



ALCOHOL



EALING
INDEPENDENT
COLLEGE



Alcohol

Objectives

- Be able to name some of the alcohols according to the number of carbons in the hydrocarbon chain
- Work out the formulae of the alcohols if the number of carbons is known
- Draw the structural formula of some alcohols





Alcohols

Alcohols are a group of organic molecules which contain oxygen.

They form a HOMOLOGOUS series.





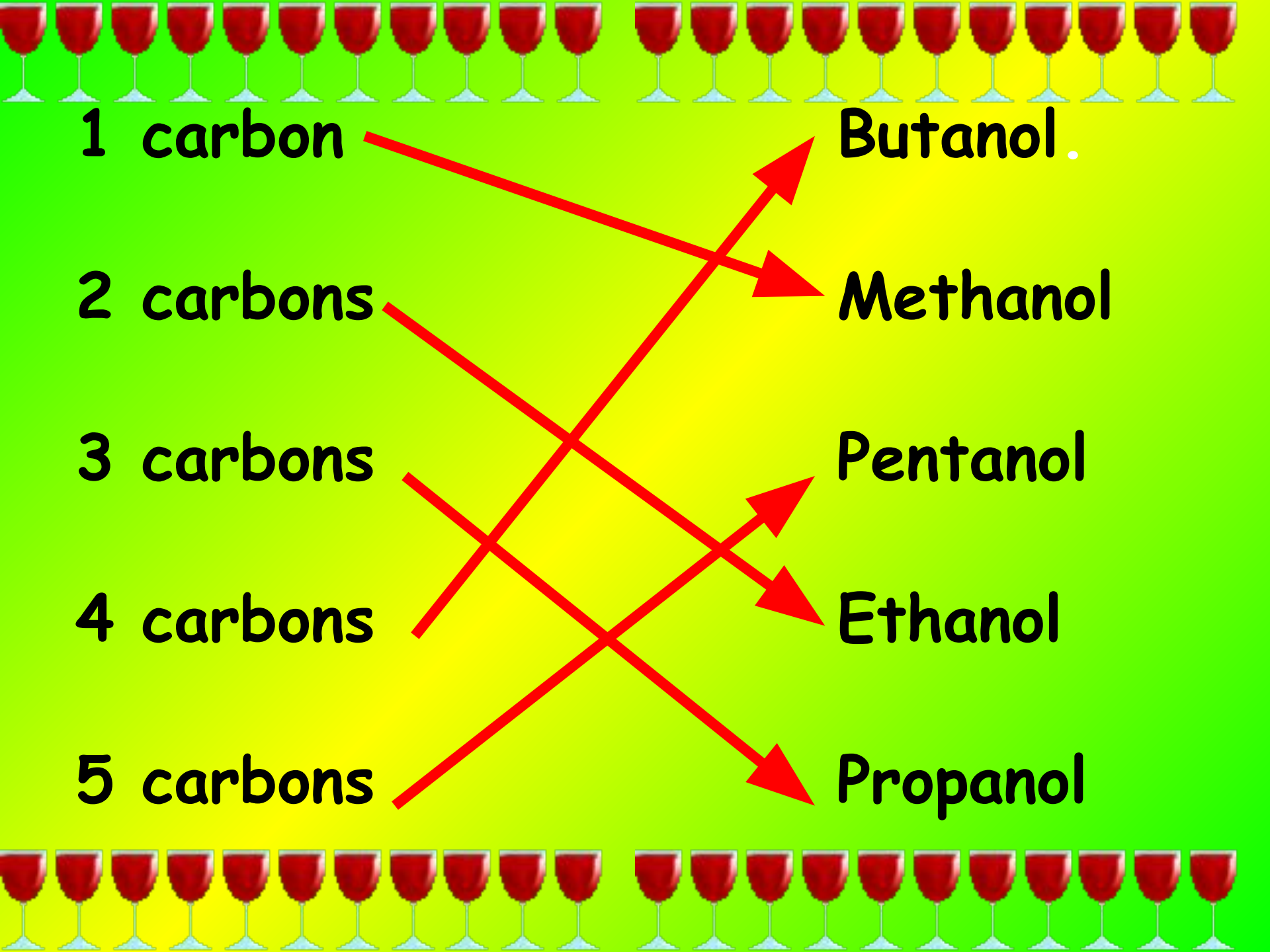
Naming the Alcohols

The names of alcohols follow the same pattern as the alkanes and alkenes.

The first part of the name relates to the number of carbons in the chain.

The second part of the name is -anol





Activity 1

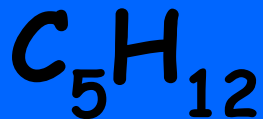
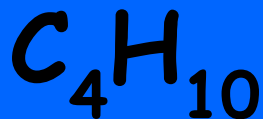
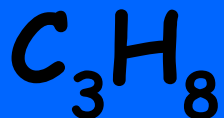
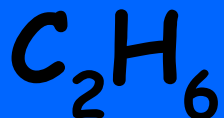
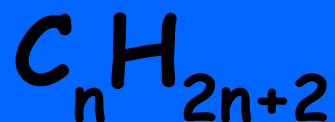
On your worksheet, complete columns 1 and 2 by writing down the number of carbons and names of the alcohols



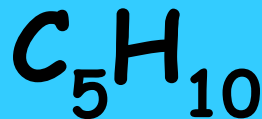
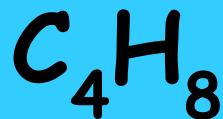
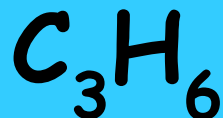
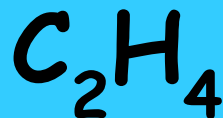
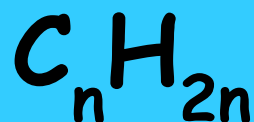
*Hint; meth, eth, prop, but,
pent, hex, hept, oct, non,
dec*

No. of C Atoms	Name of Alcohol	Formula	Structure
1	Methanol		
2	Ethanol		
3	Propanol		
4	Butanol		
5	Pentanol		
6	Hexanol		
7	Heptanol		
8	Octanol		
9	Nonanol		
10	Decanol		

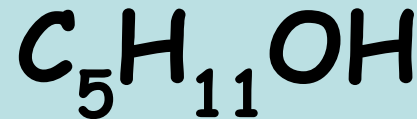
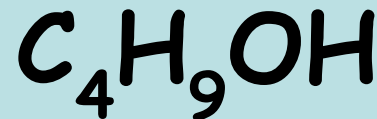
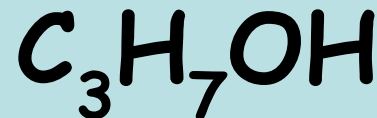
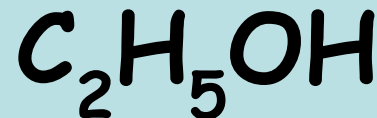
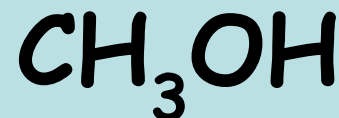
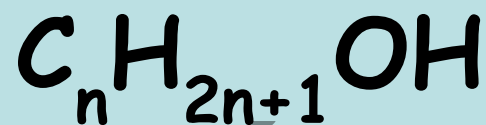
Alkanes



Alkenes



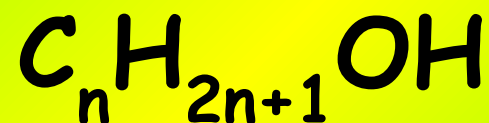
Alcohols





Formula of Alcohols

All alcohols have the formula;



Methanol CH_3OH

Ethanol C_2H_5OH

Propanol C_3H_7OH





Activity 2

On your worksheet, complete the third column in the table by writing down the formulae of the alcohols.



Hint; Each time the carbons increase by 1, the hydrogens increase by 2



No. of C Atoms	Name of Alcohol	Formula	Structure
1	Methanol	CH_3OH	
2	Ethanol	$\text{C}_2\text{H}_5\text{OH}$	
3	Propanol	$\text{C}_3\text{H}_7\text{OH}$	
4	Butanol	$\text{C}_4\text{H}_9\text{OH}$	
5	Pentanol	$\text{C}_5\text{H}_{11}\text{OH}$	
6	Hexanol	$\text{C}_6\text{H}_{13}\text{OH}$	
7	Heptanol	$\text{C}_7\text{H}_{15}\text{OH}$	
8	Octanol	$\text{C}_8\text{H}_{17}\text{OH}$	
9	Nonanol	$\text{C}_9\text{H}_{19}\text{OH}$	
10	Decanol	$\text{C}_{10}\text{H}_{21}\text{OH}$	



Structure of Alcohols

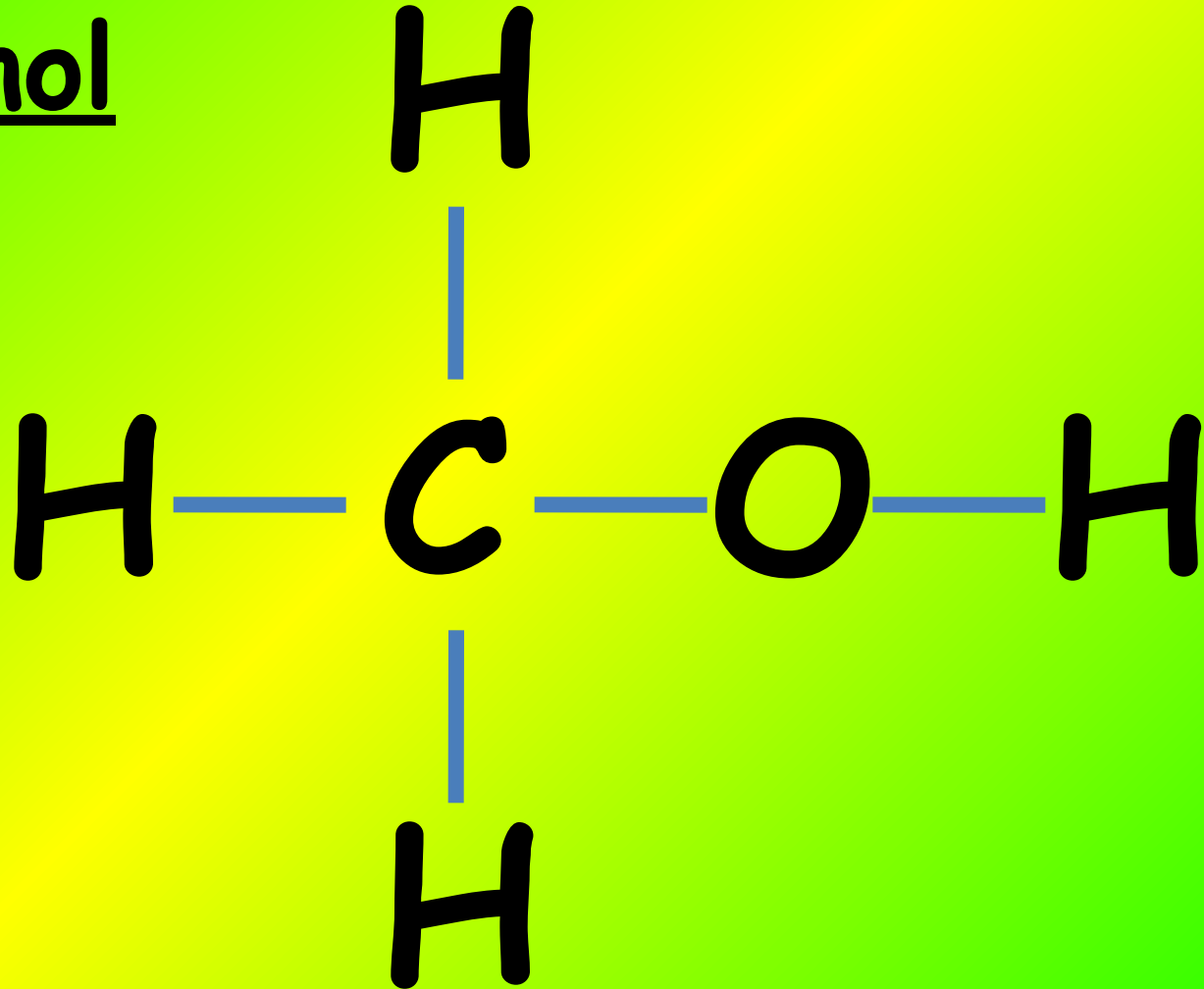
C - 4 bonds

H - 1 bond

O - 2 bonds (must be between a C and an H)



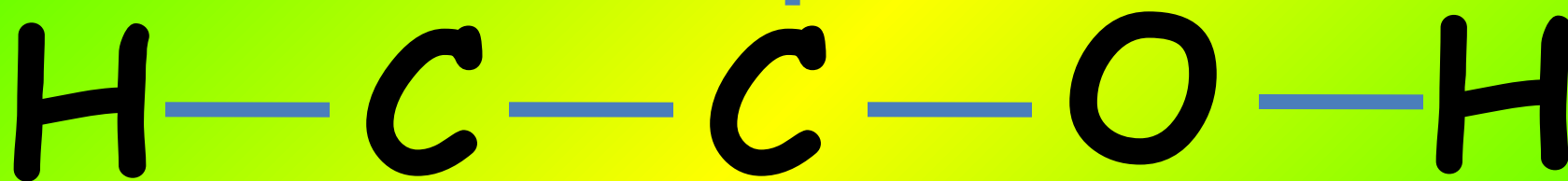
Methanol





H H

Ethanol



H H



Activity 3

On your worksheet, complete the last column in the table by drawing the structure of each alcohol.



Hint; just add a carbon to the end of the chain each time.....

No. of C Atoms	Name of Alcohol	Formula	Structure
1	Methanol	CH_3OH	<pre> H H-C-O-H H </pre>
2	Ethanol	C_2H_5OH	<pre> HH H-C-C-O-H HH </pre>
3	Propanol	C_3H_7OH	<pre> HHH H-C-C-C-O-H HHH </pre>
4	Butanol	C_4H_9OH	<pre> HHHH H-C-C-C-C-O-H HHHH </pre>
5	Pentanol	$C_5H_{11}OH$	<pre> HHHHH H-C-C-C-C-C-O-H HHHHH </pre>
6	Hexanol	$C_6H_{13}OH$	<pre> HHHHHH H-C-C-C-C-C-C-O-H HHHHHH </pre>
7	Heptanol	$C_7H_{15}OH$	<pre> HHHHHHH H-C-C-C-C-C-C-C-O-H HHHHHHH </pre>
8	Octanol	$C_8H_{17}OH$	<pre> HHHHHHHH H-C-C-C-C-C-C-C-C-O-H HHHHHHHH </pre>
9	Nonanol	$C_9H_{19}OH$	<pre> HHHHHHHHH H-C-C-C-C-C-C-C-C-C-O-H HHHHHHHHH </pre>
10	Decanol	$C_{10}H_{21}OH$	<pre> HHHHHHHHHH H-C-C-C-C-C-C-C-C-C-C-O-H HHHHHHHHHH </pre>

Properties of Alcohols

- They are FLAMMABLE/NOT FLAMMABLE
- Their density (*heaviness*) INCREASES/DECREASES as the number of carbons increases
- SOME/ALL of them are poisonous

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