



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 | Chemical analysis & Chemistry of the Atmosphere

Students will learn:-

Chemical analysis
Chemistry of the Atmosphere

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:

- Link ideas about global warming with energy transfer pathways in Physics.
- Explain the limits of the theory for the development of the Earth's atmosphere and why it has changed.
- Justify the choice of potable water supply in a given scenario.
- Write balanced symbol equations to explain metal extraction techniques.

How will we assess impact?

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

Knowledge, Understanding & Skills

Knowledge, understanding and application of:

Purity, formulations and chromatography.

Identification of common gases.

The composition and evolution of the Earth's atmosphere.

Carbon dioxide and methane as greenhouse gases.

Common atmospheric pollutants and their sources.

How is homework used to enhance learning?

Kerboodle <https://www.kerboodle.com/app>

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

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

Physicandmathstutor

<https://www.physicandmathstutor.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

Spring Term | Earth's resources & Atomic Structure

Students will learn:-

Using the Earth's resources
Atomic structure

Knowledge, Understanding & Skills

Knowledge, understanding and application of:

Using the Earth's resources and sustainable development.

Potable water and waste water treatment.

Alternative methods of extracting metals.

Life cycle assessments (LCAs) and recycling.

Atoms, elements and compounds; representation; symbol equations.

Mixtures and separation techniques.

Development of the model of the atom.

Subatomic particles; electronic structure.

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:

- Justify the choice of potable water supply in a given scenario.

- Write balanced symbol equations to explain metal extraction techniques.

- Explain in detail how multi-step separation techniques work.

- Use SI units and prefixes to describe the size of an atom and its nucleus in standard form.

- Use the Periodic Table to find atomic number and determine the electronic structure for the first 20 elements.

How will we assess impact?

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

How is homework used to enhance learning?

Kerboodle <https://www.kerboodle.com/app>

Chemguide <https://chemguide.co.uk/>

Isaac Chemistry <https://isaacphysics.org/chemistry>

Knockhardy <http://www.knockhardy.org.uk/sci.htm>

Royal Society of Chemistry www.rsc.org

Physicsandmathstutor

<https://www.physicsandmathstutor.com/chemistry-revision/a-level-ocr-a/#>

Suggested homework tasks

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

<https://www.freesciencelessons.co.uk/videos>



Summer Term | Periodic Table

Students will learn:-
Periodic Table

How is homework used to enhance learning?

Kerboodle <https://www.kerboodle.com/app>

Chemguide <https://chemguide.co.uk/>

Isaac Chemistry <https://isaacphysics.org/chemistry>

Knockhardy <http://www.knockhardy.org.uk/sci.htm>

Royal Society of Chemistry www.rsc.org

Physicsandmathstutor

<https://www.physicsandmathstutor.com/chemistry-revision/a-level-ocr-a/#>

Suggested homework tasks

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

How will we assess impact?

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

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:

- Explain how and why the ordering of the elements in the periodic table has changed over time.
- Predict the electronic structure of stable ions for the first 20 elements.
- Illustrate the reactions of Group 7 elements with balanced symbol equations, including state symbols.
- Apply knowledge of reactivity of Groups 1 and 7 to suggest and explain the trend in reactivity of Groups 2 and 6.

Knowledge, understanding & Skills

Knowledge, understanding and application of:

Development of the periodic table.

The periodic table as a classification tool; Metals and non-metals in terms of physical and chemical properties and electronic characteristics.

Periodic trends in group 0, group 1 and group 7; physical and chemical trends. Reactions of group 1 elements with oxygen, water and chlorine; displacement reactions of halogens with halides.

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 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.