

AQA Chemistry

GCSE Student checklist

C1

Name _____ Class _____ Date _____

Atomic structure

| Lesson | Target 4 | | Target 6 | | Target 8 | |
|--------------------------|--|--------------------------|---|--------------------------|--|--------------------------|
| C1.1 Atoms | I can define the word element. | <input type="checkbox"/> | I can describe the basic structure of an atom. | <input type="checkbox"/> | I can use chemical symbols of atoms to produce the chemical formulae of a range of elements and compounds. | <input type="checkbox"/> |
| | I can classify familiar substances as elements or compounds. | <input type="checkbox"/> | I can explain in detail, including diagrams, the difference between a pure element, mixture and compound. | <input type="checkbox"/> | I can explain the significance of chemical symbols used in formulae and equations. | <input type="checkbox"/> |
| | I can use the periodic table to find the symbols or names of given elements. | <input type="checkbox"/> | I can name and give the chemical symbol of the first 20 elements in the periodic table. | <input type="checkbox"/> | | |
| C1.2 Chemical equations | I can describe familiar chemical reactions in word equations. | <input type="checkbox"/> | I can explain why mass is conserved in a chemical reaction. | <input type="checkbox"/> | I can justify in detail how mass may appear to change in a chemical reaction. | <input type="checkbox"/> |
| | I can state that mass is conserved in a chemical reaction. | <input type="checkbox"/> | I can describe familiar chemical reactions with balanced symbol equations including state symbols. | <input type="checkbox"/> | I can describe unfamiliar chemical reactions with more complex balanced symbol equations, including state symbols. | <input type="checkbox"/> |
| | | | I can balance given symbol equations. | <input type="checkbox"/> | I can write balanced symbol equations. | <input type="checkbox"/> |
| C1.3 Separating mixtures | I can define the word 'mixture'. | <input type="checkbox"/> | I can explain the difference between a compound and a mixture. | <input type="checkbox"/> | I can use experimental data to explain the classification of a substance as a compound or a mixture. | <input type="checkbox"/> |
| | I can identify a mixture and a compound. | <input type="checkbox"/> | I can explain how the chemical properties of a mixture relate to the chemical it is made from. | <input type="checkbox"/> | I can suggest an appropriate separation or purification technique for an unfamiliar mixture. | <input type="checkbox"/> |
| | I can list different separation techniques. | <input type="checkbox"/> | I can describe different separation techniques. | <input type="checkbox"/> | I can explain in detail how multi-step separation techniques work. | <input type="checkbox"/> |

AQA Chemistry

GCSE Student checklist

C1

Name _____ Class _____ Date _____

| Lesson | Target 4 | | Target 6 | | Target 8 | |
|---|---|--------------------------|--|--------------------------|--|--------------------------|
| C1.4 Fractional distillation and paper chromatography | I can state when fractional distillation would be used. | <input type="checkbox"/> | I can describe the process of fractional distillation. | <input type="checkbox"/> | I can explain in detail how fractional distillation can separate miscible liquids with similar boiling points. | <input type="checkbox"/> |
| | I can safely make a paper chromatogram. | <input type="checkbox"/> | I can explain the main processes occurring in paper chromatography. | <input type="checkbox"/> | I can evaluate separation or purification techniques for a given mixture. | <input type="checkbox"/> |
| C1.5 History of the atom | I can list the significant models proposed for atoms. | <input type="checkbox"/> | I can describe the differences between the plum-pudding and the nuclear model of the atom. | <input type="checkbox"/> | I can justify why the model of the atom has changed over time. | <input type="checkbox"/> |
| | I can identify the key parts of the plum-pudding model and the nuclear model of the atom. | <input type="checkbox"/> | I can explain how evidence from scattering experiments changed the model of the atom. | <input type="checkbox"/> | I can evaluate the current model of an atom. | <input type="checkbox"/> |
| C1.6 Structure of the atom | I can state the relative charges and masses of subatomic particles. | <input type="checkbox"/> | I can describe atoms using the atomic model. | <input type="checkbox"/> | I can use the periodic table to find atomic number and mass number data and use it to determine the number of each subatomic particle in any given atom. | <input type="checkbox"/> |
| | I can state that atoms have no overall charge (are neutral). | <input type="checkbox"/> | I can explain why atoms have no overall charge. | <input type="checkbox"/> | I can recognise and describe patterns in subatomic particles of elements listed in the periodic table. | <input type="checkbox"/> |
| | I can label the subatomic particles on a diagram of a helium atom. | <input type="checkbox"/> | I can use atomic number and mass numbers of familiar atoms to determine the number of each subatomic particle. | <input type="checkbox"/> | I can explain why we can be confident that there are no missing elements in the first 10 elements of the periodic table. | <input type="checkbox"/> |

Name _____ Class _____ Date _____

| Lesson | Target 4 | | Target 6 | | Target 8 | |
|--------------------------------|---|--------------------------|---|--------------------------|--|--------------------------|
| C1.7 Ions, atoms, and isotopes | I can state what an ion is. | <input type="checkbox"/> | I can describe isotopes using the atomic model. | <input type="checkbox"/> | I can use the periodic table to find atomic number and mass number data and use it to determine the number of each subatomic particle in an ion. | <input type="checkbox"/> |
| | I can define an isotope. | <input type="checkbox"/> | I can explain why ions have a charge. | <input type="checkbox"/> | I can use SI units and prefixes to describe the size of an atom and its nucleus in standard form. | <input type="checkbox"/> |
| | I can state the relative sizes of an atom and its nucleus. | <input type="checkbox"/> | I can use atomic number and mass numbers of familiar ions to determine the number of each subatomic particle. | <input type="checkbox"/> | I can explain why chlorine does not have a whole mass number. | <input type="checkbox"/> |
| C1.8 Electronic structures | I can state that electrons are found in energy levels of an atom. | <input type="checkbox"/> | I can write the standard electronic configuration notation from a diagram for the first 20 elements. | <input type="checkbox"/> | I can use the periodic table to find atomic number and determine the electronic structure for the first 20 elements . | <input type="checkbox"/> |
| | I can state the maximum number of electrons in the first three energy levels. | <input type="checkbox"/> | I can explain why elements in the same group react in a similar way . | <input type="checkbox"/> | I can make predictions for how an element will react when given information on another element in the same group. | <input type="checkbox"/> |

AQA Chemistry

GCSE Student checklist

C2

Name _____ Class _____ Date _____

The periodic table

| Lesson | Target 4 | | Target 6 | | Target 8 | |
|---|--|--------------------------|---|--------------------------|--|--------------------------|
| C2.1 Development of the periodic table | I can list the significant models for ordering the elements. | <input type="checkbox"/> | I can describe how the elements are arranged in groups and periods in the periodic table. | <input type="checkbox"/> | I can explain how and why the ordering of the elements has changed over time. | <input type="checkbox"/> |
| | I can state how the elements are ordered in the periodic table. | <input type="checkbox"/> | I can explain why the periodic table was a breakthrough in how to order elements. | <input type="checkbox"/> | | |
| C2.2 Electronic structures and the periodic table | I can define a group and period in the periodic table. | <input type="checkbox"/> | I can describe how the electronic structure of metals and non-metals are different. | <input type="checkbox"/> | I can explain how the electronic structure of metals and non-metals affects their reactivity. | <input type="checkbox"/> |
| | I can describe how electronic structure is linked to the periodic table. | <input type="checkbox"/> | I can explain in terms of electronic structure how the elements are arranged in the periodic table. | <input type="checkbox"/> | I can use the periodic table to make predictions about the electronic structure and reactions of elements. | <input type="checkbox"/> |
| | I can state that noble gases are unreactive. | <input type="checkbox"/> | I can explain why the noble gases are unreactive and the trend in their boiling points. | <input type="checkbox"/> | I can predict the electronic structure of stable ions for the first 20 elements. | <input type="checkbox"/> |
| C2.3 Group 1- the alkali metals | I can name the first three elements in Group 1. | <input type="checkbox"/> | I can recognise trends in supplied data. | <input type="checkbox"/> | I can illustrate the reactions of Group 1 metals with balanced symbol equations. | <input type="checkbox"/> |
| | I can describe the Group 1 metals as having low densities. | <input type="checkbox"/> | I can explain why the elements in Group 1 react similarly and why the first three elements float on water. | <input type="checkbox"/> | I can explain how Group 1 metals form ions with a +1 charge when they react with non-metals. | <input type="checkbox"/> |
| | I can write word equations from descriptions of how Group 1 metals react with water. | <input type="checkbox"/> | I can Describe how you can show that hydrogen and metal hydroxides are made when Group 1 metals react with water. | <input type="checkbox"/> | I can justify how Group 1 metals are stored and the safety precautions used when dealing with them. | <input type="checkbox"/> |

AQA Chemistry

GCSE Student checklist


C2

Name _____ Class _____ Date _____

| Lesson | Target 4 | | Target 6 | | Target 8 | |
|----------------------------|--|--------------------------|--|--------------------------|---|--------------------------|
| C2.4 Group 7- the halogens | I can name the first four elements in Group 7. | <input type="checkbox"/> | I can recognise trends in supplied data. | <input type="checkbox"/> | I can illustrate the reactions of Group 7 metals with balanced symbol equations. | <input type="checkbox"/> |
| | I can recognise a halogen displacement reaction. | <input type="checkbox"/> | I can explain why the elements in Group 7 react similarly. | <input type="checkbox"/> | I can explain how Group 7 non-metals form ions with a -1 charge when they react with metals. | <input type="checkbox"/> |
| | I can describe the main properties of halogens. | <input type="checkbox"/> | I can explain how to complete a halogen displacement reaction and explain what happens in the reaction. | <input type="checkbox"/> | I can explain in detail how to compare the reactivity of the Group elements. | <input type="checkbox"/> |
| C2.5 Explaining trends | I can state the trend in reactivity in Group 1. | <input type="checkbox"/> | I can explain how electronic structure affects the trend in reactivity of Group 1 and Group 7 elements. | <input type="checkbox"/> | I can use electronic structure to explain the trends in physical and chemical properties of Group 1 and Group 7 elements. | <input type="checkbox"/> |
| | I can state the trend in reactivity in Group 7. | <input type="checkbox"/> | I can use the nuclear model to explain how the outer electrons experience different levels of attraction to the nucleus. | <input type="checkbox"/> | I can apply knowledge of reactivity of Groups 1 and 7 to suggest and explain the trend in reactivity of Group 2 and 6. | <input type="checkbox"/> |

Name _____ Class _____ Date _____

Structure and bonding

| Lesson | Target 4 | | Target 6 | | Target 8 | |
|-----------------------|--|--------------------------|--|--------------------------|---|--------------------------|
| C3.1 States of matter | I can identify the three states of matter and their state symbols. | <input type="checkbox"/> | I can use data to determine the state of a substance at a given temperature. | <input type="checkbox"/> | I can use the particle model to describe how energy, movement, and attraction between particles changes as a substance is heated or cooled. | <input type="checkbox"/> |
| | I can describe the process of melting, freezing, boiling, and condensing. | <input type="checkbox"/> | I can explain, in terms of particles, energy and temperature of a substance when it is at the melting point or boiling point. | <input type="checkbox"/> | I can suggest why substances have different melting and boiling points from each other. | <input type="checkbox"/> |
| | I can use the particle model to draw a representation of how particles are arranged in the three states of matter. | <input type="checkbox"/> | I can describe the factors that affect rate of evaporation. | <input type="checkbox"/> |  I can evaluate a model, explaining its limitations. | <input type="checkbox"/> |
| C3.2 Atoms in ions | I can state the particles involved in ionic and covalent bonding. | <input type="checkbox"/> | I can draw dot and cross diagrams of compounds formed between Group 1 and Group 7 elements. | <input type="checkbox"/> | I can draw dot and cross diagrams of unfamiliar ionic compounds. | <input type="checkbox"/> |
| | I can describe, with an example, how a Group 1 metal atom becomes a positive ion. | <input type="checkbox"/> | I can explain how electron transfer allows ionic bonding to occur in the compound formed when a Group 1 metal reacts with a Group 7 non-metal. | <input type="checkbox"/> | I can suggest and explain the charge of a monatomic ion based on its position in the periodic table. | <input type="checkbox"/> |
| | I can describe, with an example, how a Group 7 non-metal atom becomes a negative ion. | <input type="checkbox"/> | | | | |

AQA Chemistry

GCSE Student checklist

C3

Name _____ Class _____ Date _____

| Lesson | Target 4 | | Target 6 | | Target 8 | |
|-----------------------------|---|--------------------------|---|--------------------------|--|--------------------------|
| C3.3 Ionic bonding | I can state that opposite charges attract. | <input type="checkbox"/> | I can explain how the position of an element on the periodic table relates to the charge on its most stable monatomic ion. | <input type="checkbox"/> | I can suggest the charge on unfamiliar ions using the position of the element in the periodic table. | <input type="checkbox"/> |
| | I can write the charges of ions of Group 1, Group 2, Group 6, and Group 7 elements. | <input type="checkbox"/> | I can explain, in terms of electronic structure, how unfamiliar elements become ions. | <input type="checkbox"/> | I can explain the ratio of metal and non-metal ions in compounds. | <input type="checkbox"/> |
| | I can describe an ionic lattice. | <input type="checkbox"/> | I can interpret formula of familiar ionic compounds to determine the number and type of each ion present. | <input type="checkbox"/> | I can generate formula of a wide range of ionic compounds when the charges of the ions are given. | <input type="checkbox"/> |
| C3.4 Giant ionic structures | I can state that ionic compounds have high melting points and can dissolve in water. | <input type="checkbox"/> | I can explain why ionic compounds have a high melting point. | <input type="checkbox"/> | I can explain in detail why ionic compounds cannot conduct electricity when they are solid but can when molten or in solution. | <input type="checkbox"/> |
| | I can state that ionic compounds can conduct electricity when molten or dissolved in water. | <input type="checkbox"/> | I can describe, in terms of ions, how an ionic compound can conduct electricity. | <input type="checkbox"/> | I can justify in terms of properties that a compound has ionic bonding. | <input type="checkbox"/> |
| | I can describe an ionic lattice. | <input type="checkbox"/> | I can explain the movement of ions in solutions or when molten. | <input type="checkbox"/> | I can apply the ionic model to make predictions of the physical properties of ionic compounds. | <input type="checkbox"/> |
| C3.5 Covalent bonding | I can describe a covalent bond. | <input type="checkbox"/> | I can explain how a covalent bond forms in terms of electronic structure. | <input type="checkbox"/> | I can draw dot and cross diagrams and ball and stick diagrams for unfamiliar small molecules. | <input type="checkbox"/> |
| | I can recognise a covalent compound from its formula, name, or diagram showing bonds. | <input type="checkbox"/> | I can draw dot and cross diagrams and ball and stick diagrams for H ₂ , Cl ₂ , O ₂ , N ₂ , HCl, H ₂ O, NH ₃ , and CH ₄ . | <input type="checkbox"/> | I can suggest how double and triple covalent bonds can be formed. | <input type="checkbox"/> |
| | I can name familiar examples of small molecules which contain covalent bonds. | <input type="checkbox"/> | I can describe a double bond in a diatomic molecule. | <input type="checkbox"/> | I can suggest how the properties of a double bond could be different to the properties of a single covalent bond. | <input type="checkbox"/> |

AQA Chemistry

GCSE Student checklist

C3

| Name | | | Class | | | Date | | |
|------------------------------------|--|--------------------------|--|--------------------------|--|--------------------------|--|--|
| Lesson | Target 4 | | Target 6 | | Target 8 | | | |
| C3.6 Structure of simple molecules | I can state that small molecules have low melting and boiling points. | <input type="checkbox"/> | I can explain how the size of molecules affects melting and boiling points | <input type="checkbox"/> | I can predict the physical properties of unfamiliar covalently bonded substances. | <input type="checkbox"/> | | |
| | I can state that small molecules do not conduct electricity. | <input type="checkbox"/> | I can explain why small molecules and polymers do not conduct electricity. | <input type="checkbox"/> | I can compare and contrast the properties of substances with different bonding. | <input type="checkbox"/> | | |
| | I can describe an intermolecular force. | <input type="checkbox"/> | I can identify substances that would have weak intermolecular forces. | <input type="checkbox"/> | I can justify the use of a model to explain the physical properties of a small molecule and discuss the limitations of various molecular models. | <input type="checkbox"/> | | |
| C3.7 Giant covalent structures | I can list the main physical properties of diamond and graphite. | <input type="checkbox"/> | I can recognise the structure of diamond and graphite from information provided in written or diagrammatic form. | <input type="checkbox"/> | I can use a molecular model of an unfamiliar giant covalent structure to predict and explain its physical properties. | <input type="checkbox"/> | | |
| | I can state that giant covalent structures have high melting points. | <input type="checkbox"/> | I can explain the properties of diamond in terms of its bonding. | <input type="checkbox"/> | I can justify in detail a use for graphite based on its properties. | <input type="checkbox"/> | | |
| | I can describe the structure of graphite in terms of layers of carbon atoms. | <input type="checkbox"/> | I can explain the properties of graphite in terms of its bonding. | <input type="checkbox"/> | I can justify in detail a use for diamond based on its properties. | <input type="checkbox"/> | | |
| C3.8 Fullerenes and graphene | I can describe the relationship between graphite and graphene. | <input type="checkbox"/> | I can recognise the structure of a fullerene or nanotube in diagrams and prose. | <input type="checkbox"/> | I can describe and explain the applications of fullerenes. | <input type="checkbox"/> | | |
| | I can list the main physical properties of fullerenes. | <input type="checkbox"/> | I can explain the structure of fullerenes. | <input type="checkbox"/> | I can use molecular models of graphene, nanotubes, and fullerenes to explain their properties. | <input type="checkbox"/> | | |
| | I can state the molecular formula of buckminsterfullerene. | <input type="checkbox"/> | I can list the properties and consequent uses of fullerenes and carbon nanotubes. | <input type="checkbox"/> | I can justify in detail a use for graphene, nanotubes and fullerenes, based on their properties. | <input type="checkbox"/> | | |

AQA Chemistry

GCSE Student checklist

C3

Name _____ Class _____ Date _____

| Lesson | Target 4 | | Target 6 | | Target 8 | |
|---------------------------------|---|--------------------------|--|--------------------------|--|--------------------------|
| C3.9 Bonding in metals | I can state that metals form a giant structure. | <input type="checkbox"/> | I can describe metallic bonding. | <input type="checkbox"/> | I can explain how metal atoms form giant structures. | <input type="checkbox"/> |
| | I can recognise metallic bonding in diagrams. | <input type="checkbox"/> | I can recognise and represent metallic bonding diagrammatically. | <input type="checkbox"/> | I can evaluate different models of metallic bonding. | <input type="checkbox"/> |
| C3.10 Giant metallic structures | I can list the physical properties of metals. | <input type="checkbox"/> | I can explain key physical properties of metals using the model of metallic bonding. | <input type="checkbox"/> | I can explain in detail, including labelled diagrams, how alloying affects the structure and bonding in metals and its effect on properties. | <input type="checkbox"/> |
| | I can describe the structure of a pure metal. | <input type="checkbox"/> | I can describe why metals are alloyed. | <input type="checkbox"/> | I can justify in detail why alloys are more often used than pure metals. | <input type="checkbox"/> |

AQA Chemistry

GCSE Student checklist

C4

Name _____ Class _____ Date _____

Chemical calculations

| Lesson | Target 4 | Target 6 | Target 8 |
|---|---|---|---|
| C4.1 Relative masses and moles | I can use the periodic table to identify the relative atomic mass for the first 20 elements. <input type="checkbox"/> | I can use the periodic table to find the relative atomic mass of all elements. <input type="checkbox"/> | I can explain why some elements have the same relative atomic mass as each other and why relative atomic masses may not be a whole number. <input type="checkbox"/> |
| | I can calculate the relative formula mass for familiar compounds when the formula is supplied and is without brackets. <input type="checkbox"/> | I can calculate the relative formula mass for unfamiliar compounds when the formula is given. <input type="checkbox"/> | I can calculate the number of moles or mass of a substance from data supplied. <input type="checkbox"/> |
| | | I can state the units for the amount of substance. <input type="checkbox"/> | I can convert between units in calculations. <input type="checkbox"/> |
| C4.2 Equations and calculations Ⓜ | | I can explain why chemical equations must be balanced. <input type="checkbox"/> | I can interpret balanced symbol equations in terms of mole ratios. <input type="checkbox"/> |
| | | I can calculate the relative formula mass for one substance when the relative formula masses are given for all the other substances in a balanced symbol equation. <input type="checkbox"/> | I can use balanced symbol equations to calculate reacting masses. <input type="checkbox"/> |
| C4.3 From masses to balanced equations Ⓜ | | I can explain why chemical equations must be balanced. <input type="checkbox"/> | I can explain the effect of a limiting reactant on the amount of product made. <input type="checkbox"/> |
| | | I can identify the limiting reactant in a chemical reaction. <input type="checkbox"/> | I can use balanced symbol equations to calculate reacting masses when there is a limiting reactant. <input type="checkbox"/> |

AQA Chemistry

GCSE Student checklist

C4

Name _____ Class _____ Date _____

| Lesson | Target 4 | | Target 6 | | Target 8 | |
|--------------------------------|---|--------------------------|--|--------------------------|--|--------------------------|
| C4.4 Expressing concentrations | I can describe what the concentration of a solution is. | <input type="checkbox"/> | I can explain how concentration of a solution can be changed. | <input type="checkbox"/> | I can calculate the mass of a chemical when any volume and concentration is given. | <input type="checkbox"/> |
| | I can calculate the concentration of a solution in g/dm ³ when given the mass of solute in g and volume of solution in dm ³ . | <input type="checkbox"/> | I can calculate the mass of solute (in g) in a solution when given the concentration in g/dm ³ and volume in dm ³ or cm ³ . | <input type="checkbox"/> | I can explain the concentration of a solution in terms of particles. | <input type="checkbox"/> |

AQA Chemistry



GCSE Student checklist

C5

Name

Class

Date

| Lesson | Target 4 | | Target 6 | | Target 8 | |
|-----------------------------|--|--------------------------|---|--------------------------|--|--------------------------|
| C5.1 The reactivity series | I can list the order of common metals in the reactivity series. | <input type="checkbox"/> | I can describe oxidation and reduction in terms of gain or loss of oxygen. | <input type="checkbox"/> | I can justify uses of metals in the reactivity series based on their chemical reactivity. | <input type="checkbox"/> |
| | I can use general equations to write specific word equations for metals listed in the reactivity series reacting with oxygen, water, and acid. | <input type="checkbox"/> | I can write word equations for the metals listed in the reactivity series reacting with oxygen, water, and acid and balance given symbol equations. | <input type="checkbox"/> | I can write balanced symbol equations, with state symbols, for the metals listed in the reactivity series reacting with oxygen, water, and acid. | <input type="checkbox"/> |
| | I can safely make and record observations. | <input type="checkbox"/> | I can predict observations for the metals listed in the reactivity series reacting with oxygen, water, and acid. | <input type="checkbox"/> | I can evaluate in detail the investigation of metals plus acid, assessing the control of variables and the validity of conclusions drawn from the data collected. | <input type="checkbox"/> |
| C5.2 Displacement reactions | I can recall a definition of a displacement reaction. | <input type="checkbox"/> | I can explain why a displacement reaction occurs. | <input type="checkbox"/> |  I can describe displacement reactions using an ionic equation. | <input type="checkbox"/> |
| | I can use the reactivity series to determine whether a reaction between a metal and a different metal salt would happen or not. | <input type="checkbox"/> | I can write word equations and straightforward balanced symbol equations for displacement reactions. | <input type="checkbox"/> | I can write balanced symbol equations, with state symbols, for displacement reactions. | <input type="checkbox"/> |
| | I can safely make and record observations. | <input type="checkbox"/> | I can predict observations for the metals listed in the reactivity series reacting with a different metal salt. | <input type="checkbox"/> |  I can determine and explain which species is oxidised and which species (metal atom or ion) is reduced in a displacement reaction in terms of electron transfer. | <input type="checkbox"/> |

AQA Chemistry

GCSE Student checklist

C5

Name

Class

Date

| Lesson | Target 4 | | Target 6 | | Target 8 | |
|---------------------------------|--|--------------------------|--|--------------------------|--|--------------------------|
| C5.3 Extracting metals | I can define oxidation and reduction in terms of oxygen. | <input type="checkbox"/> | I can identify species that are being oxidised and reduced in a chemical reaction. | <input type="checkbox"/> | I can explain how carbon or hydrogen can be used to reduce an ore. | <input type="checkbox"/> |
| | I can describe how metals can be extracted. | <input type="checkbox"/> | I can explain why some metals are found uncombined in the Earth's crust. | <input type="checkbox"/> | I can evaluate the extraction process to obtain a metal from its ore. | <input type="checkbox"/> |
| C5.4 Salts from metals | I can recall a definition of a salt. | <input type="checkbox"/> | I can describe how to make a salt by reacting a metal with an acid. | <input type="checkbox"/> | H I can explain the reaction between a metal and an acid. | <input type="checkbox"/> |
| | I can name a salt formed between a metal and sulfuric acid or hydrochloric acid. | <input type="checkbox"/> | I can write a balanced symbol equation to describe a reaction between a metal and sulfuric acid or hydrochloric acid. | <input type="checkbox"/> | H I can write ionic and half equations, including state symbols, to describe a reaction between a metal and sulfuric acid or hydrochloric acid. | <input type="checkbox"/> |
| | I can recall a general equation for a metal reacting with an acid and use it to write specific word equations. | <input type="checkbox"/> | I can identify the formula of the salt produced from the reaction between an acid and a metal. | <input type="checkbox"/> | H I can identify and explain in detail which species is oxidised and which is reduced in a reaction. | <input type="checkbox"/> |
| C5.5 Salts from insoluble bases | I can safely prepare a pure, dry sample of a soluble salt from an insoluble base and a dilute acid. | <input type="checkbox"/> | I can describe a method to prepare a pure, dry sample of a soluble salt from an insoluble substance and a dilute acid. | <input type="checkbox"/> | H I can explain the reaction between a metal oxide or metal hydroxide and an acid, including an ionic equation. | <input type="checkbox"/> |
| | I can name a salt formed between a metal hydroxide or metal oxide and sulfuric acid or hydrochloric acid. | <input type="checkbox"/> | I can write a balanced symbol equation to describe a reaction between a metal hydroxide or oxide and sulfuric acid or hydrochloric acid. | <input type="checkbox"/> | I can generate the formulae of salts given the names of the metal or base and the acid. | <input type="checkbox"/> |
| | I can recall a general equation for a base reacting with an acid and use it to write specific word equations. | <input type="checkbox"/> | I can explain why the reaction between a base and a dilute acid is a neutralisation reaction. | <input type="checkbox"/> | I can explain how alkalis are a subgroup of bases. | <input type="checkbox"/> |

AQA Chemistry


GCSE Student checklist

C5

Name _____

Class _____

Date _____

| Lesson | Target 4 | Target 6 | Target 8 |
|---|--|---|---|
| C5.6 Making more salts | I can safely make a salt by reacting a metal carbonate with a dilute acid. <input type="checkbox"/> | I can describe how to make a dry sample of a salt from reacting a metal carbonate or an alkali with a dilute acid. <input type="checkbox"/> | I can explain the reaction between ammonia and dilute acids to produce salts and the agricultural importance of the salts. <input type="checkbox"/> |
| | I can write a general word equation for metal carbonates and alkalis reacting with dilute acids and use this to make specific word equations. <input type="checkbox"/> | I can write balanced symbol equations for neutralisation reactions. <input type="checkbox"/> | I can describe neutralisation using ionic equations, including the ionic equation for a carbonate plus an acid. <input type="checkbox"/> |
| C5.7 Neutralisation and the pH scale | I can safely use universal indicator to classify as acidic or alkaline. <input type="checkbox"/> | I can describe how universal indicator can be used to classify a chemical as acidic or alkaline. <input type="checkbox"/> | I can evaluate how universal indicator or a data logger can be used to determine the approximate pH of a solution. <input type="checkbox"/> |
| | I can describe the pH scale. <input type="checkbox"/> | I can describe how solutions can be acidic or alkali. <input type="checkbox"/> | I can use ionic equations to explain how solutions can be acidic or alkali. <input type="checkbox"/> |
| | I can recall an example of an alkali, neutral, base, and acidic chemical. <input type="checkbox"/> | I can describe the relationship between alkalis and bases. <input type="checkbox"/> | I can explain how the pH of a solution changes as acid or alkali is added. <input type="checkbox"/> |
| C5.8 Electronic structures  | | I can recall examples of strong and weak acids. <input type="checkbox"/> | I can explain the difference between concentration and strong or weak in terms of acids and alkalis. <input type="checkbox"/> |
| | | I can describe how an acid or alkali can be concentrated or dilute. <input type="checkbox"/> | I can use ionic equations to explain how acids can be strong or weak. <input type="checkbox"/> |
| | | I can describe how an acid or alkali can be weak or strong. <input type="checkbox"/> | I can quantitatively explain how the concentration of hydrogen ions relates to the pH number. <input type="checkbox"/> |

Name _____ Class _____ Date _____

| Lesson | Aiming for 4 | | Aiming for 6 | | Aiming for 8 | |
|-----------------------------------|--|--------------------------|---|--------------------------|--|--------------------------|
| C6.1 Introduction to electrolysis | I can define electrolysis. | <input type="checkbox"/> | I can describe electrolysis in terms of movement of ions. | <input type="checkbox"/> | I can explain why electrolysis can only occur when an ionic compound is molten or in aqueous solution. | <input type="checkbox"/> |
| | I can write a word equation to describe the electrolysis of a molten ionic compound. | <input type="checkbox"/> | I can write a balanced symbol equation including state symbols for the overall electrolysis of a molten ionic compound. | <input type="checkbox"/> | I can describe electrolysis with half equations at the electrodes. | <input type="checkbox"/> |
| | | | I can predict the products at each electrode for the electrolysis of a molten ionic compound. | <input type="checkbox"/> | I can explain the classification of the reactions at each electrode as oxidation or reduction. | <input type="checkbox"/> |
| C6.2 Changes at the electrodes | I can state that oxygen can be produced at the anode when some solutions are electrolysed. | <input type="checkbox"/> | I can describe electrolysis of solutions in terms of movement of ions. | <input type="checkbox"/> | I can explain how hydrogen ions and hydroxide ions can be present in solutions, including a balanced symbol equation with state symbols, for the reversible reaction in which water ionises. | <input type="checkbox"/> |
| | I can state that hydrogen can be produced at the cathode when some solutions are electrolysed. | <input type="checkbox"/> | I can write a balanced symbol equation including state symbols for the overall electrolysis of a solution. | <input type="checkbox"/> | I can describe electrolysis with half equations at the electrodes. | <input type="checkbox"/> |
| | I can write a word equation to describe electrolysis of a solution. | <input type="checkbox"/> | I can predict the products at each electrode for the electrolysis of a molten ionic compound or its solution. | <input type="checkbox"/> | I can explain the classification of reactions at the electrodes as oxidation or reduction. | <input type="checkbox"/> |

Name _____ Class _____ Date _____

| Lesson | Aiming for 4 | | Aiming for 6 | | Aiming for 8 | |
|--|--|--------------------------|--|--------------------------|---|--------------------------|
| C6.3 Extraction of aluminium | I can state that aluminium can be extracted from aluminium oxide using electrolysis. | <input type="checkbox"/> | I can describe the electrolysis of aluminium oxide. | <input type="checkbox"/> | I can explain why electrolysis is used to extract aluminium from compounds. | <input type="checkbox"/> |
| | I can write a word equation to describe the electrolysis of aluminium oxide. | <input type="checkbox"/> | I can explain why electrolysis is an expensive metal extraction method and illustrate this with the extraction of aluminium. | <input type="checkbox"/> | I can describe electrolysis with half equations at the electrodes. | <input type="checkbox"/> |
| | | | I can explain why cryolite is added to aluminium oxide in the industrial extraction of aluminium. | <input type="checkbox"/> | I can explain the classification of the reactions at each electrode as oxidation or reduction. | <input type="checkbox"/> |
| C6.4 Electrolysis of aqueous solutions | I can state the products of the electrolysis of brine and a use for each. | <input type="checkbox"/> | I can describe how to electrolyse brine in terms of ions moving. | <input type="checkbox"/> | I can explain the electrolysis of brine using half equations, classifying reactions at the electrode as oxidation or reduction. | <input type="checkbox"/> |
| | I can safely electrolyse a solution, with guidance provided. | <input type="checkbox"/> | I can predict the products of electrolysis of a solution. | <input type="checkbox"/> | I can evaluate in detail an investigation we have planned and carried out, commenting on our methodology and quality of the data collected. | <input type="checkbox"/> |
| | | | I can plan and carry out an electrolysis investigation. | <input type="checkbox"/> | I can explain the classification of the reactions at each electrode as oxidation or reduction. | <input type="checkbox"/> |

AQA Chemistry

GCSE Student Checklist

C7 Energy changes

Name _____ Class _____ Date _____

| Lesson | Aiming for 4 | | Aiming for 6 | | Aiming for 8 | |
|--|---|--------------------------|---|--------------------------|---|--------------------------|
| C7.1 Exothermic and endothermic reactions | I can define exothermic and endothermic reactions. | <input type="checkbox"/> | I can describe examples of exothermic and endothermic reactions. | <input type="checkbox"/> | I can explain a chemical reaction in terms of energy transfer. | <input type="checkbox"/> |
| | I can state that energy is conserved in a chemical reaction. | <input type="checkbox"/> | I can explain, using observations from calorimetry, how to classify a reaction as exothermic or endothermic. | <input type="checkbox"/> | I can plan, carry out, and evaluate the errors in a calorimetry investigation. | <input type="checkbox"/> |
| | I can safely complete a calorimetry experiment for a reaction that takes place in solution. | <input type="checkbox"/> | I can explain in detail how to carry out a calorimetry experiment. | <input type="checkbox"/> | | |
| C7.2 Using energy transfers from reactions | I can state a use of an exothermic reaction and an endothermic reaction. | <input type="checkbox"/> | I can explain how an energy change from a chemical reaction can be used. | <input type="checkbox"/> | I can suggest a chemical reaction for a specific purpose based on the energy change for the reaction. | <input type="checkbox"/> |
| | I can write word equations for familiar reactions. | <input type="checkbox"/> | I can write balanced symbol equations for familiar reactions. | <input type="checkbox"/> | I can evaluate in detail the uses of exothermic and endothermic reactions. | <input type="checkbox"/> |
| C7.3 Reaction profiles | I can define activation energy. | <input type="checkbox"/> | I can label activation energy on a reaction profile diagram. | <input type="checkbox"/> | I can explain why chemical reactions need activation energy to start them. | <input type="checkbox"/> |
| | I can sketch a generic reaction profile diagram for an exothermic or endothermic reaction. | <input type="checkbox"/> | I can generate a specific reaction profile diagram for a given chemical reaction when its energy change is also supplied. | <input type="checkbox"/> | I can use the particle model to explain how a chemical reaction occurs. | <input type="checkbox"/> |
| | | | I can identify bonds broken in reactants and new bonds made in products of a reaction. | <input type="checkbox"/> | I can explain energy change in terms of the balance between bond making and bond breaking. | <input type="checkbox"/> |

Name _____ Class _____ Date _____

| Lesson | Aiming for 4 | Aiming for 6 | | Aiming for 8 | |
|-------------------------------|--------------|---|--------------------------|--|--------------------------|
| C7.4 Bond energy calculations | | I can explain, using the particle model, how reactants become products in a chemical reaction. | <input type="checkbox"/> | I can calculate the energy needed to break the reactant bonds and the energy released when the product bonds are made. | <input type="checkbox"/> |
| | | I can explain why bond breaking is endothermic and bond making is exothermic. | <input type="checkbox"/> | I can calculate the energy change for a reaction, including the correct unit. | <input type="checkbox"/> |
| | | I can define bond energy and identify all the bonds that break and are made in a chemical reaction. | <input type="checkbox"/> | I can explain in terms of bond energies how a reaction is either exothermic or endothermic. | <input type="checkbox"/> |

Name _____ Class _____ Date _____

| Lesson | Aiming for 4 | | Aiming for 6 | | Aiming for 8 | |
|--|--|--------------------------|---|--------------------------|---|--------------------------|
| 8.1 Rate of reaction | I can recall a definition for rate of reaction. | <input type="checkbox"/> | I can explain how there can be different units for measuring rate of reaction. | <input type="checkbox"/> | I can plot and use a graph to calculate the gradient to measure the initial rate of reaction. | <input type="checkbox"/> |
| | I can safely describe and follow a method to monitor rate of reaction. | <input type="checkbox"/> | I can calculate the mean rate of reaction. | <input type="checkbox"/> | I can justify a chosen method for a given reaction to monitor the rate of reaction. | <input type="checkbox"/> |
| | I can state the units for rate of reaction. | <input type="checkbox"/> | I can calculate the rate of reaction at a specific time. | <input type="checkbox"/> | I can explain why there is more than one unit for rate of reaction. | <input type="checkbox"/> |
| C8.2 Collision theory and surface area | I can describe how surface area of a solid can be increased. | <input type="checkbox"/> | I can describe how changing the surface area changes the rate of reaction. | <input type="checkbox"/> | I can use collision theory to explain in detail how increasing surface area increases the rate of reaction. | <input type="checkbox"/> |
| | I can state that chemical reactions can only occur when a collision occurs with enough energy. | <input type="checkbox"/> | I can describe what the activation energy of a reaction is. | <input type="checkbox"/> | I can use a graph to calculate the rate of reaction at specific times in a chemical reaction. | <input type="checkbox"/> |
| | I can list the factors that can affect the rate of a chemical reaction. | <input type="checkbox"/> | I can calculate the surface area to volume ratio. | <input type="checkbox"/> | I can explain why many collisions do not lead to a chemical reaction. | <input type="checkbox"/> |
| C8.3 The effect of temperature | I can describe how temperature affects the rate of reaction. | <input type="checkbox"/> | I can use collision theory to explain how changing temperature alters the rate of reaction. | <input type="checkbox"/> | I can use a graph to calculate the rate of reaction at specific times in a chemical reaction. | <input type="checkbox"/> |
| | I can safely an experiment on how temperature affects the rate of a reaction. | <input type="checkbox"/> | I can calculate mean rates of reaction. | <input type="checkbox"/> | I can calculate $(1/t)$ and plot a graph with a more meaningful line of best fit. | <input type="checkbox"/> |

Name _____ Class _____ Date _____

| Lesson | Aiming for 4 | | Aiming for 6 | | Aiming for 8 | |
|--|--|--------------------------|---|--------------------------|---|--------------------------|
| C8.4 The effect of concentration or pressure | I can describe how changing concentration affects the rate of reaction. | <input type="checkbox"/> | I can use collision theory to explain how changing concentration or pressure alters the rate of reaction. | <input type="checkbox"/> | I can interpret a rate of reaction graph, including calculating the rate of reaction at specific times in a chemical reaction. | <input type="checkbox"/> |
| | I can describe how changing pressure affects the rate of gas phase reactions. | <input type="checkbox"/> | I can calculate mean rates of reaction. | <input type="checkbox"/> | I can explain why changing pressure has no effect on the rate of reaction for some reactions. | <input type="checkbox"/> |
| | | | I can explain how to change gas pressure. | <input type="checkbox"/> | I can justify quantitative predictions and evaluate in detail their investigation into the effect of concentration on rate of reaction. | <input type="checkbox"/> |
| C8.5 The effect of catalysts | I can define a catalyst. | <input type="checkbox"/> | I can use collision theory to explain how adding a catalyst alters the rate of reaction. | <input type="checkbox"/> | I can use a reaction profile diagram to explain in detail the effect of adding a catalyst. | <input type="checkbox"/> |
| | I can describe how adding a catalyst affects the rate of reaction. | <input type="checkbox"/> | I can explain, with an example, the industrial use of a catalyst. | <input type="checkbox"/> | I can justify the use of catalysts in industry and in household products. | <input type="checkbox"/> |
| | I can describe and carry out a method to safely investigate which catalyst is best for a reaction. | <input type="checkbox"/> | I can calculate the mean rate of reaction. | <input type="checkbox"/> | I can explain what an enzyme is and how it works. | <input type="checkbox"/> |
| C8.6 Reversible reactions | I can define a reversible reaction. | <input type="checkbox"/> | I can explain, using a familiar reaction, how a reaction can be reversible. | <input type="checkbox"/> | I can describe an unfamiliar reversible reaction, using a balanced symbol equation with state symbols. | <input type="checkbox"/> |
| | I can write a word equation for a familiar reversible reaction. | <input type="checkbox"/> | I can describe a familiar reversible reaction using a balanced symbol equation. | <input type="checkbox"/> | I can justify the use of reversible reactions in the lab and items available in the home. | <input type="checkbox"/> |
| | I can state an example of a reversible reaction. | <input type="checkbox"/> | I can predict the observations of a familiar reversible reaction when the conditions are changed. | <input type="checkbox"/> | I can justify the classification of a reaction as reversible. | <input type="checkbox"/> |

AQA Chemistry

GCSE Student Checklist

C8 Rates and equilibrium

Name _____ Class _____ Date _____

| Lesson | Aiming for 4 | | Aiming for 6 | | Aiming for 8 | |
|--------------------------------------|---|--------------------------|---|--------------------------|---|--------------------------|
| C8.7 Energy and reversible reactions | I can state whether a reversible reaction is exothermic or endothermic in the reverse direction if the forward direction is stated. | <input type="checkbox"/> | I can explain why the energy change in a reversible reaction is exothermic in one direction and endothermic in the reverse direction. | <input type="checkbox"/> | I can explain in detail the energy changes in an equilibrium system. | <input type="checkbox"/> |
| | I can write the word equation for the reversible reaction of dehydration/hydration of copper | <input type="checkbox"/> | I can generate balanced symbol equations for reversible reactions from information provided. | <input type="checkbox"/> | I can suggest and explain a simple laboratory test which could be completed using a reversible reaction. | <input type="checkbox"/> |
| | | | I can make predictive observations of familiar reversible reactions when information is supplied. | <input type="checkbox"/> | I can make predictive observations of unfamiliar reversible reactions when information is supplied. | <input type="checkbox"/> |
| C8.8 Dynamic equilibrium | I can define a dynamic equilibrium. | <input type="checkbox"/> | I can describe how to achieve dynamic equilibrium. | <input type="checkbox"/> | I can explain dynamic equilibrium. | <input type="checkbox"/> |
| | I can describe a closed system. | <input type="checkbox"/> | I can describe how the rate of the forward reaction compares to the rate of the backward reaction in dynamic equilibrium. | <input type="checkbox"/> | I can explain why the concentration of chemicals in a dynamic equilibrium remains constant. | <input type="checkbox"/> |
| | | | I can describe Le Chatelier's Principle. | <input type="checkbox"/> | I can predict the effect on the rate forward and reverse reactions by applying the Le Chatelier's Principle when the conditions of a dynamic equilibrium are changed. | <input type="checkbox"/> |
| C8.9 Altering conditions | | | I can explain how changing conditions for a system at dynamic equilibrium affects the rate of the forward and reverse | <input type="checkbox"/> | I can explain why changing pressure has no effect on some systems. | <input type="checkbox"/> |
| | | | I can predict the effect on yield of changing temperature, concentration, or pressure in a given equilibrium system. | <input type="checkbox"/> | I can justify, in detail, the compromise conditions chosen in given industrial processes. | <input type="checkbox"/> |

Name _____ Class _____ Date _____

| Lesson | Aiming for 4 | | Aiming for 6 | | Aiming for 8 | |
|-------------------------------------|---|--------------------------|--|--------------------------|--|--------------------------|
| C9.1 Hydrocarbons | I can describe the composition of a crude oil. | <input type="checkbox"/> | I can describe how to separate crude oil into fractions in a school laboratory. | <input type="checkbox"/> | I can explain why fractional distillation is used to separate crude oil into fractions. | <input type="checkbox"/> |
| | I can state a definition of a hydrocarbon. | <input type="checkbox"/> | I can classify a hydrocarbon as an alkane. | <input type="checkbox"/> | I can apply a general formula to generate a molecular formula and a displayed formula for a straight-chain alkane. | <input type="checkbox"/> |
| | I can state a definition of an alkane. | <input type="checkbox"/> | I can state the names and describe the first four alkanes. | <input type="checkbox"/> | I can classify and justify the classification of a chemical as an alkane. | <input type="checkbox"/> |
| C9.2 Fractional distillation of oil | I can name the different fractions from crude oil. | <input type="checkbox"/> | I can describe how the trend in colour, viscosity, flammability, and boiling point changes as the length of the hydrocarbon chain changes. | <input type="checkbox"/> | I can explain in detail how fractional distillation is used to separate crude oil into fractions. | <input type="checkbox"/> |
| | I can state a use for each fraction from crude oil. | <input type="checkbox"/> | I can describe how the properties of a fraction of crude oil make it appropriate for its use. | <input type="checkbox"/> | I can explain how chain length affects the properties of crude oil fractions. | <input type="checkbox"/> |
| | | | | | I can make predictions about the properties of crude oil fractions from the fraction's hydrocarbon chain length. | <input type="checkbox"/> |

Name _____ Class _____ Date _____

| Lesson | Aiming for 4 | | Aiming for 6 | | Aiming for 8 | |
|--------------------------------|---|--------------------------|---|--------------------------|---|--------------------------|
| C9.3 Burning hydrocarbon fuels | I can define complete and incomplete combustion. | <input type="checkbox"/> | I can explain the differences between complete and incomplete combustion. | <input type="checkbox"/> | I can justify the use of a given fuel over another. | <input type="checkbox"/> |
| | I can write a word equation to describe the complete combustion of a hydrocarbon. | <input type="checkbox"/> | I can write balanced symbol equations for the complete and incomplete combustion of hydrocarbons. | <input type="checkbox"/> | I can explain in detail how the production of carbon monoxide in incomplete combustion can be lethal. | <input type="checkbox"/> |
| | I can write a word equation to describe the incomplete combustion of a hydrocarbon. | <input type="checkbox"/> | I can explain how to test for the products of complete combustion. | <input type="checkbox"/> | I can use balanced symbol equations to calculate amounts of reactants or products in a combustion reaction. | <input type="checkbox"/> |
| C9.4 Cracking hydrocarbons | I can define the process of cracking. | <input type="checkbox"/> | I can describe the process of cracking, including conditions. | <input type="checkbox"/> | I can use examples to explain the process of cracking and why it is so important to the petrochemical industry. | <input type="checkbox"/> |
| | I can generate a word equation to describe cracking. | <input type="checkbox"/> | I can generate a balanced symbol equation to describe cracking. | <input type="checkbox"/> | I can explain the similarities and differences between alkanes and alkenes. | <input type="checkbox"/> |
| | I can recognise and give examples of alkenes. | <input type="checkbox"/> | I can describe a chemical test to show an alkene is present. | <input type="checkbox"/> | I can explain, using balanced symbol equations, the reaction between bromine water and an alkene. | <input type="checkbox"/> |

AQA Chemistry

GCSE Student Checklist

C10 Chemical analysis

Name _____ Class _____ Date _____

| Lesson | Aiming for 4 | | Aiming for 6 | | Aiming for 8 | |
|------------------------------------|--|--------------------------|--|--------------------------|--|--------------------------|
| C10.1 Pure substances and mixtures | I can state what a pure substance is. | <input type="checkbox"/> | I can describe the difference between pure substances, impure substances, and formulations. | <input type="checkbox"/> | I can justify the classification of pure substances, impure substances, and formulations when data is supplied. | <input type="checkbox"/> |
| | I can describe how melting point and boiling point data can be used to identify pure substances. | <input type="checkbox"/> | I can explain how melting point and boiling point data can be used to determine the purity of a substance. | <input type="checkbox"/> | I can explain in detail the use of formulations. | <input type="checkbox"/> |
| | I can state what a formulation is. | <input type="checkbox"/> | I can state uses of formulations. | <input type="checkbox"/> | I can calculate percentage compositions of components in a range of formulations. | <input type="checkbox"/> |
| C10.2 Analysing chromatograms | I can describe and safely carry out a method to make a paper chromatogram. | <input type="checkbox"/> | I can explain how chromatography separates solutes. | <input type="checkbox"/> | I can explain why different substances and different conditions will have different R_f values. | <input type="checkbox"/> |
| | I can describe how to calculate R_f values. | <input type="checkbox"/> | I can calculate R_f values from given data. | <input type="checkbox"/> | I can calculate R_f values from a chromatogram, using an appropriate number of significant figures. | <input type="checkbox"/> |
| | I can describe a use of chromatography. | <input type="checkbox"/> | I can use a chromatogram to determine if a sample is pure or impure. | <input type="checkbox"/> | I can interpret a chromatogram to identify unknown substances. | <input type="checkbox"/> |
| C10.3 Testing for gases | I can safely carry out the laboratory test for hydrogen, oxygen, carbon dioxide, and chlorine. | <input type="checkbox"/> | I can explain why limewater turns milky when it reacts with carbon dioxide. | <input type="checkbox"/> | I can write balanced symbol equations, including state symbols, for the reactions of limewater with carbon dioxide and hydrogen with oxygen. | <input type="checkbox"/> |
| | I can describe how to safely carry out the laboratory test for chlorine gas. | <input type="checkbox"/> | I can interpret results to identify a gas that is present. | <input type="checkbox"/> | I can explain why a glowing splint re-ignites in oxygen. | <input type="checkbox"/> |
| | I can identify hydrogen, carbon dioxide, and oxygen from a laboratory test. | <input type="checkbox"/> | I can explain why hydrogen 'pops' near a naked flame. | <input type="checkbox"/> | I can explain why chlorine gas turns damp indicator paper colourless. | <input type="checkbox"/> |

AQA Chemistry

GCSE Student Checklist

C11 The Earth's atmosphere

Name _____ Class _____ Date _____

| Lesson | Aiming for 4 | | Aiming for 6 | | Aiming for 8 | |
|---------------------------------|---|--------------------------|--|--------------------------|--|--------------------------|
| C11.1 History of our atmosphere | I can describe the Earth's early atmosphere. | <input type="checkbox"/> | I can state the composition, including formulae, of the Earth's early atmosphere. | <input type="checkbox"/> | I can use a theory to explain in detail how the atmosphere developed. | <input type="checkbox"/> |
| | I can describe how oxygen was formed in the development of the atmosphere. | <input type="checkbox"/> | I can describe a theory for the development of the Earth's atmosphere. | <input type="checkbox"/> | I can explain the limits of the theory for the development of the Earth's atmosphere and why it has changed. | <input type="checkbox"/> |
| | | | I can explain, using word equations, how gases were formed in the atmosphere and oceans were formed. | <input type="checkbox"/> | I can use balanced symbol equations to explain how gases were formed in the atmosphere and explain how oceans were formed. | <input type="checkbox"/> |
| C11.2 Our evolving atmosphere | I can state that the levels of carbon dioxide have decreased in the atmosphere. | <input type="checkbox"/> | I can describe how the proportion of carbon dioxide in the early atmosphere was reduced. | <input type="checkbox"/> | I can use a theory to explain in detail how the early atmosphere developed to form the atmosphere today. | <input type="checkbox"/> |
| | I can list the names and symbols of the gases in dry air. | <input type="checkbox"/> | I can state the composition of dry air. | <input type="checkbox"/> | I can explain why the compositions of the Earth's atmosphere has not changed much for 200 million years. | <input type="checkbox"/> |
| | I can state where methane and ammonia in the atmosphere may have come from. | <input type="checkbox"/> | I can use word equations to show how carbon dioxide can form sedimentary rocks. | <input type="checkbox"/> | I can use balanced symbol equations to explain how carbon dioxide forms sedimentary rock and how methane and ammonia were removed from the atmosphere. | <input type="checkbox"/> |

AQA Chemistry

GCSE Student Checklist

C11 The Earth's atmosphere

Name _____ Class _____ Date _____

| Lesson | Aiming for 4 | | Aiming for 6 | | Aiming for 8 | |
|------------------------------|--|--------------------------|--|--------------------------|--|--------------------------|
| C11.3 Greenhouse gases | I can describe the greenhouse effect. | <input type="checkbox"/> | I can explain the greenhouse effect. | <input type="checkbox"/> | I can justify why scientists, as well as the public, disagree about the cause of climate change. | <input type="checkbox"/> |
| | I can name three greenhouse gases. | <input type="checkbox"/> | I can explain how greenhouse gases increase the temperature of the atmosphere. | <input type="checkbox"/> | I can explain the difference between global warming and the greenhouse effect. | <input type="checkbox"/> |
| | I can state some human activities that affect the proportion of greenhouse gases. | <input type="checkbox"/> | I can explain how human activity can change the proportion of greenhouse gases in the atmosphere. | <input type="checkbox"/> | I can evaluate evidence to suggest if global warming is man-made or natural. | <input type="checkbox"/> |
| C11.4 Global climate change | I can list some of the possible outcomes of climate change. | <input type="checkbox"/> | I can explain the possible effects of global climate change and why they are difficult to predict. | <input type="checkbox"/> | I can evaluate the scale, risk, and environmental impact of global climate change. | <input type="checkbox"/> |
| | I can state a definition for carbon footprint. | <input type="checkbox"/> | I can explain possible methods to reduce greenhouse gas emissions. | <input type="checkbox"/> | I can justify why reducing greenhouse gas emissions can be difficult to achieve. | <input type="checkbox"/> |
| | I can list some ways to reduce a carbon footprint. | <input type="checkbox"/> | I can explain some of the problems in trying to reduce greenhouse gas emissions. | <input type="checkbox"/> | I can evaluate the use of products, services, or events in terms of their carbon footprint. | <input type="checkbox"/> |
| C11.5 Atmospheric pollutants | I can list some atmospheric pollutants. | <input type="checkbox"/> | I can explain how sulphur dioxide and nitrogen oxides are made when fossil fuels are combusted. | <input type="checkbox"/> | I can predict the products of combustion of a fuel given appropriate information about the composition of the fuel and the conditions in which it is used. | <input type="checkbox"/> |
| | I can describe how carbon monoxide and soot (carbon) can be made from the incomplete combustion of fossil fuels. | <input type="checkbox"/> | I can describe the health impacts of atmospheric pollutants. | <input type="checkbox"/> | I can evaluate the negative social, economic, and environmental consequences of atmospheric pollution. | <input type="checkbox"/> |
| | I can complete word equations to describe how atmospheric pollutants can be made. | <input type="checkbox"/> | I can use balanced symbol equations to show how atmospheric pollutants are formed. | <input type="checkbox"/> | I can suggest and explain methods to reduce atmospheric pollution. | <input type="checkbox"/> |

AQA Chemistry

GCSE Student Checklist

C12 The Earth's resources

Name _____ Class _____ Date _____

| Lesson | Aiming for 4 | | Aiming for 6 | | Aiming for 8 | |
|--------------------------------------|---|--------------------------|---|--------------------------|---|--------------------------|
| C12.1 Finite and renewable resources | I can list some human uses of the Earth's resources. | <input type="checkbox"/> | I can describe and classify a resource as finite or renewable when information is given. | <input type="checkbox"/> | I can understand data and interpret information using orders of magnitude to compare. | <input type="checkbox"/> |
| | I can give examples of a finite and a renewable resource. | <input type="checkbox"/> | I can explain the use of natural, sustainable, and finite resources. | <input type="checkbox"/> | I can explain the role of chemistry in improving agricultural and industrial processes. | <input type="checkbox"/> |
| | I can state an example of a natural product that is supplemented or replaced by agricultural or synthetic products. | <input type="checkbox"/> | I can interpret information from different formats including graphs, charts, tables, and prose. | <input type="checkbox"/> | I can draw conclusions consistent with information provided from graphs, charts, tables, and prose and evaluate the validity of the data. | <input type="checkbox"/> |
| C12.2 Water safe to drink | I can describe why potable water is important. | <input type="checkbox"/> | I can explain the method of obtaining potable water depends on the local conditions. | <input type="checkbox"/> | I can explain the difference between pure water and potable water. | <input type="checkbox"/> |
| | I can list the key processes to make drinking water. | <input type="checkbox"/> | I can explain reasons for filtration and sterilisation in water treatment. | <input type="checkbox"/> | I can justify the choice of potable water supply in a given scenario. | <input type="checkbox"/> |
| | I can safely distil salty water. | <input type="checkbox"/> | I can describe and explain in detail how to safely distil salty water. | <input type="checkbox"/> | I can explain in detail why desalination is not often used to generate safe clean drinking water and justify when it is used. | <input type="checkbox"/> |
| C12.3 Treating waste water | I can list what is removed from waste water before it can be released. | <input type="checkbox"/> | I can explain why waste water should be treated before it is released into the environment. | <input type="checkbox"/> | I can evaluate the ease of obtaining potable water from waste, ground, or salt water. | <input type="checkbox"/> |
| | I can state the main processes in sewage treatment. | <input type="checkbox"/> | I can describe the main processes in sewage treatment. | <input type="checkbox"/> | I can explain in detail how and why waste water is processed before it is released into the environment. | <input type="checkbox"/> |
| | I can state uses of sewage slurry. | <input type="checkbox"/> | I can explain the uses of sewage slurry. | <input type="checkbox"/> | I can evaluate the use of sewage slurry. | <input type="checkbox"/> |

AQA Chemistry

GCSE Student Checklist

C12 The Earth's resources

Name _____ Class _____ Date _____

| Lesson | Aiming for 4 | | Aiming for 6 | | Aiming for 8 | |
|-----------------------------------|---|--------------------------|---|--------------------------|--|--------------------------|
| C12.4 Extracting metals from ores | | | I can describe the processes of phytomining and bioleaching. | <input type="checkbox"/> | I can explain in detail how phytomining and bioleaching extract metals. | <input type="checkbox"/> |
| | | | I can write balanced symbol equations to explain metal extraction techniques. | <input type="checkbox"/> | I can write ionic equations to explain metal extraction techniques and identify the species being oxidised or reduced. | <input type="checkbox"/> |
| | | | I can explain the need for new ways of extracting metals (in particular copper). | <input type="checkbox"/> | I can evaluate biological methods of metal extraction. | <input type="checkbox"/> |
| C12.5 Life Cycle Assessments | I can state the different stages of an LCA in the correct order. | <input type="checkbox"/> | I can explain the importance of LCA and how it can be misused. | <input type="checkbox"/> | I can explain the limits of LCAs. | <input type="checkbox"/> |
| | I can carry out an LCA for shopping bags made from plastic or paper with support. | <input type="checkbox"/> | I can carry out LCAs for different products when data is supplied. | <input type="checkbox"/> | I can evaluate products in detail using LCAs. | <input type="checkbox"/> |
| C12.6 Reduce, reuse, and recycle | I can list some products that can be reused or recycled. | <input type="checkbox"/> | I can explain the importance of reusing and recycling products. | <input type="checkbox"/> | I can evaluate the environmental, economic, and social impacts of reusing and recycling products. | <input type="checkbox"/> |
| | I can describe how metal can be reused and recycled. | <input type="checkbox"/> | I can explain why some recycling can be difficult. | <input type="checkbox"/> | I can evaluate ways of reducing the use of limited resources. | <input type="checkbox"/> |
| | I can describe how glass can be reused and recycled. | <input type="checkbox"/> | I can evaluate ways of reducing the use of limited resources when information is given. | <input type="checkbox"/> | I can suggest ways of minimising the environmental impact of exploiting raw materials. | <input type="checkbox"/> |