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**GCSE Combined Science**

**Student Revision Booklet**

**Organic chemistry**

**Contents:**

1. Student checklist and RAG sheet
2. Pre-revision Multiple Choice Quiz
3. Key questions, 5 sentences, 5 words
4. Exam Practice Questions
5. Progress checkpoint - Post-revision Multiple Choice Quiz
6. Student checklist and RAG sheet

**GCSE Combined Science**

**Student Checklist Organic chemistry**

**Read each statement below and colour the box that best describes your current understanding.**

**(R – red: low understanding, A – amber: some understanding, G - green: good understanding)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Checklist statement** | **R** | **A** | **G** |
| **Describe what crude oil is and where it comes from, including the basic composition of crude oil** |  |  |  |
| **State the names of the first four members of the alkanes, recognise substances as alkanes from their formulae and the general chemical formula for the alkanes** |  |  |  |
| **Describe the process of fractional distillation and explain how it works it terms of evaporation and distillation** |  |  |  |
| **State the names and uses of fuels that are produced from crude oil by fractional distillation** |  |  |  |
| **Describe trends in the properties of hydrocarbons, including boiling point, viscosity and flammability and explain how their properties influence how they are used as fuels** |  |  |  |
| **Describe and write balanced chemical equations for the complete combustion of hydrocarbon fuels** |  |  |  |
| **Describe the process of cracking including the conditions used for catalytic and steam cracking** |  |  |  |
| **State that the products of cracking include alkanes and alkenes and describe the test for alkenes** |  |  |  |
| **Balance chemical equations as examples of cracking when given the formulae of the reactants and products** |  |  |  |
| **Explain why cracking is useful and why modern life depends on the uses of hydrocarbons** |  |  |  |

**Pre-Revision Multiple Choice Questions**

**GCSE Combined Science – Organic Chemistry**

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| **INSTRUCTIONS Score: /20** |

* **Read the question carefully.**
* **Circle the correct letter.**
* **Answer all questions.**

|  |  |  |
| --- | --- | --- |
| 1. | The phrase which best describes crude oil is: | |
|  | a. | Liquid fuel |
|  | b. | Mixture of hydrocarbons |
|  | c. | Pure substance |
|  | d. | Made from fossils |
| 2. | All alkanes contain: | |
|  | a. | C=C |
|  | b. | -COOH |
|  | c. | -OH |
|  | d. | -C-C- |
| 3. | The general formula for alkanes is: | |
|  | a. | CnH2n |
|  | b. | CnHn |
|  | c. | CnH2n+2 |
|  | d. | CnH3n |
| 4. | When ethane burns during complete combustion, the products formed are: | |
|  | a. | CO2 + H2O |
|  | b. | CO +H2O |
|  | c. | CO2 +CO |
|  | d. | CO2 + H2 |
| 5. | The formula for methane is: | |
|  | 1. CH |  |
|  | 1. CH3OH |  |
|  | 1. C2H6 |  |
|  | 1. CH4 |  |
| 6. | A monomer must contain: | |
|  | a. | A C=C double bond. |
|  | b. | A C-C double bond. |
|  | c. | A C-C- single bond. |
|  | d. | Carbon and hydrogen. |
| 7. | All alkenes contain: | |
|  | a. | C=C |
|  | b. | -COOH |
|  | c. | -OH |
|  | d. | -C-C- |
| 8. | The formula for ethane is: | |
|  | 1. CH | |
|  | 1. CH3OH | |
|  | 1. C2H6 | |
|  | 1. CH4 | |
|  |  | |
| 9. | Poly(ethene) is produced from the monomer: | |
|  | a. | Propene. |
|  | b. | Ethane |
|  | c. | Butene |
|  | d. | Ethene |
|  |  | |
| 10. | DNA is a type of: | |
|  | a. | Monomer. | |
|  | b. | Alcohol. | |
|  | c. | Polymer. | |
|  | d. | Alkane. | |
|  |  |  | |
| 11. | Polymers can be represented as: | |
|  | a. |  |
|  | b. |  |
|  | c. |  |
|  | d. | CH4 |
|  |  | |
| 12. | Ethene can make poly(ethene) because it has: | |
|  | a. | A C=C double bond. |
|  | b. | A C-C double bond. |
|  | c. | A C-C- single bond. |
|  | d. | Carbon and hydrogen. |
|  |  | |
| 13. | When ethane burns during incomplete combustion, the products formed are: | |
|  | a. | CO2 + H2O |
|  | b. | CO +H2O |
|  | c. | CO2 +CO |
|  | d. | CO2 + H2 |
|  |  | |
| 14. | Fractional distillation separates crude oil by: | |
|  | a. | Different boiling points of each fraction. |
|  | b. | Different melting points of each fraction. |
|  | c. | Crystallisation. |
|  | d. | Condensation at the freezing point of each fraction. |
|  |  | |
| 15. | Long chain alkanes are broken down by: | |
|  | a. | Chromatography. |
|  | b. | Cracking. |
|  | c. | Fractional distillation. |
|  | d. | Crystallisation. |
|  |  | |
| 16. | The breakdown of long chain alkanes forms: | |
|  | a. | Two shorter chain alkanes. |
|  | b. | Two shorter chain alkenes. |
|  | c. | A shorter chain alkene and an alkane. |
|  | d. | A shorter chain alkane and an alkene |
|  |  | |
| 17. | The formula for propane is: | |
|  | a. | C3H6OH |
|  | b. | C4H10 |
|  | c. | C4H9OH |
|  | d. | C3H6 |
|  |  | |
| 18. | The test for alkenes is: | |
|  | a. | Chlorine water. |
|  | b. | Bromine water. |
|  | c. | Limewater. |
|  | d. | Water. |
|  |  | |
| 19. | The positive result for the test for alkenes is: | |
|  | a. | Orange/brown to colourless. |
|  | b. | Green to red. |
|  | c. | Green to blue. |
|  | d. | Colourless to orange/brown. |
|  |  | |
| 20. | Short chain alkanes make better fuels because they are: | |
|  | a. | Not volatile |
|  | b. | Highly combustible. |
|  | c. | Viscous. |
|  | d. | Fragrant. |
|  |  | |

**Key questions, 5 sentences, 5 words**

**GCSE Combined Science – Organic chemistry**

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| **INSTRUCTIONS** |

* **For each statement, use either the suggested website or your own text book to write a 5-point summary. In examinations, answers frequently require more than 1 key word for the mark, so aim to include a few key words.**
* **It is important to stick to 5 sentences. It is the process of selecting the most relevant information and summarizing it that will help you remember it.**
* **Write concisely and do not elaborate unnecessarily, it is harder to remember and revise facts from a big long paragraph.**
* **Finally, identify 5 key words that you may have difficulty remembering and include a brief definition. You might like to include a clip art style picture to help you remember it.**

**Example:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **QUESTION:** | **Explain how addition polymerisation occurs.** | | | | |
| **Sources:** | **Website –**  [http://www.chemguide.co.uk/organicprops/alkenes/polymerisation.html](http://www.bbc.co.uk/schools/gcsebitesize/science/add_ocr_gateway/chemical_economics/reaction1rev4.shtml)  <http://www.bbc.co.uk/schools/gcsebitesize/science/ocr_gateway_pre_2011/carbon_chem/5_making_polymers3.shtml> | | | | |
| 1. **Many monomers containing C=C double bonds.** 2. **The monomer is unsaturated because of the double bond.** 3. **One of the doubles breaks and they join up end to end.** 4. **A long chain polymer is produced which is saturated.** 5. **The polymer repeating unit looks the same as the monomer with the exception of the double bond.** | | | | | |
| **monomer** | | **polymer** | **Saturated** | **Unsaturated** | **Repeating unit** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **QUESTION 1:** | **Explain how fractional distillation of crude oil occurs.** | | | | | | | | | |
| **Sources:** | **Website –**  1. <https://www.bbc.co.uk/education/guides/zm2v4wx/revision>  2. <http://www.gcsescience.com/e7-fractional-distillation.htm> | | | | | | | | | |
|  | | | | | | | | | | |
|  | | |  | |  | |  | |  | |
| **QUESTION 2:** | | **Name and draw the structural formula for the first four members of the alkanes.**  **Then predict the fifth structural formula.** | | | | | | | | | |
| **Sources:** | | **Website –**   1. <http://www.bbc.co.uk/schools/gcsebitesize/science/aqa/crudeoil/crudeoilrev1.shtml> | | | | | | | | | |
|  | | | | | | | | | | | |
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|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **QUESTION 3:** | **Explain how a long chain alkane can be made into more useful products.**  **Include a comparison of both methods, labelled diagrams, name the products and some of their uses.** | | | | |
| **Sources:** | **Website –**   1. <http://chemguide.co.uk/organicprops/alkanes/cracking.html>   2. <http://www.bbc.co.uk/schools/gcsebitesize/science/aqa_pre_2011/oils/polymersrev1.shtml> | | | | |
|  | | | | | |
|  | |  |  |  |  |

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| --- | --- | --- | --- | --- | --- |
| **QUESTION 4:** | **Describe the trends in the properties of hydrocarbons, including boiling point, viscosity and flammability and explain how their properties influence how they are used as fuels.** | | | | |
| **Sources:** | **Website –**  1. <http://chemistry.elmhurst.edu/vchembook/501hcboilingpts.html>  2. <http://www.bbc.co.uk/bitesize/standard/chemistry/materialsfromoil/fractional_distillation/revision/5/> | | | | |
|  | | | | | |
|  | |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **QUESTION 5:** | **Describe how alkanes undergo combustion and predict the products formed for both complete and incomplete combustion.** | | | | |
| **Sources:** | **Website –**   1. <https://www.bbc.co.uk/education/guides/zvvwxnb/revision> 2. <https://www.youtube.com/watch?v=iMBygFyUuSM> | | | | |
|  | | | | | |
|  | |  |  |  |  |

**Atomic Structure & Periodic Table**

**Exam Practice**

**Question 1:**

(a)     The names and formulae of three hydrocarbons in the same homologous series are:

Ethane             C2H6

Propane           C3H8

Butane             C4H10

The next member in the series is pentane.

What is the formula of pentane?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(1)**

(b)     Which homologous series contains ethane, propane and butane?

|  |  |
| --- | --- |
| Tick **one** box. |  |
| Alcohols | https://app.doublestruck.eu/content/AG_CHM/HTML/Q/QSP182F08_files/img01.png |
| Alkanes | https://app.doublestruck.eu/content/AG_CHM/HTML/Q/QSP182F08_files/img01.png |
| Alkenes | https://app.doublestruck.eu/content/AG_CHM/HTML/Q/QSP182F08_files/img01.png |
| Carboxylic acids | https://app.doublestruck.eu/content/AG_CHM/HTML/Q/QSP182F08_files/img01.png |

**(1)**

(c)     Propane (C3H8) is used as a fuel.

Complete the equation for the complete combustion of propane.

C3H8     +     5O2      →   3    \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   + 4  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(2)**

(d)     Octane (C8H18) is a hydrocarbon found in petrol.

Explain why octane is a hydrocarbon.

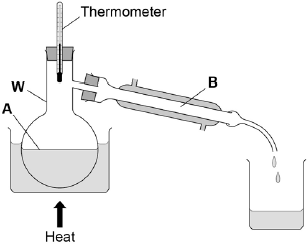
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**(2)**

**Question 2:**

The apparatus in the figure below is used to separate a mixture of liquids in a fuel.



(a)     What is apparatus **W** on above the figure above?

Tick **one** box.

|  |  |
| --- | --- |
| Beaker | https://app.doublestruck.eu/content/AG_SCC/HTML/Q/QSPTC2F02_files/img02.png |
| Boiling Tube | https://app.doublestruck.eu/content/AG_SCC/HTML/Q/QSPTC2F02_files/img02.png |
| Flask | https://app.doublestruck.eu/content/AG_SCC/HTML/Q/QSPTC2F02_files/img02.png |
| Jug | https://app.doublestruck.eu/content/AG_SCC/HTML/Q/QSPTC2F02_files/img02.png |

**(1)**

(b)     What is the name of this method of separation?

Tick **one** box.

|  |  |
| --- | --- |
| Crystallisation | https://app.doublestruck.eu/content/AG_SCC/HTML/Q/QSPTC2F02_files/img02.png |
| Electrolysis | https://app.doublestruck.eu/content/AG_SCC/HTML/Q/QSPTC2F02_files/img02.png |
| Filtration | https://app.doublestruck.eu/content/AG_SCC/HTML/Q/QSPTC2F02_files/img02.png |
| Distillation | https://app.doublestruck.eu/content/AG_SCC/HTML/Q/QSPTC2F02_files/img02.png |

**(1)**

(c)     Name the changes of state taking place at **A** and **B** in the figure above.

Use words from the box.

|  |  |  |  |
| --- | --- | --- | --- |
| **boiling** | **condensing** | **freezing** | **melting** |

Change of state at **A**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Change of state at **B**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(2)**

(d)     **Table 1** shows the boiling points of the hydrocarbons in the fuel.

**Table 1**

|  |  |
| --- | --- |
| **Hydrocarbon** | **Boiling point in °C** |
| Pentane | 36 |
| Hexane | 69 |
| Heptane | 98 |
| Octane | 125 |

Which hydrocarbon will be the last to collect in the beaker?

Tick **one** box.

|  |  |
| --- | --- |
| Pentane | https://app.doublestruck.eu/content/AG_SCC/HTML/Q/QSPTC2F02_files/img02.png |
| Hexane | https://app.doublestruck.eu/content/AG_SCC/HTML/Q/QSPTC2F02_files/img02.png |
| Heptane | https://app.doublestruck.eu/content/AG_SCC/HTML/Q/QSPTC2F02_files/img02.png |
| Octane | https://app.doublestruck.eu/content/AG_SCC/HTML/Q/QSPTC2F02_files/img02.png |

**(1)**

(e)     The fuel is a mixture of liquids that has been designed as a useful product.

What name is given to this type of mixture?

Tick **one** box.

|  |  |
| --- | --- |
| Catalyst | https://app.doublestruck.eu/content/AG_SCC/HTML/Q/QSPTC2F02_files/img02.png |
| Formulation | https://app.doublestruck.eu/content/AG_SCC/HTML/Q/QSPTC2F02_files/img02.png |
| Polymer | https://app.doublestruck.eu/content/AG_SCC/HTML/Q/QSPTC2F02_files/img02.png |
| Solvent | https://app.doublestruck.eu/content/AG_SCC/HTML/Q/QSPTC2F02_files/img02.png |

**(1)**

(f)     Describe how this fuel is different from crude oil.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**(2)**

(g)     A student measured the melting point of a solid hydrocarbon four times.

The student’s results are in **Table 2**.

**Table 2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Trial 1** | **Trial 2** | **Trial 3** | **Trial 4** |
| Melting point in °C | 35 | 48 | 37 | 37 |

Calculate the mean melting point of the hydrocarbon, leaving out any anomalous result.

Give your answer to two significant figures.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mean melting point = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ °C

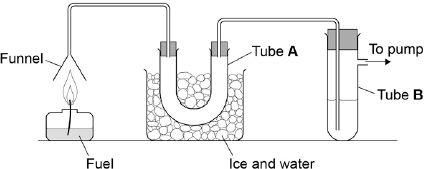
**(2)**

**(Total 10 marks)**

**Question 3:**

A student investigated the substances produced when fuels burn.

The figure below shows the apparatus the student used.



(a)     The complete combustion of a hydrocarbon produces carbon dioxide and one other substance.

Look at the figure above. What would the student see in tube **A**?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(1)**

(b)     When the student burned the fuel she saw soot in the funnel.

Explain why soot forms.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(2)**

(c)     The student burned another fuel which contained impurities.

The substance in tube **B** is water containing universal indicator.

The indicator turned red.

Which gas made the indicator turn red?

Tick **one** box.

|  |  |
| --- | --- |
| Ammonia | https://app.doublestruck.eu/content/AG_SCC/HTML/Q/QSPTC2F04_files/img02.png |
| Carbon monoxide | https://app.doublestruck.eu/content/AG_SCC/HTML/Q/QSPTC2F04_files/img02.png |
| Nitrogen | https://app.doublestruck.eu/content/AG_SCC/HTML/Q/QSPTC2F04_files/img02.png |
| Sulfur dioxide | https://app.doublestruck.eu/content/AG_SCC/HTML/Q/QSPTC2F04_files/img02.png |

**(1)**

**(Total 4 marks)**

**Progress Checkpoint**

**Post-revision Multiple Choice Questions**

**GCSE Combined Science – Organic Chemistry**

|  |
| --- |
| **INSTRUCTIONS Score: /20** |

* **Read the question carefully.**
* **Circle the correct letter.**
* **Answer all questions.**

|  |  |  |
| --- | --- | --- |
| 1. | The phrase which best describes crude oil is: | |
|  | a. | Liquid fuel |
|  | b. | Mixture of hydrocarbons |
|  | c. | Pure substance |
|  | d. | Made from fossils |
| 2. | All alkanes contain: | |
|  | a. | C=C |
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|  | 1. CH3OH | |
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|  | 1. CH4 | |
|  |  | |
| 9. | Poly(ethene) is produced from the monomer: | |
|  | a. | Propene. |
|  | b. | Ethane |
|  | c. | Butene |
|  | d. | Ethene |
|  |  | |
| 10. | DNA is a type of: | |
|  | a. | Monomer. | |
|  | b. | Alcohol. | |
|  | c. | Polymer. | |
|  | d. | Alkane. | |
|  |  |  | |
| 11. | Polymers can be represented as: | |
|  | a. |  |
|  | b. |  |
|  | c. |  |
|  | d. | CH4 |
|  |  | |
| 12. | Ethene can make poly(ethene) because it has: | |
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|  | c. | CO2 +CO |
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|  |  | |
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|  | a. | Different boiling points of each fraction. |
|  | b. | Different melting points of each fraction. |
|  | c. | Crystallisation. |
|  | d. | Condensation at the freezing point of each fraction. |
|  |  | |
| 15. | Long chain alkanes are broken down by: | |
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|  | b. | Cracking. |
|  | c. | Fractional distillation. |
|  | d. | Crystallisation. |
|  |  | |
| 16. | The breakdown of long chain alkanes forms: | |
|  | a. | Two shorter chain alkanes. |
|  | b. | Two shorter chain alkenes. |
|  | c. | A shorter chain alkene and an alkane. |
|  | d. | A shorter chain alkane and an alkene |
|  |  | |
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|  | b. | C4H10 |
|  | c. | C4H9OH |
|  | d. | C3H6 |
|  |  | |
| 18. | The test for alkenes is: | |
|  | a. | Chlorine water. |
|  | b. | Bromine water. |
|  | c. | Limewater. |
|  | d. | Water. |
|  |  | |
| 19. | The positive result for the test for alkenes is: | |
|  | a. | Orange/brown to colourless. |
|  | b. | Green to red. |
|  | c. | Green to blue. |
|  | d. | Colourless to orange/brown. |
|  |  | |
| 20. | Short chain alkanes make better fuels because they are: | |
|  | a. | Not volatile |
|  | b. | Highly combustible. |
|  | c. | Viscous. |
|  | d. | Fragrant. |
|  |  | |

**GCSE Combined Science**

**Student Checklist Organic chemistry**

**Now that you have completed the booklet re-read each statement below and colour the box that best describes your current understanding.**

**(R – red: low understanding, A – amber: some understanding, G - green: good understanding)**

**Compare your checklist from before the revision to the checklist after revision.**

**Have you made progress, do you have more confidence of the basic concepts?**

**Which areas do you still need to work on?**

|  |  |  |  |
| --- | --- | --- | --- |
| **Checklist statement** | **R** | **A** | **G** |
| **Describe what crude oil is and where it comes from, including the basic composition of crude oil** |  |  |  |
| **State the names of the first four members of the alkanes, recognise substances as alkanes from their formulae and the general chemical formula for the alkanes** |  |  |  |
| **Describe the process of fractional distillation and explain how it works it terms of evaporation and distillation** |  |  |  |
| **State the names and uses of fuels that are produced from crude oil by fractional distillation** |  |  |  |
| **Describe trends in the properties of hydrocarbons, including boiling point, viscosity and flammability and explain how their properties influence how they are used as fuels** |  |  |  |
| **Describe and write balanced chemical equations for the complete combustion of hydrocarbon fuels** |  |  |  |
| **Describe the process of cracking including the conditions used for catalytic and steam cracking** |  |  |  |
| **State that the products of cracking include alkanes and alkenes and describe the test for alkenes** |  |  |  |
| **Balance chemical equations as examples of cracking when given the formulae of the reactants and products** |  |  |  |
| **Explain why cracking is useful and why modern life depends on the uses of hydrocarbons** |  |  |  |

**Set yourself a target to help you learn one area you are still having trouble with and ask your teacher to test you in one week to see if you rose to the challenge.**

Answers to multiple choice questions:

1. b 6. a 11. a 16. d

2. d 7. a 12. a 17. b

3. c 8. c 13. b 18. b

4. a 9. d 14. a 19. a

5. d 10. c 15. b 20. b

Booklet review:

|  |  |
| --- | --- |
| WWW: Please write three things you found useful about this booklet | EBI: Please write three improvements you would make to the booklet to improve your learning/revision of this topic. |
|  |  |

Please rate the following statements 1-4, where 1 is strongly disagree and 4 is strongly agree.

1. I found this booklet helpful for focusing my learning 1 2 3 4
2. The booklet helped me improve my knowledge and understanding 1 2 3 4
3. I now have a set of revision notes I know I will use again 1 2 3 4
4. I have learnt the meaning of keywords 1 2 3 4
5. The checklist was useful for identifying my strengths and weaknesses 1 2 3 4
6. The post-revision test was a good way of showing I had made progress in my learning 1 2 3 4
7. I can use the post-revision checklist to continue my revision of my weakest areas 1 2 3 4
8. I would use this style of booklet to revise other topics 1 2 3 4