**EXPERIMENT: Properties of the Elements** Name:

**CAUTION!**

WEAR SAFETY GLASSES AND TIE LONG HAIR BACK.

**AIM**

To investigate the properties of some elements.

**MATERIALS**

* Steel wool
* Aluminium
* Copper
* Magnesium
* Charcoal
* Zinc
* Iron nail
* Forceps
* Battery
* 3 wires
* Lamp
* Hydrochloric acid
* Distilled water
* Test tube rack
* 6 test tubes
* Test tube holder

**METHOD**

1. Use the steel wool to rub a small section of your aluminium sample. Record the colour and appearance in the results table. Repeat with the copper, magnesium, charcoal, zinc and iron.
2. Use the forceps to try to bend your aluminium sample. Record whether it is malleable (able to bend) or brittle (breaks when bent) in the results table. Repeat with the copper, magnesium, charcoal, zinc and iron.
3. Set up a circuit with the battery, lamp and wires. Connect the two loose wires to your aluminium sample. Record whether it conducts electricity (i.e. if the lamp glows) in the results table. Repeat with the copper, magnesium, charcoal, zinc and iron.
4. Place your aluminium sample into a test tube and add approximately 1 cm worth of hydrochloric acid. Record whether you see an immediate reaction (is there fizzing?) or not in the results table. Repeat with the copper, magnesium, charcoal, zinc and iron.
5. Rinse all samples and test tubes with tap water and return all equipment, then complete the discussion and conclusion on the next page.

**RESULTS**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ELEMENT** | **APPEARANCE (DULL/SHINY)** | **MALLEABLE/BRITTLE** | **DOES IT CONDUCT ELECTRICITY?** | **DOES IT REACT WITH ACID?** |
| Aluminium |  |  |  |  |
| Copper |  |  |  |  |
| Magnesium |  |  |  |  |
| Charcoal |  |  |  |  |
| Zinc |  |  |  |  |
| Iron |  |  |  |  |

**DISCUSSION**

1. What similarities did you observe between the elements you tested?

1. Divide all the materials you tested into two groups. Give each group a name.

**Group 1: Group 2:**

1. What properties did you use to separate the materials into the two groups above?

1. If you discovered a new material that was shiny and that bent when you dropped it, which group would you put it into? Explain your answer.

1. What other properties might you expect the material from question 4 to have?

**CONCLUSION**

Describe what you know about the physical and chemical properties of the materials that you tested.