NHSG Key Stage 3 Unit Overview for Y8 Chemistry: Acids and Bases

Scheme of Learning	Y8 Chemistry: Acids and Bases
Learning Objectives	1. Recognise and interpret chemical hazard symbols 2. Use hazard symbols to suggest precautions 3. Recall the properties of acids and bases 4. State the difference between strong and weak acids and bases 5. Identify the pH of a solution using universal indicator 6. Make & use your own pH indicator 7. Note colour changes for a variety of common indicators 8. Recall the effects of acid rain 9. Define neutralisation 10. Write general equation 11. Recall the names of salts created by acids 12. Predict the products for a specific neutralisation reaction
Key Question	What are acids and bases?
Knowledge	Learn about acids and bases as classes of chemicals with distinct properties and uses. Use indicators to classify solutions as acidic, basic or neutral. Use the pH scale to compare the acidity and basicity of different solution.s Begin to explore the concept of neutralisation.
Ongoing Assessment	Retrieval questions at the start of every lesson. Worksheets for all major concepts to be used for self and peer assessment. Revision checklist at beginning of handout pack and retrieval questions at the end. Key misconceptions – alkali/base interchangeably used. Alkalis are soluble bases. That all acids turn red with indicator, rather than with a particular indicator – UI. Homework to consolidate ideas and skills in class
Final Assessment	Students can give examples of acids and bases. They can interpret data. They can describe the methods used to identify – structure, reactivity and formula. Knowledge – definitions, identification, methodology and nomenclature. Practical skills to identify acids and bases. Practical skills to work safely and confidently.

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	End of topic test, 30 marks in 35 minutes. Including a mixture of MCQ, short answer and long answer questions.
Content	This unit introduces pupils to chemicals, reactions and practical techniques which are likely to be new to them, through using a range of acids and bases encountered in familiar and laboratory contexts. It is helpful if pupils know that solids can dissolve and form solutions and have experience of mixing materials and seeing that new materials are formed as a result of a reaction It lays the foundation for work on 'types of chemical reactions' in GCSE Chemistry unit 3.3
Links to careers	Skin and hair care products are pH balanced to match the natural pH of the body. Chemists are employed to monitor, test and optimise formulations of care products in addition to medicine formulations. Food technologists also monitor pH for food stability. Swimming pools have a careful balance of pH. The pH of soil is closely monitored by farmers. Did you know the anaesthesiologist in the operating theatre monitors blood pH closely – it can even be changed to induce a coma!
Diversity and Inclusion	Homework activity – the etymology of the word 'alkali' and other chemistry/science words of Arabic origin.
Support	Learning checklist and key terminology are highlighted throughout. Online textbook via Kerboodle includes working scientifically, glossary and literacy support. Adaptive teaching in the classroom supports all learners.
Challenge	Stretch challenge question on end of topic test to demonstrate deeper application of concepts. Example for discussion – Acid attacks? Actually most often Alkali attacks! pH>7 irreparably damages protein structures. Opportunity to expand skill set – use of state symbols (s), (l), (g) and (aq) to describe reactants and products in a balanced symbol equation. Typically this notation is only used in A-level.