Mineral Identification Lab – Hardness

Name _____ Date _____ Period _____

Purpose: The purpose of this lab is to learn about:
the meaning of the hardness of a mineral.
how hardness is determined for a mineral.

Materials:
unlabeled (but numbered) specimens of minerals (This is your hardness kit!)
copper penny
glass plate
large steel nail

Procedure:

1. **Ordering of Moh's Hardness Scale** – Begin by taking the minerals out of your "hardness kit." Lay them out on your table. Try to think of ways to rank the minerals from softest to hardest. ****Once you think you have the correct order for the minerals, ask your teacher to check your placement.*

2. **Testing the Hardness of a Mineral** – ***A mineral is harder than any substance it can scratch and softer than any substance which scratches it.*** A *scratch test* can be used to compare the hardness of two surfaces. Minerals differ greatly in hardness. Some are softer than your fingernail. Others can scratch even the hardest steel.

   Part 1: Test your minerals to see which can be scratched by the following items. Record your findings on the data table.

   Fingernail – answer yes or no

   Copper Penny – (Is a penny harder than your fingernail? Test it!!) Then, answer yes or no to record if the mineral is softer than a copper penny.

   Steel Nail – (Is a steel nail harder than a copper penny? Test it!!) Then, answer yes or no to record if the mineral can be scratched by the steel nail.

   Glass – (Is a glass plate harder than a steel nail? Of course it is! Test it!!) However, minerals that scratch the glass are harder, and those that rub off or leave a streak are softer. Remember, answer yes or no to record if the mineral is softer than glass.

Data Table

Mineral	Hardness (Use a number based on Moh's Scale)	Softer Than a Fingernail (Yes or No)	Softer Than a Penny (Yes or No)	Softer Than a Steel Nail (Yes or No)	Softer Than Glass (Yes or No)
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					

3. **Moh's Scale of Hardness (What It Is and How It Is Used)** – In Moh's scale, ten well-known minerals are used to represent ten steps of hardness. They are numbered from 1 (softest) to 10 (hardest). Using this scale, any other mineral may be given a hardness number. For example, mica lies between gypsum and calcite in hardness. Therefore, mica is said to have a hardness number of 2.5.

   Part 1: Arrange your minerals in order of hardness as in Moh's scale. Lay them in order on the lab table. Use the results from the scratch tests to help with the order. *List the number you determine for hardness in the hardness column on the data table.*

Moh's Scale

Hardness	Mineral	Hardness	Mineral
1	Talc	**6**	Feldspar
2	Gypsum	**7**	Quartz
3	Calcite	**8**	Topaz
4	Fluorite	**9**	Corundum
5	Apatite	**10**	Diamond

Part 2: Give hardness numbers to the following materials:

Fingernail _____

Copper Penny _____

Steel Nail _____

Glass Plate _____