

# AQA GCSE Chemistry: Foundation Tier

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 \(8462\) \(aqa.org.uk\)](#)

AQA GCSE Chemistry:  
Foundation Tier  
Paper 1

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	Bitesize	YouTube
<b>4.1.1</b> A simple model of the atom, symbols, relative formula mass, electronic charge and isotopes	<ul style="list-style-type: none"> <li>Define element, compound and mixture</li> <li>The history and development of the atom</li> <li>Mass and charge of protons, neutrons and electrons</li> <li>Draw electronic structure</li> <li>Write word equations for chemical reactions</li> </ul>	<p><a href="https://www.bbc.co.uk/bitesize/guides/zg2h4qt/revision/1">https://www.bbc.co.uk/bitesize/guides/zg2h4qt/revision/1</a></p> <p><a href="https://www.bbc.co.uk/bitesize/guides/zpbkh39/revision/1">https://www.bbc.co.uk/bitesize/guides/zpbkh39/revision/1</a></p> <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="#">GCSE Chemistry - Atoms &amp; Ions #1 – YouTube</a></p> <p><a href="#">GCSE Chemistry - Elements, Isotopes &amp; Relative Atomic Mass #2 – YouTube</a></p> <p><a href="#">GCSE Chemistry - Electron Arrangement #4 – YouTube</a></p> <p><a href="#">GCSE Chemistry - History of the Model of the Atom #6 - YouTube</a></p>
<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>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>	<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/zqwtcj6/revision/1">https://www.bbc.co.uk/bitesize/guides/zqwtcj6/revision/1</a></p>	<p><a href="https://www.youtube.com/watch?v=ldS9roW7IzM&amp;t=119s">https://www.youtube.com/watch?v=ldS9roW7IzM&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>	<p><a href="https://www.bbc.co.uk/bitesize/guides/zyydn8/revision/1">https://www.bbc.co.uk/bitesize/guides/zyydn8/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=lhEm7aAKIDg">https://www.youtube.com/watch?v=lhEm7aAKIDg</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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4.2.2 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>	<p><a href="https://www.bbc.co.uk/bitesize/guides/zyydn8/revision/1">https://www.bbc.co.uk/bitesize/guides/zyydn8/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/z9twsrd/revision/1">https://www.bbc.co.uk/bitesize/guides/z9twsrd/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=leVxy7cjZMU">https://www.youtube.com/watch?v=leVxy7cjZMU</a></p> <p><a href="https://www.youtube.com/watch?v=DECGNyC-x_s">https://www.youtube.com/watch?v=DECGNyC-x_s</a></p> <p><a href="https://www.youtube.com/watch?v=EP0zfm_FVqc">https://www.youtube.com/watch?v=EP0zfm_FVqc</a></p> <p><a href="https://www.youtube.com/watch?v=A-wTpLPICdO">https://www.youtube.com/watch?v=A-wTpLPICdO</a></p>
4.2.4 Bulk and surface properties of matter including nanoparticles	<ul style="list-style-type: none"> <li>Nanoscience refers to structures that are 1–100 nm in size, of the order of a few hundred atoms.</li> <li>Nanoparticles, are smaller than fine particles (PM2.5), which have diameters between 100 and 2500 nm (<math>1 \times 10^{-7}</math> m and <math>2.5 \times 10^{-6}</math> m). Coarse particles (PM10) have diameters between <math>1 \times 10^{-5}</math> m and <math>2.5 \times 10^{-6}</math> m.</li> <li>As the side of cube decreases by a factor of 10 the surface area to volume ratio increases by a factor of 10</li> <li>Nanoparticles may have properties different from those for the same materials in bulk because of their high surface area to volume ratio. It may also mean that smaller quantities are needed to be effective than for materials with normal particle sizes.</li> <li>Uses of nanoparticles</li> <li>Calculate surface area to volume ratio</li> </ul>	<p><a href="https://www.bbc.co.uk/bitesize/guides/z8m8pbk/revision/1">https://www.bbc.co.uk/bitesize/guides/z8m8pbk/revision/1</a></p>	<p><a href="#">GCSE Chemistry - Nanoparticles #60 - YouTube</a></p>
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>products 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>	<p><a href="https://www.bbc.co.uk/bitesize/guides/zcjfcw/revision/1">https://www.bbc.co.uk/bitesize/guides/zcjfcw/revision/1</a></p>	<p><a href="https://www.youtube.com/watch?v=ofw6oHSYGFI">https://www.youtube.com/watch?v=ofw6oHSYGFI</a></p> <p><a href="#">GCSE Science Revision Chemistry "Acids Reacting with Metals 2" - YouTube</a></p> <p><a href="https://www.youtube.com/watch?v=QISle_iSQ8">https://www.youtube.com/watch?v=QISle_iSQ8</a></p>

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<b>4.4.2.3 and Required Practical 1:</b> 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>	<a href="https://www.bbc.co.uk/bitesize/guides/zcjjfcw/revision/6">https://www.bbc.co.uk/bitesize/guides/zcjjfcw/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>  <a href="#">GCSE Science Revision Chemistry "Strong and Weak Acids" – YouTube</a>
<b>4.4.2.5 and Required practical 2:</b> 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>	<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>  <a href="https://www.youtube.com/watch?v=vn3Rx3g1VPk">https://www.youtube.com/watch?v=vn3Rx3g1VPk</a>  <a href="https://www.youtube.com/watch?v=x8DLLCNMKAs">https://www.youtube.com/watch?v=x8DLLCNMKAs</a>  <a href="https://www.youtube.com/watch?v=ycC4oKteRJU">https://www.youtube.com/watch?v=ycC4oKteRJU</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>	<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>

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Spec point	Concepts	Bitesize	YouTube
<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>	<a href="https://www.bbc.co.uk/bitesize/guides/zwfr2/nb/revision/1">https://www.bbc.co.uk/bitesize/guides/zwfr2/nb/revision/1</a>	<a href="https://www.youtube.com/watch?v=4HS6D0hTzdg">https://www.youtube.com/watch?v=4HS6D0hTzdg</a>  <a href="https://www.youtube.com/watch?v=dstRL5xBOSk">https://www.youtube.com/watch?v=dstRL5xBOSk</a>  <a href="https://www.youtube.com/watch?v=it0HGXhxD-s">https://www.youtube.com/watch?v=it0HGXhxD-s</a>  <a href="https://www.youtube.com/watch?v=eExCBkp4jB4">https://www.youtube.com/watch?v=eExCBkp4jB4</a>  <a href="https://www.youtube.com/watch?v=PdValXAVUOc">https://www.youtube.com/watch?v=PdValXAVUOc</a>

This specification point will **not be assessed** on this paper:

Spec point
<b>4.5.2</b> Chemical cells and fuel cells

AQA GCSE Chemistry:  
Foundation Tier  
Paper 2

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Spec point	Concepts	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>	<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> <a href="https://www.youtube.com/watch?v=GCR5xeduq2o">https://www.youtube.com/watch?v=GCR5xeduq2o</a> <a href="https://www.youtube.com/watch?v=-4HXaUBbv04">https://www.youtube.com/watch?v=-4HXaUBbv04</a> <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>	<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> <a href="https://www.youtube.com/watch?v=GI6LVI7oAIU">https://www.youtube.com/watch?v=GI6LVI7oAIU</a>
<b>4.6.2</b> 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> </ul>	<a href="https://www.bbc.co.uk/bitesize/guides/zyhvw6f/revision/1">https://www.bbc.co.uk/bitesize/guides/zyhvw6f/revision/1</a>	<a href="https://www.youtube.com/watch?v=66qcNNJFy6E">https://www.youtube.com/watch?v=66qcNNJFy6E</a> <a href="#">GCSE Science Revision Chemistry "Concentration and Reversible Reactions" – YouTube</a> <a href="#">GCSE Science Revision Chemistry "Pressure and Reversible Reactions" – YouTube</a> <a href="#">GCSE Science Revision Chemistry "Temperature and reversible reactions" – YouTube</a>

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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>	<a href="https://www.bitesize.co.uk/bitesize/guides/zshvw6f/revision/1">https://www.bitesize.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> <a href="https://www.youtube.com/watch?v=3I7yCkSXPos">https://www.youtube.com/watch?v=3I7yCkSXPos</a> <a href="https://www.youtube.com/watch?v=7AWwjKbRa_o">https://www.youtube.com/watch?v=7AWwjKbRa_o</a>
<b>Required practical 6</b> Investigate how paper chromatography can be used to separate and tell the difference between coloured substances. Students should calculate R <sub>f</sub> values	<ul style="list-style-type: none"> <li>Describe reagents and positive results for each ion</li> <li>Describe method of chromatography</li> <li>Calculate R<sub>f</sub> value: R<sub>f</sub> = distance moved by substance / distance moved by solvent</li> </ul>	<a href="https://www.bitesize.co.uk/bitesize/guides/zqqtrewx/revision/3">https://www.bitesize.co.uk/bitesize/guides/zqqtrewx/revision/3</a>	<a href="#">GCSE Chemistry - Paper Chromatography #48 - YouTube</a>
<b>4.8.3</b> Identification of ions by chemical and spectroscopic means	<ul style="list-style-type: none"> <li>flame tests for cations</li> <li>Test and results for metal hydroxides (Mg, Al, Ca, Cu (II), Fe (II), Fe (III))</li> <li>Tests for carbonate ions</li> <li>Test for halide ions</li> <li>Test for sulfate ions</li> <li>Explain how flame spectroscopy analyses metal ions in a substance</li> <li>State advantage of instrumental methods</li> </ul>	<a href="https://www.bitesize.co.uk/bitesize/guides/zxtvw6f/revision/1">https://www.bitesize.co.uk/bitesize/guides/zxtvw6f/revision/1</a>  <a href="https://www.bitesize.co.uk/bitesize/guides/zqqtrewx/revision/1">https://www.bitesize.co.uk/bitesize/guides/zqqtrewx/revision/1</a>	<a href="#">GCSE Chemistry - Tests for Anions - Carbonate, Sulfate and Halide Ions #73 – YouTube</a>  <a href="#">GCSE Chemistry - Formation of Ions #11 – YouTube</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>	<a href="https://www.bitesize.co.uk/bitesize/guides/zxtvw6f/revision/1">https://www.bitesize.co.uk/bitesize/guides/zxtvw6f/revision/1</a>	<a href="https://www.youtube.com/watch?v=Bd0A44lv2OI&amp;t=96s">https://www.youtube.com/watch?v=Bd0A44lv2OI&amp;t=96s</a> <a href="https://www.youtube.com/watch?v=4iZR54XIJQE">https://www.youtube.com/watch?v=4iZR54XIJQE</a> <a href="https://www.youtube.com/watch?v=mWTgHidea4Y">https://www.youtube.com/watch?v=mWTgHidea4Y</a> <a href="https://www.youtube.com/watch?v=fCZztwJmAl0">https://www.youtube.com/watch?v=fCZztwJmAl0</a>

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<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>	<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>  <a href="https://www.youtube.com/watch?v=I0h_-3MOPso">https://www.youtube.com/watch?v=I0h_-3MOPso</a>
<b>4.10.2</b> Life cycle assessments and recycling	<ul style="list-style-type: none"> <li>Life cycle assessments (LCAs) are carried out to assess the environmental impact of products in each of these stages</li> <li>Describe the stages of an LCA</li> <li>Carry out an LCA for plastic vs paper bags</li> <li>Describe how to reduce the use of limited resources</li> </ul>	<a href="https://www.bbc.co.uk/bitesize/guides/z96ydxs/revision/1">https://www.bbc.co.uk/bitesize/guides/z96ydxs/revision/1</a>	<a href="#">GCSE Chemistry - Life Cycle Assessments (LCAs) #58 - YouTube</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>	<a href="https://www.bbc.co.uk/bitesize/guides/zgqhcj6/revision/1">https://www.bbc.co.uk/bitesize/guides/zgqhcj6/revision/1</a>  <a href="https://www.bbc.co.uk/bitesize/guides/zpcjsrd/revision/1">https://www.bbc.co.uk/bitesize/guides/zpcjsrd/revision/1</a>  <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>  <a href="https://www.youtube.com/watch?v=n7pYRQs20bl">https://www.youtube.com/watch?v=n7pYRQs20bl</a>  <a href="https://www.youtube.com/watch?v=b5RVPauf4oM">https://www.youtube.com/watch?v=b5RVPauf4oM</a>
<b>Required practical 8:</b> Analysis and purification of water samples from different sources, including pH, dissolved solids and distillation	<ul style="list-style-type: none"> <li>Describe method to test for potable water including pH, dissolved solids and distillation</li> </ul>	<a href="https://www.bbc.co.uk/bitesize/guides/zpcjsrd/revision/1">https://www.bbc.co.uk/bitesize/guides/zpcjsrd/revision/1</a>	<a href="#">Water Purification &amp; Testing - GCSE Science Required Practical (Triple) - YouTube</a>

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 these pages 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	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>	<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>  <a href="https://www.youtube.com/watch?v=HAKaD6-7fgQ">https://www.youtube.com/watch?v=HAKaD6-7fgQ</a>  <a href="https://www.youtube.com/watch?v=rKzt9BvEeQ">https://www.youtube.com/watch?v=rKzt9BvEeQ</a>

This specification point will **not be assessed** on this paper:

Spec point
4.8.2 Identification of common gases