



SCIENCE EXPERIMENT



Testing the reaction of metals with different acids

Name: _____ Date: _____

Experimenter: _____



AIM

To investigate how different acids react with different metals.



BACKGROUND

Metals can react with acids to produce hydrogen gas. The rate of the reaction can vary depending on the type of metal and the type and concentration of the acid.



HYPOTHESIS

If different metals are reacted with different acids, then _____



PROCEDURE

1. Label 9 test tubes as shown in the data table below (3 acids × 3 metals).
2. Add 5 mL of the correct acid to each test tube.
3. Add a small piece of the correct metal to each test tube.
4. Start the timer and observe the reaction for 2 minutes.
5. Record your observations in the data table.
6. Dispose of the liquids safely and wash all equipment.



DATA TABLE

Metal	Hydrochloric Acid (dilute)			Sulfuric Acid (dilute)			Acetic Acid (dilute)		
	Bubbles (0-3)	Rate of Reaction (Slow/Medium/Fast)	Observations (Colour change, heat, etc.)	Bubbles (0-3)	Rate of Reaction (Slow/Medium/Fast)	Observations (Colour change, heat, etc.)	Bubbles (0-3)	Rate of Reaction (Slow/Medium/Fast)	Observations (Colour change, heat, etc.)
Magnesium									
Zinc									
Iron									
Copper									



OBSERVATIONS

What did you notice about the reactions?



CONCLUSION

What do your results show about how different metals react with different acids?



THINK FURTHER: Which metal was most reactive? Which was least reactive? Why do you think some metals did not react with certain acids?



MATERIALS

- Metals: magnesium ribbon, zinc, iron, copper (small pieces)
- Acids: hydrochloric acid (dilute), sulfuric acid (dilute), acetic acid (dilute)
- Test tubes (at least 9) and test tube rack
- Dropper or small measuring cylinder
- Safety goggles and gloves
- Labels and marker
- Timer
- Observation sheet (this page)



SAFETY FIRST!

- Wear safety goggles and gloves.
- Acids can irritate skin and eyes. Handle carefully.
- Work in a well-ventilated area.
- Do not taste any chemicals.
- Wash hands after the experiment.

