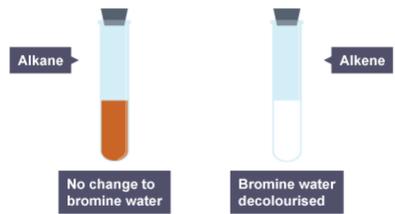
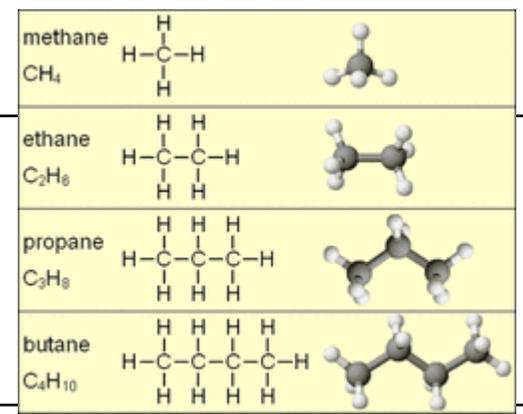


End Point A & D:
Describe the structure of hydrocarbons/Identify alkanes and alkenes and describe the test for them

Formed from carbon and hydrogen atoms only

- ALKANES = single bonds between carbon atoms. General formula C_nH_{2n+2}
- ALKENES = have 1 double bond between carbon atoms. General formula C_nH_{2n+2}
- As the length of the hydrocarbon changes, properties change:
 - Short chain = more runny (less viscous)
 - Short chain = more volatile (lower boiling point)
 - Short chain = more flammable



End Point B: Complete and Incomplete combustion

- | | |
|--|---|
| <p>Complete</p> <ul style="list-style-type: none"> • More energy • Lots of oxygen (O_2) • Products: <ul style="list-style-type: none"> - CO_2 ← causes climate change - H_2O (water) | <p>Incomplete</p> <ul style="list-style-type: none"> • Less energy • Not enough O_2 • Products: <ul style="list-style-type: none"> - H_2O - CO (carbon monoxide) ← toxic - C (carbon/soot) ← causes breathing problems/lung disease |
|--|---|



Polymers are long chain molecules made by linking together short chain molecules called monomers. Plastics are an example of polymers. To make plastics it requires a large input of energy, mostly from burning crude oil. Plastics are non biodegradable (they don't break down) and cause harm to many organisms. Much plastic waste ends up in the oceans. Plastic also releases toxins (poisons) in to the environment.

End Point E:
Describe the formation of crude oil

Stage 1 - All of the oil and gas we use today began as microscopic plants and animals living in the ocean millions of years ago. As these microscopic plants and animals lived, they absorbed energy from the sun, which was stored as carbon molecules in their bodies. When they died, they sank to the bottom of the sea. Over millions of years, layer after layer of sediment and other plants and bacteria were formed.

Stage 2 - As they became buried ever deeper, heat and pressure began to rise. The amount of pressure and the degree of heat, along with the type of biomass, determined if the material became oil or natural gas.

End Point G: Fractional Distillation

Crude oil is a mixture of lots of different hydrocarbons, most of which are alkanes. Fractional distillation separates different compounds in crude oil based on the fact they have different BOILING POINTS.

The column is hot at the bottom and cooler at the top.

The oil is heated until most of the crude oil is gas.

The long chain hydrocarbons have high boiling points and condense back in to liquids near the bottom.

The short chain hydrocarbons have lower boiling points so condense back in to liquids near the top.

