Switching to AQA from OCR: Science A and Additional Science A (Chemistry)

If you're thinking of switching to AQA from OCR Science A and Additional Science A (J241 and J242) for teaching from September 2016, this resource will provide a helpful comparison of the subject content and assessment for each awarding body.

It directly compares the Chemistry components of the current OCR Twenty First Century Science Suite A and Additional Science A (J241 and J242) with the Chemistry component of the new AQA GCSE Combined Science: Trilogy specification (8464).

The subject contents and required practicals for GCSE Combined Science: Trilogy are also in the GCSE Chemistry specification (8462), so there is flexibility to co-teach or to move students between courses.

Comparison overview

The style of the two specifications is very different: the AQA content is organised by concept, while the OCR content is organised by context. This means that the content in the AQA specification can be found in several OCR topics. AQA and OCR also give different emphasis to specific topics.

Assessment

New AQA specification	Current OCR specification
Two externally assessed written papers (1 hour 10 minutes). Paper 1 assesses sections 1 to 5 of the subject content. Paper 2 assesses sections 6 to 10, but may also include the fundamental principles in sections 1 to 3. Five required practicals should be carried out by students and may be examined in the written papers to assess practical skills.	Two externally assessed written papers (1 hour): • Paper 1 examines the content in modules C1, C2 and C3 • Paper 2 examines modules C4, C5 and C6. Controlled assessment is an internally assessed practical investigation.

New AQA specification	Current OCR specification
The required practicals are clearly listed, as are opportunities for development of skills identified in the right-hand column of the specification. These should encourage more practical work, which will motivate students and encourage the transfer of skills across the subject.	Opportunities for practical work are flagged in the introduction to each module.

Content

Practicals

New AQA specification	Current OCR specification
The required practicals are clearly listed, as are opportunities for development of skills identified in the right-hand column of the specification. These should encourage more practical work which will motivate students and encourage the transfer of skills across the subject.	Opportunities for practical work are flagged in the introduction to each module.

Working scientifically

New AQA specification	Current OCR specification
Specification reference: WS 1.1 to WS 4.6	Specification reference: Ideas about science
'Working scientifically' encompasses all the activities that scientists do. It is woven throughout the specification and written papers. There are cross-references to relevant skills development opportunities in the subject content.	N/A

5.1 Atomic structure and the periodic table

5.1.1 A simple model of the atom, symbols, relative atomic mass, electronic charge and isotopes

New AQA specification	Current OCR specification
Specification reference: 5.1.1.1 Atoms, elements and compounds	Specification reference: • C4.1.6 • C4.1.29 to 32 • C6.1.12 to 15
There is no equivalent summary topic in the OCR specification, although knowledge of all of the ideas is assumed and spread throughout the specification. The ideas are met in the context of chemical patterns in the OCR specification. The OCR specification requires balancing equations and writing formulae and balanced equations at Higher Tier only, unlike the AQA specification.	
Naming compounds from given formulae or symbol equations.	N/A
Specification reference: 5.1.1.2 Mixtures	Specification reference: • C2.2.9 • C6.2.1e to f • C6.2.2
Definition of a mixture. Simple distillation.	Simple distillation is not covered.
There is no equivalent summary topic in the OCR specification, although most of the separation techniques are covered throughout the specification.	
Specification reference: 5.1.1.3 Scientific models of the atom	Specification reference: C4.2.1
The AQA specification explores the historical development of models of the atom (OCR doesn't). Both describe the nuclear model of the atom.	
Specification reference: 5.1.1.4 Relative electrical charges of subatomic particles	Specification reference: • C4.1.1 • C4.2.1 to 4
The content is identical in both specifications.	

New AQA specification	Current OCR specification
Specification reference: 5.1.1.5 Size and mass of atoms	Specification reference: • C4.2.2 • C4.2.10
Both specifications give the relative masses of the fundamental particles. Calculation of the number of proton, neutrons and electrons in an atom, is Higher Tier only in the OCR specification, but for students of all abilities in the AQA specification.	
The size of the atom and nucleus, mass number and isotopes.	N/A
Specification reference: 5.1.1.6 Electronic structure	Specification reference: C4.2.2.11
The content is identical in both specifications.	

5.1.2 The periodic table

New AQA specification	Current OCR specification
Specification reference: 5.1.2.1 The periodic table	Specification reference: • C4.1.7 to 8 • C4.1.10 • C4.2.5 • C4.2.12 to 14
The content is similar, although patterns and the explanation of those patterns are separated in the OCR specification. The understanding that chemical properties are determined by electron arrangement is for Higher Tier only in the OCR specification, unlike the AQA specification.	
Prediction of possible reactivity from the position in the periodic table.	N/A
Specification reference: 5.1.2.2. The development of the periodic table	Specification reference: C4.1.2 to 5
Both specifications consider the contribution of Mendeleev and of earlier contributors. OCR specification includes the ideas of Döbereiner and	

New AQA specification	Current OCR specification
Newlands.	
Knowledge of isotopes, explaining why the order based on atomic weights is not always correct.	N/A
Specification reference: 5.1.2.3 Metals and non-metals	Specification reference: C4.1.9
Both specifications link the position of an element in the periodic table to its metal/non-metal classification.	
The differences between metals and non-metals in terms of the ions they form and their characteristic physical and chemical properties.	Differences in properties are not covered in the OCR specification.
Specification reference: 5.1.2.4 Group 0	N/A
Specification reference: 5.1.2.5 Group 1	Specification reference: C4.1.11 to 19
The content is very similar in both specifications; they include the reactions of the alkali metals with water and with non-metals (only chlorine in the OCR specification).	
The colour and solubility of compounds. Hazard symbols are not mentioned in the specification.	The specification includes the tarnishing of the freshly cut metals, hazard symbols and safety precautions.
Specification reference: 5.1.2.6 Group 7	Specification reference: C4.1.20 to 28
The content is very similar in both specifications: • reactions with metals (alkali metals and iron in the OCR specification) • displacement reactions leading to the pattern in reactivity down the group. OCR Higher Tier: recall of the formulae of bromides and iodides	

New AQA specification	Current OCR specification
AQA students of all abilities: know the formulae of the halide ions.	
The ionic or molecular nature of the products formed with metals and with non-metals.	Recall of colours and physical states of the halogens at room temperature. Safety precautions when working with halogens.

5.2 Bonding, structure and the properties of matter

5.2.1 Chemical bonds, ionic, covalent and metallic

New AQA specification	Current OCR specification
Specification reference: 5.2.1.1 Chemical bonds	Bonding is not treated as a coherent topic in the OCR specification; consequently, there is no equivalent introductory topic.
Specification reference: 5.2.1.2 Ionic bonding	There is no equivalent topic dealing with the formation of ions by electron transfer.
Specification reference: 5.2.1.3 Ionic compounds	Specification reference: C5.2.1 to 3
The AQA specification requires knowledge of the structure of sodium chloride. The OCR specification refers to the structure of ionic compounds in general, in the context of the hydrosphere.	
Specification reference: 5.2.1.4 Covalent bonding	Specification reference: • C5.1.3 to 4 • C5.1.9 to 11 • C5.3.1 to 8
The treatment is very different in the two specifications. In the OCR specification, covalent bonding arises in the context of chemicals in the atmosphere and in the lithosphere.	
The AQA specification includes dot and cross diagrams, the bonding in 8 specific molecules, polymer	OCR Higher Tier: covalent bonding as electrostatic attraction between nuclei and shared electrons.

New AQA specification	Current OCR specification
structures and the deduction of molecular formula from a diagram, all of which are absent from the OCR specification.	
Specification reference: 5.2.1.5 Metallic bonding	Specification reference: C5.4.25
OCR: Higher Tier only. AQA: students of all abilities.	

5.2.2 How bonding and structure are related to the properties of substances

New AQA specification	Current OCR specification
Specification reference: 5.2.2.1 The three states of matter	This topic is not covered in the OCR specification although an understanding of most of the ideas is assumed in other areas.
Specification reference: 5.2.2.2 State symbols	Specification reference: • C4.1.32 to 33 • C5.4.9 to 10 • C6.1.15 to 16
The content is the same, but in the OCR specification, recall of state symbols is for students of all abilities and writing balanced equations including state symbols is Higher Tier only. Both are for students of all abilities in the AQA specification.	
Specification reference: 5.2.2.3 Properties of ionic compounds	Specification reference: C5.2.3 to 6
The content is identical in both specifications.	
Specification reference: 5.2.2.4 Properties of small molecules	Specification reference: • C2.2.10 to 11 • C5.1.5 to 8
The knowledge that intermolecular forces increase with size of molecules and the effect on boiling point is included in the OCR specification in the context of hydrocarbons.	

New AQA specification	Current OCR specification
Specification reference: 5.2.2.5 Polymers	Specification reference: C2.3.3
Both specifications cover the effect of intermolecular forces on melting point in a similar way.	
N/A	The effect of intermolecular forces on strength, stiffness and hardness of a polymer.
Specification reference: 5.2.2.6 Giant covalent structures	Specification reference: • C5.3.1 to 3 • C5.3.8
The content is similar; both specifications include diamond, graphite and silicon dioxide. The OCR content is in the context of chemicals in the lithosphere, which also includes the abundance of silicon, oxygen and aluminium in the Earth's crust.	
Specification reference: 5.2.2.7 Properties of metals and alloys	Specification reference: C5.4.23 to 24
The description of metal structures and properties is similar in both specifications.	
The structure of alloys and the effect of alloying on properties.	OCR doesn't cover alloys, but it covers uses of metals in relation to their properties.
5.2.2.8 Metals as conductors	C5.4.25
Both specifications cover electrical conductivity, although the explanation for this is Higher Tier only in the OCR specification, unlike AQA.	
Thermal and electrical conductivity.	N/A

5.2.3 Structure and bonding of carbon

New AQA specification	Current OCR specification
Specification reference:	Specification reference:

New AQA specification	Current OCR specification
5.2.3.1 Diamond	C5.3.2 to 3
The content is almost identical, although the OCR specification also includes solubility as a property.	
Specification reference: 5.2.3.2 Graphite	Specification reference: C5.3.4
The content is similar, although the AQA specification describes the bonding of graphite in detail.	
Thermal conductivity of graphite.	N/A
Specification reference: 5.2.3.3 Graphene and fullerenes	N/A
N/A	Specification reference: C2.4.1 to 6 (nanotechnology).

5.3 Quantitative chemistry

5.3.1 Conservation of mass and the quantitative interpretation of chemical equations

New AQA specification	Current OCR specification
Specification reference: 5.3.1.1 Conservation of mass and balanced chemical equations	Specification reference: • C2.2.5 to 6 • C2.2.8 to 10 • C6.1.13 • C6.2.4 • C6.2.13
The OCR specification covers balanced chemical equations in the context of chemical synthesis. Conservation of mass and how this relates to balanced equations is encountered in the context of air quality in the OCR specification, at Higher Tier only.	
Specification reference: 5.3.1.2 Relative formula mass	Specification reference: • C5.4.11 to 14 • C6.2.5 to 7

New AQA specification	Current OCR specification
The OCR specification includes this topic in two different contexts; extracting useful metals from minerals, and chemical synthesis. Both require the calculation of relative formula mass from r elative atomic masses.	
The idea that the sum of the formula masses of the reactants is equal to that of the products.	The specification also includes, in the context of metal extraction, calculation of the mass of an element in the gram formula mass of a compound, and, at Higher Tier only, calculation of the mass of a metal that can be extracted from a mineral given its formula or an equation.
Specification reference: 5.3.1.3 Mass changes when a reactant or product is a gas	This topic is not covered in the OCR specification.

5.3.2 Uses of amount of substance in relation to masses of pure substances

New AQA specification	Current OCR specification
Specification reference: 5.3.2.1 Moles (Higher Tier only)	This topic is not covered in the OCR specification.
Specification reference: 5.3.2.2 Amounts of substances in equations	Specification reference: C6.2.8 to 9
Both specifications require the calculation of masses and products from balanced equations, at Higher Tier only. The AQA specification uses the moles approach (OCR doesn't).	
N/A	Students of all abilities: substituting relative formula masses and data into a given mathematical formula.
Specification reference: 5.3.2.3 Using moles to balance equations (Higher Tier only) 5.3.2.4 Limiting reactants (Higher Tier only)	N/A

New AQA specification	Current OCR specification
5.3.2.5 Concentration of solutions (Higher Tier only)	
N/A	Calculation of percentage yield in section C6.2.10
N/A	Sections C6.2.11 to 12 describe an acid-alkali titration and substitution of results into a given formula.

5.4 Chemical changes

5.4.1 Reactivity of metals

New AQA specification	Current OCR specification
Specification reference: 5.4.1.1 Metal oxides	Specification reference: • C1.2.4 • C5.4.4
Oxidation and reduction are defined in terms of gain and loss of oxygen in both specifications, but the OCR does not cover the oxidation of metals.	
Specification reference: 5.4.1.2 The reactivity series	N/A
Specification reference: 5.4.1.3 Extraction of metals and reduction	Specification reference: • C5.4.1 to 5 • C5.4.19 to 21
Both specifications cover extraction of metals by carbon reduction. They also require evaluation of specific metal extraction processes. OCR specification focuses on impacts on the environment; it includes use, disposal and extraction of metals.	
Unreactive metals such as gold.	A definition of ores. The ideas that for some minerals large amounts of ore need to be mined to recover small amounts of minerals.

New AQA specification	Current OCR specification
Specification reference: 5.4.1.4 Oxidation and reduction in terms of electrons	This topic is not covered in the OCR specification. It does include ionic equations, but only for precipitation reactions and does not include half-equations.

5.4.2 Reactions of acids

New AQA specification	Current OCR specification
Specification reference: 4.4.2.1 Reactions of acids with metals	Specification reference: C6.1.11
Both specifications include the reaction of some metals to produce salts and hydrogen.	
Higher Tier only: these reactions are also explained as redox reactions, in terms of gain and loss of electrons.	N/A
Specification reference: 5.4.2.2 Neutralisation of acids and salt production	Specification reference: • C3.3.3 to 5 • C6.1.8 • C6.1.11 to 12 • C6.1.17 • C6.1.20 to 21
The content is very similar in both specifications; the OCR content is mostly in the context of chemical synthesis: • definition of alkalis (however, only AQA defines a base) • production of salts from acids with metals or their oxides, hydroxides or carbonates • deduction of the name and formula of the salt formed (deduction of a formula is at Higher Tier only in OCR).	
Specification reference: 5.4.2.3 Soluble salts	Specification reference: C6.2.1 to 2

New AQA specification	Current OCR specification
Both specifications cover the production, purification and drying of a soluble salt, but their approach is different.	
The process is limited to the use of an insoluble starting material. There is a required practical investigating making a salt from an insoluble oxide or carbonate.	Students are required to choose the reaction or series of reactions to be used, carry out a risk assessment, and at Higher Tier only, to work out what quantities of reactants to use. They are also required to measure the yield and check the purity of the product. The use of an oven or a desiccator is included as a drying method.
Specification reference: 5.4.2 4 The pH scale and neutralisation	Specification reference: • C6.1.9 to 10 • C6.1.18 to 19 • C6.1.22
The content, including the ionic equation for neutralisation, is almost identical. The OCR specification refers to litmus paper, as well as to universal indicator and pH probes which are common to both.	
Specification reference: 5.4.2.5 Strong and weak acids	Specification reference: C6.1.7
Both specifications give examples of acids, although the OCR specification classifies them in terms of physical state rather than strong or weak and the list of acids is not completely identical.	
AQA requires a description of strong and weak acids in terms of extent of ionisation and the mathematical link between pH and hydrogen ion concentration.	N/A

5.4.3 Electrolysis

New AQA specification	Current OCR specification
Specification reference: 5.4.3.1 The process of electrolysis	Specification reference: • C3.3.14

New AQA specification	Current OCR specification
	• C5.4.15
Both specifications cover movement of ions to the electrodes. The OCR specification refers to chemical changes, but not directly to discharge of ions.	
Throughout the electrolysis topic, Higher Tier students are expected to write and balance half-equations for reactions at the electrodes.	N/A
Specification reference: 5.4.3.2 Electrolysis of molten ionic compounds	Specification reference: • C5.4.16 to 18 • C5.4.22
Both specifications use lead bromide as an example and refer to the production of metals at the negative electrode and non-metals at the positive electrode.	
The terms anode and cathode.	N/A
Specification reference: 5.4.3.3 Using electrolysis to extract metals	Specification reference: • C5.4.5 • C5.4.19 to 21
Both specifications use the extraction of aluminium as the example. The AQA specification goes into more detail about the process. The OCR specification refers to gain or loss of electrons at the electrodes, at Higher Tier only, but does not refer to half-equations.	
Specification reference: 5.4.3.4 Electrolysis of aqueous solutions	Specification reference: C3.3.15 to 17
The OCR specification covers this only in the context of the electrolysis of brine, as part of the topic on chemicals in our lives. It does not require a consideration of the ionic reactions involved.	
Rules for which ion is discharged at each electrode. Students are required to predict the products of electrolysis of aqueous solutions	The uses of the products of the electrolysis of brine.

New AQA specification	Current OCR specification
containing a single ionic compound. There is a required practical investigating the electrolysis of aqueous solutions using inert electrodes.	
Specification reference: 5.4.3.5 Representation of reactions at electrodes as half-equations	N/A

5.5 Energy changes

5.5.1 Exothermic and endothermic reactions

New AQA specification	Current OCR specification
Specification reference: 5.5.1.1 Energy transfer during exothermic and endothermic reactions	Specification reference: • C6.1.23 • C6.1.25
Both specifications require understanding of terms exothermic and endothermic, but the AQA specification goes into more detail. The content in the OCR specification is in the chemical synthesis context.	
Examples of exothermic and endothermic changes. The link between energy change and temperature change is required. Everyday uses of exothermic and endothermic reactions. There is a required practical investigating the factors affecting temperature changes in a list of possible reaction mixtures.	The importance of the energy change to the management and control of a chemical reaction.
Specification reference: 5.5.1.2 Reaction profiles	Specification reference: C6.1.24

New AQA specification	Current OCR specification
The OCR specification refers to energy level diagrams rather than energy profiles.	
Activation energy.	N/A
Specification reference: 5.5.1.3 The energy change of reactions (Higher Tier only)	N/A

5.6 The rate and extent of chemical change

5.6.1 Rate of reaction

New AQA specification	Current OCR specification
Specification reference: 5.6.6.1 Calculating rates of reactions	Specification reference: C6.2.14
The OCR specification requires students to explain what rate of a chemical reaction means. The AQA specification goes into more detail.	
Rate of reaction is defined mathematically for students of all ability, using units of g/s or cm^3/s; Higher Tier students are required to use units involving moles. All students are required to draw and interpret graphs, including drawing tangents to the curve and using the slope as a measure of rate. Higher Tier students are expected to calculate the gradient of a tangent to the curve.	N/A
Specification reference: 5.6.1.2 Factors which affect the rates of chemical reactions	Specification reference: C6.2.15 to 18
The OCR specification covers this topic in the context of chemical synthesis. Both specifications include the effect of size of solid particles, concentration of solutions, temperature and the presence of a catalyst.	

New AQA specification	Current OCR specification
Both require knowledge of how rate can be followed by collecting a gas, weighing the mixture and formation of a precipitate or colour.	
The effect of gas pressure. Students are required to explain the effect of size of pieces of solid in terms of surface area to volume ratio. There is a required practical investigating how concentration changes affect the rate of a reaction.	Students are required to interpret information about the control of rates of reaction in chemical synthesis.
Specification reference: 5.6.1.3 Collision theory and activation energy	Specification reference: C6.2.20 to 21
Both specifications use collision frequency to explain how rate depends on the concentration of a solution, but there are significant differences in the rest of the topic.	
Surface area to volume ratio is required to explain the effect of changing the size of pieces of a solid. Energy of collisions and activation energy is required to explain the effect of temperature changes. The effect of pressure changes is also explained by collision frequency.	The effect of changing the size of pieces of a solid is explained in terms of collision frequency. The effect of temperature changes is not covered.
Specification reference: 5.6.1.4 Factors that increase the rate of reaction	Specification reference: C6.2.20 to 21
Both specifications cover the effect of changing the concentration of a solution and the size of pieces of solid in terms of collision frequency.	
The effect of pressure and temperature changes, the effect of temperature changes on the energy of collision.	N/A

New AQA specification	Current OCR specification
Students are expected to predict and explain the effect of changing conditions and to use simple ideas about proportionality when using collision theory.	
Specification reference: 5.6.1.5 Catalysts	Specification reference: C6.2.18
Both specifications define a catalyst.	
The explanation of how a catalyst works by providing an alternative route of lower activation energy, reaction profiles.	N/A

5.6.2 Reversible reactions and dynamic equilibrium

New AQA specification	Current OCR specification
Specification reference: • 5.6.2.1 Reversible reactions • 5.6.2.2 Energy changes and reversible reactions • 5.6.2.3 Equilibrium • 5.6.2.4 The effect of changing conditions on equilibrium (Higher Tier only) • 5.6.2.5 The effect of changing concentration (Higher Tier only) • 5.6.2.6 The effect of temperature changes on equilibrium (Higher Tier only) • 5.6.2.7 The effect of pressure changes on equilibrium (Higher Tier	N/A

New AQA specification	Current OCR specification
only)	

5.7 Organic chemistry

5.7.1 Carbon compounds as fuels and feedstock

New AQA specification	Current OCR specification
Specification reference: 5.7.1.1 Crude oil, hydrocarbons and alkanes	Specification reference: • C1.2.2 • C2.2.7
The origin of crude oil, the general formula for alkanes; the names and structures of the first four alkanes.	The term alkanes is not used.
Specification reference: 5.7.1.2 Fractional distillation and petrochemicals	Specification reference: C2.2.8 to 11
The content is very similar in both specifications. AQA focuses on the ability of carbon atoms to form families of similar compounds with the consequential vast array of natural and synthetic compounds.	
Specification reference: 5.7.1.3 Properties of hydrocarbons	Specification reference: C1.2.3 to 6
Both specifications include the effect of molecule size on boiling point and the complete combustion of hydrocarbons as oxidation.	
The trends of viscosity and flammability with molecular size and their influence on the use of hydrocarbons as fuels. Students of all abilities are expected to write balanced equations for combustion reactions.	Enhanced combustion with pure oxygen obtained from the atmosphere. Example of oxy-fuel welding torches.
Specification reference:	N/A

New AQA specification	Current OCR specification
5.7.1.4 Cracking and alkenes	
N/A	Section C2.2.12 is a brief description of polymerisation.

5.8 Chemical analysis

5.8.1 Purity, formulations and chromatography

New AQA specification	Current OCR specification
Specification reference: 5.8.1.1 Pure substances	N/A
Specification reference: 5.8.1.2 Formulations	N/A
5.8.1.3 Chromatography	N/A

5.8.2 Identification of common gases

New AQA specification	Current OCR specification
Specification reference: 5.8.2.1 Test for hydrogen	N/A
Specification reference: 5.8.2.2 Test for oxygen	N/A
Specification reference: 5.8.2.3 Test for carbon dioxide	Specification reference: Appendix G.
The OCR specification mentions the lime water test in the context of the test for a carbonate, which is on the data sheet provided to students for the examination.	
Specification reference: 5.8.2.4 Test for chlorine	N/A
N/A	Specification reference: C4.2.6 to 9 covers flame tests and spectroscopy.

New AQA specification	Current OCR specification
N/A	The precipitation of metal hydroxides as an identification method for metal ions.
N/A	Understanding of precipitation in the context of formation of an insoluble compound. Higher Tier: • ionic equations for precipitation reactions • students are required to predict the substance precipitated on mixing solutions, using given solubility data.
N/A	Specification reference: C5.2 14 to 15 and Appendix G cover tests for carbonates, halides and sulfates.

5.9 Chemistry of the atmosphere

5.9.1 The composition and evolution of the Earth's atmosphere

New AQA specification	Current OCR specification
Specification reference: 5.9.1.1 The proportions of different gases in the atmosphere	Specification reference: • C1.1.1 to 3 • C5.1 to 3
The content is identical in both specifications.	
Specification reference: 5.9.1.2 The Earth's early atmosphere	Specification reference: • C1.1.5 to 6 • C.1.1.8
The content is almost identical in both specifications.	
Considerations of how theories about the early atmosphere have	N/A

New AQA specification	Current OCR specification
changed and limitations of the evidence. The presence of nitrogen, methane and ammonia.	
Specification reference: 5.9.1.3 How oxygen increased	Specification reference: C1.1.7
The content is the same in both specifications.	
Specification reference: 5.9.1.4 How carbon dioxide decreased	Specification reference: C1.1.7 to 8
The content is similar, but the AQA specification goes into more detail about the formation of limestone, coal and crude oil.	

5.9.2 Carbon dioxide and methane as greenhouse gases

New AQA specification	Current OCR specification
Specification reference: 5.9.2.1 Greenhouse gases	The greenhouse effect in terms of radiation of different wavelengths is not covered in the OCR specification.
Specification reference: 5.9.2.2 Human activities which contribute to an increase of greenhouse gases in the atmosphere	The increase of carbon dioxide and of methane in the atmosphere is not covered in the OCR specification except for a brief mention of the increase in carbon dioxide in C1.1.9b
Specification reference: 5.9.2.3 Global climate change	N/A
Specification reference: 5.9.2.4 The carbon footprint and its reduction	N/A

5.9.3 Common atmospheric pollutants and their sources

New AQA specification	Current OCR specification

New AQA specification	Current OCR specification
Specification reference: 5.9.3.1 Atmospheric pollutants from fuels	Specification reference: • C1.1.9a-b • C1.2.11 to 14
The content is very similar in the two specifications. Both cover the formation of carbon dioxide, carbon monoxide, carbon, sulfur dioxide oxides of nitrogen and refer to particulates.	
N/A	The release of gases or particulates to the atmosphere by natural processes such as volcanoes. Higher Tier: a more detailed treatment of the production of NO and NO_2.
Specification reference: 5.9.3.2 Properties and effects of atmospheric pollutants	Specification reference: C1.1.10 and C1.2.15
Much of the content is the same, both specifications include: • carbon monoxide's effect on the blood • sulfur dioxide and oxides of nitrogen causing acid rain.	
The effect of particulates on global dimming. The respiratory effects of particulates, sulfur dioxide and oxides of nitrogen.	Particulate carbon is simply described as making surfaces dirty. Carbon dioxide removal by photosynthesis and by dissolving in rainwater and seawater.
N/A	The OCR specification includes section C1.3.1-5 on how air quality can be improved.

5.10 Using resources

5.10.1 Using the Earth's resources and obtaining potable water

New AQA specification	Current OCR specification
Specification reference: 5.10.1.1 Using the Earth's resources and sustainable	Specification reference: • C2.1.1 to 4

New AQA specification	Current OCR specification
development	• C2.2.13
Similar ideas are covered in both specifications, with both referring to natural and synthetic materials, although the examples are different. The AQA specification refers to: • finite and renewable resources • sustainable development. The OCR specification focuses on: • properties of materials • developing sustainability in other areas throughout the specification.	
Specification reference: 5.10.1.2 Potable water	Specification reference: C3.3.10 to 13
The chlorination of water to kill microorganisms is covered in both specifications; in the OCR specification this is in the context of the chlor-alkali industry.	
Choosing an appropriate water source, filtration, the use of ozone or ultraviolet light for sterilisation and desalination. Distillation of salt solution to obtain water is a required practical.	N/A
Specification reference: 5.10.1.3 Waste water treatment	N/A
Specification reference: 5.10.1.4 Alternative methods of extracting metals (Higher Tier only)	Phytomining and bioleaching is not covered in the OCR specification, except for the low grade of copper ores mentioned in section C5.4.2

5.10.2 Life cycle assessment and recycling

New AQA specification	Current OCR specification
Specification reference:	Specification reference:

New AQA specification	Current OCR specification
5.10.2.1 Life cycle assessment	C3.4.1 to 6
The content is very similar. The AQA specification uses the example of shopping bags made from plastic and paper. It also emphasises that quantifying pollutant effects is not straightforward and that value judgements may be involved.	
N/A	The potentially harmful effect of chemicals is considered in the context of PVC and plasticisers.
Specification reference: 5.10.2.2 Ways of reducing the use of resources	Specification reference: • C2.2.1 • C5.4.26
Both specifications cover recycling of metals and the environmental impacts of extracting metals, but the OCR specification does not consider other materials.	
Reduction in use of materials and reuse (for example of glass bottles); recycling. Resources also include glass, building materials and ceramics. The energy required coming from limited resources.	N/A
N/A	Specification reference: • C2.1.1 to 4 • C2.2.1 • C2.3.1 to 4 The properties and uses of materials such as ceramics, polymers, rubbers and fibres.

OCR content no longer required

The following topics are not included in the new DfE subject content:

- Specification reference: C3.1.1 to 7

  The origins of minerals in Britain, including plate tectonics and other geological processes.

- Specification reference: C3.2.1 to 9

  Where does salt come from and why is it so important.

- Specification reference: C3.3.1 to 2 and C3.3.6 to 9

  The need for and production of alkalis.

- Specification reference: C6.1.1 to 3

  Chemicals and why we need them – a list of synthetic chemicals and a list of formulae students need to recall.

  Students are required to interpret information about chemical synthesis in industry and in laboratories.