West Coventry Academy
Respectful | Responsible | Resilient | Ready to Learn

Key Stage 4 - Curriculum Map - Science

Year 9 Curriculum Map		Halfterm1	Halfterm2	Halfterm3	Halfterm4	Halfterm5	Halfterm6
8 hrs per fortnight	Curriculum Content inc Knowledge, Skills & Cultural Capital			**Cells in Animals and plants** Knowledge Structure and functions of cells, transport of substances into and out of cells, cell division, cell differentiation. SMSC Use of stem cells Skills Microscopy Math calculating magnification, scale and orders of magnitude **Atomic structure** Developing scientific theories Structure and size of the atom	**States of Matter** Particle model of matter; density; pressure of gases and changes of state. Skills Practical skills measuring with precision Math calculating density **The periodic table** Application of Atomic structure, arrangement of elements in the periodic table. Skills Practical skills – observation and recording differences	**Forces and energy changes** Representing forces as vectors Calculating resultant force Weight potential energy Work done Skills Practical work – measuring with precision Math calculating spring constant **WAVES** Waves transfer energy Nature of waves Electromagnetic spectrum uses and risks Skills Investigating waves	**Systems in the human body** Structure and function of biological systems Nervous control of systems Skills Practical testing foods Testing reaction times SMSC effect of drugs on reaction time
	Assessment			End of topic tests Homework	End of topic tests Homework	End of topic tests Homework	End of topic tests Homework
	Outside of the Curriculum						

Year 10 Curriculum Map		Halfterm1	Halfterm2	Halfterm3	Halfterm4	Halfterm5	Halfterm6
	Curriculum Content inc Knowledge, Skills & Cultural Capital	**The Earth's atmosphere** Development of the earths atmosphere over time. Carbon cycle Effect of human activities on the atmosphere Pollution Water cycle and water use Skills Treating water Cultural capital Human impact on the environment **WAVES** Waves transfer energy Nature of waves Electromagnetic spectrum uses and risks Skills	**Magnetism and Electromagnetism** Describe the attraction and repulsion of poles of a magnet Identify magnetic materials Making permanent and temporary magnets Magnetic fields around a wire. The motor effect Skills Plotting magnetic field diagrams **Forces and Motion** Effect of forces, observations of moving objects can be accounted for in terms of Newtons laws of motion. Skills	**Chemical Quantities** Understand and write chemical formulae Link formulae uses in industry Skills Balanced equations Calculate formula mass Yield **Lifestyle and Health** Human health Explore lifestyle risk factors which can affect health. Understand how the human body carries out homeostasis to maintain a constant internal environment. Skills	**Structure and Bonding** Different types of chemical bond How properties of bond effects the nature of chemical properties of elements, compounds and molecules. Skills Modelling bonding Drawing bond diagrams **Electricity** A current will flow in a circuit when a potential difference is applied. Understand the factors effecting the size of the current flowing. Investigate resistance in a wire.	**Preventing curing and treating disease** Difference between pathogenic and commensal microorganisms. Different types of pathogenic organism, prevention, symptoms and treatment. Vaccination and response Skills Evaluate data and evidence SMSC Responsibility to not spread infectious disease through good hygiene habits Uses of stem cells to develop treatments **Atoms into Ions**	**Rate and extent of chemical change** How chemical reactions happen. The factors that influence the rate of chemical reactions. The use of catalysts to speed up the rate of a reactions. Understanding energy changes in reactions. Skills Constructing graphs Calculating the rate of the reaction **Ecosystems and biodiversity** Understanding the resources needed to sustain life. Understanding relationships

		Investigating waves Math calculating wave speed **Forces and energy changes** Representing forces as vectors Calculating resultant force Weight potential energy Work done Skills Practical work – measuring with precision Math calculating spring constant	Math calculating speed and velocity Using formulae Graph construction SMSC Factors effecting stopping distances **Radiation and risk** The absorption and emission of radiation, including radioactive decay, the penetration of different types of radiation, contamination and ionising radiation, and how exposure to ionising radiation increase the risk of mutation and cancer in living organisms including people Skills Math Calculating radioactive decay Cultural Capital Understanding impacts of radiation adv and disadv **Acids and alkalis** Knowledge Classifying chemicals as acid or alkali Characterising how chemicals react together looking for change Writing chemical formulae and equations Skills Handling hazardous materials with care Making observations Drawing conclusions SMSC dangers of strong chemicals	Investigate different antibacterial cleaners Evaluating evidence Interpret data SMSC Risk factors affecting health	Skills Math Calculating resistance Investigate resistance in wires, handle practical equipment safely	Describe the formation of ions of metal and non-metallic elements. Link reactivity of elements to ion formation. Explain electrolysis in terms of ion movement Skills Investigate Electrolysis as method to separate compounds	within and between communities of organisms. Skills Sampling ecosystems Math estimating population size Cultural capital Understanding the impact of human activities on biodiversity locally and globally.

8 hrs per fortnight							
	Assessment	End of topic tests Homework	End of topic tests Homework	End of topic tests Homework	End of topic tests Homework	End of topic tests Homework	End of topic tests Homework
	Outside of the Curriculum						

Year 11 Curriculum Map		Halfterm1	Halfterm2	Halfterm3	Halfterm4	Halfterm5	Halfterm6
Curriculum Content inc Knowledge, Skills & Cultural Capital		**Radiation and risk** The absorption and emission of radiation, including radioactive decay, the penetration of different types of radiation, contamination and ionising radiation, and how exposure to ionising radiation increase the risk of mutation and cancer in living organisms including people Skills Math Calculating radioactive decay Cultural Capital Understanding impacts of radiation adv and disadv **Acids and alkalis** Knowledge Classifying chemicals as acid or alkali Characterising how chemicals react together looking for change Writing chemical formulae and equations Skills Handling hazardous materials with care Making observations Drawing conclusions SMSC dangers of strong chemicals **Magnetism and Electromagnetism** Describe the attraction and repulsion of poles of a magnet Identify magnetic materials Making permanent and temporary magnets Magnetic fields around a wire. The motor effect	**MOCK EXAM P1 Life and Environmental science** **Forces and energy changes** Representing forces as vectors Calculating resultant force Weight potential energy Work done Skills Practical work – measuring with precision Math calculating spring constant **Rate and extent of chemical change** How chemical reactions happen. The factors that influence the rate of chemical reactions. The use of catalysts to speed up the rate of a reactions. Understanding energy changes in reactions. Skills Constructing graphs Calculating the rate of the reaction	**Atoms into Ions** Describe the formation of ions of metal and non-metallic elements. Link reactivity of elements to ion formation. Explain electrolysis in terms of ion movement Skills Investigate Electrolysis as method to separate compounds **Chemical Quantities** Chemists use quantitative methods to determine the formulae of compounds and equations for reactions. Reacting quantities can be determined and the yield from reactants can be calculated. Skills Multistep calculations Ratio Percentage. **Electricity** A current will flow in a circuit when a potential difference is applied. Understand the factors effecting the size of the current flowing. Investigate resistance in a wire. Skills Math Calculating resistance Investigate resistance in wires, handle practical equipment safely **Forces and Motion**	**Guiding spaceship earth toward a sustainable future** **Carbon Chemistry** Extraction and separation of hydorcarbons Uses of Hydrocarbons **Using resources** Extraction and uses of materials found in the earths crust including metals and hydrocarbons. Impacts of extracting materials from the earths crust. Method and importance of recycling **Skills** **Evaluating LSA of products** Skills Constructing graphs Calculating the rate of the reaction **Revision for the summer exam series**		

		Skills Plotting magnetic field diagrams		Effect of forces, observations of moving objects can be accounted for in terms of Newtons laws of motion. Skills Math calculating speed and velocity Using formulae Graph construction SMSC Factors effecting stopping distances			
4 hrs per fortnight	Assessment	End of topic tests Homework	Mock exam	End of topic tests Homework	End of topic tests Homework		
	Outside of the Curriculum						