# THOMAS ALLEYNE`S HIGH SCHOOL

# Chemistry: LEARNING JOURNEY

OPPORTUNITY · PROGRESS · INDIVIDUALITY

## 6TH FORM

**POST-16 PATHWAY**

College/Apprenticeships

## Year 11

In the summer term students take their GCSE exams. For combined science students this will involve two 70 mark question papers, while triple science students while triple science students will sit two 100 mark papers.

Paper 1 – Atomic Structure and the Periodic Table, Bonding, structure and properties of matter, Quantitative Chemistry, Chemical Changes and Energy Changes

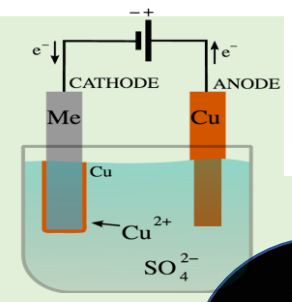
Paper 2 – The rate and extent of chemical change, Organic Chemistry, Chemical Analysis, Chemistry of the Atmosphere and Using resources.

In the final term of year 11 we use student's previous assessments to revisit areas of weakness for revision and use past paper questions to practice a prepare students for the upcoming GCSE exams.

**Final Exams**

**Revision and Past Paper Practice**

**Chemical Changes**




CEIAG 6th Form interviews take place Jan of Y11

In the final topic of the course students look at the chemical reactions between metals, acids and bases. This will include redox and neutralisation reactions. Finally students look at electrolysis and learn to predict the products of electrolysis of solutions. This topic provides more excellent opportunities for practical work and includes multiple required practical activities.

In year 11 students move on to learning about the formation and composition of crude oil, how it is separated by fractional distillation and supply and demand is met using cracking. Higher tier students learn about different types of organic compounds, their properties, uses and reactions finishing with polymerisation reactions.

**Quantitative Chemistry**

Students will then learn the quantitative aspects of Chemistry, including the conservation of mass, and relative formula mass. Higher tier students will go on to learn about the mole, the standard unit for measuring chemical quantities. Students will use a range of numerical reasoning skills to problem solve and make predictions.


The Earth provides us with many valuable resources, from water to metals. During this topic students will learn how these resources are processed so that we can use them. Students then go on to learn how we can use these resources more sustainably, how industry uses life cycle assessments to help make resource choices, and possible future alternatives to our current resource extraction methods and uses.

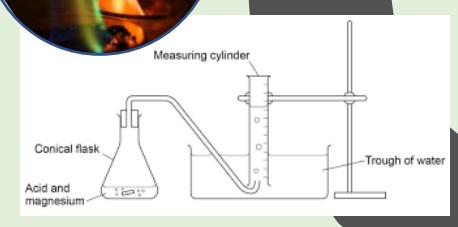
**Using the Earth's Resources**

Students will learn a range of chemical tests used to identify unknowns. This topic provides excellent opportunities to foster scientific curiosity to develop practical skills.

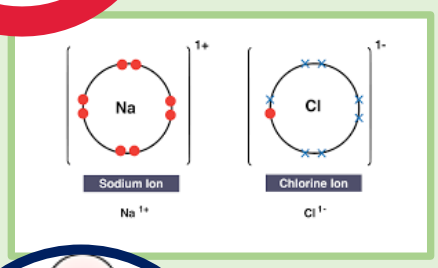
**Organic Chemistry**

**Mock Exam**

**Chemical Analysis**

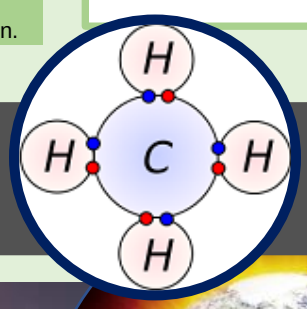



Once students have learned why atoms reaction in the bonding topic, they move on to learn the factors that will affect how fast a chemical reactions occur. Students learn to explain how and why changing a range of conditions will change the rate of a reaction. This topic includes more of the GCSE required practical activities, with lots of opportunities for practical investigation.



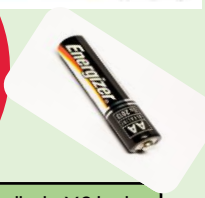

Students will use the know ledge of the structure of the atom and periodic table that they acquired in year 9 to learn how atoms combine together. Students will be able to draw diagrams to represent ionic, covalent and metallic bonding, be able to describe the structures and use the structure and bonding to explain the properties of materials.


**Rates of Reaction and Equilibria**




**Bonding, Structure and Properties of Matter**

**Year 10**




Students will learn about reversible reactions, and how according to Le Chatelier's principle changing reaction conditions can affect the yield of chemical product.


Students will learn about the energy changes that take place in chemical reactions, with both exothermic and endothermic reactions. It is at this time that students will take on their first GCSE required practical.

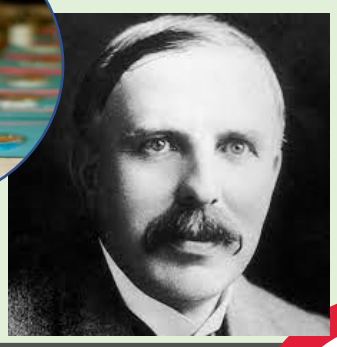
Finally in Y9 look at chemical energy changes in a different context, with cells and batteries, understanding how the chemical reactions can produce energy.

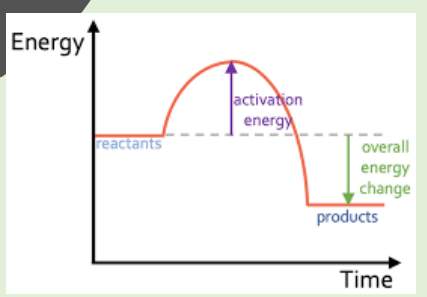
Students move on to learn about how are atmosphere was formed. We compare the atmosphere today to the atmosphere billions of year ago, and explain the processes that caused these changes.

**The Changing Atmosphere**

**Air Pollution and Climate Change**

**Energy Changes**







Student will learn to use a Chemist's most valuable tool, the periodic table. Studying the influential scientists and the discoveries that they made along the way, that led to the periodic table as we now know it. Students will then move on to learning about the properties and reactions of some of key groups, 1, 7 and 0.

Once students have studied how the atmosphere has changed up to present day, its is time to look forward and consider the effect that humans are now having on the atmosphere. In this part of the topic students learn about greenhouse gases, and global warming, acid rain and other atmospheric pollution.

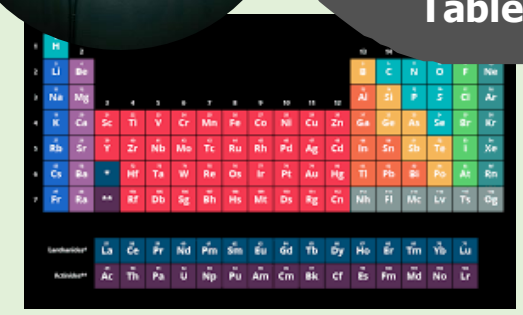
**The Periodic Table**

**The Atom**

**WELCOME**

**Year 9**

**Y8 Taster Sessions / Transition days**



Students will learn about the current scientific model of the atom including the electron structure and moving on to ion formation and isotopes. These are the foundations that so much of the subject of Chemistry is built on and is the fundamental theory behind many chemical reactions.

Students will begin their journey in chemistry by learning how matter is broken down into elements and compounds. They will then head back in time to discover the history behind the development of the model of the atom.