

AQA GCSE Chemistry: Paper 1 Foundation

Advance Information of Assessed Content 2022

Link to specification: [GCSE Chemistry Specification Specification for first teaching in 2016 \(aqa.org.uk\)](https://www.aqa.org.uk/qualifications/gcse-chemistry/specification-specification-for-first-teaching-in-2016)

Chemistry Paper 1 - F

Exam date: 27th May

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

Spec point	Concepts	CGP revision guide pages	Bitesize	YouTube
4.1.1 A simple model of the atom, symbols, RAM electronic charge and isotopes	<ul style="list-style-type: none"> - Atoms element and compounds - Mixture - Model of the atom - Mass charge and RAM - Electronic structure 	96,98,100	https://www.bbc.co.uk/bitesize/topics/zxnftv4	https://www.youtube.com/watch?v=L3NEXz9iryC&list=PL9IouNCPbCxULWXC09jt0PsuAbxYpw2_1
4.1.2 The Periodic Table	<ul style="list-style-type: none"> -The Periodic Table is arranged in order of proton number -What atoms of elements in the same group have in common -What atoms of elements in the same period have in common -development in the Periodic Table -ions formed from metals and non-metals -trends in physical and chemical properties of group 1,7 and 0 elements - Reactions of group 1 and 7 elements 	20-26	https://www.bbc.co.uk/bitesize/guides/z3sg2nb/revision/1 https://www.bbc.co.uk/bitesize/guides/zg923k7/revision/1 https://www.bbc.co.uk/bitesize/guides/zqwtcj6/revision/1	https://www.youtube.com/watch?v=IdS9roW7IzM&t=119s https://www.youtube.com/watch?v=uwzXfZoCP_k https://www.youtube.com/watch?v=dZGDUKQa_6g https://www.youtube.com/watch?v=HT1zAPQIBAQ

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4.2.1 Chemical bonds, ionic, covalent and metallic	<ul style="list-style-type: none"> -Describe the process of ionic bonding -Describe the process of covalent bonding -Describe the process of metallic bonding -explain chemical bonding in terms of electrostatic forces and the transfer or sharing of electrons. -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 -Describe the structure of ionic compounds -draw dot and cross diagrams for the molecules of hydrogen, chlorine, oxygen, nitrogen, hydrogen chloride, water, ammonia and methane -Describe the structure of metals 	28-31,35	<p>https://www.bbc.co.uk/bitesize/guides/zyydn8/revision/1</p> <p>https://www.bbc.co.uk/bitesize/guides/zcpjfcw/revision/1</p> <p>https://www.bbc.co.uk/bitesize/guides/z8db7p3/revision/1</p>	<p>https://www.youtube.com/watch?v=6DtrrWA5nKE</p> <p>https://www.youtube.com/watch?v=lenvZEcMc60</p> <p>https://www.youtube.com/watch?v=lhEm7aAKIDg</p> <p>https://www.youtube.com/watch?v=5I_1jRGS9E</p> <p>https://www.youtube.com/watch?v=b1y2Q6YX1bQ</p> <p>https://www.youtube.com/watch?v=A-wTpLPICd0&t=13s</p>
4.2.2 How bonding and structure are related to the properties of a substance	<ul style="list-style-type: none"> -interpreting melting and boiling point data to determine state at a certain temp -link energy needed to change state to strength of forces between particles -state symbols -describe & explain properties of ionic compounds -describe & explain properties of simple covalent molecules -describe & explain properties of polymers -describe & explain properties of metals and alloys 	28-32, 35-37	<p>https://www.bbc.co.uk/bitesize/guides/zyydn8/revision/1</p> <p>https://www.bbc.co.uk/bitesize/guides/zcpjfcw/revision/1</p> <p>https://www.bbc.co.uk/bitesize/guides/z9twsrd/revision/1</p> <p>https://www.bbc.co.uk/bitesize/guides/z8db7p3/revision/1</p>	<p>https://www.youtube.com/watch?v=leVxy7cjZMU</p> <p>https://www.youtube.com/watch?v=DECGNyC-x_s</p> <p>https://www.youtube.com/watch?v=EP0zfm_FVqc</p> <p>https://www.youtube.com/watch?v=A-wTpLPICd0</p>

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Spec point	Concepts	CGP revision guide pages	Bitesize	YouTube
4.2.4 Bulk and surface properties are related to the properties of substances	<ul style="list-style-type: none">-describe and explain the properties of nanoparticles- Describe the uses of nanoparticles		https://www.bbc.co.uk/bitesize/guides/z8m8pbk/revision/1	https://www.youtube.com/watch?v=-6eTx9YhJPI

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Spec point	Concepts	CGP revision guide pages	Bitesize	YouTube
4.4.2 Reactions of Acids	<ul style="list-style-type: none"> -Naming Salts -products of the reactions of acids and metals -explain the reactions of metals and acids in terms of loss and gain of electrons -produces of the reactions of acids and alkalis and insoluble bases -products of the reactions of acids and metal carbonates -pH scale and neutralisation -difference between strong and weak acids 	51,53-54	https://www.bbc.co.uk/bitesize/guides/zcjjfcw/revision/1	<p>https://www.youtube.com/watch?v=ofw6oHSYGF1</p> <p>GCSE Science Revision Chemistry "Acids Reacting with Metals 2" - YouTube</p> <p>https://www.youtube.com/watch?v=QISsle_jSQ8</p>
4.4.2.3 and Required Practical 1: preparation of a pure, dry sample of soluble salts	<ul style="list-style-type: none"> -method of producing solid salt crystals from insoluble oxide or carbonate and acids -identifying errors in methods and reagents 	Bottom half pg 54	https://www.bbc.co.uk/bitesize/guides/zcjjfcw/revision/6	<p>https://www.youtube.com/watch?v=9GH95172Js8&t=16s</p> <p>GCSE Science Revision Chemistry "Strong and Weak Acids" – YouTube</p>
4.4.2.5 and Required practical 2: determination of the reacting volumes of solutions of a strong acid and a strong alkali by titration.	<ul style="list-style-type: none"> -Method -control variables and how to monitor them -quantitative analysis of results 	52	https://www.bbc.co.uk/bitesize/guides/zx98pbk/revision/1	<p>https://www.youtube.com/watch?v=saRBT5oZfh8</p> <p>https://www.youtube.com/watch?v=vn3Rx3g1VPk</p> <p>https://www.youtube.com/watch?v=x8DLLCNMKAs</p> <p>https://www.youtube.com/watch?v=ycC4oKteRIU</p>

Chemistry Paper 1 - H

Exam date: 27th May

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Spec point	Concepts	CGP revision guide pages	Bitesize	YouTube
4.5.1 Exothermic and endothermic reactions	<ul style="list-style-type: none"> -describe the law of the conservation of energy -define exo and endothermic reactions and describe their features -give examples of exo and endothermic reactions -define activation energy -represent exo and endothermic reactions with reaction profiles -describe bond breaking in the reactants as an endothermic process -describe bond formation in the products as an exothermic process -calculate the energy transferred in chemical reactions using bond energies supplied -Use energy change values to identify if a reaction is exo/endothermic 	61-63	https://www.bbc.co.uk/bitesize/guides/zwfr2nb/revision/1	https://www.youtube.com/watch?v=4HS6D0hTzdg https://www.youtube.com/watch?v=dstRL5xB0Sk https://www.youtube.com/watch?v=it0HGXhxD-s https://www.youtube.com/watch?v=eExCBkp4jB4 https://www.youtube.com/watch?v=PdValXAVUOc
Required Practical 4: 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"> -Identifying independent, dependent, control variables -Analysing results -identifying exo and endothermic reactions from experimental results 	62	https://www.bbc.co.uk/bitesize/guides/zwfr2nb/revision/2	https://www.youtube.com/watch?v=Bz0C9mmF2tw

These specification points will **May be assessed in linked or low tariff questions** on this paper.

Spec point	CGP Revision Guide Pages
4.1.3 Properties of transition metals	
4.2.3 Structure and bonding of Carbon	118
4.3 Quantitative chemistry	123-128
4.4.1 Reactivity of Metals	130,131
4.4.3 Electrolysis	135

Chemistry Paper 1 - F

Exam date: 20th June

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

Spec point	CGP Revision Guide Pages
4.5.2 Chemical cells and fuel cells	

AQA GCSE Chemistry: Paper 2 Foundation

Advance Information of Assessed Content 2022

Link to specification: [GCSE Chemistry Specification Specification for first teaching in 2016 \(aqa.org.uk\)](https://www.aqa.org.uk/qualifications/gcse-chemistry/specification-specification-for-first-teaching-in-2016)

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

Spec point	Concepts	CGP revision guide pages	Bitesize	YouTube
4.6.1 Rate of Reaction	<ul style="list-style-type: none"> -Calculating the rate of a reaction -Calculate the gradient of a tangent to the curve on these graphs as a measure of rate of reaction at a specific time. -Describe collision theory -Define activation energy -Describe and explain the factors that increase the rate of reaction -Describe and explain the effect of catalysts on rate of reaction 	67-71	https://www.bbc.co.uk/bitesize/guides/z3nbqhv/revision/1	https://www.youtube.com/watch?v=UkrBJ6-uGFA https://www.youtube.com/watch?v=GCR5xeduq2o https://www.youtube.com/watch?v=-4HXaUBbv04 https://www.youtube.com/watch?v=hel8fQjxcO8
Required Practical 5: 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"> -identify independent, dependent and control variables -describe how to measure the dependent variable -analyse results and draw conclusions from graphed data -calculate rate of reaction from data 	70	Required practical - measure the production of a gas - Rates of reaction - AQA - GCSE Chemistry (Single Science) Revision - AQA - BBC Bitesize	https://www.youtube.com/watch?v=N5p06i9ilmo https://www.youtube.com/watch?v=GI6LVI7oAIU

Chemistry Paper 2 - F

Exam date: 20th June

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

Spec point	Concepts	CGP revision guide pages	Bitesize	YouTube
4.6.2 Reversible reactions and dynamic equilibrium	<ul style="list-style-type: none"> -Identify and give examples of reversible reactions -Apply the conservation of energy to reversible reactions -Define dynamic equilibrium -Describe Le Chatelier's principle -Describe and explain the effect of changing the following conditions on equilibrium; concentration, temperature, pressure 	72-73	https://www.bbc.co.uk/bitesize/guides/zyhvw6f/revision/1	<p>https://www.youtube.com/watch?v=66qcNNJFy6E</p> <p>GCSE Science Revision Chemistry "Concentration and Reversible Reactions" – YouTube</p> <p>GCSE Science Revision Chemistry "Pressure and Reversible Reactions" – YouTube</p> <p>GCSE Science Revision Chemistry "Temperature and reversible reactions" – YouTube</p> <p>GCSE Chemistry - Le Chatelier's Principle #42 (Higher Tier) – YouTube</p>
Required practical 6. Investigate how paper chromatography can be used to separate and tell the difference between coloured substances.	<ul style="list-style-type: none"> - Follow given instructions - Describe how to control variables - Calculate R_f values 	100	https://www.bbc.co.uk/bitesize/guides/zpbkh39/revision/4	<p>https://www.youtube.com/watch?v=P8i4QYncQxI</p> <p>https://www.youtube.com/watch?v=pnTGNAfu6GE</p>

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Spec point	Concepts	CGP revision guide pages	Bitesize	YouTube
4.7.1 Carbon compounds as fuels and feedstock	<ul style="list-style-type: none"> -describe crude oil as a mixture of different length hydrocarbons -define the term hydrocarbon -identify the first 4 alkanes from their chemical formula and name them -Describe the trend in properties as hydrocarbon chain length increases -Describe and explain the process of fractional distillation -describe the process of cracking -describe the use of alkenes 	75-78	https://www.bbc.co.uk/bitesize/guides/zshvw6f/revision/1	https://www.youtube.com/watch?v=CX2IYWggEBc https://www.youtube.com/watch?v=3I7yCkSXPos https://www.youtube.com/watch?v=7AWwjKbRa_o
Required practical 7: 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"> -Describe reagents and positive results for each ion -Describe method of flame tests 	88-89	https://www.bbc.co.uk/bitesize/guides/zxtvw6f/revision/1	https://www.youtube.com/watch?v=Bd0A44Iv2OI&t=96s https://www.youtube.com/watch?v=4iZRs4XIJOE https://www.youtube.com/watch?v=mWTgHjdea4Y https://www.youtube.com/watch?v=fCZztwJmAlO

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

Spec point	Concepts	CGP revision guide pages	Bitesize	YouTube
4.8.3 Identification of ions by chemical and spectroscopic means	<ul style="list-style-type: none"> - Flame tests - Metal hydroxides - Carbonates 		https://www.bbc.co.uk/bitesize/guides/zqqrwx/revision/1	https://www.youtube.com/watch?v=Bd0A44lv2OI https://www.youtube.com/watch?v=dBvpd9RhX8E
Required practical 8. analysis and purification of water samples from different sources including pH, dissolved solids and distillation.	<ul style="list-style-type: none"> - Safe use of equipment - Appropriate use of apparatus - Make good observations - Apply understanding of a range of techniques - Evaluate the method and suggest improvements 		https://www.bbc.co.uk/bitesize/guides/zxtvw6f/revision/2	https://www.youtube.com/watch?v=DikcEq2wg8g https://www.youtube.com/watch?v= UGHsbTEBvA&t=1s
4.9.1 The composition and evolution of the Earth's Atmosphere	<ul style="list-style-type: none"> -describe the composition of the current atmosphere -describe the composition of the early atmosphere and explain theories of how the early atmosphere formed -explain how the early atmosphere changed to that of the present atmosphere 	91	https://www.bbc.co.uk/bitesize/guides/zg4qfcw/revision/1	https://www.youtube.com/watch?v=t1Z3GInIdLA https://www.youtube.com/watch?v=l0h_-3MOPso

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Spec point	Concepts	CGP revision guide pages	Bitesize	YouTube
4.10.1 Using the Earth's resources and obtaining potable water	<ul style="list-style-type: none"> -Describe the renewable and non-renewable resources that we get from the Earth and its atmosphere -Define the term potable water -Describe how potable water can be produced. -Describe the differences in the treatment of waste water, salt water and ground water -Describe and evaluate alternative methods of extracting metals e.g. phytomining and bioleaching 		<p>https://www.bbc.co.uk/bitesize/guides/zgqhcj6/revision/1</p> <p>https://www.bbc.co.uk/bitesize/guides/zpcjsrd/revision/1</p> <p>Biological methods of metal extraction - Higher - Ways of reducing the use of resources - AQA - GCSE Chemistry (Single Science) Revision - AQA - BBC Bitesize</p>	<p>https://www.youtube.com/watch?v=-XczTGavTZU</p> <p>https://www.youtube.com/watch?v=n7pYRQs20bl</p> <p>https://www.youtube.com/watch?v=b5RVPauf4oM</p>
4.10.2 Life cycle assessments and recycling	<ul style="list-style-type: none"> - Describe and explain the purpose and use of life cycle assessments - Use of water, energy sources, resources. - Analyse and make conclusions on data produced about LCA - Ways of reducing the use of resources - Describe and explain ways to reduce the amount of resources being used. - Evaluate ways of reducing the use of limited resources. 	163	<p>https://www.bbc.co.uk/bitesize/guides/z96ydxs/revision/1</p>	<p>https://www.youtube.com/watch?v=Znnhe4BJH14</p>

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Spec point	Concepts	CGP revision guide pages	Bitesize	YouTube
4.10.4 The Haber process and the use of NPK fertilisers	<ul style="list-style-type: none"> -Describe the purpose of the Haber process, the reaction and raw materials involved -interpret graphs of reaction conditions versus rate -apply the principles of dynamic equilibrium in Reversible reactions and dynamic equilibrium (4.6.2) to the Haber process -explain the trade-off between rate of production and position of equilibrium -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 -Describe NPK fertilisers as formulations of various salts containing appropriate percentages of the elements. -Describe the composition of NPK fertilisers and how they are made -recall the names of the salts produced when phosphate rock is treated with nitric acid, sulfuric acid and phosphoric acid 	104-105	https://www.bbc.co.uk/bitesize/guides/z9tw6f/revision/1	https://www.youtube.com/watch?v=1_HoWz5Kxfk https://www.youtube.com/watch?v=HAKaD6-7fgQ https://www.youtube.com/watch?v=rKzt9BvvEeQ

These specification points will **may be assessed on linked and low tariff questions** on this paper.

Spec point	CGP Revision Guide Pages
4.7.2 Reactions of alkenes and alcohols	
4.7.3 Synthetic and naturally occurring polymers	
4.8.1 Purity, formulations and chromatography.	
4.9.2 Carbon dioxide and methane as greenhouse gases	
4.9.3 Common atmospheric pollutants and their sources.	
4.10.3 Using materials	

Chemistry Paper 2 - F

Exam date: 20th June

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

Spec point	CGP Revision Guide Pages
4.8.2 identification of common gases	155