





The curriculum for this stage of students' education has been designed to ensure students understand how scientific methods and theories develop over time. Building on work done in Year 7 and 8, they will use representational, spatial, descriptive, computational and mathematical models to solve problems, make predictions and to develop scientific explanations and understanding. Students will appreciate the power and limitations of science and be able to consider ethical issues which may arise. They will be able to explain the technological applications of science; evaluate associated personal, social, economic and environmental implications; and make decisions based on the evaluation of evidence and arguments. Students will evaluate risks both in practical science and the wider societal context, while recognising the importance of peer review of results and of communicating results to a range of audiences.

HALF TERM 1: EARTH CLIMATE AND RESOURCES

STUDENTS MUST KNOW:

The composition of the atmosphere, the carbon cycle, human impact and global warming. Earth's resources, recycling and metal extraction.

HOW THIS WILL BE ASSESSED:

A Progress Test halfway through the topic to address misconceptions, followed by an assessment completed at the end of each topic.

HALF TERM 2: EARTH CLIMATE AND RESOURCES

STUDENTS MUST KNOW:

The composition of the atmosphere, the carbon cycle, human impact and global warming. Earth's resources, recycling and metal extraction.

HOW THIS WILL BE ASSESSED:

A Progress Test halfway through the topic to address misconceptions, followed by an assessment completed at the end of each topic.

HALF TERM 3: ATOMIC STRUCTURE

STUDENTS MUST KNOW:

The structure of the Atom, the subatomic particles, the History of scientific models of the Atom, writing electron configurations, writing balanced equations, the formation of ions, methods of separating mixtures.

RP6 - How paper chromatography can be used to separate substances.

RP8 – Simple distillation.

HOW THIS WILL BE ASSESSED:

A Progress Test halfway through the topic to address misconceptions, followed by an assessment completed at the end of each topic.

HALF TERM 4: THE PERIODIC TABLE

STUDENTS MUST KNOW:

The organisation and development of the Periodic Table, Properties, Trends and Uses of elements in Groups I, VII and 0, Properties and uses of Transition Metals.

HOW THIS WILL BE ASSESSED:

A Progress Test halfway through the topic to address misconceptions, followed by an assessment completed at the end of each topic.

HALF TERM 5: QUANTITATIVE CHEMISTRY

STUDENTS MUST KNOW: Conservation of mass, relative formula mass, Calculating RAM, Writing and balancing symbol equations, Moles, Predicting Masses made in reactions, Reacting Masses and Limiting Reactants, Using moles to balance equations, Concentration

HOW THIS WILL BE ASSESSED:

A Progress Test halfway through the topic to address misconceptions, followed by an assessment completed at the end of each topic.

HALF TERM 6: QUANTITATIVE CHEMISTRY

STUDENTS MUST KNOW: Conservation of mass, relative formula mass, Calculating RAM, Writing and balancing symbol equations, Moles, Predicting Masses made in reactions, Reacting Masses and Limiting Reactants, Using moles to balance equations, Concentration

HOW THIS WILL BE ASSESSED:

A Progress Test halfway through the topic to address misconceptions, followed by an assessment completed at the end of each topic.

Embedding this knowledge can be supported at home by completion of homework, reviewing topics found on BBC Bitesize (AQA Chemistry), GCSE pod and reading scientific articles in newspapers, magazines, periodicals and journals. Books of interest: Explanatorium of Science (Hardback) **DK** (author), **Robert Winston** (foreword) ISBN: 9780241359488. Further enrichment



activities could include trips to the Black Country Living Museum or various science museums around the world that may tie in with your already planned holidays. Look out for any science fairs as such as the Big Bang Show.