Name: _____

Date: _____ Period: _____

Lab Activity: Mineral Identification

INTRODUCTION:

Of the known 4,000 minerals in existence, only about a dozen called "common rock forming minerals" can be found at or near Earth's surface. Geologist in the field need to identify minerals quickly and easily. To do this they use observations, physical tests, and chemical test.

Since the physical properties are remarkably consistent, minerals can easily be identified this way. In addition to the physical tests there are some useful diagnostic chemical tests by which a mineral can be identified based on reactions with acid and other related properties.

OBJECTIVE:

Learn how to identify minerals based on their physical and chemical properties.

VOCABULARY:

Mineral -

Luster -

Streak -

Hardness -

Cleavage -

Fracture -

PROCEDURE A:

For each unknown mineral, identify the key physical characteristics. Using your Earth Science Reference Tables and the Mineral ID Kits, determine the name of the mineral based on the observed characteristics.

Lab Activity: Mineral Identification

Mineral	Luster	Hardness	Cleavage / Fracture	Streak	Composition
1	☑ Metallic ☐ Non-Metallic	☑ Soft ☐ Hard	☐ Cleavage ☐ Fracture	☑ Colored ☐ Colorless/White	PbS
Characteristics:	Meta 6B Stru		Mineral Name:	Galena	

Mineral	Luster	Hardness	Cleavage / Fracture	Streak	Composition
2	☐ Metallic ☑ Non-Metallic	☑ Soft ☐ Hard	☑ Cleavage ☑ Fracture	☐ Colored ☑ Colorless/White	
Characteristics:	greasy		Mineral Name:	Talc	

Mineral	Luster	Hardness	Cleavage / Fracture	Streak	Composition
3	☐ Metallic ☑ Non-Metallic	☑ Soft ☐ Hard	☑ Cleavage ☐ Fracture	☐ Colored ☑ Colorless/White	$K(Mg,Fe)_3$ $AlSi_3O_{10}(OH)_2$
Characteristics:	thin sheets		Mineral Name:	Biotite Mica	

Mineral	Luster	Hardness	Cleavage / Fracture	Streak	Composition
4	☐ Metallic ☑ Non-Metallic	☑ Soft ☐ Hard	☑ Cleavage ☐ Fracture	☐ Colored ☑ Colorless/White	$CaCO_3$
Characteristics:	bubbles w/acid		Mineral Name:	Calcite	

Mineral	Luster	Hardness	Cleavage / Fracture	Streak	Composition
5	☐ Metallic ☐ Non-Metallic	☐ Soft ☐ Hard	☐ Cleavage ☐ Fracture	☐ Colored ☐ Colorless/White	
Characteristics:			Mineral Name:		

Mineral	Luster	Hardness	Cleavage / Fracture	Streak	Composition
6	☐ Metallic ☐ Non-Metallic	☐ Soft ☐ Hard	☐ Cleavage ☐ Fracture	☐ Colored ☐ Colorless/White	
Characteristics:			Mineral Name:		

Lab Activity: Mineral Identification

Mineral	Luster	Hardness	Cleavage / Fracture	Streak	Composition
7	☐ Metallic ☐ Non-Metallic	☐ Soft ☐ Hard	☐ Cleavage ☐ Fracture	☐ Colored ☐ Colorless/White	
Characteristics:			Mineral Name:		

Mineral	Luster	Hardness	Cleavage / Fracture	Streak	Composition
8	☐ Metallic ☐ Non-Metallic	☐ Soft ☐ Hard	☐ Cleavage ☐ Fracture	☐ Colored ☐ Colorless/White	
Characteristics:			Mineral Name:		

Mineral	Luster	Hardness	Cleavage / Fracture	Streak	Composition
9	☐ Metallic ☐ Non-Metallic	☐ Soft ☐ Hard	☐ Cleavage ☐ Fracture	☐ Colored ☐ Colorless/White	
Characteristics:			Mineral Name:		

Mineral	Luster	Hardness	Cleavage / Fracture	Streak	Composition
10	☐ Metallic ☐ Non-Metallic	☐ Soft ☐ Hard	☐ Cleavage ☐ Fracture	☐ Colored ☐ Colorless/White	
Characteristics:			Mineral Name:		

Mineral	Luster	Hardness	Cleavage / Fracture	Streak	Composition
11	☐ Metallic ☐ Non-Metallic	☐ Soft ☐ Hard	☐ Cleavage ☐ Fracture	☐ Colored ☐ Colorless/White	
Characteristics:			Mineral Name:		

Mineral	Luster	Hardness	Cleavage / Fracture	Streak	Composition
12	☐ Metallic ☐ Non-Metallic	☐ Soft ☐ Hard	☐ Cleavage ☐ Fracture	☐ Colored ☐ Colorless/White	
Characteristics:			Mineral Name:		

Lab Activity: Mineral Identification

DISCUSSION QUESTIONS:

1. What is the difference between cleavage and fracture?

2. Why is color alone not a reliable property to identify a mineral?

3. Why is streak a more reliable property than the actual color of the mineral?

4. How is the hardness of a mineral determined?

5. What mineral can usually be identified by using the acid test?

CONCLUSION: List the properties which are most useful in identifying a mineral.