**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period\_\_\_\_\_\_Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Mohs Scale of Hardness Lab**

**Introduction:**

Hardness, one of the most useful diagnostic properties of a mineral, is a measure, of the resistance of a mineral to abrasion or scratching. It is a relative property in that a harder substance will scratch, or cut into, a softer one.

In order to establish a common system for determining hardness, Friedrich Mohs, a German mineralogist, developed a reference scale of mineral hardness. The Mohs scale of hardness (figure 1), widely used today by geologists and engineers, utilizes ten index minerals as a reference set to determine the hardness of other minerals. The hardness value of 1 is assigned to the softest mineral in the set, talc, and 10 is assigned to the hardest mineral, diamond. Higher-numbered minerals will scratch lower-numbered minerals. For example, quartz, with a hardness of 7, will scratch calcite, which has a hardness of 3. It should be remembered that Mohs scale is a *relative ranking* and does *not* imply that mineral number 2, gypsum, is twice as hard as mineral 1, talc.

Most people do not have a set of Mohs reference minerals available. However, by knowing the hardness of some common objects, such as those listed on Mohs scale in Figure 1, a hardness value can be assigned to a mineral. For example, a mineral that has a hardness greater than 5.5 will scratch glass. Table 1.1 can serve as a guide for determining the hardness of a mineral.

**Objective:**

To determine the hardness of several mineral specimens using your fingernail, a copper penny, a glass plate, and a streak plate.

**Materials:**

* Mineral Specimens
* Hardness Test Kit: penny, glass plate, streak plate

**Procedure & Data**

1. Test the hardness of several of the mineral specimen provided by rubbing any two specimen together to determine which are hard (the minerals that do the scratching) and which are soft (the minerals that are scratched). Doing this give you an indication of the relative hardness. Record Results Below

|  |  |
| --- | --- |
|  | **Sample #s** |
| **Hard Minerals** |  |
| **Soft Minerals** |  |

1. Using the hardness guide below, start with the fingernail test on each mineral. Record where each sample falls in the guide below.

|  |  |  |
| --- | --- | --- |
| **Hardness** | **Description** | **Sample #s** |
| Less than 2.5 | A mineral that can be scratched by your fingernail |  |
| 2.5-5.5 | A mineral that cannot be scratched by your fingernail but cannot scratch glass |  |
| 5.5-7.5 | A mineral that a scratches glass but cannot scratch a streak plate |  |
| Greater than 7.5 | A mineral that can scratch a streak plate |  |

**Questions**

1. What was the softest sample? What was the hardest sample?
2. Which category of hardness had the most minerals samples?
3. Do you think there was a sample with a hardness of 10 in your specimen box? Why or Why not?
4. Was anything surprising about what you found? What? Or Why weren’t you surprised?
5. What did you learn in this lab?