Year 11 Curriculum Map : Chemistry	
Assessment Objectives	**AO1** - Demonstrate knowledge and understanding of: scientific ideas; scientific techniques and procedures (40%) **AO2** - Apply knowledge and understanding of: scientific ideas; scientific enquiry, techniques and procedures. (40%) **AO3** - Analyse information and ideas to: interpret and evaluate; make judgements and draw conclusions; develop and improve experimental procedures. (20%)
Unit Length	**Topic:** C6 – Rate and extent of chemical change – 9/10 lessons (Autumn term)
Key Learning Outcomes	1. Calculating rates of reaction 2. Factors affecting rates of reaction 3. Catalysts 4. Measuring rates of reaction – PRACTICAL 5. Reversible reactions and equilibrium 6. Le Chatelier's principle (HT/TRIPLE ONLY) *7. Revision* *8. End of unit assessment* 9. *Reteach and DIRT*
Prior knowledge	**Year 7:** - Chemical and physical reactions - Atoms, elements and compounds - Word and symbol equations - Endothermic and exothermic reactions **Year 8:** - Acids, alkalis and the pH scale - Neutralisation - Collision theory - Rates of reaction **Year 9:** - Endothermic and exothermic reactions - Factors affecting rates of reaction - Collision theory - Investigating energy changes - Catalysts - Calculating rates of reaction

CEIAG Specific careers links	Laboratory technician Kinetics scientist Analytical chemist Research scientist Engineer Biochemist Catalysis scientist
RRSA	Article 14: Freedom of thought, belief and religion Article 24: Health and the Health services Article 28: Right to education Article 29: Goals of education Article 27: Adequate standard of living
Cross curricular links	Maths – Calculating rates, gradients of graphs, rate equations Physics – Particle model of matter Biology – enzymes as biological catalysts
Useful websites/ videos	The process that feeds the world: https://www.youtube.com/watch?v=o1_D4FscMnU Rates of reaction required practical: https://www.youtube.com/watch?v=Gl6LVl7oAlU How to increase rates of reaction (and get a date): https://www.youtube.com/watch?v=OttRV5ykP7A
Wider Reading	Rocket launch reactions Galvanising metals Use of fertiliser to meet world food demand and rising populations
Literacy Programme	• Decode it NOW • Guided practice/model answers • Sentence Starters • Writing strategies

Independent Learning Tasks	Mind-map revision homework Retrieval practice homework Knowledge Organiser practice questions Selective reading activity Seneca quiz ILT

Unit Length	**Topic:** C7 – Organic chemistry – 4/11 lessons (Autumn term)
Key Learning Outcomes	1. Crude oil, hydrocarbons and alkanes 2. Fractional distillation 3. Cracking and alkenes 4. Alkenes (TRIPLE ONLY) 5. Reactions of alkenes (TRIPLE ONLY) 6. Alcohols (TRIPLE ONLY) 7. Carboxylic acids (TRIPLE ONLY) 8. Addition polymerisation (TRIPLE ONLY) 9. Condensation polymerisation (TRIPLE ONLY) 10. Amino acids and DNA (TRIPLE ONLY) *11. Revision* *12. End of unit assessment* 13. *Reteach and DIRT*
Prior knowledge	**Year 7:** - Separation techniques – distillation - Word and symbol equations - Particle model of matter and changes of state **Year 8:** - The varying physical and chemical properties of different elements - The properties of metals and non-metals - Combustion and fuels **Year 9:** - Properties of substances and states of matter - Polymers and plastics

CEIAG Specific careers links	Chemical engineer Polymer chemist Petrochemicals Sustainability Polymer chemist
RRSA	Article 14: Freedom of thought, belief and religion Article 24: Health and the Health services Article 28: Right to education Article 29: Goals of education Article 27: Adequate standard of living
Cross curricular links	DT – Properties of materials, polymers, fractional distillation Maths – Comparing boiling points and melting points Physics – Particle model of matter, fuels
Useful websites/ videos	Use of nylon in WW2: https://www.youtube.com/watch?v=lnUUNjYKm6w&t=16s Cracking and alkenes: https://www.youtube.com/watch?v=bOiYLKX9ZRY&t=2s Fractional distillation: https://www.youtube.com/watch?v=5Z26aIG6emk
Wider Reading	Importance of plastics in recent technology Dependency on crude oil vs renewable energy Effect of burning crude oil on environment
Literacy Programme	• Decode it NOW • Guided practice/model answers • Sentence Starters • Writing strategies
Independent	Mind-map revision homework Retrieval practice homework Knowledge Organiser practice questions

Learning Tasks	Selective reading activity Seneca quiz ILT

Unit Length	**Topic:** C8 – Chemical analysis – 4-7 lessons (Autumn term)
Key Learning Outcomes	1. Pure substances and formulations 2. Chromatography 3. Testing for gases 4. Flame tests (TRIPLE ONLY) 5. Testing for ions (TRIPLE ONLY) 6. Instrumental methods and FES (TRIPLE ONLY) *Assessed by paper 2 mock*
Prior knowledge	**Year 8:** - Atoms, elements and compounds, mixtures **Year 9:** - Chromatography - Testing for gases - Metal and non-metals ions
CEIAG Specific careers links	Materials engineer Forensic scientist Food additive analyst Water sample analyst Gas engineer
RRSA	Article 14: Freedom of thought, belief and religion Article 24: Health and the Health services Article 28: Right to education Article 29: Goals of education Article 27: Adequate standard of living
Cross curricular links	DT – Alloys as useful materials Maths – calculating Rf values

Useful websites/ videos	Chromatography required practical: https://www.youtube.com/watch?v=pnTGNAfu6GE&t=456s Forensic science use of chromatography: https://www.youtube.com/watch?v=kCKM_ICjDtc Hindenburg disaster: https://www.youtube.com/watch?v=CgWHbpMVQ1U&t=29s Carbon-fibre as a formulation: https://www.youtube.com/watch?v=4z6VaQ0BSB0 Testing for ions required practical: https://www.youtube.com/watch?v=fCZztwJmAl0&t=474s
Wider Reading	Case of Holly Wells and Jessica Chapman and the use of chromatography in catching their killer Use of different metal ions in fireworks Titanium alloys in aerospace
Literacy Programme	• Decode it NOW • Guided practice/model answers • Sentence Starters • Writing strategies
Independent Learning Tasks	Mind-map revision homework Retrieval practice homework Knowledge Organiser practice questions Selective reading activity Seneca quiz ILT

Unit Length	**Topic:** C9 – Chemistry of the atmosphere – 10 lessons (Autumn/spring term)
Key Learning Outcomes	1. Proportions of gases in the atmosphere 2. The Earth's early atmosphere 3. Evolution of the atmosphere 4. Greenhouse gases

	5. Combustion 6. Human activities 7. Global climate change 8. Carbon footprint 9. Atmospheric pollutants from fuels *Assessed by paper 2 mock*
Prior knowledge	**Year 8:** - Writing word equations for chemical reactions - Combustion - Carbon cycle - Earth's atmosphere - Climate change **Year 9:** - Sustainable development - Resources and waste
CEIAG Specific careers links	Environmentalist Conservationist Sustainability Air pollution analyst Water pollution analyst Renewable energy Environmental lawyer
RRSA	Article 14: Freedom of thought, belief and religion Article 24: Health and the Health services Article 28: Right to education Article 29: Goals of education Article 27: Adequate standard of living
Cross curricular links	Geography – sustainability, climate change, changes in the Earth's atmosphere Physics – renewable energy Biology – biodiversity Technology – sustainable materials

Useful websites/ videos	Interesting explanation of the carbon cycle: https://www.youtube.com/watch?v=A4cPmHGegKI History of the atmosphere: https://www.youtube.com/watch?v=gwGeH9O8Rx4 What would happen if earth's atmosphere disappeared? https://www.youtube.com/watch?v=Ehzzm4rjJj8 Powerful message about impact of humans on the environment: https://www.youtube.com/watch?v=B-nEYsyRlYo Carbon footprint: https://www.youtube.com/watch?v=a9yO-K8mwL0&t=11s Dynasties crew rescue group of penguins: https://www.youtube.com/watch?v=2Co_hmLenD8 Paris agreement: https://www.youtube.com/watch?v=I-4F5MJEeqs
Wider Reading	Paris agreement COP26 Deforestation of Brazilian rainforests Loss of species 'Greenwashing' by large companies
Literacy Programme	• Decode it NOW • Guided practice/model answers • Sentence Starters • Writing strategies
Independent Learning Tasks	Mind-map revision homework Retrieval practice homework Knowledge Organiser practice questions Selective reading activity Seneca quiz ILT

Unit Length	**Topic:** C10 – Using resources – 7 lessons (Spring term)
Key Learning Outcomes	1. Earth's resources and sustainable development 2. Potable water 3. Waste water treatment 4. Extracting metals (HT ONLY) 5. Life cycle assessments 6. Reducing the use of resources *Assessed by paper 2 mock*
Prior knowledge	**Year 9:** - Sustainable development - Resources and waste - Recycling **Year 10:** - Separation techniques – distillation, filtration - Extraction of metals
CEIAG Specific careers links	Environmentalist Conservationist Sustainability Water engineer Water pollution analyst
RRSA	Article 14: Freedom of thought, belief and religion Article 24: Health and the Health services Article 28: Right to education Article 29: Goals of education Article 27: Adequate standard of living
Cross curricular links	Geography – sustainability, use of resources Physics – renewable energy Biology – biodiversity, feeding a growing population Technology – life cycle assessments

Useful websites/ videos	Water purification required practical: https://www.youtube.com/watch?v=_UGHsbTEBvA Access to clean water in Rwanda: https://www.youtube.com/watch?v=isJNqosfX6w Impact of looming copper shortage: https://www.youtube.com/watch?v=6LBC8ntzgIA
Wider Reading	Recycling in your area How to reduce your carbon footprint at home and at school Access to clean water in third world countries Impact of copper shortage on prices of metals
Literacy Programme	• Decode it NOW • Guided practice/model answers • Sentence Starters • Writing strategies
Independent Learning Tasks	Mind-map revision homework Retrieval practice homework Knowledge Organiser practice questions Selective reading activity Seneca quiz ILT