

Culcheth High School Key Stage 4 Curriculum Map 2023 - 2024

Subject: Chemistry Year 10

Exam Board: AQA




CULCHETH
HIGH SCHOOL
THE BEST THAT WE CAN BE

	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Key Concepts	Topic 2 Bonding, structure, and the properties of matter	Topic 2 and 3 Bonding, structure, and the properties of matter Quantitative chemistry	Topic 3 and 4 Quantitative chemistry and chemical change	Topic 4 and 5 Chemical changes and energy changes	Topics 5 and 6 energy changes and – rates of reaction	Topic 2 Bonding, structure, and the properties of matter
Themes	<p>Topic 2</p> <ul style="list-style-type: none"> Chemical bonds, ionic, covalent, and metallics How bonding and structure are related to the properties of substances Structure and bonding of carbon <p>Triple students will also cover</p> <ul style="list-style-type: none"> Bulk and surface properties of matter including nanoparticles 	<p>Topic 2</p> <ul style="list-style-type: none"> Chemical bonds, ionic, covalent, and metallics How bonding and structure are related to the properties of substances Structure and bonding of carbon <p>Triple students will also cover</p> <ul style="list-style-type: none"> Bulk and surface properties of matter including nanoparticles 	<p>Topic 3</p> <ul style="list-style-type: none"> Conservation of mass Relative formula mass Chemical measurements Atom economy <p>Triple science also covers</p> <ul style="list-style-type: none"> Percentage yield Concentrations of solutions <p>Topic 4</p> <ul style="list-style-type: none"> Reactivity series Extraction of metals 	<p>Topic 4</p> <ul style="list-style-type: none"> Reactivity series Extraction of metals Reduction and oxidation Reactions of acids Electrolysis <p>Topic 5</p> <ul style="list-style-type: none"> Exothermic and endothermic reactions Energy changes in reactions 	<p>Topic 5</p> <ul style="list-style-type: none"> Exothermic and endothermic reactions Energy changes in reactions <p>Triple science also covers</p> <ul style="list-style-type: none"> Concentrations of solutions Volumes of gases Titration Chemical cells and fuel cells <p>Topic 6</p> <ul style="list-style-type: none"> Calculating rates of reaction 	<p>Topic 2</p> <ul style="list-style-type: none"> Chemical bonds, ionic, covalent, and metallics How bonding and structure are related to the properties of substances Structure and bonding of carbon <p>Triple students will also cover</p> <ul style="list-style-type: none"> Bulk and surface properties of matter including nanoparticles

	<p>Required practicals will be covered within the lesson</p>	<p>Topic 3</p> <ul style="list-style-type: none"> • Conservation of mass • Relative formula mass • Chemical measurements • Atom economy <p>Triple science also covers</p> <ul style="list-style-type: none"> • Percentage yield • Concentrations of solutions <p>Required practicals will be covered in lesson</p>	<ul style="list-style-type: none"> • Reduction and oxidation • Reactions of acids • Electrolysis <p>Required practicals will be covered in lesson</p>	<p>Triple science also covers</p> <ul style="list-style-type: none"> • Concentrations of solutions • Volumes of gases • Titration • Chemical cells and fuel cells <p>Required practicals will be covered in lesson</p>	<ul style="list-style-type: none"> • Factors that affect rate of reaction • Collision theory and activation energy, • Catalysts • Reversible reactions • Dynamic equilibrium <p>Required practicals will be covered in lesson</p>	<p>Required practicals will be covered in lesson</p>
<p>Writing whole school literacy focus</p>	<p>Scientific writing:</p> <ul style="list-style-type: none"> • Writing a plan • Drawing a conclusion • Evaluating a method • Presenting findings • Spelling and using scientific vocabulary in the correct context • Understanding the different prefixes and suffixes of scientific vocabulary • Use of capital letters and full stops 					
<p>Spiritual, Moral, Social and Cultural theme (SMSC) Fundamental British Values</p>	<p>In Chemistry in Year 10 we deal with SMSC and British values in the following areas:</p> <ul style="list-style-type: none"> • Chemical and Fuel cells - Evaluate the advantages and disadvantages of using chemical cells compared with fuel cells and how this may impact on the environment • Isolation of metals from the world and the damage this is doing to our environment. Fracking and its impact on peoples' lives • Impact on the world including acid rain production and the effect on living organisms. Use of oil in society and how it can be replaced in the future • The Haber process and how it impacts the environment in both positive and negative ways. • The advancement of nanotechnology when the dangers are unknown • The invention of the Haber process to produce ammonia by the Jewish German Fritz Haber, which was then used to kill Jews during the holocaust. 					

	<ul style="list-style-type: none"> ● Fossil fuels v biofuels ● Celebrate the British scientists involved with the discovery of the structure of the Atom. ● Cultural development - the periodic table ● Cultural development – the importance of collaboration 					
Key Assessment Foci, suggested Assessments and Feedback week	See QMA calendar	See QMA calendar	See QMA calendar	See QMA calendar	See QMA calendar	See QMA calendar
Special Events		Moon Watch 11th November		13-22 nd March National Science and Engineering Week		Field course
Possible Visits			Science Live Trip			
CEIAG - Possible Employer Engagement Activities	<p>Careers communication / Oracy</p> <ul style="list-style-type: none"> ● Research and presentation in Space topic (Autumn term 2) and Energy resources topic (summer term 2) ● QWC science exam questions ● Science skills sheets <p>Teamwork</p> <ul style="list-style-type: none"> ● Practicals ● Oracy presentations ● Range of group activities throughout course e.g. think pair share, snowballing, debating, project-based learning, talking triads, card sorts <p>Negation and persuasions</p> <ul style="list-style-type: none"> ● During practical activities and presentations <p>Problem solving – working individually and with others to find solutions to problems. E. g</p> <ul style="list-style-type: none"> ● Practical skills ● Data analysis, ● Comparison/Evaluate exam questions <p>Leadership</p> <ul style="list-style-type: none"> ● During practical activities and presentations <p>Organisation</p> <ul style="list-style-type: none"> ● Practical skills – planning, equipment list, implementation, time management ● Exam technique – time management ● Presentations – time management 					



Perseverance and motivation

- Data analysis
- Evaluate exam questions
- Presentation

Ability to work under pressure

- Timed activities
- QMAs
- PPE

AQA Exam Board – Triple Students will be awarded 3 separate numerical GCSE Science grades one for each Science. 6 exams 1r 45 mins long, 28 assessed pieces of practical work.

AQA Exam Board – Trilogy Students will be awarded 2 numerical GCSE Science grades based on an average of the 3 sciences e.g. 3,4 or 4,5. 6 exams 1r 15 mins long, 21 assessed pieces of practical work.

Throughout the year students will revisit work done in year 9 to consolidate their understanding and reinforce learning.