

Subject	Year	Term
Chemistry	12	4 & 5
Topic		
4.2.1 Alcohols		
Content (Intent)		
Prior Learning (Topic) C7 Organic chemistry KS5 Y12 2.2.2 Bonding and structure 4.1.1 Basic Concepts, 4.2.2 Haloalkanes		
Properties of alcohols (a) (i) the polarity of alcohols and an explanation, in terms of hydrogen bonding, of the water solubility and the relatively low volatility of alcohols compared with alkanes (see also 2.2.2 I and 4.1.2 c) (ii) classification of alcohols into primary, secondary and tertiary alcohols Reactions of alcohols (b) combustion of alcohols (c) oxidation of alcohols by an oxidising agent, e.g. $\text{Cr}_2\text{O}_7^{2-}/\text{H}^+$ (i.e. $\text{K}_2\text{Cr}_2\text{O}_7/\text{H}_2\text{SO}_4$), including: (i) the oxidation of primary alcohols to form aldehydes and carboxylic acids; the control of the oxidation product using different reaction conditions (ii) the oxidation of secondary alcohols to form ketones (iii) the resistance to oxidation of tertiary alcohols (d) elimination of H_2O from alcohols in the presence of an acid catalyst (e.g. H_3PO_4 or H_2SO_4) and heat to form alkenes (e) substitution with halide ions in the presence of acid (e.g. $\text{NaBr}/\text{H}_2\text{SO}_4$) to form haloalkanes.		
Future Learning (Topic) 4.2.4 Analytical techniques 6.1.3 Carboxylic acids and esters 6.2.3 polyesters and polyamides		
How will knowledge and skills be taught? (Implementation)	How will your understanding be assessed & recorded (Impact)	
<i>Practical work</i> PAG 5.1 Synthesis of a haloalkane PAG 5.3 Oxidation of ethanol <i>Written</i> Recap hydrogen bonding How to classify alcohols Reactions of alcohols; combustion, oxidation (partial and further), elimination of H_2O , substitution with a halide ion	- exam questions in lessons and homework - 1 x standard homework (grade given. Written feedback. Verbal feedback to class.)	
How can parents help at home?		
Look at the topic specific resources on the VLE Use appropriate websites: MachemGuy, Allery Chemistry, Chemistry World – by Royal		

Society of Chemistry, ChemGuide.

Take an interest! Ask your children what they have learnt and be curious about their learning.

Helpful further reading/discussion

Reading

The Science of Everyday Life
by Marty Jopson
Why Chemical Reactions
Happen by Keeler and
Wothers

Chapter 14 of A level
chemistry for OCR

Vocabulary Lists

Polarity
Volatility
Primary
Secondary
Tertiary
Combustion
Oxidation – partial/further
Oxidising agent
Aldehydes
Ketones
haloalkanes

Careers Links

Analytical chemist
Chemical engineer
Clinical biochemist
Forensic scientist
Pharmacologist
Process chemist
Quality control analyst
Research scientist
Science writer
Site chemist
Teacher or lecturer
Degrees;
Chemistry
Biochemistry
Biomedical science
Biological sciences
Medicine
Research chemist
Veterinary medicine