



# AQA Chemistry Checklist - Entry Level

Video

Exam  
Q&A



## Topic 1. Atomic structure

### Video: Atoms, elements, compounds, mixtures

- Use the names and symbols of the first 20 elements in the periodic table, the elements in Groups 1 and 7, and other elements in this specification.
- Name compounds of these elements from given formulae or symbol equations.
- Define an atom, an element, a compound and a mixture.

### Video: Separating mixtures

- Describe, explain and give examples of the specified processes of separation.
- Suggest suitable separation and purification techniques for mixtures when given appropriate information.

### Video: The Periodic Table

- Explain how the position of an element in the periodic table is related to the arrangement of electrons in its atoms and hence to its atomic number.
- Describe the key steps in the development of the periodic table.
- Explain the differences between metals and non-metals on the basis of their characteristic physical and chemical properties.
- Explain how the atomic structure of metals and non-metals relates to their position in the periodic table.

## Topic 2. Bonding

### Video: Ionic Bonding

- The definition of an ionic bond.
- Describe how ionic bonds form between metals and non-metals.
- Recognise a compound from its formula or from a 3D diagram.
- Describe key properties of ionic compounds.

### Video: Solids, liquids and gases

- Describe the main differences between solids, liquids and gases
- Predict the states of substances at different temperatures given appropriate data
- Explain why changes of state occur at different temperatures for different types of substance
- (HT) Describe the limitations of the simple particle model

### Video: Properties of ionic, covalent and metallic structures

- Describe the properties of ionic compounds and explain these in terms of strong electrostatic forces of attraction between oppositely charged ions.
- Describe the properties of simple covalent molecules and explain these using the idea that intermolecular forces are weak compared with covalent bonds.
- Recognise giant covalent structures from diagrams showing their bonding and structure and explain their properties in terms of the strong covalent bonds between atoms.
- Describe the properties of metals and alloys in terms of the layers of metal ions held together by a sea of delocalised electrons.

### Video: Giant covalent structures

- Visualise and represent 2D and 3D forms including two dimensional representations of 3D objects.
- Explain how the properties of diamond and graphite are linked to their bonding and structure.

## Topic 3. Quantitative Chemistry

### Video: Conservation of mass and balanced chemical equations

- Recall the meaning of the law of conservation.
- Write simple word equations.
- Write simple symbol equations.
- Balance symbol equations.



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## Topic 4. Chemical Changes

### Video: Extracting metals

- Recall that reduction involves the loss of oxygen.
- Describe how carbon is used to reduce metal oxides.
- (HT) Explain how this takes place in terms of movement of electrons

### Video: Reactions of acids

- Recall that acids react with some metals to produce salts and hydrogen.
- Predict and name the salts produced from given reactants.
- Use the formulae of common ions to deduce the formulae of salts.
- (HT) Explain in terms of gain or loss of electrons, that these are redox reactions.
- (HT) Identify which species are oxidised and which are reduced in given chemical equations.

### Video: Making Salts

- Recall that soluble salts can be made from acids by reacting them with solid insoluble substances, such as metals, metal oxides, hydroxides or carbonates.
- Define the terms soluble and insoluble, and explain what is meant by a soluble salt.
- Explain why reactants are often used in excess.



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## Topic 5. Energy Changes

### Video: Exothermic and endothermic reactions

- Distinguish between exothermic and endothermic reactions on the basis of the temperature change of the surroundings.
- Evaluate uses and applications of exothermic and endothermic reactions given appropriate information.
- Investigate the variables that affect temperature changes in reacting solutions such as acid plus metals, acid plus carbonates, neutralisations, displacement of metals.

## Topic 6. Rate and extent of chemical change

### Video: Factors affecting rates of reaction

- Recall the main factors which affect the rates of chemical reactions including: the concentrations of reactants in solution, the pressure of reacting gases, the surface area of solid reactants, the temperature and the presence of catalysts.
- Recall how changing these factors affects the rate of chemical reactions.
- Investigate how changes in concentration affect the rates of reactions by an appropriate method.

## Topic 7. Organic Chemistry

### Video: Crude oil and alkanes

- Recognise substances as alkanes given their chemical formulae or displayed formulae.
- Name and draw the displayed formula for methane, ethane, propane and butane.
- Explain how fractional distillation works in terms of evaporation and condensation.
- Recall how boiling point, viscosity and flammability change with increasing molecular size.

## Topic 8. Chemical Analysis

### Video: Gas tests

- Describe the test for hydrogen
- Describe the test for oxygen
- Describe the test for carbon dioxide
- Describe the test for chlorine

### Video: Chromatography

- Explain how paper chromatography separates mixtures.
- Suggest how chromatographic methods can be used for distinguishing pure substances from impure substances.
- Interpret chromatograms and determine  $R_f$  values from chromatograms.

## Topic 9. Chemistry of the atmosphere

### Video: The Earth's atmosphere

- Interpret evidence and evaluate different theories about the Earth's early atmosphere, when given appropriate information.
- Describe the main changes in the atmosphere over time and some of the likely causes of these changes.
- Describe and explain the formation of deposits of limestone, coal, crude oil and natural gas.

## Topic 10. Using Resources

### Video: Potable water

- Distinguish between potable water and pure water.
- Describe the differences in treatment of ground water and salty water.
- Give reasons for the steps used to produce potable water.

### Video: Life cycle assessment

- Describe the four main stages of a life cycle assessment.
- Carry out simple comparative LCAs for shopping bags made from plastic and paper
- Evaluate ways of reducing the use of limited resources, given appropriate information.