



Chemistry – Year 10 Combined Science

Curriculum Intent

Chemistry is the science of the composition, structure, properties and reactions of matter, understood in terms of atoms, atomic particles and the way they are arranged and link together. It is concerned with the synthesis, formulation, analysis and characteristic properties of substances and materials of all kinds. The GCSE Chemistry course provides interesting and challenging experiences to link key chemical ideas and understand how they relate to each other.

The course aims for all students to:

- develop essential knowledge, understanding and application of different areas of Chemistry and how they relate to each other
- understand how society makes decisions about scientific issues and how Chemistry contributes to the success of the economy and society
- develop competence and confidence in a variety of practical, mathematical and problem solving skills
- develop and demonstrate a deep appreciation of the skills, knowledge and understanding of scientific methods
- promote students' interest in and enthusiasm for the subject, including an interest in further study and careers associated with the subject

Autumn Term | Bonding, structure and properties

Students will learn:-

Bonding, structure and properties of substances

What does excellence look like?

Carrying out practical processes logically, precisely and accurately.

Linking ideas together to answer questions logically and sequenced.

Linking big ideas to answer Chemistry problems.

For example:

- Draw dot-cross diagrams for unfamiliar compounds
- Justify the type of bonding of a substance in terms of properties
- Evaluate representations of covalent bonding
- Write formulae of ionic compounds incorporating polyatomic ions

How is homework used to enhance learning?

BBC Bitesize <https://www.bbc.co.uk/bitesize/topics/z88jity>

Doc Brown's Chemistry <http://www.docbrown.info/>
Physicsandmathstutor

<https://www.physicsandmathstutor.com/chemistry-revision/gcse-aqa/>

Suggested homework tasks

- Learn definitions of key terms.
- Group and independent research projects
- Past examination questions practice

Practical activity preparation, simulations and follow-up.

Knowledge, understanding & Skills

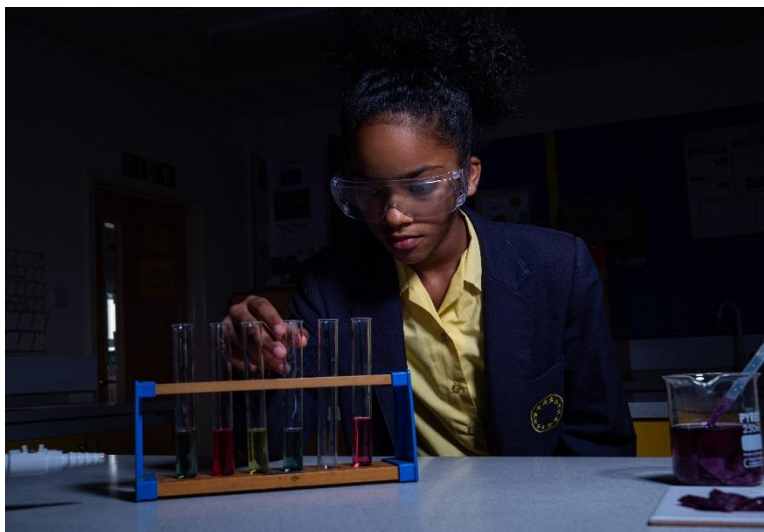
Chemical bonds: ionic, covalent and metallic; representing bonds; formulae of ionic compounds.

Relating bonding and structure to the properties of substances.

Structure, bonding and properties of carbon allotropes.

How will we assess impact?

- Peer and self-assessment
- Previous lesson recap quiz
- Checkpoint tasks
- End of topic test
-



Students will learn:-

Quantitative chemistry
Chemical changes – Reactions of metals

How will we assess impact?

- Peer and self-assessment
- Previous lesson recap quiz
- Checkpoint tasks
- End of topic test

How is homework used to enhance learning?

BBC Bitesize <https://www.bbc.co.uk/bitesize/examspecs/z8r997h>
Doc Brown's Chemistry <http://www.docbrown.info/>
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Example homework tasks

- Learn definitions of key terms.
- Group and independent research projects
- Past examination questions practice
- Practical activity preparation, simulations and follow-up

Knowledge, understanding & Skills

Chemical measurements, conservation of mass and the quantitative interpretation of chemical equations.
Use of amount of substance (in moles) in relation to masses of pure substances and concentration of solutions.
Reacting mass calculations.
Reactivity of metals: metal oxides, reactivity series, extraction of metals, reduction and oxidation.

What does excellence look like?

Carrying out practical processes logically, precisely and accurately.
Linking ideas together to answer questions logically and sequenced.
Linking big ideas to answer real life Chemistry problems.
For example: - Use balanced symbol equations to calculate reacting masses.
- Represent displacement reactions using ionic equations.

Summer Term | Reactions of acids

Students will learn:-

Chemical changes – Reactions of acids

Knowledge, understanding & Skills

Reactions of acids: redox reactions with metals and neutralisation with alkalis and insoluble base.
Preparation of a soluble salt.
pH scale, strong and weak acids.

How is homework used to enhance learning?

BBC Bitesize <https://www.bbc.co.uk/bitesize/examspecs/z8r997h>
Doc Brown's Chemistry <http://www.docbrown.info/>
Physicsandmathstutor
<https://www.physicsandmathstutor.com/chemistry-revision/gcse-aqa/>

Example homework tasks

- Learn definitions of key terms.
- Group and independent research projects
- Past examination questions practice
- Practical activity preparation, simulations and follow-up

What does excellence look like?

Carrying out practical processes logically, precisely and accurately.
Linking ideas together to answer questions logically and sequenced.
Linking big ideas to answer real life Chemistry problems.
For example: - Use balanced symbol equations to calculate reacting masses.
- Represent displacement reactions using ionic equations.
- Describe neutralisation using ionic equations, including the ionic equation for a carbonate plus an acid.
- Suggest a procedure to prepare a pure, dry sample of a named soluble salt, including suggesting reactants.
- Explain quantitatively how the pH of a solution changes as acid or alkali is added, in terms of hydrogen ion concentration.

How will we assess impact?

- Peer and self-assessment
- Previous lesson recap quiz
- Checkpoint tasks
- End of topic tests

International Opportunities

Visits Programmes

- Cruise guided visit on the River Rance
- Fontaine les Vaucluse – water mills
- La Camargue – marshes vegetation.
- Roussillon – ochre ridge.
- Senckenberg Museum – National History Museum.
- Physics lesson in school.
- Science Museum
- Lake Como – Villa Carlotta and botanical gardens in Tremezza + Villa Monastero in Varenna
- Science and tech museum
- Arese - historical museum Alfa Romeo"
- Science museum - foucault's pendulum
- Biology - botanical gardens"
- Alcázar – guided tour and Camera Obscura
- Tarifa harbour - Whale watching
- Arcos - visit to El Rancho Cortesano (Bee/Honey Museum) - workshop"

Within the curriculum

The GCSE Combined Science Chemistry curriculum is designed to deepen understanding and appreciation of how the International scientific society collaborates and makes decisions about world scientific issues.

Students are encouraged to research each theme beyond lessons, exploring topical international scientific examples.

Classwork and homework is designed to ensure that they can draw upon a worldwide knowledge of skills, techniques and theoretical understanding required for their examinations and the potential further study of Chemistry at an International level at global universities.