

# Review 1

Chemistry - Key Stage 4

Organic Chemistry

Miss Mason



# Recap

Keywords: *fractions, mixture, saturated, unsaturated, double bonds, single bonds, plastic, polymers, fuel, viscous, flammable, boiling point, long chain, short chain.*

1. What is crude oil?
2. What is the difference between an alkane and an alkene?
3. What is fractional distillation used for?
4. Describe the conditions at the bottom of a fractionating column and what is collected there.
5. Describe the conditions at the top of a fractionating column and what is collected there.
6. Write out a word equation demonstrating what happens in cracking.
7. Identify one use of an alkane and one use of an alkene.
8. If an alkane contains 5 carbon atoms, how many hydrogen atoms will it contain?
9. If an alkene contains 5 carbon atoms, how many hydrogen atoms will it contain?
10. Suggest some of the properties of the crude oil fraction, bitumen.



# Key word practise

- Match up the following key words to their correct definition

1. Crude oil

2. Fraction

3. Hydrocarbon

4. Alkane

5. Alkene

6. Cracking

7. Viscosity

a) Mixture of hydrocarbons with similar boiling points

b) How thick or runny something is

c) A type of hydrocarbon that contains double bonds and is 'unsaturated'

d) A mixture of hydrocarbons produced from the remains of ancient biomass

e) A type of hydrocarbon that contains only single bonds and is 'saturated'

f) A compound made up of only carbon and hydrogen atoms

g) The process of breaking down long chain alkanes into shorter chain alkanes and alkenes



# Fractionating column

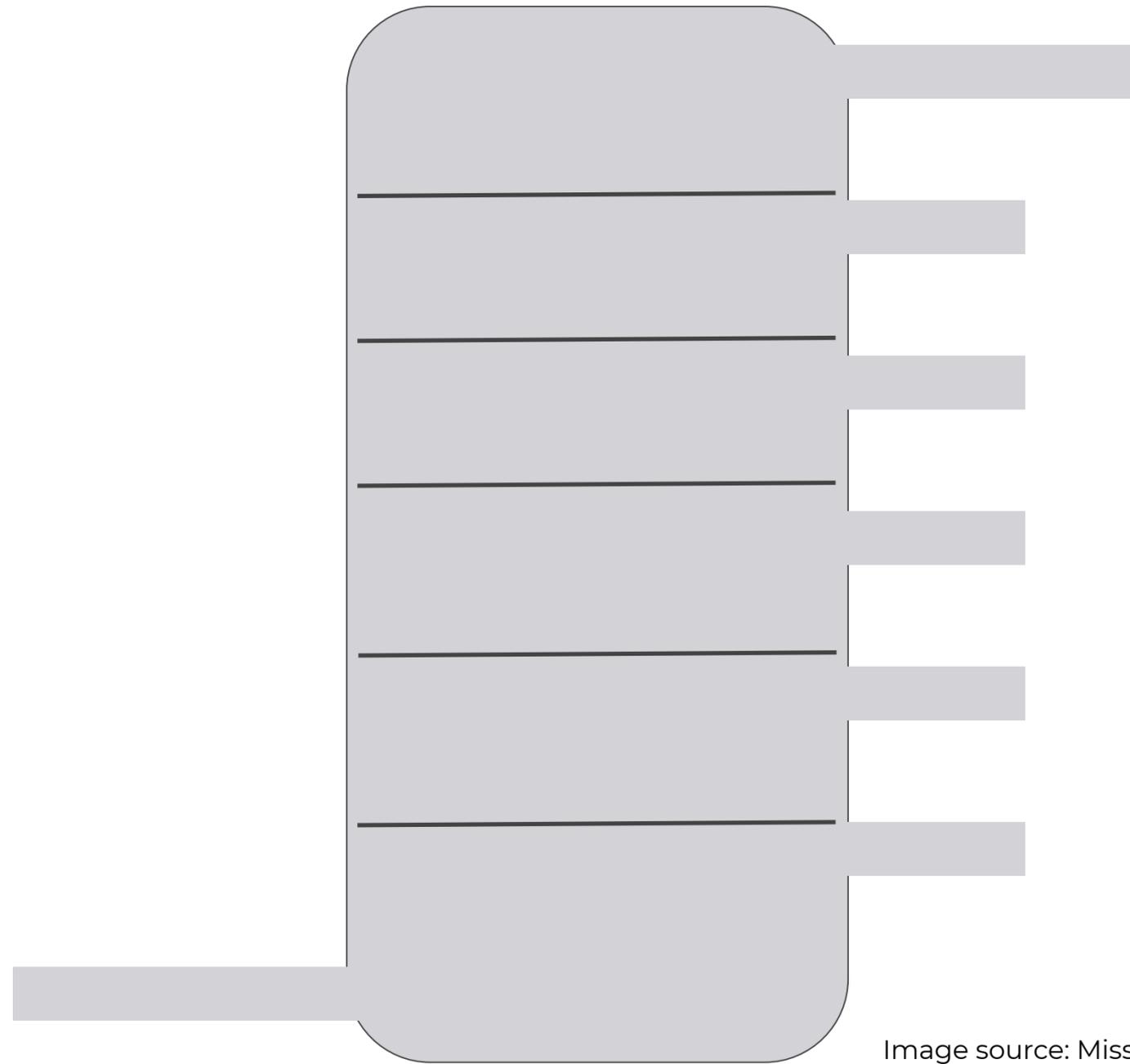


Image source: Miss Mason



**Which type of cracking is used most in industry and why?**



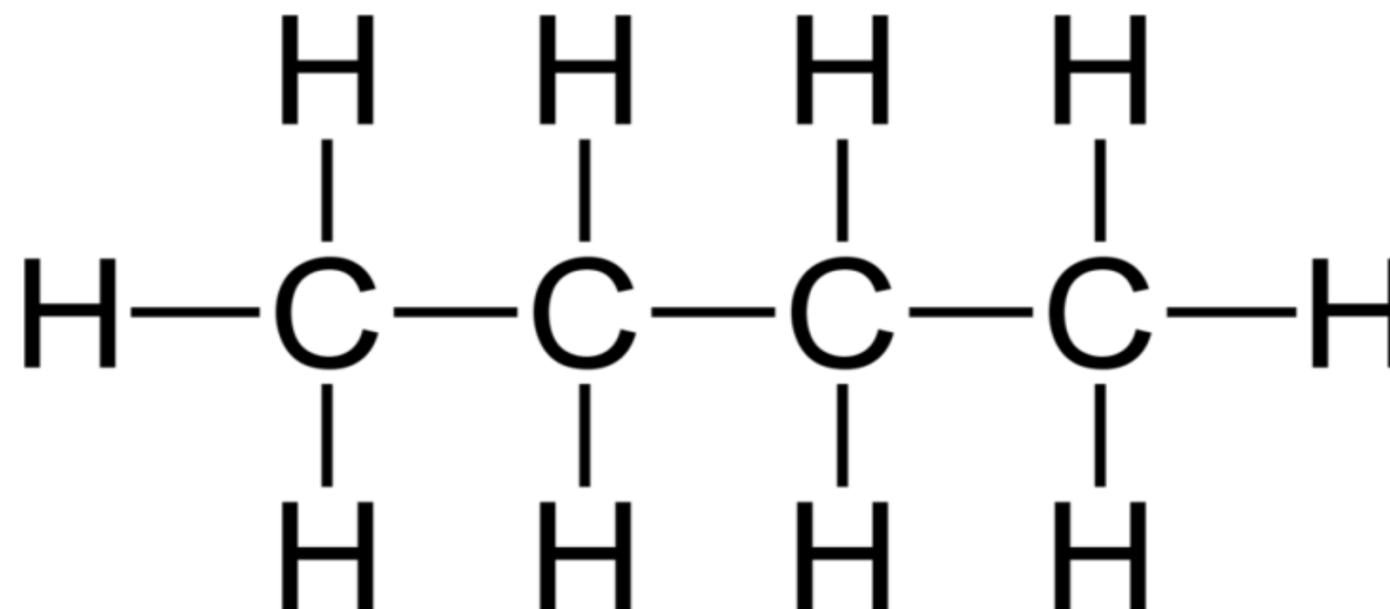
# Exam-style questions

What is a hydrocarbon? **OR** Name 2 elements that can be found in a hydrocarbon



# Exam-style questions

What is the chemical formula of this molecule?

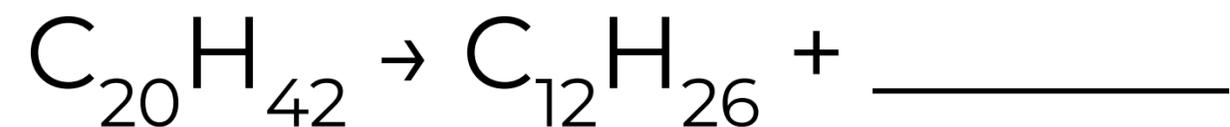


[Wikimedia Commons] - [Butan Lewis] -  
Butane-2D-flat



# Exam-style questions

a) Complete the equation for the reaction during the cracking of  $C_{20}H_{42}$ .



b) Heptane is one of the hydrocarbons extracted during fractional distillation.

It has 7 carbon atoms.

What is the formula for heptane?



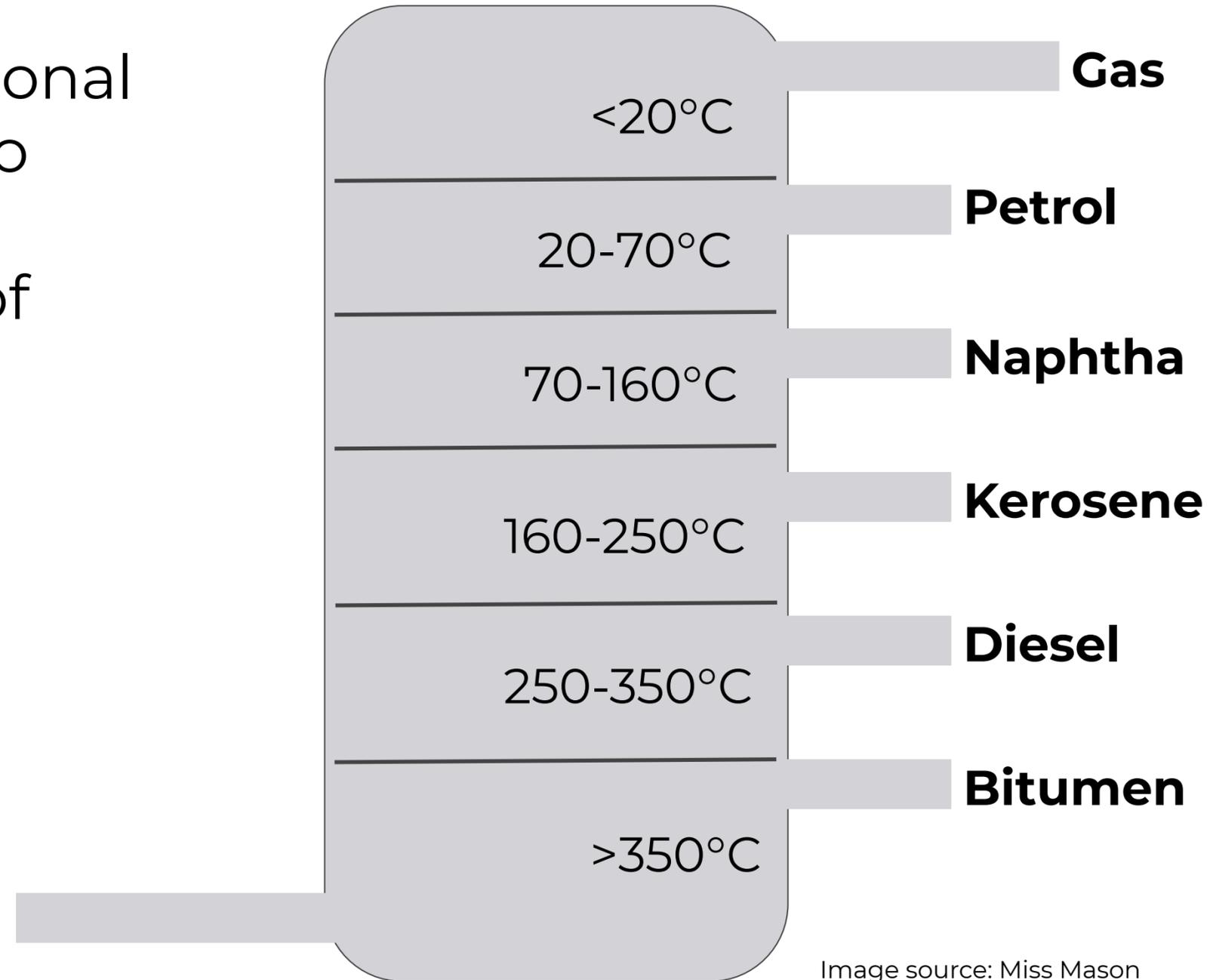
# Exam-style questions

Describe how increasing the number of carbon atoms within a hydrocarbon can have an effect on its viscosity and flammability.



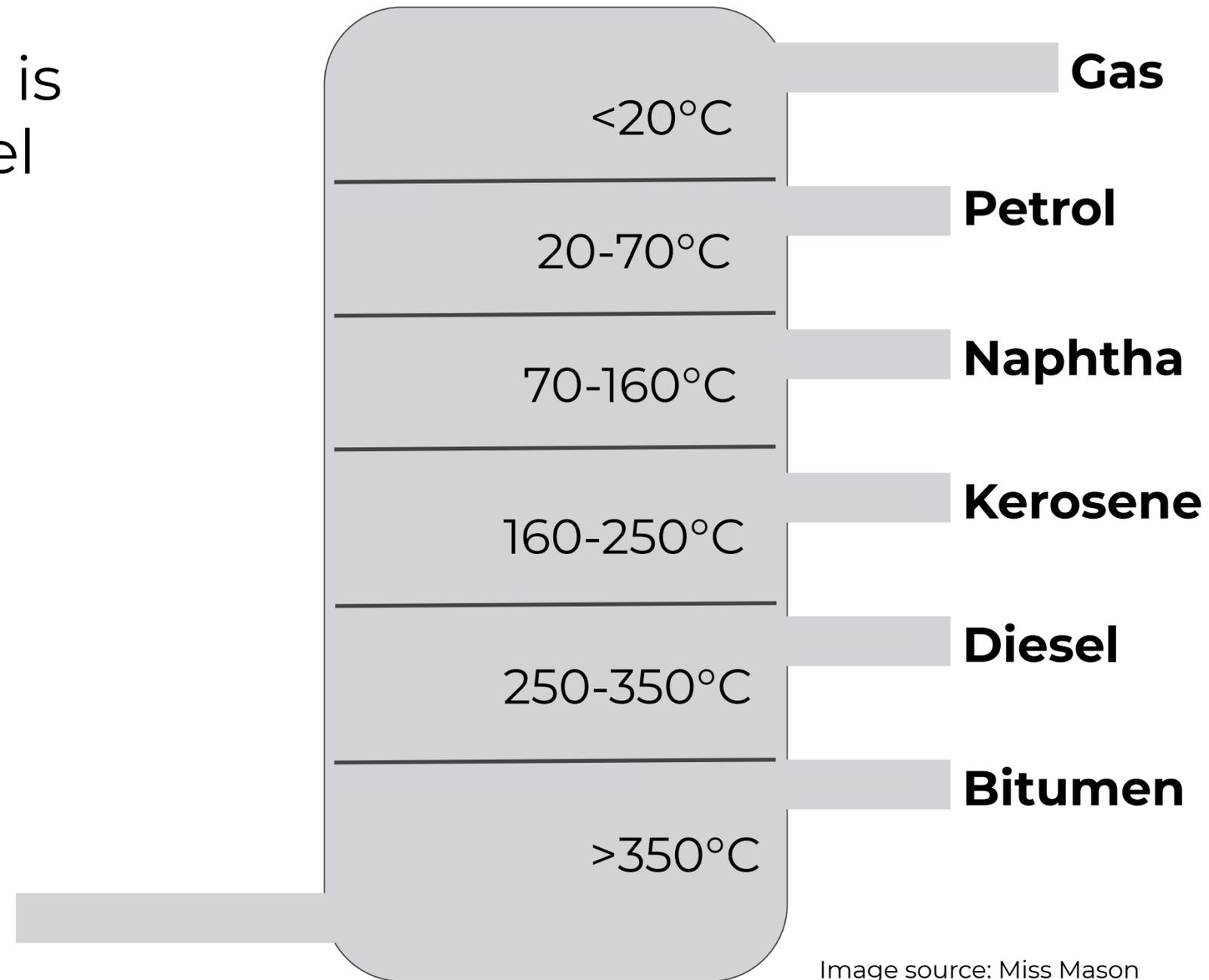
# Exam-style questions

Describe how fractional distillation is used to separate out the different fractions of crude oil.



# Exam-style questions

Suggest why petrol is more useful as a fuel than bitumen.



# Exam-style questions

Describe 2 differences between fractional distillation and catalytic cracking.

