \_\_\_B\_\_\_ 3 \_\_\_A\_\_\_ Hardest \_\_\_D\_\_\_\_

6. Jason’s sister, Tracy, decides that this might be fun, so she goes outside and picks up four of her own rocks to place in order from softest to hardest. She labels the rocks A, B, C, and D. Rock C scratches all of the rocks easily. Rock D is scratched by the other three. However, when A and B are tested, they will not scratch the other. Help Tracy put the rocks in order from softest to hardest

Softest \_\_\_D\_\_\_\_ 2 \_\_\_A\_\_\_ 3 \_\_\_B\_\_\_\_ Hardest \_\_\_C\_\_\_\_

Be sure that your students note that A and B are of the same hardness. If needed, give them hints so that the 2 and 3 blanks do not confuse them.