

# Advance information June 2022

## GCSE Chemistry (8462)

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### Version 1.0

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Because of the ongoing impacts of the Coronavirus (COVID-19) pandemic, we are providing advance information on the focus of June 2022 exams to help students revise.

This is the advance information for GCSE Chemistry (8462).

## Information

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- The format/structure of the papers remains unchanged.
- This advance information covers all examined components.
- For each paper the list shows the major focus of the content of the exam.
- Each paper may cover some, or all, of the content in the listed topic.
- Another list shows which required practical activities will be assessed.
- Topics **not** assessed either directly or through 'linked' content have also been listed.
- The information is presented in specification order and not in question order.
- Assessment of practical skills, maths skills, and Working Scientifically skills will occur throughout all the papers.
- It is **not** permitted to take this advance information into the exam.

## Advice

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- It is advised that teaching and learning should still cover the entire subject content in the specification, so that students are as well prepared as possible for progression to the next stage of their education.
- Topics not explicitly given in any list may appear in low tariff questions or via 'linked' questions. Linked questions are those that bring together knowledge, skills and understanding from across the specification.
- Students will still be expected to apply their knowledge to unfamiliar contexts.

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## Focus of the June 2022 exam

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### Paper 1F 8462/1F

For this paper, the following list shows the major focus of the content of the exam:

- 4.1.1 A simple model of the atom, symbols, relative atomic mass, electronic charge and isotopes
- 4.1.2 The periodic table
- 4.2.1 Chemical bonds, ionic, covalent and metallic
- 4.2.2 How bonding and structure are related to the properties of substances
- 4.2.4 Bulk and surface properties of matter including nanoparticles
- 4.4.2 Reactions of acids
- 4.5.1 Exothermic and endothermic reactions

Required practical activities that **will be assessed**:

- Required practical activity 1: preparation of a pure, dry sample of a soluble salt from an insoluble oxide or carbonate, using a Bunsen burner to heat dilute acid and a water bath or electric heater to evaporate the solution.
- Required practical activity 2: determination of the reacting volumes of solutions of a strong acid and a strong alkali by titration.
- Required practical activity 4: investigate the variables that affect temperature changes in reacting solutions such as, eg, acid plus metals, acid plus carbonates, neutralisations, displacement of metals.

Topic **not assessed** in this paper:

- 4.5.2 Chemical cells and fuel cells

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## Paper 1H 8462/1H

For this paper, the following list shows the major focus of the content of the exam:

- 4.1.2 The periodic table
- 4.2.1 Chemical bonds, ionic, covalent and metallic
- 4.2.2 How bonding and structure are related to the properties of substances
- 4.2.3 Structure and bonding of carbon
- 4.3.2 Use of amount of substance in relation to masses of pure substances
- 4.4.1 Reactivity of metals
- 4.4.2 Reactions of acids
- 4.4.3 Electrolysis
- 4.5.1 Exothermic and endothermic reactions

Required practical activities that **will be assessed**:

- Required practical activity 1: preparation of a pure, dry sample of a soluble salt from an insoluble oxide or carbonate, using a Bunsen burner to heat dilute acid and a water bath or electric heater to evaporate the solution.
- Required practical activity 2: determination of the reacting volumes of solutions of a strong acid and a strong alkali by titration.
- Required practical activity 4: investigate the variables that affect temperature changes in reacting solutions such as, eg, acid plus metals, acid plus carbonates, neutralisations, displacement of metals.

Topic **not assessed** in this paper:

- 4.2.4 Bulk and surface properties of matter including nanoparticles

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## Paper 2F 8462/2F

For this paper, the following list shows the major focus of the content of the exam:

- 4.6.1 Rate of reaction
- 4.6.2 Reversible reactions and dynamic equilibrium
- 4.7.1 Carbon compounds as fuels and feedstock
- 4.8.3 Identification of ions by chemical and spectroscopic means
- 4.9.1 The composition and evolution of the Earth's atmosphere
- 4.10.1 Using the Earth's resources and obtaining potable water
- 4.10.2 Life cycle assessment and recycling
- 4.10.4 The Haber process and the use of NPK fertilisers

Required practical activities that **will be assessed**:

- Required practical activity 5: investigate how changes in concentration affect the rates of reactions by a method involving measuring the volume of a gas produced and a method involving a change in colour or turbidity. This should be an investigation developing a hypothesis.
- Required practical activity 6: investigate how paper chromatography can be used to separate and tell the difference between coloured substances. Students should calculate  $R_f$  values.
- Required practical activity 7: use of chemical tests to identify the ions in unknown single ionic compounds covering the ions from sections Flame tests through to Sulfates.
- Required practical activity 8: analysis and purification of water samples from different sources, including pH, dissolved solids and distillation.

Topic **not assessed** in this paper:

- 4.8.2 Identification of common gases

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Paper 2H 8462/2H

For this paper, the following list shows the major focus of the content of the exam:

- 4.6.1 Rate of reaction
- 4.6.2 Reversible reactions and dynamic equilibrium
- 4.7.1 Carbon compounds as fuels and feedstock
- 4.9.1 The composition and evolution of the Earth's atmosphere
- 4.10.1 Using the Earth's resources and obtaining potable water
- 4.10.4 The Haber process and the use of NPK fertilisers

Required practical activities that **will be assessed**:

- Required practical activity 5: investigate how changes in concentration affect the rates of reactions by a method involving measuring the volume of a gas produced and a method involving a change in colour or turbidity. This should be an investigation developing a hypothesis.
- Required practical activity 7: use of chemical tests to identify the ions in unknown single ionic compounds covering the ions from sections Flame tests through to Sulfates.

Topic **not assessed** in this paper:

- 4.9.2 Carbon dioxide and methane as greenhouse gases

END OF ADVANCE INFORMATION