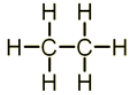
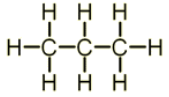
Chemistry Crib Sheet: Topic 7

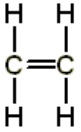
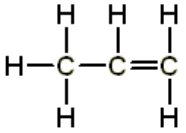
CRUDE OIL is a mixture of hydrocarbons (**HYDROCARBONS** are molecules made up of hydrogen and carbon only).

Alkanes and Alkenes

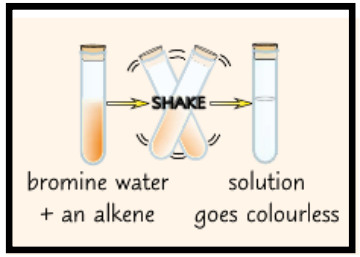
ALKANES are saturated hydrocarbons with only single bonds, there are no spare bonds.

alkane	formula	chemical structure
methane	CH_4	
ethane	C_2H_6	
propane	C_3H_8	

ALKENES are unsaturated hydrocarbons with some spare bonds, they contain a double bond.

alkene	formula	chemical structure
ethene	C_2H_4	
propene	C_3H_6	

Bromine water will stay brown when an alkane is added.
Bromine water decolourises when an alkene is added.

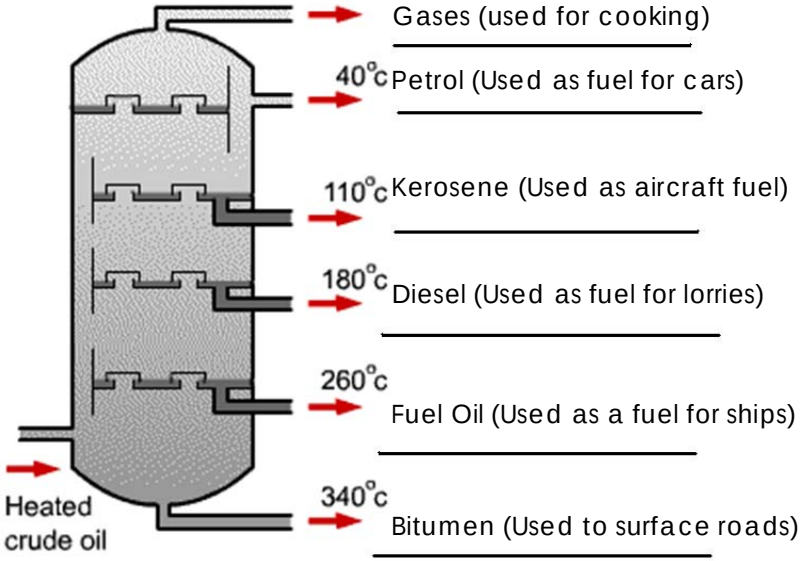


COMPLETE COMBUSTION: of any hydrocarbon occurs when there is plenty of oxygen.
Hydrocarbon + oxygen → carbon dioxide + water

USES OF CRUDE OIL: fuel for transport
making new compounds e.g. polymers

Fractional Distillation of Crude Oil

Fractional distillation splits up crude oil into different fractions depending on their boiling point.



The crude oil is heated until it turns into gas. The vaporised oil rises up the column and the various fractions condense at different heights and are tapped off.

The shorter the hydrocarbon is:
- **The more flammable**
- **The more runny (viscous)**
- **Lower its boiling point**

CRACKING is a form of thermal decomposition. It is when long chain hydrocarbons are split up into shorter alkanes and alkenes. Cracking is useful as there's more demand for shorter hydrocarbons.