

# AQA GCSE Chemistry: Higher

Advance Information of Assessed Content 2022

Link to specification: [GCSE Chemistry Specification Specification for first teaching in 2016 \(aqa.org.uk\)](#)

Link to advance information document: [Advanced information June 2022 - GCSE Chemistry \(8462\) \(aqa.org.uk\)](#)

# Chemistry Paper 1 - H

These specification points will be the **major focus** of this paper.

**Exam date: 27<sup>th</sup> May**

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| Spec point  | Concepts  | Pearson revision guide pages | Bitesize   | YouTube   |
|---|---|------------------------------|--|---|
| <b>4.1.2</b> The Periodic Table                           | <ul style="list-style-type: none"> <li>-The Periodic Table is arranged in order of proton number</li> <li>-What atoms of elements in the same group have in common</li> <li>-What atoms of elements in the same period have in common</li> <li>-development in the Periodic Table</li> <li>-ions formed from metals and non-metals</li> <li>-trends in physical and chemical properties of group 1, 7 and 0 elements</li> <li>- Reactions of group 1 and 7 elements</li> </ul>  | 8-12                         | <p><a href="https://www.bbc.co.uk/bitesize/guides/z3sg2nb/revision/1">https://www.bbc.co.uk/bitesize/guides/z3sg2nb/revision/1</a></p> <p><a href="https://www.bbc.co.uk/bitesize/guides/zg923k7/revision/1">https://www.bbc.co.uk/bitesize/guides/zg923k7/revision/1</a></p> <p><a href="https://www.bbc.co.uk/bitesize/guides/zqwtci6/revision/1">https://www.bbc.co.uk/bitesize/guides/zqwtci6/revision/1</a></p> | <p><a href="https://www.youtube.com/watch?v=IdS9roW7IzM&amp;t=119s">https://www.youtube.com/watch?v=IdS9roW7IzM&amp;t=119s</a></p> <p><a href="https://www.youtube.com/watch?v=uwzXfZoCP_k">https://www.youtube.com/watch?v=uwzXfZoCP_k</a></p> <p><a href="https://www.youtube.com/watch?v=dZGDUKQa_6g">https://www.youtube.com/watch?v=dZGDUKQa_6g</a></p> <p><a href="https://www.youtube.com/watch?v=HT1zAPQIBAQ">https://www.youtube.com/watch?v=HT1zAPQIBAQ</a></p>   |
| <b>4.2.1</b> Chemical bonds, ionic, covalent and metallic | <ul style="list-style-type: none"> <li>-Describe the process of ionic bonding</li> <li>-Describe the process of covalent bonding</li> <li>-Describe the process of metallic bonding</li> <li>-explain chemical bonding in terms of electrostatic forces and the transfer or sharing of electrons.</li> <li>-work out the charge on the ions of metals and non-metals from the group number of the element, limited to the metals in Groups 1 and 2, and non-metals in Groups 6 and 7</li> <li>-Describe the structure of ionic compounds</li> <li>-draw dot and cross diagrams for the molecules of hydrogen, chlorine, oxygen, nitrogen, hydrogen chloride, water, ammonia and methane</li> <li>-Describe the structure of metals</li> </ul> | 16, 17, 19, 24               | <p><a href="https://www.bbc.co.uk/bitesize/guides/zyydng8/revision/1">https://www.bbc.co.uk/bitesize/guides/zyydng8/revision/1</a></p> <p><a href="https://www.bbc.co.uk/bitesize/guides/zcpjfcw/revision/1">https://www.bbc.co.uk/bitesize/guides/zcpjfcw/revision/1</a></p> <p><a href="https://www.bbc.co.uk/bitesize/guides/z8db7p3/revision/1">https://www.bbc.co.uk/bitesize/guides/z8db7p3/revision/1</a></p> | <p><a href="https://www.youtube.com/watch?v=6DtrrWA5nkE">https://www.youtube.com/watch?v=6DtrrWA5nkE</a></p> <p><a href="https://www.youtube.com/watch?v=lenvZEcMc60">https://www.youtube.com/watch?v=lenvZEcMc60</a></p> <p><a href="https://www.youtube.com/watch?v=IhEm7aAKIDg">https://www.youtube.com/watch?v=IhEm7aAKIDg</a></p> <p><a href="https://www.youtube.com/watch?v=5I_1jRGSR9E">https://www.youtube.com/watch?v=5I_1jRGSR9E</a></p> <p><a href="https://www.youtube.com/watch?v=b1y2Q6YX1bQ">https://www.youtube.com/watch?v=b1y2Q6YX1bQ</a></p> <p><a href="https://www.youtube.com/watch?v=A-wTpLPICd0&amp;t=13s">https://www.youtube.com/watch?v=A-wTpLPICd0&amp;t=13s</a></p> |

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|---|---|------------------------------|---|---|
| <b>4.2.2</b> How bonding and structure are related to the properties of a substance | <ul style="list-style-type: none"><li>-interpreting melting and boiling point data to determine state at a certain temp</li><li>-link energy needed to change state to strength of forces between particles</li><li>-state symbols</li><li>-describe &amp; explain properties of ionic compounds</li><li>-describe &amp; explain properties of simple covalent molecules</li><li>-describe &amp; explain properties of polymers</li><li>-describe &amp; explain properties of metals and alloys</li></ul> | 18, 20-21, 25-26             | <ul style="list-style-type: none"><li><a href="https://www.bbc.co.uk/bitesize/guides/zyydn8/revision/1">https://www.bbc.co.uk/bitesize/guides/zyydn8/revision/1</a></li><li><a href="https://www.bbc.co.uk/bitesize/guides/zcpjfcw/revision/1">https://www.bbc.co.uk/bitesize/guides/zcpjfcw/revision/1</a></li><li><a href="https://www.bbc.co.uk/bitesize/guides/z9twsrd/revision/1">https://www.bbc.co.uk/bitesize/guides/z9twsrd/revision/1</a></li><li><a href="https://www.bbc.co.uk/bitesize/guides/z8db7p3/revision/1">https://www.bbc.co.uk/bitesize/guides/z8db7p3/revision/1</a></li></ul> | <ul style="list-style-type: none"><li><a href="https://www.youtube.com/watch?v=leVxy7cjZMU">https://www.youtube.com/watch?v=leVxy7cjZMU</a></li><li><a href="https://www.youtube.com/watch?v=DECGNyC-x_s">https://www.youtube.com/watch?v=DECGNyC-x_s</a></li><li><a href="https://www.youtube.com/watch?v=EP0zfm_FVqc">https://www.youtube.com/watch?v=EP0zfm_FVqc</a></li><li><a href="https://www.youtube.com/watch?v=A-wTpLPICd0">https://www.youtube.com/watch?v=A-wTpLPICd0</a></li></ul> |
| <b>4.2.3</b> Structure and bonding of carbon  | <ul style="list-style-type: none"><li>-describe and explain the properties of diamond, graphite, graphene and fullerenes</li></ul>  | 22-23                        | <ul style="list-style-type: none"><li><a href="https://www.bbc.co.uk/bitesize/guides/z9twsrd/revision/1">https://www.bbc.co.uk/bitesize/guides/z9twsrd/revision/1</a></li></ul>   | <ul style="list-style-type: none"><li><a href="https://www.youtube.com/watch?v=tGH0mXCcEFU">https://www.youtube.com/watch?v=tGH0mXCcEFU</a></li></ul>   |

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|---|--|------------------------------|---|---|
| 4.3.2 Use of amount of substance in relation to masses of pure substances | <ul style="list-style-type: none"><li>-calculating relative formula mass</li><li>-calculating the number of moles in a given mass of a substance, calculating the mass of a certain no. of moles of a substance</li><li>-Avogadro's constant – the number of particles in 1 mole of every substance</li><li>-calculate the masses of reactants and products from the balanced symbol equation and the mass of a given reactant or product.</li><li>-using molar ratios to balance equations</li><li>-identifying limiting reactants and explaining the effect on yield of products</li><li>-define concentration of a solution</li><li>-calculate the concentration of a solution, or the mass of a solute dissolved in a given volume to create a solution of given concentration</li></ul> | 29-39                        | <ul style="list-style-type: none"><li><a href="https://www.bbc.co.uk/bitesize/guides/zgcyw6f/revision/1">https://www.bbc.co.uk/bitesize/guides/zgcyw6f/revision/1</a></li><li><a href="https://www.bbc.co.uk/bitesize/guides/z3kg2nb/revision/1">https://www.bbc.co.uk/bitesize/guides/z3kg2nb/revision/1</a></li></ul> | <ul style="list-style-type: none"><li><a href="https://www.youtube.com/watch?v=q49NwlrjaFw">https://www.youtube.com/watch?v=q49NwlrjaFw</a></li><li><a href="https://www.youtube.com/watch?v=wPGVQu3UXpw">https://www.youtube.com/watch?v=wPGVQu3UXpw</a></li><li><a href="https://www.youtube.com/watch?v=TV6n5MFH6IU">https://www.youtube.com/watch?v=TV6n5MFH6IU</a></li><li><a href="https://www.youtube.com/watch?v=YKvUQ2cPmJg">https://www.youtube.com/watch?v=YKvUQ2cPmJg</a></li><li><a href="https://www.youtube.com/watch?v=MuzOmFhIE8o">https://www.youtube.com/watch?v=MuzOmFhIE8o</a></li><li><a href="https://www.youtube.com/watch?v=3G3KQIyoZDI">https://www.youtube.com/watch?v=3G3KQIyoZDI</a></li></ul> |

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|--|--|------------------------------|---|--|
| 4.4.1 The Reactivity of Metals   | <ul style="list-style-type: none"> <li>-Metals + oxygen</li> <li>-Reduction and oxidation in terms of oxygen</li> <li>-reduction and oxidation in terms of electrons</li> <li>-identify in a given reaction, symbol equation or half equation which species are oxidised and which are reduced</li> <li>-The Reactivity Series</li> <li>- Displacement reactions</li> <li>- Extraction of metals by reduction</li> </ul>                                   | 41-43                        | <a href="https://www.bbc.co.uk/bitesize/guides/zsm7v9q/revision/1">https://www.bbc.co.uk/bitesize/guides/zsm7v9q/revision/1</a> | <a href="https://www.youtube.com/watch?v=Lk1V0buHEFs">https://www.youtube.com/watch?v=Lk1V0buHEFs</a><br><br><a href="https://www.youtube.com/watch?v=gnbuTI2aril">https://www.youtube.com/watch?v=gnbuTI2aril</a><br><br><a href="https://www.youtube.com/watch?v=2i5Lm7BMtpo">https://www.youtube.com/watch?v=2i5Lm7BMtpo</a><br><br><a href="https://www.youtube.com/watch?v=MXTSels6e2Y">https://www.youtube.com/watch?v=MXTSels6e2Y</a> |
| 4.4.2 Reactions of Acids   | <ul style="list-style-type: none"> <li>-Naming Salts</li> <li>-products of the reactions of acids and metals</li> <li>-explain the reactions of metals and acids in terms of loss and gain of electrons</li> <li>-produces of the reactions of acids and alkalis and insoluble bases</li> <li>-products of the reactions of acids and metal carbonates</li> <li>-pH scale and neutralisation</li> <li>-difference between strong and weak acids</li> </ul> | 44, 46                       | <a href="https://www.bbc.co.uk/bitesize/guides/zcijfcw/revision/1">https://www.bbc.co.uk/bitesize/guides/zcijfcw/revision/1</a> | <a href="https://www.youtube.com/watch?v=ofw6oHSYGF1">https://www.youtube.com/watch?v=ofw6oHSYGF1</a><br><br><a href="#">GCSE Science Revision Chemistry "Acids Reacting with Metals 2" - YouTube</a><br><br><a href="https://www.youtube.com/watch?v=QISle_jSQ8">https://www.youtube.com/watch?v=QISle_jSQ8</a>   |
| 4.4.2.3 and Required Practical 1: preparation of a pure, dry sample of soluble salts | <ul style="list-style-type: none"> <li>-method of producing solid salt crystals from insoluble oxide or carbonate and acids</li> <li>-identifying errors in methods and reagents</li> </ul>  | 45                           | <a href="https://www.bbc.co.uk/bitesize/guides/zcijfcw/revision/6">https://www.bbc.co.uk/bitesize/guides/zcijfcw/revision/6</a> | <a href="https://www.youtube.com/watch?v=9GH95172Js8&amp;t=16s">https://www.youtube.com/watch?v=9GH95172Js8&amp;t=16s</a><br><br><a href="#">GCSE Science Revision Chemistry "Strong and Weak Acids" – YouTube</a>   |

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|---|---|------------------------------|---|---|
| <b>4.4.2.5 and Required practical 2:</b><br>determination of the reacting volumes of solutions of a strong acid and a strong alkali by titration. | <ul style="list-style-type: none"><li>-Method</li><li>-control variables and how to monitor them</li><li>-quantitative analysis of results</li></ul>  | 35                           | <a href="https://www.bbc.co.uk/bitesize/guides/zx98pbk/revision/1">https://www.bbc.co.uk/bitesize/guides/zx98pbk/revision/1</a> | <a href="https://www.youtube.com/watch?v=saRBT5oZfh8">https://www.youtube.com/watch?v=saRBT5oZfh8</a><br><a href="https://www.youtube.com/watch?v=vn3Rx3g1VPk">https://www.youtube.com/watch?v=vn3Rx3g1VPk</a><br><a href="https://www.youtube.com/watch?v=x8DLLCNMKAs">https://www.youtube.com/watch?v=x8DLLCNMKAs</a><br><a href="https://www.youtube.com/watch?v=ycC4oKteRJu">https://www.youtube.com/watch?v=ycC4oKteRJu</a>  |
| <b>4.4.3</b> Electrolysis   | <ul style="list-style-type: none"><li>-The process of electrolysis</li><li>-identifying oxidation and reduction in terms of electrons</li><li>-writing half equations for oxidation/reduction reactions occurring at each electrode</li><li>-Electrolysis of molten ionic compounds</li><li>-Electrolysis of aluminium oxide</li><li>-Electrolysis of aqueous solutions, predicting products formed</li></ul> | 47-50                        | <a href="https://www.bbc.co.uk/bitesize/guides/zcsyw6f/revision/1">https://www.bbc.co.uk/bitesize/guides/zcsyw6f/revision/1</a> | <a href="https://www.youtube.com/watch?v=AhTrIL6xjBA&amp;t=2s">https://www.youtube.com/watch?v=AhTrIL6xjBA&amp;t=2s</a><br><a href="https://www.youtube.com/watch?v=ilNOpROacf0">https://www.youtube.com/watch?v=ilNOpROacf0</a><br><a href="https://www.youtube.com/watch?v=YcyMEIBEzAY">https://www.youtube.com/watch?v=YcyMEIBEzAY</a><br><a href="https://www.youtube.com/watch?v=6WjC_Vi4roA">https://www.youtube.com/watch?v=6WjC_Vi4roA</a><br><a href="https://www.youtube.com/watch?v=W9ngXNxSyoo">https://www.youtube.com/watch?v=W9ngXNxSyoo</a> |

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|--|--|------------------------------|---|---|
| <b>4.5.1</b> Exothermic and endothermic reactions  | <ul style="list-style-type: none"> <li>-describe the law of the conservation of energy</li> <li>-define exo and endothermic reactions and describe their features</li> <li>-give examples of exo and endothermic reactions</li> <li>-define activation energy</li> <li>-represent exo and endothermic reactions with reaction profiles</li> <li>-describe bond breaking in the reactants as an endothermic process</li> <li>-describe bond formation in the products as an exothermic process</li> <li>-calculate the energy transferred in chemical reactions using bond energies supplied</li> <li>-Use energy change values to identify if a reaction is exo/endothermic</li> </ul> | 52-53, 55-56                 | <a href="https://www.bbc.co.uk/bitesize/guides/zwfr2nb/revision/1">https://www.bbc.co.uk/bitesize/guides/zwfr2nb/revision/1</a> | <a href="https://www.youtube.com/watch?v=4HS6D0hTzdg">https://www.youtube.com/watch?v=4HS6D0hTzdg</a><br><br><a href="https://www.youtube.com/watch?v=dstRL5xB0Sk">https://www.youtube.com/watch?v=dstRL5xB0Sk</a><br><br><a href="https://www.youtube.com/watch?v=it0HGXhxD-s">https://www.youtube.com/watch?v=it0HGXhxD-s</a><br><br><a href="https://www.youtube.com/watch?v=eExCBkp4jB4">https://www.youtube.com/watch?v=eExCBkp4jB4</a><br><br><a href="https://www.youtube.com/watch?v=PdValXAVUOc">https://www.youtube.com/watch?v=PdValXAVUOc</a> |
| <b>Required Practical 4:</b> investigate the variables that affect temperature changes in reacting solutions such as, eg acid plus metals, carbonates, neutralisations, displacement of metals | <ul style="list-style-type: none"> <li>-Identifying independent, dependent, control variables</li> <li>-Analysing results</li> <li>-identifying exo and endothermic reactions from experimental results</li> </ul>   | 54                           | <a href="https://www.bbc.co.uk/bitesize/guides/zwfr2nb/revision/2">https://www.bbc.co.uk/bitesize/guides/zwfr2nb/revision/2</a> | <a href="https://www.youtube.com/watch?v=Bz0C9mmF2tw">https://www.youtube.com/watch?v=Bz0C9mmF2tw</a>   |

# Chemistry Paper 1 - H

Exam date: 20<sup>th</sup> June

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| Spec point   | Pearson Revision Guide Pages |
|--|------------------------------|
| <b>4.2.4</b> Bulk and surface properties of matter including nanoparticles | 27                           |

# Chemistry Paper 2 - H

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| Spec point   | Concepts  | Pearson revision guide pages | Bitesize   | YouTube  |
|--|---|------------------------------|--|--|
| <b>4.6.1</b> Rate of Reaction  | <ul style="list-style-type: none"> <li>-Calculating the rate of a reaction</li> <li>-Calculate the gradient of a tangent to the curve on these graphs as a measure of rate of reaction at a specific time.</li> <li>-Describe collision theory</li> <li>-Define activation energy</li> <li>-Describe and explain the factors that increase the rate of reaction</li> <li>-Describe and explain the effect of catalysts on rate of reaction</li> </ul> | 59-64, 66                    | <a href="https://www.bbc.co.uk/bitesize/guides/z3nbqhv/revision/1">https://www.bbc.co.uk/bitesize/guides/z3nbqhv/revision/1</a>                                | <a href="https://www.youtube.com/watch?v=UkrBJ6-uGFA">https://www.youtube.com/watch?v=UkrBJ6-uGFA</a><br><br><a href="https://www.youtube.com/watch?v=GCR5xeduq2o">https://www.youtube.com/watch?v=GCR5xeduq2o</a><br><br><a href="https://www.youtube.com/watch?v=-4HXaUBbv04">https://www.youtube.com/watch?v=-4HXaUBbv04</a><br><br><a href="https://www.youtube.com/watch?v=hel8fQjxcO8">https://www.youtube.com/watch?v=hel8fQjxcO8</a> |
| <b>Required Practical 5:</b> investigate how concentration affects the rates of reaction by a method involving measuring the volume of a gas produced/change in colour | <ul style="list-style-type: none"> <li>-identify independent, dependent and control variables</li> <li>-describe how to measure the dependent variable</li> <li>-analyse results and draw conclusions from graphed data</li> <li>-calculate rate of reaction from data</li> </ul>   | 65                           | <a href="#">Required practical - measure the production of a gas - Rates of reaction - AQA - GCSE Chemistry (Single Science) Revision - AQA - BBC Bitesize</a> | <a href="https://www.youtube.com/watch?v=N5p06i9ilmo">https://www.youtube.com/watch?v=N5p06i9ilmo</a><br><br><a href="https://www.youtube.com/watch?v=Gl6LVI7oAIU">https://www.youtube.com/watch?v=Gl6LVI7oAIU</a>   |

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| Spec point   | Concepts  | Pearson revision guide pages | Bitesize  | YouTube  |
|--|---|------------------------------|---|--|
| 4.6.2 Reversible reactions and dynamic equilibrium | <ul style="list-style-type: none"><li>-Identify and give examples of reversible reactions</li><li>-Apply the conservation of energy to reversible reactions</li><li>-Define dynamic equilibrium</li><li>-Describe Le Chatelier's principle</li><li>-Describe and explain the effect of changing the following conditions on equilibrium; concentration, temperature, pressure</li></ul> | 67-70                        | <a href="https://www.bbc.co.uk/bitesize/guides/zyhvw6f/revision/1">https://www.bbc.co.uk/bitesize/guides/zyhvw6f/revision/1</a> | <p><a href="https://www.youtube.com/watch?v=66qcNNJFy6E">https://www.youtube.com/watch?v=66qcNNJFy6E</a></p> <p><a href="#">GCSE Science Revision Chemistry "Concentration and Reversible Reactions" – YouTube</a></p> <p><a href="#">GCSE Science Revision Chemistry "Pressure and Reversible Reactions" – YouTube</a></p> <p><a href="#">GCSE Science Revision Chemistry "Temperature and reversible reactions" – YouTube</a></p> <p><a href="#">GCSE Chemistry - Le Chatelier's Principle #42 (Higher Tier) – YouTube</a></p> |

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|--|--|------------------------------|---|--|
| <b>4.7.1</b> Carbon compounds as fuels and feedstock   | <ul style="list-style-type: none"> <li>-describe crude oil as a mixture of different length hydrocarbons</li> <li>-define the term hydrocarbon</li> <li>-identify the first 4 alkanes from their chemical formula and name them</li> <li>-Describe the trend in properties as hydrocarbon chain length increases</li> <li>-Describe and explain the process of fractional distillation</li> <li>-describe the process of cracking</li> <li>-describe the use of alkenes</li> </ul> | 71-76                        | <a href="https://www.bbc.co.uk/bitesize/guides/zshvw6f/revision/1">https://www.bbc.co.uk/bitesize/guides/zshvw6f/revision/1</a> | <a href="https://www.youtube.com/watch?v=CX2IYWggEBc">https://www.youtube.com/watch?v=CX2IYWggEBc</a><br><br><a href="https://www.youtube.com/watch?v=317yCkSXPos">https://www.youtube.com/watch?v=317yCkSXPos</a><br><br><a href="https://www.youtube.com/watch?v=7AWwjKbRa_o">https://www.youtube.com/watch?v=7AWwjKbRa_o</a>  |
| <b>Required practical 7:</b> use of chemical tests to identify the ions in unknown single ionic compounds covering the ions from sections Flame tests through to Sulfates. | <ul style="list-style-type: none"> <li>-Describe reagents and positive results for each ion</li> <li>-Describe method of flame tests</li> </ul>  | 89                           | <a href="https://www.bbc.co.uk/bitesize/guides/zxtvw6f/revision/1">https://www.bbc.co.uk/bitesize/guides/zxtvw6f/revision/1</a> | <a href="https://www.youtube.com/watch?v=Bd0A44Iv2OI&amp;t=96s">https://www.youtube.com/watch?v=Bd0A44Iv2OI&amp;t=96s</a><br><br><a href="https://www.youtube.com/watch?v=4iZR54XIJOE">https://www.youtube.com/watch?v=4iZR54XIJOE</a><br><br><a href="https://www.youtube.com/watch?v=mWTgHjdea4Y">https://www.youtube.com/watch?v=mWTgHjdea4Y</a><br><br><a href="https://www.youtube.com/watch?v=fCZztwJmAlO">https://www.youtube.com/watch?v=fCZztwJmAlO</a> |

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# Chemistry Paper 2 - H

These specification points will be the **major focus** of this paper.

**Exam date: 20<sup>th</sup> June**

All other specification points from C2, other than those on the [next slide](#) that are explicitly omitted, **may still be assessed** in multiple choice questions/linked to a previous answer, so cannot be completely ignored in your revision

| Spec point  | Concepts  | Pearson revision guide pages | Bitesize  | YouTube   |
|---|---|------------------------------|---|---|
| <b>4.9.1</b> The composition and evolution of the Earth's Atmosphere  | <ul style="list-style-type: none"> <li>-describe the composition of the current atmosphere</li> <li>-describe the composition of the early atmosphere and explain theories of how the early atmosphere formed</li> <li>-explain how the early atmosphere changed to that of the present atmosphere</li> </ul>   | 91-92                        | <a href="https://www.bbc.co.uk/bitesize/guides/zg4qfcw/revision/1">https://www.bbc.co.uk/bitesize/guides/zg4qfcw/revision/1</a>   | <a href="https://www.youtube.com/watch?v=t1Z3GInldLA">https://www.youtube.com/watch?v=t1Z3GInldLA</a><br><br><a href="https://www.youtube.com/watch?v=I0h_-3M0Pso">https://www.youtube.com/watch?v=I0h_-3M0Pso</a>  |
| <b>4.10.1</b> Using the Earth's resources and obtaining potable water | <ul style="list-style-type: none"> <li>-Describe the renewable and non-renewable resources that we get from the Earth and its atmosphere</li> <li>-Define the term potable water</li> <li>-Describe how potable water can be produced.</li> <li>-Describe the differences in the treatment of waste water, salt water and ground water</li> <li>-Describe and evaluate alternative methods of extracting metals e.g. phytomining and bioleaching</li> </ul> | 98-99, 101                   | <a href="https://www.bbc.co.uk/bitesize/guides/zgqhcj6/revision/1">https://www.bbc.co.uk/bitesize/guides/zgqhcj6/revision/1</a><br><br><a href="https://www.bbc.co.uk/bitesize/guides/zpcjsrd/revision/1">https://www.bbc.co.uk/bitesize/guides/zpcjsrd/revision/1</a><br><br><a href="#">Biological methods of metal extraction - Higher - Ways of reducing the use of resources - AQA - GCSE Chemistry (Single Science) Revision - AQA - BBC Bitesize</a> | <a href="https://www.youtube.com/watch?v=-XcZTGavTZU">https://www.youtube.com/watch?v=-XcZTGavTZU</a><br><br><a href="https://www.youtube.com/watch?v=n7pYRQs20bl">https://www.youtube.com/watch?v=n7pYRQs20bl</a><br><br><a href="https://www.youtube.com/watch?v=b5RVPauf4oM">https://www.youtube.com/watch?v=b5RVPauf4oM</a> |

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| Spec point  | Concepts   | Pearson revision guide pages | Bitesize  | YouTube   |
|---|--|------------------------------|---|---|
| 4.10.4 The Haber process and the use of NPK fertilisers | <ul style="list-style-type: none"> <li>-Describe the purpose of the Haber process, the reaction and raw materials involved</li> <li>-interpret graphs of reaction conditions versus rate</li> <li>-apply the principles of dynamic equilibrium in Reversible reactions and dynamic equilibrium (4.6.2) to the Haber process</li> <li>-explain the trade-off between rate of production and position of equilibrium</li> <li>-explain how the commercially used conditions for the Haber process are related to the availability and cost of raw materials and energy supplies, control of equilibrium position and rate</li> <li>-Describe NPK fertilisers as formulations of various salts containing appropriate percentages of the elements.</li> <li>-Describe the composition of NPK fertilisers and how they are made</li> <li>-recall the names of the salts produced when phosphate rock is treated with nitric acid, sulfuric acid and phosphoric acid</li> </ul> | 107-109                      | <a href="https://www.bbc.co.uk/bitesize/guides/z9tvw6f/revision/1">https://www.bbc.co.uk/bitesize/guides/z9tvw6f/revision/1</a> | <a href="https://www.youtube.com/watch?v=1_HoWz5Kxfk">https://www.youtube.com/watch?v=1_HoWz5Kxfk</a><br><br><a href="https://www.youtube.com/watch?v=HAKaD6-7fgQ">https://www.youtube.com/watch?v=HAKaD6-7fgQ</a><br><br><a href="https://www.youtube.com/watch?v=rKzt9BvvEeQ">https://www.youtube.com/watch?v=rKzt9BvvEeQ</a> |

# Chemistry Paper 2 - H

Exam date: 20<sup>th</sup> June

These specification points will **not be assessed** on this paper.

| Spec point  | Pearson Revision Guide Pages |
|---|------------------------------|
| <b>4.9.2</b> Carbon dioxide and methane as greenhouse gases | 93                           |