

# Science - Chemistry



## Year 11 Curriculum Map



## Year 11 – Autumn Term

### C7 – Organic Chemistry and C8 – Chemical Analysis

<b>Prior Learning</b>	At key stage 3, pupils should be able to explain what a hydrocarbon is, and should be able to explain how fossil fuels are formed and provide some uses of renewable and non-renewable resources. Also, in key stage 3, pupils should have covered paper chromatography and know the tests for common gases – oxygen, carbon dioxide and hydrogen. At key stage 4, pupils should have a good understanding of the essential knowledge of ionic and covalent bonding from C2 – Bonding and Structure. They should have taken part in common gas testing in C4 – Chemical Changes and pupils should be able to explain the rate of reaction and completed the core practical from C6 – The Rate and Extent of Chemical Change.
<b>What will I learn?</b>	Pupils will discover how crude oil is formed and its uses, and how fractional distillation is used to make different fuels. Pupils will learn the difference between alkanes and alkenes, and know the structural formulas and displaced formulas. Pupils will learn about the Cracking Process to make alkenes more useful. Pupils study polymerisation, condensation polymerisation and how alcohols are made and carboxylic acids. Pupils will further investigate the testing for ions, gas testing and paper chromatography analysis. Pupils will take part in core practical during this unit on testing for ions.
<b>How will I be assessed?</b>	Formative – Recall 5, Cold calling, skills such as graphs in books, retrieval homework task, mid topic assessment. Summative – End of topic assessment.
<b>Next Steps</b>	Pupils will need to know how crude oil is extracted and its uses when studying C10 - Using the Resources. While pupils are completing their learning for paper 2 - they should start revision for their summer GCSE's especially with paper 1 topics.
<b>Opportunities for Independent Learning</b>	BBC Bitesize Topics & useful videos Chromatography <a href="https://www.bbc.co.uk/bitesize/guides/zp2wrwx/revision/1">https://www.bbc.co.uk/bitesize/guides/zp2wrwx/revision/1</a> <a href="https://www.bbc.co.uk/bitesize/guides/zqmcv9q/revision/1">https://www.bbc.co.uk/bitesize/guides/zqmcv9q/revision/1</a> <a href="https://www.youtube.com/watch?v=pnTGNAfu6GE">https://www.youtube.com/watch?v=pnTGNAfu6GE</a> Gas Tests <a href="https://www.youtube.com/watch?v=P_gPIbExHv0&amp;t=13s">https://www.youtube.com/watch?v=P_gPIbExHv0&amp;t=13s</a> Ion test <a href="https://www.youtube.com/watch?v=fCZztwJmAlO">https://www.youtube.com/watch?v=fCZztwJmAlO</a> <a href="https://www.youtube.com/watch?v=dDokSM7hO9k">https://www.youtube.com/watch?v=dDokSM7hO9k</a> <a href="https://www.youtube.com/watch?v=yRimk2yq3il">https://www.youtube.com/watch?v=yRimk2yq3il</a>
<b>Personal Development and CEIAG</b>	Possible careers in these areas are farming industry, analytical scientists, aerodynamics, and the food industry. Organic chemistry professor, food scientist, forensic analyst, environmental scientist, materials scientist, analytical chemist and pharmacologist.
<b>Enrichment Opportunities (Cultural Capital)</b>	Everyday uses for chromatography <a href="https://www.peakscientific.com/discover/news/5-everyday-uses-for-chromatography/">https://www.peakscientific.com/discover/news/5-everyday-uses-for-chromatography/</a> Using plastics and recycling <a href="https://edu.rsc.org/science-research/a-hybrid-recycling-process-for-mixed-plastics/4016515.article">https://edu.rsc.org/science-research/a-hybrid-recycling-process-for-mixed-plastics/4016515.article</a> Atoms, molecules and ions <a href="https://edu.rsc.org/cpd/atoms-molecules-and-ions/3010574.article">https://edu.rsc.org/cpd/atoms-molecules-and-ions/3010574.article</a>



## Year 11 – Spring Term

### C9 – Chemistry of the Atmosphere and C10 – Using the Resources

<b>Prior Learning</b>	At key stage 3, pupils will learn have learnt how the formation of finite resources/fossils fuels (Oil, Coal and Gas) are formed. In geography, they will have learnt about the atmosphere and the formation of the world since the beginning. Pupils will also understand the terms greenhouse gases and know some of the effects of global warming on our planet.
<b>What will I learn?</b>	<b>C9 – Chemistry of the Atmospheres</b> Pupils will learn how the formation of the earth took place since the beginning of time. How the formation of oxygen gas increased and the production of carbon dioxide decreased in the atmosphere. Pupils will learn how human activities are directly proportional to the increase in greenhouse gases and global climate change. <b>C10 – Using the Resources</b> Pupils will understand the term finite and renewable resources and examples of each and how they affect the environment. Pupils will learn the difference between potable water and pure water. Pupils will understand the journey of water and how it is returned back to our home after waste water treatment. Pupils will learn the extraction process of metals. The environmental impact of products in each of the life cycle stage.
<b>How will I be assessed?</b>	Formative – Recall 5, Cold calling, skills such as graphs in books, retrieval homework task, mid topic assessment. Summative – End of topic assessment.
<b>Next Steps</b>	Once pupils have completed their learning for paper 2 - they will start revision for their summer GCSE's .
<b>Opportunities for Independent Learning</b>	Developing atmosphere <a href="https://www.bbc.co.uk/bitesize/guides/z9pk3k7/revision/1">https://www.bbc.co.uk/bitesize/guides/z9pk3k7/revision/1</a> Pollution <a href="https://www.bbc.co.uk/bitesize/guides/zq3797h/revision/1">https://www.bbc.co.uk/bitesize/guides/zq3797h/revision/1</a> Exam questions <a href="https://www.bbc.co.uk/bitesize/guides/zcqbpbk/revision/1">https://www.bbc.co.uk/bitesize/guides/zcqbpbk/revision/1</a> Sustainable development <a href="https://www.bbc.co.uk/bitesize/guides/zswfxfr/revision/1">https://www.bbc.co.uk/bitesize/guides/zswfxfr/revision/1</a> Water <a href="https://www.bbc.co.uk/bitesize/guides/zg6cfcw/revision/1">https://www.bbc.co.uk/bitesize/guides/zg6cfcw/revision/1</a> Reducing the use of resources <a href="https://www.bbc.co.uk/bitesize/guides/zwvq4qt/revision/1">https://www.bbc.co.uk/bitesize/guides/zwvq4qt/revision/1</a> <a href="https://www.youtube.com/watch?v=l0h_-3M0Pso">https://www.youtube.com/watch?v=l0h_-3M0Pso</a> <a href="https://www.youtube.com/watch?v=Z_b2A-d5hGY">https://www.youtube.com/watch?v=Z_b2A-d5hGY</a> <a href="https://www.youtube.com/watch?v=Mvp97_BP84">https://www.youtube.com/watch?v=Mvp97_BP84</a> <a href="https://www.youtube.com/watch?v=ScY_Yb1V8AY">https://www.youtube.com/watch?v=ScY_Yb1V8AY</a> <a href="https://www.youtube.com/watch?v=PDeiRIQvWnM">https://www.youtube.com/watch?v=PDeiRIQvWnM</a> <a href="https://www.youtube.com/watch?v=jLaeBykDwaM">https://www.youtube.com/watch?v=jLaeBykDwaM</a>
<b>Personal Development and CEIAG</b>	Renewable resources used in the home and impact on the environment. Possible careers in these areas are farming industry, analytical scientists, aerodynamics, and the food industry. Working for water companies, environmental sciences.
<b>Enrichment Opportunities</b>	History of the earth's atmosphere <a href="https://www.youtube.com/watch?v=pN7VQas4OgQ">https://www.youtube.com/watch?v=pN7VQas4OgQ</a> <a href="https://www.youtube.com/watch?v=uCjmwckKeNaQ">https://www.youtube.com/watch?v=uCjmwckKeNaQ</a> Climate change "Britain under threat" – David Attenborough

<b>(Cultural Capital)</b>	<p><a href="https://www.youtube.com/watch?v=Cq1oFhTINXE">https://www.youtube.com/watch?v=Cq1oFhTINXE</a> Sustainable development</p> <p><a href="https://www.youtube.com/watch?v=xi6r3hZe5Tg">https://www.youtube.com/watch?v=xi6r3hZe5Tg</a> Water</p> <p><a href="https://www.youtube.com/watch?v=6gXx0u_XdXc">https://www.youtube.com/watch?v=6gXx0u_XdXc</a> Water treatment</p> <p><a href="https://www.youtube.com/watch?v=D6HnBQ-qJMA">https://www.youtube.com/watch?v=D6HnBQ-qJMA</a> <a href="https://www.youtube.com/watch?v=YW6GBciRHLg">https://www.youtube.com/watch?v=YW6GBciRHLg</a> Royal society of chemistry – Article on plastics</p> <p><a href="https://edu.rsc.org/science-research/a-hybrid-recycling-process-for-mixed-plastics/4016515.article">https://edu.rsc.org/science-research/a-hybrid-recycling-process-for-mixed-plastics/4016515.article</a></p>
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