



'An ambitious curriculum that meets the needs of all'

Medium Term Planning - Topic: Acids and alkalis

Curriculum Intent	
Skills/National Curriculum Links	<p>In addition to working further on objectives from Year __, pupils will be taught, following National Curriculum guidelines, the following this topic:</p> <p>Chemical reactions</p> <ul style="list-style-type: none"> defining acids and alkalis in terms of neutralisation reactions The pH scale for measuring acidity/alkalinity; and indicators reactions of acids with metals to produce a salt plus hydrogen reactions of acids with alkalis to produce a salt plus water what catalysts do.
Spiritual, moral, social, and cultural development	<p>SMSC: This unit of work provides several opportunities for students to work together practically in groups, which encourages them to share views and opinions and take instructions from others. Group work opportunities encourage teamwork and respect for others. In practical lessons students follow laboratory rules for the safety of all. Our stewardship of the planet can be discussed with reference to acid rain pollution and habitat destruction.</p> <p>PSHE/British Values: Chemical reactions occur in all forms of life such as toothpaste and bee stings. Students will complete teamwork, leadership and put science into everyday situations. They will show mutual respect during classwork.</p> <p>Skills Builder: Listening (Receiving, retaining and processing info), Speaking (The oral transmission of info and ideas), Problem solving (Find a solution to a situation or challenge), Creativity (imagination and generation of new ideas), Staying positive (The ability to use tactics and strategies to overcome setbacks), aiming high (Set clear and tangible goals), Leadership and teamwork</p>
Numeracy	<p>Measuring volumes of liquids and cutting lengths of metal ribbon, simple calculations for concentration, concept of pH scale 1-14.</p>
Literacy	<p>Vocabulary Tier 2: characteristics, rearranged, reversible, foul, hazards, identify, dispose, describe, data, observation, explain, volume, removing, remain.</p> <p>Vocabulary Tier 3: acid, alkali, base, concentrated, concentration, corrosive, dilute, indicator, irritant, neutral, neutralisation, pH scale, strong acid, universal indicator, weak acid, products.</p> <p>Reading: Following a written method and read risk assessments. Students may be directed to the textbook; this could be in lesson or at home on Kerboodle.</p> <p>Writing: Describing and explaining scientific phenomenon, free response writing for describing precautions taken, use of word mat to promote sentence formation.</p> <p>Oracy: inclusion of BEST resources which are research evidence on common misunderstandings in science, effective diagnostic questioning and formative assessment, constructivist approaches to building understanding, and effective sequencing of key concepts that promote metacognitive talk and dialogue.</p>
Becoming future ready	<p>Careers/Employability:</p> <p>Chemical engineer</p> <p>Product tester</p> <p>Jewelry designer</p> <p>Health and Safety inspector</p>
Adaptation	<p>Throughout this topic, quality first teaching will provide differentiation:</p>

QFT/SEND Provision	<p>By product: Linear assessments and differentiated practical work.</p> <p>By resource: Lessons are differentiated per class and students, worksheets are coloured blue if support and assessments are linear.</p> <p>By Intervention: by providing different levels of supervision and support</p> <p>By Progressive Questioning: exploring pupils' understanding through interactive dialogue.</p> <p>By Grouping: according to prior attainment, gender, social preference, preferred learning style.</p> <p>By Task: Pupils should be involved in the identification of targets which are meaningful to them and in the selection of an appropriate task from the given range.</p> <p>By Offering Optional Activities: In class or as homework, to extend learning.</p> <p>This QFT/SEND provision will be explicit within the lesson-by-lesson schemes of work.</p>
Implementation Curriculum Delivery	<p>To be able to:</p> <p>Enquiry processes</p> <ul style="list-style-type: none"> ● 2.6 Suggest a scientific idea that might explain the observation. ● 2.6 Describe the evidence for your idea. ● 2.6 Explain why the evidence supports your idea <p>Securing Mastery Goals</p> <ul style="list-style-type: none"> ● 3.6.2 Acids and alkalis can be corrosive or irritant and require safe handling. <p>Enquiry processes</p> <ul style="list-style-type: none"> ● 2.13 Identify risks and hazards. ● 2.13 Identify control measures. <p>Securing Mastery Goals</p> <ul style="list-style-type: none"> ● 3.6.2 Acids have a pH below 7, neutral solutions have a pH of 7, alkalis have a pH above 7. ● 3.6.2 Identify the best indicator to distinguish between solutions of different pH, using data provided. ● 3.6.2 Use data and observations to determine the pH of a solution and explain what this shows. <p>Enquiry processes</p> <ul style="list-style-type: none"> ● 2.12 Make an experimental prediction. ● 2.9 Gather data, minimising errors. ● 2.12 Decide whether the conclusion of the experiment agrees with your prediction. ● 2.12 State whether or not the hypothesis is correct. <p>Securing Mastery Goals</p> <ul style="list-style-type: none"> ● 3.6.2 Hydrochloric, sulfuric and nitric acid are strong acids. ● 3.6.2 Ethanoic (acetic) and citric acid are weak acids. <p>Exceeding Mastery Goals</p> <ul style="list-style-type: none"> ● 3.6.2 Deduce the hazards of different alkalis and acids using data about their concentration and pH. <p>Enquiry processes</p> <ul style="list-style-type: none"> ● 2.3 Make a conclusion and explain it. <p>Securing Mastery Goals</p> <ul style="list-style-type: none"> ● 3.6.2 Explain how neutralisation reactions are used in a range of situations. ● 3.6.2 Describe a method for how to make a neutral solution from an acid and alkali. <p>Enquiry processes</p> <ul style="list-style-type: none"> ● 2.3 Make a conclusion and explain it. ● 2.10 Write a fair test enquiry question. ● 2.11 Identify control variables. <p>Enquiry processes activity</p> <ul style="list-style-type: none"> ● 3.6.2 Devise an enquiry to compare how well indigestion remedies work <p>Exceeding Mastery Goals</p> <ul style="list-style-type: none"> ● 3.6.2 Estimate the pH of an acid based on information from reactions. ● 3.6.2 Given the names of an acid and an alkali, work out the name of the salt produced when they react. <p>Know and Apply students need to know that neutralisation reactions produce a salt and water.</p> <p>Enquiry processes</p> <ul style="list-style-type: none"> ● 2.12 Identify and record key features of an observation.
Learning Outcomes (Core Knowledge)	<p>Red denotes interleaving; aspects of knowledge covered previously.</p>
Current learning to be developed in the future within:	<p>At GCSE you learn in more detail about the reactivity series and various extraction methods of metals from their ores. You will also learn about acids and their strengths along with neutralisation reactions.</p>
Assessment	<p>Refer to assessment maps for formative and summative assessment opportunities.</p>
Impact	<p>Attainment and Progress – Refer to assessment results / data review documentation.</p>

