Richmond School & Sixth Form College
Being the best we can be

Year 10 Chemistry

Students who opt to follow the triple science route continue to build on the knowledge and understanding gained from Year 9. Topics studied in Year 9 align with the GCSE Chemistry AQA specification so the transition from Year 9 to 10 is smooth. Through Year 10 students study topics that build in complexity and utilise learning from earlier topics. C9 develops ideas about our atmosphere, its composition and how it has evolved over time linking to atmospheric pollutants. C10 develops students' understanding of the Chemistry behind the earth's natural resources that we utilise every day. In C1 we then build on students' prior knowledge from Key Stage 3 on both the structure of the atom and the periodic table. C2 finishes the year off by building on their knowledge of the atom to look at the structure and bonding within a variety of different substances.
Investigative skills are developed by a number of required practical activities. There are also other practical activities that enriches the learning, as well as practical demonstrations that do the same. Students are assessed at the start and end of the year with tests that check learning on topics in Year 9 and Year 10. This continues to build in demand as students progress through the GCSE course as more and more content is covered in the test. Additionally there is a PPE in April which has a similar arrangement to the other assessments but takes place in a more formal setting. Students are taught by one teacher in 5 lessons per fortnight

Methods of deepening and securing knowledge:	
Retrieval practice	Almost all lessons have retrieval practice in them. This is usually as a starter activity.
Interleaving	Retrieval practice includes interleaved questions from previous topics, making connections between topics where possible. Many ideas from Key Stage 3 are revisited during Year 10 lessons.

	Autumn term 1	Autumn term 2	Spring term 1	Spring term 2	Summer term 1	Summer term 2
Topic(s)	**C9 Chemistry of the Atmosphere** - Proportions of different gases in the Earth's atmosphere - The earth's early atmosphere - How oxygen increased - How carbon dioxide decreased - Greenhouse gases - Human activities which contribute to an increase in greenhouse gases in the atmosphere - Global climate change - The carbon footprint and its reduction - Atmospheric pollutants from fuels		**C1 Atomic structure and the periodic table** - Atoms elements and compounds - Mixtures - Development of the model of the atom - Relative electrical charges of subatomic particles - Size and mass of atoms - Relative atomic mass - Electronic structure - The periodic table - Development of the periodic table - Metals and non-metals		**C2 Bonding, structure and the properties of matter** - Chemical bonds - Ionic bonding - Ionic compounds - Covalent bonding - Metallic bonding - The three states of matter - State symbols - Properties of ionic compounds - Properties of small molecules - Polymers - Giant covalent structures	

	- Properties and effects of atmospheric pollutants **C10 Using the earth's resources and obtaining potable water** - Using the earth's resources and sustainable development - Potable water - Waste water treatment - Alternative methods of extracting metals - Life cycle assessment - Ways of reducing the use of resources - Corrosion and its prevention - Alloys and useful materials - Ceramics, polymers and composites - The Haber process - Production and uses of NPK fertilisers		- Group 0 - Group 1 - Group 7 - Comparison of transition elements with Group 1 elements - Typical transition element properties		- Properties of metals and alloys - Metals as conductors - Diamond - Graphite - Graphene and fullerenes - Sizes of particles and their properties (nanoparticles) - Uses of nanoparticles	
Assessment	Aiming High 1 test including topics studied up to this point in Year 10 and the Year 9 topics			PPE: a whole exam paper covering C6-10		Aiming High 3 test covering all Year 10 topics

Independent Learning:
Independent learning is set every week in line with the school policy. We set online work on Educake which reviews previous learning in a quiz-like format. Additionally we utilise 'knowledge organiser' booklets to set students tasks to produce revision material from allocated pages. We also set 'language for learning' tasks every half term which requires students to complete a quiz on tier 2 and 3 words encountered in the science course.