



### Subject: Year 8 Acids and Alkalis

<b>KS2 Prior Learning</b>			
None			
<b>Overarching Topic: Acids and Alkalis</b>			
<p>Why is this topic being studied at this time?</p> <p>How does it fit into the wider subject curriculum?</p>	<ul style="list-style-type: none"> <li>Acidic, alkaline and neutral materials can be found in the home, often in the kitchen, bathroom or garage. Some are harmless and, for example, could be used in food preparation, while others are potentially harmful. Acids and bases sit at opposite ends of the pH, or potential for hydrogen, scale: Acids sit closer to zero, and bases sit closer to 14. Each chemical has a different pH level and, along with it, a different way it is used by humans. Weak acids and bases are used in the home, while acids and bases further from a neutral pH of 7 tend to be used more in research or industrial capacities.</li> <li>Acids and alkalis is an important topic because it introduces students to chemicals, reactions and practical techniques are new to them through using a range of acids and alkalis encountered in familiar and laboratory contexts. It lays the foundation for work on reactions of acids in Reactions of metals and metal compounds and work on carbonate rocks in 'Types of Reactions' and 'Earths Resources'. It is also an important topic as it relates to topics covered in year 7, such as states of matter, atomic structure and the periodic table. In GCSE this topic is further built upon, developing on the students ideas of strength and measuring strength. It builds on the 'Types of Reaction' topic. The reactions of acids part of this topic are extended with reactants other than alkalis and the strength of acids is calculated.</li> </ul>		
	<b>Essential</b>	<b>Core</b>	<b>Ambitious</b>
<p><b>The Big Questions</b> (What questions will students be able to answer upon mastery of the topic?)</p>	<p>What are the pH values for acids, neutral substances and alkalis? What is the reaction between an acid and an alkali called? What is an indicator? How do you make indicators?</p>	<p>How can an indicator be used to find the pH of a substance? How do substances with different pH values react differently? How could a neutral solution be formed from an acid and alkali? How is neutralisation reactions used in the real world? Using the names of acids and alkalis what would the products of neutralisation be?</p>	<p>Using the names of acids and alkalis what would the balanced symbol equation for neutralisation reaction be? In an acid attack would an acid or an alkali cause more harm to the victim? What is the difference between and alkali and a base? Which water in the world is the closest to being neutral and why? How is pH measured? How is the strength of an acid measured?</p>
<b>The Key Skills/ Techniques</b>	<b>The sophistication and application of skills will become more advanced as students' progress through the essential, core and ambitious knowledge</b>		
	<b>Skill/Technique</b>	<b>How will this skill be developed?</b>	
	1. Graphing & Drawing	Draw graphs with suitable scales, axes and units. Correct line of best fit. Appreciation of anomalies and processed data. Scientific drawing of cells, concepts and scientific equipment.	
	2. Variables	Identify independent, dependent and control variables and devise experiments to include these to ensure valid results. Appreciation of uncertainty.	
	3. Data Analysis	Describe, explain and predict trends. Graph and table data interpretation. Identify links and patters within and between topics. Statistical analysis of data to include mode/median/mean/range determination. Drawing justified conclusions from presented data.	
	4. Application	Apply known and taught theory in unfamiliar contexts. Making links to taught theory and extracting key ideas. Communicating using correct scientific terminology.	
5. Working Scientifically	Identify hazards and planning to limit risk. Describe how to improve accuracy/precision/repeatability/reproducibility/validity. Evaluate reliability of methods and investigations, taking in to account data analysis.		

