Mr Cole Science

Name: _____ Date: _____

AQA A-LEVEL CHEMISTRY

Alkanes:
Structure, Properties and Reactivity

Learn Pack

Guided notes, worked examples and practice questions to be completed alongside the lesson.

WATCH THE LESSON

Alkanes

Alkanes are found in fuels, crude oil, and many of the materials we use in everyday life but are surprisingly _____ compared to many other organic compounds. Alkanes are a _____ series of compounds that have the general formula _____ . Alkanes are described as saturated hydrocarbons.

Lesson Objectives:

- Know that alkanes are saturated hydrocarbons with the general formula C_nH_{2n+2}.
- Apply IUPAC naming rules to alkanes.
- Explain the trends in boiling points of alkanes.
- Explain why alkanes are insoluble in water.
- Explain why alkanes are relatively unreactive.

Define the term *hydrocarbon*:

_____

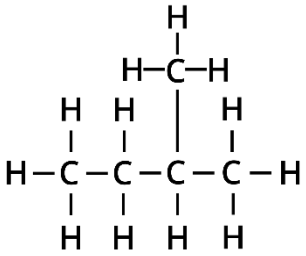
_____

Define the term *saturated*:

_____

_____

Naming Alkanes



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Common mistake:

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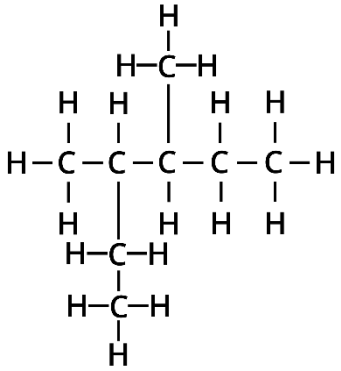

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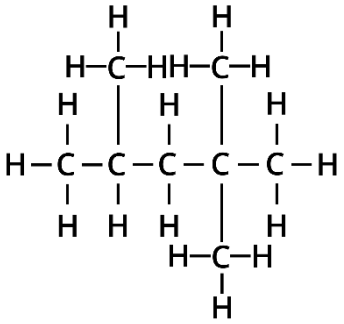

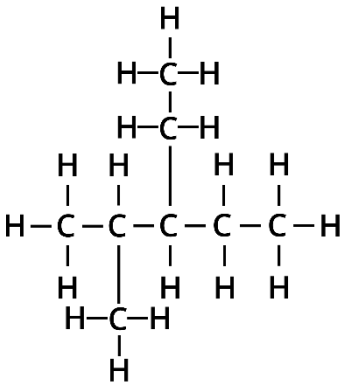

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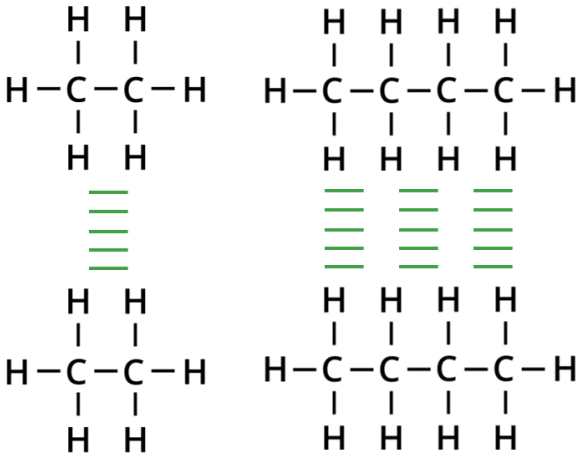
Physical Properties: Boiling Points



Explain why the boiling points of alkanes increases with carbon chain length:

_____

_____

_____

Explain why branched chain isomers have lower boiling points than straight chain isomers:

Physical Properties: Solubility

Alkanes are _____ in water because they are _____ molecules. This is because both carbon and hydrogen have similar _____ values, making carbon-hydrogen bonds _____ .

Chemical Properties: Reactivity

Alkanes relatively unreactive. Explain two reasons why this is true.

Reason 1:

Reason 2:

Practise Questions – Fact Recall

1. What is the general formula for alkanes?

2. Alkanes are described as *saturated hydrocarbons*, state what each term means.

   Saturated:

   Hydrocarbon:

3. Explain the trend in boiling point of straight chain alkanes.

4. Why are alkanes relatively unreactive?

5. Why are alkanes good fuels?