

Curriculum Map: Year 9 Chemistry

	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5
Topic	Atoms, elements and compounds Separating mixtures	Development of the atomic model and periodic table Atomic structure	Metals and non-metals Groups 1, 7 and 0	Chemical bonding – ionic and metallic bonding	Chemical bonding – Simple covalent structures Chemical bonding- Giant covalent structures Graphene and fullerenes
Intent	Students will learn: Matter is composed of tiny particles called atoms. Mixtures can be separated using a variety of scientific techniques and apparatus.	Students will learn: The periodic table provides chemists with an organized way of looking at the known chemical elements. How scientists helped to develop the periodic table and models of atomic structure. The arrangement of elements in the modern periodic table. The model of a nuclear atom, size charge, mass and electron arrangement in energy levels.	Students will learn: How the periodic table separates metals and non-metals. Basic properties of metals and non-metals. The similarities and differences between elements in groups and periods. The chemical and physical trends in groups 1, 7 and 0.	Students will learn: To describe and explain the structure and properties of ionic compounds. How to use diagrams to represent ionic bonding. To explain and describe the properties of metallic substances. How to use diagrams to represent metallic bonding.	Students will learn: To describe and explain the structure and properties of simple covalent structures. To use diagrams to represent simple covalent structures. To describe and explain the structure and properties of giant covalent structures. The uses of giant covalent structures and link this to their properties. About the structure and uses of graphene and fullerenes.
Key Knowledge	Matter is composed of atoms. There are about 100 naturally occurring atoms called elements. Different elements can combine to form compounds. Mixtures of elements and compounds can be separated.	Names and contributions made by scientists in the development of the periodic table and atomic model. The structure of the atom including the arrangement of electrons in energy levels. The periodic table reveals trends and connections	Metals and non-metals have distinct similarities and differences. Elements in the same group share similar properties. Elements in the same period share similar properties.	Ionic bonding involves metal and non-metal atoms transferring electrons. Metals are giant structures arranged in a regular pattern. Metals have positive metal ions surrounded by delocalised electrons. Delocalised electrons can move through the entire	Covalent bonding involves the sharing of electrons. Simple molecules are usually gasses or liquids and have low melting and boiling points. Simple covalent structures have weak intermolecular forces between them that don't need much energy to overcome. Covalent bonding involves the sharing of electrons.

		between groups and periods. Calculating masses.	Properties change as you go across or down the periodic table. Electrons and protons play an important part when explaining these properties and trends.	structure and can carry charge or energy. Metallic and ionic substances have high melting and boiling points.	Giant covalent structures have high melting and boiling points. In giant covalent structures all the atoms are bonded together through strong covalent bonds. Diamond and graphite are examples of giant covalent structures. Intermolecular forces increase with the size of the molecule. Graphite can conduct electricity. Graphene is a single layer of graphite. Fullerenes are molecules of carbon atoms with hollow shapes.
Key Skills	Analysis Recall Practical Problem solving Use of scientific vocabulary Making accurate observations	Analysis Comparative reasoning Maths Interpreting data from tables and graphs	Maths Interpreting data from tables and graphs Use of scientific vocabulary	Analysis Recall Interpreting data from tables and graphs Use of scientific vocabulary	Analysis Recall Interpreting data from tables and graphs Use of scientific vocabulary Comparative reasoning
Key Vocabulary	Atom, element, compound, mixture, chemical symbol, substance, particle, chemical bond, dissolve, soluble, insoluble, boiling and melting point, filter, evaporate, condense, residue, crystallisation.	Group, period, protons, neutrons, electrons, charge, mass, nucleus, energy level, atomic number, atomic mass, alkali metal, transition metal, halogen, displacement, boiling point, reactivity, noble gas.	Malleable, ductile, sonorous, dense, brittle, atomic radius, nuclear attraction, shielding, repulsion, weak intermolecular forces.	Ions, Sea of delocalised electrons, free electrons, electrical charge, layers, distorted, alloy, full outer shell.	Weak intermolecular forces, sharing electrons, full outer shell Strong covalent bonding, sea of delocalised electrons, free electrons, electrical charge, graphene, fullerenes, nanoparticles.
Key Reading	BBC Bitesize CGP revision guide	BBC Bitesize CGP revision guide	BBC Bitesize CGP revision guide	BBC Bitesize CGP revision guide	BBC Bitesize CGP revision guide

End Point	Students are competent in answering structured and longer response exam style questions. Able to structure comparative sentences. Can recall practical methods.	Students are competent in answering structured and longer response exam style questions. Students are competent in answering maths, data and graph-based questions Students can plot and analyse line graphs.	Students are competent in answering structured and longer response exam style questions. Students are competent in answering maths, data and graph-based questions. Students can plot and analyse line graphs	Students are competent in answering structured and longer response exam style questions. Students are competent in answering maths, data and graph-based questions.	Students are competent in answering structured and longer response exam style questions. Students are competent in answering maths, data and graph-based questions.
Form of Assessment	Exam ready questions	Exam ready questions DC1	Exam ready questions	Exam ready questions	Exam ready questions DC2
Enrichment Opportunities	As Universities start to offer science-based workshops again Y9 will be given the opportunity to take part via STEM. Linked with Duke of Edinburgh there is an opportunity for some students to gain hands on experience in a science career with a Science technician as part of their skills or volunteering section.				
Leadership Opportunities	Chances to formally present within lessons and take ownership of that process. Student helper to support other students especially in required practicals. Student example to demonstrate good quality work.				



AMBITION



RESILIENCE



COURTESY



KINDNESS