



HOME LEARNING

Subject: chemistry option

Time: 30 minutes

Learning Objective: alkanes

Mrs Baker's class: <https://www.youtube.com/watch?v=Sfm3eHe57PU> watch this video

Q1.

This question is about hydrocarbons.

- (a) The names and formulae of three hydrocarbons in the same homologous series are:

Ethane	C_2H_6
Propane	C_3H_8
Butane	C_4H_{10}

The next member in the series is pentane.

What is the formula of pentane?

(1)

- (b) Which homologous series contains ethane, propane and butane?

Tick **one** box.

Alcohols

Alkanes

Alkenes

Carboxylic acids

(1)

- (c) Propane (C_3H_8) is used as a fuel.

Complete the equation for the complete combustion of propane.



(2)

- (d) Octane (C_8H_{18}) is a hydrocarbon found in petrol.

Explain why octane is a hydrocarbon.

(2)

- (e) The table below gives information about the pollutants produced by cars using diesel or petrol as a fuel.

Fuel	Relative amounts of pollutants		
	Oxides of Nitrogen	Particulate matter	Carbon dioxide
Diesel	31	100	85
Petrol	23	0	100

Compare the pollutants from cars using diesel with those from cars using petrol.

(3)

- (f) Pollutants cause environmental impacts.

Draw **one** line from each pollutant to the environmental impact caused by the pollutant.

Pollutant	Environmental impact caused by the pollutant
	Acid rain
Oxides of nitrogen	Flooding
	Global dimming
Particulate matter	Global warming
	Photosynthesis

(2)

(Total 11 marks)

Q2.

Crude oil is a complex mixture of hydrocarbons, mainly alkanes. The number of carbon atoms in the

molecules ranges from 1 to over 100.

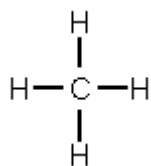
- (a) How does the boiling point change as the number of carbon atoms in the molecules increases?

(1)

- (b) Name the method used to separate petroleum into fractions.

(1)

- (c) The simplest hydrocarbon is methane, CH₄. Its structure can be represented:



Draw the structure of ethane, C₂H₆.

(1)

(Total 3 marks)

