**CHEMISTRY LAB**

**Metal, Nonmetal, or Metalloid? Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Purpose: To investigate several properties of seven elements and based on those properties identify each element as metal, nonmetal, or metalloid.

Materials: Seven elements, Conductivity tester, Hammer, 1M HCl,

**Procedure:**

1. Appearance: Observe and record the appearance of each element, including physical properties such as color, luster, and form.
2. Conductivity: Demo the conductivity of each element by observing if the sample is a conductor (light bulb lights) or a nonconductor (no light).
3. Crushing: Each element is either brittle (shatters when struck) or malleable (flattens in a thin sheet).
4. Reactivity with acid: Place a small piece of the element in a well plate with 5-10 drops of 1M HCl. Record observations that indicate a chemical reaction.

**Data Table:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Element****Sample** | **Appearance** | **Conductivity** | **Result of Crushing** | **Reaction with HCl (acid)** |
| a. |   |   |   |   |
| b. |   |   |   |   |
| c. |   |   |   |   |
| d. |   |   |   |   |
| e. |   |   |   |   |
| f. |   |   |   |   |
| g. |   |   |   |   |

**Analysis**

1. Classify each property tested in this activity as a physical property or a chemical property.

|  |  |
| --- | --- |
| **Activity** | **Physical or Chemical** |
| Appearance |   |
| Conductivity |   |
| Result of Crushing |   |
| Reaction with HCl |   |

1. Describe how each property could be used to sort the elements into categories of metallic and nonmetallic.

|  |  |  |
| --- | --- | --- |
| **Property** | **Metallic** | **Nonmetallic** |
| Appearance |  |  |
| Conductivity |  |  |
| Result of Crushing |  |  |
| Reaction with HCl |  |  |

**Conclusion:**

* Based on your observations above, classify each sample element as Metal, Nonmetal, or Metalloid.

|  |  |
| --- | --- |
| **Element** | **Metal, Nonmetal, or Metalloid** |
| a. |   |
| b. |   |
| c. |   |
| d. |   |
| e. |   |
| f. |   |
| g. |   |

Which element (s) appear in both the metallic or nonmetallic groups?

Were there any difficulties in analyzing the observations?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_