

# Rock Identification Lab Guide

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Group Members: \_\_\_\_\_

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This lab will be completed in groups of 2-3 student geologists. Every student will be required to hand in their own completed copy of the Rock Identification Table.

## Background

The Earth's lithosphere is composed of hundreds of different rock types, composed of different minerals, textures and other characteristics. Rocks are made of minerals that are bound together and classified into three rock families: igneous, sedimentary and metamorphic. This lab is separated into three sections that studies the observable features of different rock families.

## Materials

Rock Samples (20)

Moh's Scale of Hardness

Rock Identification Chart

Streak Plate

Safety Goggles

Vinegar

Acid Bottle Dropper

Galvanized Nail / Steel pin

Copper Wire

Magnet

## Objectives

- 1) To understand the differences between rocks and rock families.
- 2) To become skilled at describing and identifying different rocks to understand the characteristics of each rock family.

## Method

- 1) Select an Igneous Rock from the nine provided rock samples, labeled RI-1 through R1-9.
- 2) Complete the Table below by observing the physical properties of each igneous rock.
  - a. **Colour** – What colour is your rock? If more than one colour, use percentages.
  - b. **Streak** – Rub your rock across the Streak Plate. Brush off the extra powder with your fingers. Record any colour of the streak, if any.
  - c. **Lustre** – Is the lustre of your rock metallic (like polished metal) or non-metallic? Is it brilliant, glassy, pearly, silky, waxy or dull? Explain and record observations.
  - d. **Hardness** – Use Moh's Hardness Scale (Table A), as a reference and use a nail (#5 on hardness scale) to scratch or make a groove in the sample. If this does not leave a scratch, continue along the scale towards #1. Rank the hardness of your rock and record your results.
  - e. **Magnetism** – Use the provided magnet to determine if your rock is magnetic. Record your results.
  - f. **Reaction with Acid (Vinegar)** – Use the Acid Bottle Dropper (with Safety Goggles) and drop a few drops of Vinegar on your rock and observe. Does it fizz? Record your results.

- g. **Cleavage** – How many angles are present in your rock? If it was to break, would it break along a flat surface, or does it break into rough uneven surfaces? Record your observations.
  - h. **Rock Name** – Record the rock name. Use the Rock Identification Chart to determine the name the sample that you are observing.
- 3) Repeat for the remaining rock samples in the rock family. Take turns in your group so everyone has the opportunity to test and record data. Use the provided *Rock Identification Chart* handout to guide your inquiry and determine the Rock Name.
- 4) Select a Sedimentary rock sample from the five provided samples, labeled RS-1 through RS-5, and complete step 2, 3 and 4 for each sample. Record your data into the Sedimentary Rock Identification Table on page four of this lab.
- 5) Select a Metamorphic Rock from the six provided rock samples, labeled RM-1 through RM-6, and complete step 2, 3 and 4 in the Method section for each sample. Record your data into the Metamorphic Rock Identification Table on page five of this lab.







**Table A – Moh's Scale of Hardness****Mohs' Scale of Hardness**

Hardness of a mineral refers to its ability to resist abrasion and wear. Mohs' scale of hardness is an ordinal (or rank) scale, with 1 representing the softest mineral (talc) and 10 the hardest mineral (diamond). In terms of actual hardness, diamond is 100s of times harder than talc.

<b>Value</b>	<b>Mineral</b>	<b>Distinguishing Characteristics</b>
1	talc	easily scratched with a fingernail
2	gypsum	scratched with difficulty by a fingernail; will not scratch "copper" coin; fingernail hardness is about 2.5, and a copper coin is 3.
3	calcite	scratches copper and is scratched by copper
4	fluorite	scratches copper coin but is easily scratched by knife; knife blade hardness is about 5.5
5	apatite	scratched by glass or a knife
6	orthoclase	scratches knife blade; scratched with difficulty by the hardest steel (like a file)
7	quartz	will scratch knife blade
8	topaz	will scratch quartz
9	corundum	commercial abrasive when powdered; will cut or polish all metals and nearly all minerals
10	diamond	hardest known substance; will cut or polish all other known substances