

# Fractional distillation

Chemistry - Key Stage 4

Organic Chemistry

Miss Mason



# Recap

1. What is crude oil?

**Crude oil is a fossil made from the remains of a (mainly plants) buried in mud. It is a mixture made up of mainly hydrocarbons.**

2. Identify and draw the first 4 alkanes.

3. Work out the formula of an alkane that has 12 carbon atoms.



# Copy and complete

Fractional distillation is used to...

To carry this out, a f\_\_\_\_\_ c\_\_\_\_\_ has to be used.

The hydrocarbons are separated out based on their c\_\_\_\_\_ l\_\_\_\_\_ as this determines their m\_\_\_\_\_ and b\_\_\_\_\_ point due to the strength of the i\_\_\_\_\_ forces.

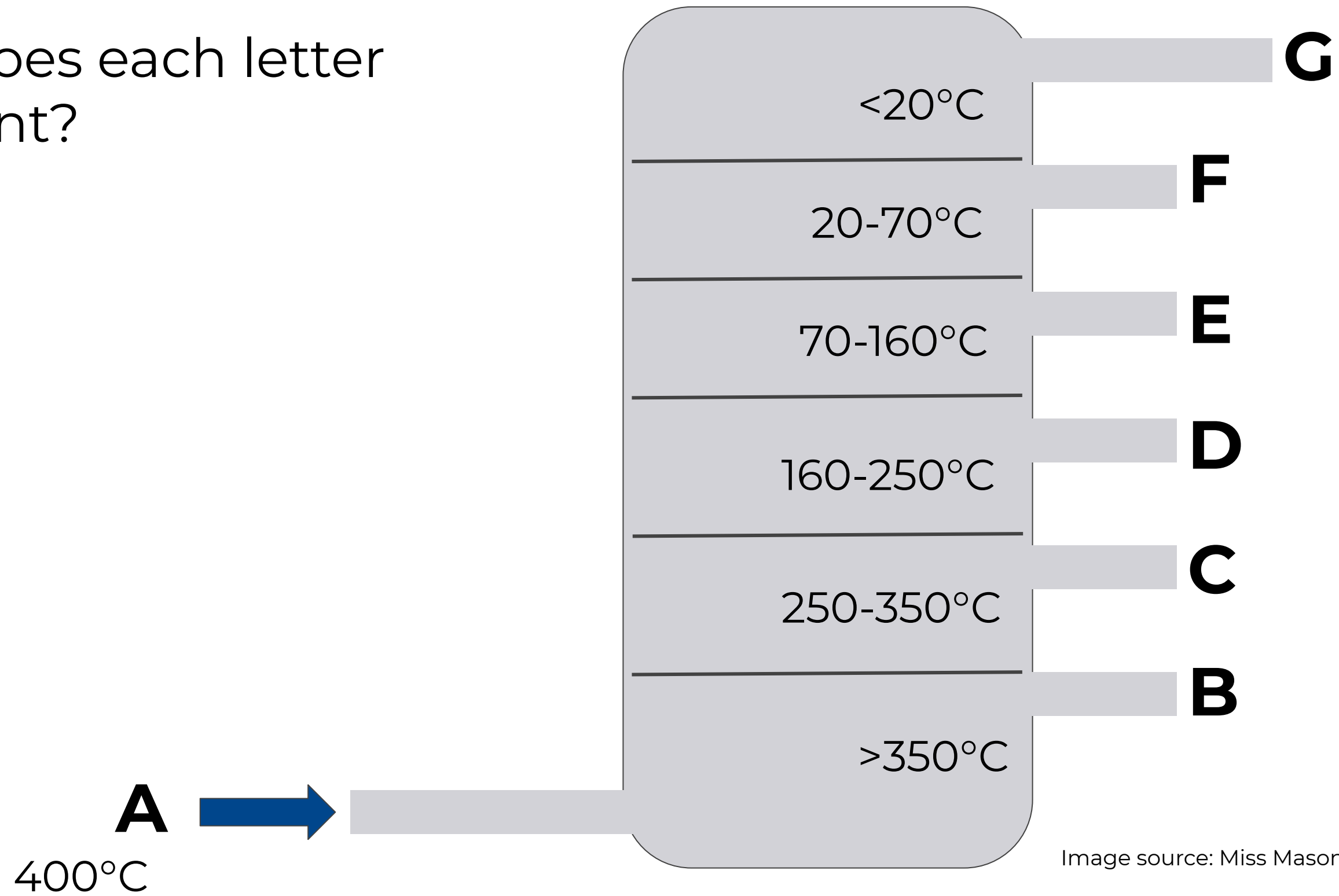
Longer molecules have stronger i\_\_\_\_\_ forces, so require more \_\_\_\_\_ to break them down and therefore have a higher m\_\_\_\_\_ and b\_\_\_\_\_ point.

Shorter molecules, on the other hand...



# Fractionating column

What does each letter represent?



# Uses of hydrocarbons

1. Petrol

2. Naphtha

3. Kerosene

4. Diesel

5. Bitumen

a) Manufacture of chemicals

b) Used for laying roads

c) Fuel for cars

d) Fuel for aircrafts

e) Fuel for cars, vans and lorries



# Knowledge check!

1. What is the link between chain length and boiling point?
2. Explain the above relationship.
3. Where is the fractionating column the hottest/coldest?
4. What happens at the top of the fractionating column?
5. What happens at the bottom of the fractionating column?
6. How can the fractions naphtha, kerosene and bitumen from crude oil be used?



## Exam-style question

**Describe and explain how the fractions are separated in a fractionating column**

