



Subject: Chemistry

Lead Teacher: R Wright

Year: 10

## Curriculum organisation

Chemistry is taught in mixed groups of approximately 30 students for 2 hours per week

Overview of Topics & Key Information					How will your child be learning?
Term	Unit(s) of Work	Key Enquiry Questions	Key Content/ Terminology	Skills developed	
Autumn Term	<ul style="list-style-type: none"> <li>The rate and extent of chemical change</li> </ul>	<ul style="list-style-type: none"> <li>What factors affect the rate of chemical reactions?</li> <li>How do you use collision theory to explain how the various factors affect reaction rates?</li> <li>What are reversible reactions and what is meant by equilibrium?</li> <li>How can you predict the effect of changing conditions on the position of equilibrium?</li> </ul>	<ul style="list-style-type: none"> <li>Rate of reaction</li> <li>Collision theory and activation energy</li> <li>Catalysts</li> <li>Reversible reactions and dynamic equilibrium</li> <li>The effect of changing conditions on equilibrium</li> </ul>	<ul style="list-style-type: none"> <li>Use appropriate scientific vocabulary and theory correctly</li> <li>Describe patterns in data</li> <li>Make prediction using scientific knowledge and understanding</li> </ul>	<ul style="list-style-type: none"> <li>Whole class discussion</li> <li>Pair work</li> <li>Practical activities</li> <li>Problem-solving tasks</li> <li>Watching short video clips</li> <li>Research tasks</li> </ul>
	<ul style="list-style-type: none"> <li>Quantitative chemistry (2)</li> </ul>	<ul style="list-style-type: none"> <li>How do you calculate the number of moles of a substance given the mass of that substance?</li> <li>What is meant by the term limiting reactant?</li> <li>How is the concentration of a solution calculated?</li> <li>What is meant by % yield and atom economy?</li> </ul>	<ul style="list-style-type: none"> <li>Moles</li> <li>Amounts of substances in equations</li> <li>Using moles to balance equations</li> <li>Concentration of solutions</li> <li>% yield and atom economy</li> <li>Volumes of gases</li> </ul>	<ul style="list-style-type: none"> <li>Make and record observations and measurements.</li> <li>Present observations and data appropriately</li> <li>Evaluate data to identify sources of error</li> </ul>	
Spring Term	<ul style="list-style-type: none"> <li>Chemical changes</li> </ul>	<ul style="list-style-type: none"> <li>What is meant by the reactivity series?</li> <li>How do acids react</li> <li>What is meant by electrolysis?</li> </ul>	<ul style="list-style-type: none"> <li>Extraction of metals, oxidation and reduction</li> <li>Reaction of acids with metals, pH, neutralisation and salts</li> <li>Electrolysis and half-cells</li> </ul>	<ul style="list-style-type: none"> <li>Use appropriate techniques, apparatus and materials to carry out practical work safely.</li> <li>Make and record observations and measurements.</li> </ul>	
	<ul style="list-style-type: none"> <li>Energy changes</li> </ul>	<ul style="list-style-type: none"> <li>Why are energy changes in chemical reactions important?</li> <li>What are chemical cells and fuel cells?</li> </ul>	<ul style="list-style-type: none"> <li>Exothermic and endothermic reactions</li> <li>Reaction profiles</li> <li>Cells and batteries</li> <li>Fuel cells</li> </ul>	<ul style="list-style-type: none"> <li>Select plan and carry out investigations to test predictions</li> </ul>	
Summer Term	<ul style="list-style-type: none"> <li>Organic chemistry (2)</li> </ul>	<ul style="list-style-type: none"> <li>How are carbon compounds used as fuel and feedstock?</li> <li>What are the reactions of alkenes and alcohols?</li> <li>What are synthetic and naturally occurring polymers?</li> </ul>	<ul style="list-style-type: none"> <li>Crude oil, hydrocarbons and alkanes</li> <li>Fractional distillation</li> <li>Cracking and alkenes</li> <li>Alcohols and carboxylic acids</li> <li>Polymers, amino acids and DNA</li> </ul>	<ul style="list-style-type: none"> <li>Evaluate reliability of methods and suggest possible improvements</li> <li></li> </ul>	

Equipment needed for lessons	How will learning and progress be assessed?
<ul style="list-style-type: none"> <li>• Standard school stationery</li> <li>• Exercise book</li> <li>• Calculator</li> <li>• Anything else specific</li> </ul>	<ul style="list-style-type: none"> <li>• End of unit tests (subject knowledge focus)</li> <li>• Formal assessment week (May)</li> <li>• Peer and self assessment</li> <li>• Homework tasks (often research or project based)</li> <li>• Retrieval practice activities</li> </ul>

Extension & Enrichment opportunities	What can you do to support your child?
<ul style="list-style-type: none"> <li>• Revision guides are available from OUP to help with exam preparation</li> <li>• Suggested websites include  <a href="https://www.bbc.co.uk/bitesize">https://www.bbc.co.uk/bitesize</a>  <a href="https://www.freesciencelessons.co.uk/">https://www.freesciencelessons.co.uk/</a>  <a href="https://www.physicsandmathstutor.com/">https://www.physicsandmathstutor.com/</a>  <a href="https://www.scisheets.co.uk/">https://www.scisheets.co.uk/</a></li> <li>• Podcasts to inspire wider interest  <a href="https://www.thenakedscientists.com/">https://www.thenakedscientists.com/</a>  <a href="https://www.scientificamerican.com/podcasts/">https://www.scientificamerican.com/podcasts/</a></li> <li>• Work is sometimes taken beyond the limits of the specification in order to provide greater depth of knowledge and understanding of material</li> <li>• Extension tasks are provided within the course which generate greater interest in the subject and help prepare students for A level</li> </ul>	<ul style="list-style-type: none"> <li>• Take an active interest in their learning</li> </ul>

Inclusion	
In lessons	Subject specific
<ul style="list-style-type: none"> <li>• Teachers follow student passports to ensure that the needs of all students with SEND are met.</li> <li>• Work is enlarged to the necessary size for visually impaired students.</li> <li>• Teachers will ensure that classrooms are quiet learning environments where possible and will dim lights to support students with sensory needs.</li> <li>• Students have the use of laptop if they have a SEND need whereby use of a laptop supports them.</li> <li>• Hearing impaired students are supported through use a radio aid and teachers ensure that students can lip read at all times during lessons.</li> <li>• Dyslexic students are encouraged to use coloured overlays when they are required to read long passages.</li> <li>• Use of dyslexic friendly fonts and coloured backgrounds used in PowerPoints/resources.</li> <li>• Students with ADHD are given movement breaks, fidget toys and lessons are ‘chunked’ to aid concentration.</li> <li>• Students are seated according to their needs, students work with the SENDCo to decide upon this.</li> </ul>	<ul style="list-style-type: none"> <li>• For pupils with visual impairment, enlarged graph paper for plotting graphs during experiments</li> <li>• Physical impairment – where possible we amend practical equipment or provide a magnifying glass to view instruments</li> <li>• Hearing impaired – show videos with subtitles</li> <li>• Some laboratories have height-adjustable benches for wheelchair access</li> <li>• Cater for latex allergies by providing disposable gloves</li> <li>• Colour blindness</li> </ul>

**If you have any questions about this Learning Overview, please contact the named Teacher above.**