

Year 7 Reactions – Metals and Non-Metals; Acids and Alkalis

Name of unit	
Expected Outcomes • Students will understand how metals react with acids to produce hydrogen gas. • Students will identify patterns in the reactivity of different metals. • Students will distinguish between acids and alkalis and understand the pH scale. • Students will use indicators to test substances and carry out neutralisation reactions. • Students will write word equations to describe chemical reactions.	
Developmental Focus Opportunities • Experimental technique: Practising safe methods when handling acids and alkalis. • Observation and recording: Using indicators and making accurate observations. • Pattern recognition: Identifying trends in metal reactivity. • Chemical literacy: Writing word equations and using correct scientific vocabulary.	
Key Learning Points	Powerful Knowledge
• Acids react with metals to form a salt and hydrogen gas. • Indicators are used to determine if a substance is acidic or alkaline. • The pH scale measures how acidic or alkaline a substance is. • Neutralisation occurs when an acid reacts with an alkali to form a salt and water.	• Understanding the nature of substances we encounter daily, such as cleaning products and food acids. • Applying knowledge of reactivity to real-world situations, such as corrosion or indigestion remedies. • Developing scientific reasoning by identifying reactants and predicting products. • Building foundational knowledge for future chemistry topics involving atoms, ions, and balanced equations.
Subject-Specific Vocabulary	Reading Opportunities
• Acid • Alkali • Base • pH scale • Indicator • Neutralisation • Reactivity	• Case studies on the uses of acids and alkalis in industry and medicine. • Safety guidelines and risk assessments for practical activities. • Short articles about historical discoveries in acid-base chemistry.

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• Salt • Word equation • Hydrogen	
Possible Misconceptions	Cross-Curricular Links
• Believing all acids are dangerous or corrosive. • Thinking alkalis and bases are the same thing in all contexts. • Misunderstanding the meaning of “neutral” as “plain” or “inactive.” • Believing stronger acids always have a lower pH, regardless of concentration.	• Maths: Interpreting numerical values on the pH scale, recording results in tables. • Geography: Acid rain and its impact on the environment. • PSHE: Safety around household chemicals.