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: 27th May

All other specification points from C1, 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	CGP revision guide pages	Bitesize	YouTube
4.1.2 The Periodic Table	-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
4.2.1 Chemical bonds, ionic, covalent and metallic	-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	https://www.bbc.co.uk/bitesize/guides/zyydng8/revision/1 https://www.bbc.co.uk/bitesize/guides/zcpjfcw/revision/1 https://www.bbc.co.uk/bitesize/guides/z8db7p3/revision/1	https://www.youtube.com/watch?v=6DtrrWA5nkE https://www.youtube.com/watch?v=lenvZEcMc60 https://www.youtube.com/watch?v=lhEm7aAKIDg https://www.youtube.com/watch?v=5I_1jRGSR9E https://www.youtube.com/watch?v=b1y2Q6YX1bQ https://www.youtube.com/watch?v=A-wTpLPICd0&t=13s

Continued on next slide…

Chemistry Paper 1 - H

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

Exam date: 27th May

All other specification points from C1, 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	CGP revision guide pages	Bitesize	YouTube
4.2.2 How bonding and structure are related to the properties of a substance	-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	https://www.bbc.co.uk/bitesize/guides/zyydng8/revision/1 https://www.bbc.co.uk/bitesize/guides/zcpjfcw/revision/1 https://www.bbc.co.uk/bitesize/guides/z9twsrd/revision/1 https://www.bbc.co.uk/bitesize/guides/z8db7p3/revision/1	https://www.youtube.com/watch?v=leVxy7cjZMU https://www.youtube.com/watch?v=DECGNyC-x_s https://www.youtube.com/watch?v=EP0zfm_FVqc https://www.youtube.com/watch?v=A-wTpLPICd0
4.2.3 Structure and bonding of carbon	-describe and explain the properties of diamond, graphite, graphene and fullerenes	33-34	https://www.bbc.co.uk/bitesize/guides/z9twsrd/revision/1	https://www.youtube.com/watch?v=tGH0mXCcEFU

Continued on next slide…

Chemistry Paper 1 - H

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

Exam date: 27th May

All other specification points from C1, 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	CGP revision guide pages	Bitesize	YouTube
4.3.2 Use of amount of substance in relation to masses of pure substances	-calculating relative formula mass -calculating the number of moles in a given mass of a substance, calculating the mass of a certain no. of moles of a substance -Avogadro's constant – the number of particles in 1 mole of every substance -calculate the masses of reactants and products from the balanced symbol equation and the mass of a given reactant or product. -using molar ratios to balance equations -identifying limiting reactants and explaining the effect on yield of products -define concentration of a solution -calculate the concentration of a solution, or the mass of a solute dissolved in a given volume to create a solution of given concentration	41-47	https://www.bbc.co.uk/bitesize/guides/zgcyw6f/revision/1 https://www.bbc.co.uk/bitesize/guides/z3kg2nb/revision/1	https://www.youtube.com/watch?v=q49NwIrjaFw https://www.youtube.com/watch?v=wPGVQu3UXpw https://www.youtube.com/watch?v=TV6n5MFH6IU https://www.youtube.com/watch?v=YKvUQ2cPmJg https://www.youtube.com/watch?v=MuzOmFhiE8o https://www.youtube.com/watch?v=3G3KQIyoZDI

Continued on next slide…

Chemistry Paper 1 - H

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

Exam date: 27th May

All other specification points from C1, 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	CGP revision guide pages	Bitesize	YouTube
4.4.1 The Reactivity of Metals	-Metals + oxygen -Reduction and oxidation in terms of oxygen -reduction and oxidation in terms of electrons -identify in a given reaction, symbol equation or half equation which species are oxidised and which are reduced -The Reactivity Series - Displacement reactions - Extraction of metals by reduction	55-57	https://www.bbc.co.uk/bitesize/guides/zsm7v9q/revision/1	https://www.youtube.com/watch?v=Lk1V0buHEFs https://www.youtube.com/watch?v=gnbuTl2arIl https://www.youtube.com/watch?v=2i5Lm7BMtpo https://www.youtube.com/watch?v=MXTSels6e2Y
4.4.2 Reactions of Acids	-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	https://www.youtube.com/watch?v=ofw6oHSYGFI GCSE Science Revision Chemistry "Acids Reacting with Metals 2" - YouTube https://www.youtube.com/watch?v=QlSsle_jSQ8
4.4.2.3 and **Required Practical 1:** preparation of a pure, dry sample of soluble salts	-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	https://www.youtube.com/watch?v=9GH95172Js8&t=16s GCSE Science Revision Chemistry "Strong and Weak Acids" – YouTube

Continued on next slide…

Chemistry Paper 1 - H

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

Exam date: 27th May

All other specification points from C1, 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	CGP revision guide pages	Bitesize	YouTube
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.	-Method -control variables and how to monitor them -quantitative analysis of results	52	https://www.bbc.co.uk/bitesize/guides/zx98pbk/revision/1	https://www.youtube.com/watch?v=saRBT5oZfh8 https://www.youtube.com/watch?v=vn3Rx3g1VPk https://www.youtube.com/watch?v=x8DLLCNMKAs https://www.youtube.com/watch?v=ycC4oKteRJU
4.4.3 Electrolysis	-The process of electrolysis -identifying oxidation and reduction in terms of electrons -writing half equations for oxidation/reduction reactions occurring at each electrode -Electrolysis of molten ionic compounds -Electrolysis of aluminium oxide -Electrolysis of aqueous solutions, predicting products formed	58-59	https://www.bbc.co.uk/bitesize/guides/zcsyw6f/revision/1	https://www.youtube.com/watch?v=AhTRiL6xjBA&t=2s https://www.youtube.com/watch?v=ilNOpROacf0 https://www.youtube.com/watch?v=YcyMElBEzAY https://www.youtube.com/watch?v=6WjC_Vi4roA https://www.youtube.com/watch?v=W9ngXNxSyoo

Continued on next slide…

Chemistry Paper 1 - H

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

Exam date: 27th May

All other specification points from C1, 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	CGP revision guide pages	Bitesize	YouTube
4.5.1 Exothermic and endothermic reactions	-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	-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

Chemistry Paper 1 - H

Exam date: 20th June

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

Spec point	CGP Revision Guide Pages
4.2.4 Bulk and surface properties of matter including nanoparticles	38-39

Chemistry Paper 2 - H

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

Exam date: 20th 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	CGP revision guide pages	Bitesize	YouTube
4.6.1 Rate of Reaction	-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	-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=Gl6LVl7oAlU

Continued on next slide…

Chemistry Paper 2 - H

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

Exam date: 20th 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	CGP revision guide pages	Bitesize	YouTube
4.6.2 Reversible reactions and dynamic equilibrium	-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	https://www.youtube.com/watch?v=66qcNNJFy6E GCSE Science Revision Chemistry "Concentration and Reversible Reactions" – YouTube GCSE Science Revision Chemistry "Pressure and Reversible Reactions" – YouTube GCSE Science Revision Chemistry "Temperature and reversible reactions" – YouTube GCSE Chemistry - Le Chatelier's Principle #42 (Higher Tier) – YouTube

Continued on next slide…

Chemistry Paper 2 - H

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

Exam date: 20th 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	CGP revision guide pages	Bitesize	YouTube
4.7.1 Carbon compounds as fuels and feedstock	-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.	-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=4iZRs4XlJOE https://www.youtube.com/watch?v=mWTgHjdea4Y https://www.youtube.com/watch?v=fCZztwJmAl0

Continued on next slide…

Chemistry Paper 2 - H

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

Exam date: 20th 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	CGP revision guide pages	Bitesize	YouTube
4.9.1 The composition and evolution of the Earth's Atmosphere	-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=t1Z3GlNldLA https://www.youtube.com/watch?v=l0h_-3M0Pso
4.10.1 Using the Earth's resources and obtaining potable water	-Describe the renewable and non-renewable resources that we get form 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		https://www.bbc.co.uk/bitesize/guides/zgqhcj6/revision/1 https://www.bbc.co.uk/bitesize/guides/zpcjsrd/revision/1 Biological methods of metal extraction - Higher - Ways of reducing the use of resources - AQA - GCSE Chemistry (Single Science) Revision - AQA - BBC Bitesize	https://www.youtube.com/watch?v=-XczTGavTZU https://www.youtube.com/watch?v=n7pYRQs20bI https://www.youtube.com/watch?v=b5RVPauf4oM

Continued on next slide…

Chemistry Paper 2 - H

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

Exam date: 20th 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	CGP revision guide pages	Bitesize	YouTube
4.10.4 The Haber process and the use of NPK fertilisers	-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/z9tvw6f/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

Chemistry Paper 2 - H

Exam date: 20th June

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

Spec point	CGP Revision Guide Pages
4.9.2 Carbon dioxide and methane as greenhouse gases	92-94