

Mineral Identification Lab

Geology

Mr. Traeger

Name: _____

Period: _____

Date: _____

Purpose

The purpose of this lab is to use physical and chemical properties to identify minerals.

Materials

- Mineral ID kits
- Mineral ID books
- Paper plate
- Dilute Hydrochloric Acid
- Mohs hardness scale, page 106 in text
- Safety Goggles
- Appendix A, pages 700 to 701 in text

Procedure

1. Working in groups of 4, your job will be to identify 18 of the 26 minerals in the identification kit. You and your seat partner will identify 13 minerals and the other 2 people in your group will identify the other 13 minerals. You will come back together to share your data.
2. Obtain a mineral kit and safety goggles. The teacher will provide you with Hydrochloric Acid at the appropriate time.
3. Use the identification table to record the following:
4. Record the **number** of the mineral. DO NOT mix minerals or misplace them in the kits. If you do, you will ruin the lab for the next people that use the kit!
5. Record the **color** of the mineral. This should be white, clear, pink, black, etc.
6. Record the **streak** of the mineral by rubbing your mineral on the unglazed porcelain tile in your kit. Make sure that you do this on the paper plate. Streak is the color of the mineral dust.
7. Record whether your mineral has **cleavage** or whether it has **fracture**.
8. Record the **hardness** of your mineral according to the Mohs Scale of Hardness (page 106) by testing your mineral as follows. a) try to scratch the mineral with your fingernail. b) Try scratching the mineral with a copper penny. c) Try scratching your mineral on the glass plate. DO NOT hold the glass plate in your hands! Put it on the paper plate. d) Try scratching the mineral with a steel nail. **Basic Rules:** If you are able to scratch the mineral, you will stop and record the hardness according to Mohs hardness scale. If you cannot scratch the mineral, try the next harder substance until you can home in on the mineral's hardness. Remember that the mineral will be softer than the substance(s) that can scratch it. A mineral will be harder if the substance(s) cannot scratch it. Minerals that scratch glass are harder than the glass itself.
9. Record the **luster** of your mineral as either metallic or non-metallic. Non-metallic minerals can be further classified as vitreous (glassy), pearly, greasy, oily, dull, and earthy. See page 105.
10. Record **special properties** of your mineral. Test to see if your mineral is magnetic using the bar magnet. If it is, record *MG* under special properties. I will do a UV light test in front of the class. If your mineral glows under a UV lamp, you will record this as *UV*. If *double refraction* of letters on a page occurs, you will record this as *DR*.
11. Check to see if the mineral **reacts with Hydrochloric Acid (HCl)**. If the mineral fizzes, this indicates that you have a carbonate (CO_3^{2-}) mineral such as calcite or dolomite. This will be done when everything else is complete. You *must* wear safety goggles for this part! You should only use 1-2 drops of HCl for this test!
12. **Geology** will look up the **density** or **specific gravity**. Refer to page 107 on how to do this.
13. Now, using the mineral identification books and the chart on pages 700-701, attempt to identify the **mineral name**. You will need to compare the properties that you listed with the pictures and properties in your book.
14. Use the book to identify the **mineral group and chemical formula**.

Questions

1. What are the five properties of minerals?
2. How can physical and chemical properties help you to identify minerals?

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Identification Chart

Mineral Number	Color	Streak	Cleavage/ Fracture	Hardness	Luster	Special Properties <i>MG/UV/DR</i>	HCl? Yes/No	Density or Specific Gravity	Mineral Name	Mineral Group/Chemical Formula
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
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