

# Rock Hardness using Mohs

## Activity Summary

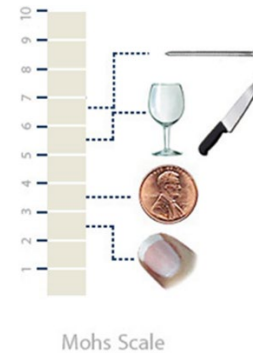
In this activity, using household objects and the Mohs Hardness Scale, you will explore the hardness of rocks you find in your back yard.

Different types of rocks vary in hardness because they are made up of different minerals and compounds.

Over 200 years ago, Frederick Mohs, a German geologist, created a scale that ranks different mineral samples by their hardness. This scale, known as the Mohs Hardness Scale, is a quick and convenient way to help identify minerals. Using this approach, a mineral's hardness is a measure of its relative resistance to scratching. Hardness can be determined by scratching the mineral against another substance of known hardness on the Mohs Hardness Scale.

## Materials

- Fingernail
- Copper coin
- Knife/ Glass
- Steel Nail
- Variety of Rocks
- Pen or Pencil
- Hard Rock Life Worksheet



**CAUTION:** Parental supervision is required for this activity.

## Steps

- 1) Go on a rock hunt! Collect a variety of rocks to test. If your rocks have soil on them be sure to clean them off so that you can see if they scratch.
- 2) In your worksheet write a quick description of each rock.
- 3) Starting with your fingernail (2.5 Mohs Scale), gently scrape each rock. Make sure that you scrape along the rock with even pressure. What do you see? Is there a scratch?
- 4) Slowly work up the Mohs scale (copper coin, glass/knife, steel nail, masonry drill bit) until you can find a scratch. A scratch will give you an approximate hardness result.
- 5) Record your results in the Rock Hardness using Mohs Worksheet.

# Rock Hardness using Mohs

Name:

Date:

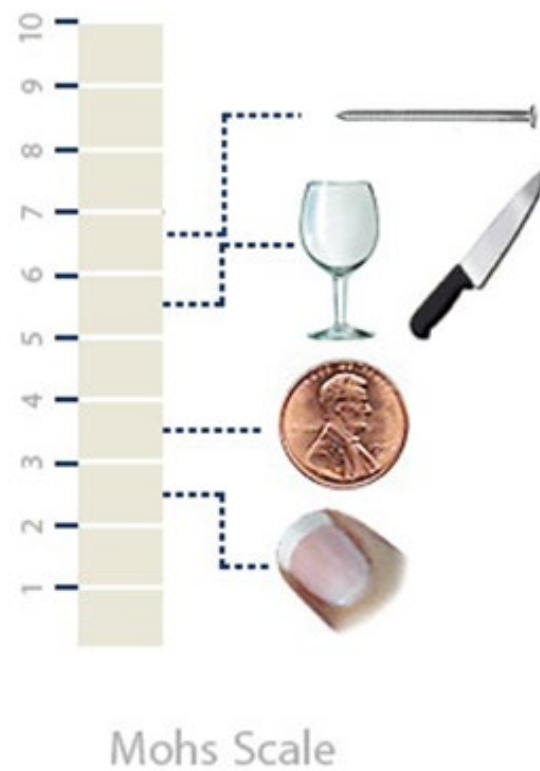
**Description:** Write descriptions of your rocks. What color are they? Are there any interesting features? How does it feel? Is it smooth or rough?

**Material:** Circle the material that leaves a scratch on your rock.












**Approximate Hardness and Mineral Components:** Use your scratch results, figures and diagrams to determine the Mohs Hardness Scale value and approximate Mineral Component for each rock.

**Rank:** Using your results, rank your rocks from softest to hardest.

| Rock | Description | Material                  |                           | Approximate Hardness | Approximate Mineral Component | Rank |
|------|-------------|---------------------------|---------------------------|----------------------|-------------------------------|------|
| 1    |             | Fingernail<br>Glass/Knife | Copper Coin<br>Steel Nail |                      |                               |      |
| 2    |             | Fingernail<br>Glass/Knife | Copper Coin<br>Steel Nail |                      |                               |      |
| 3    |             | Fingernail<br>Glass/Knife | Copper Coin<br>Steel Nail |                      |                               |      |
| 4    |             | Fingernail<br>Glass/Knife | Copper Coin<br>Steel Nail |                      |                               |      |
| 5    |             | Fingernail<br>Glass/Knife | Copper Coin<br>Steel Nail |                      |                               |      |



# Mohs Hardness Scale

| <div>  <div>Increasing Hardness</div> </div> | Mineral Name  | Scale Number | Common Object   |
|--|---|--------------|---|
|  |  → Diamond   | 10           |   |
|  |  → Corundum  | 9            |  Masonry Drill Bit (8.5) |
|  | Topaz   | 8            |   |
|  |  → Quartz    | 7            |  Steel Nail (6.5)        |
|  | Orthoclase  | 6            |   |
|  | Apatite   | 5            |  Knife/Glass Plate (5.5) |
|  |  → Fluorite | 4            |  Copper Penny (3.5)    |
|  | Calcite   | 3            |   |
|  | Gypsum  | 2            |  Fingernail (2.5)      |
|  |  → Talc    | 1            |   |