

	Autumn 1		Autumn 2	Spring 1		Spring 2	Summer 1		Summer 2
Topic (s)	9A Respiration and circulation	9B Reactivity	9C Engineering	Transition to GCSE					
Topic Objectives	Know the structure and function of organs involved in gas exchange and circulation in humans. Understand the effect of lifestyle choices, such as smoking and exercise, on health.	Develop understanding of chemical reactions and how chemists represent chemical changes using equations.	Understand the concept of pressure. Learn about practical applications of levers and hydraulics.	B1 Microscopes and cells	C1 States of Matter and Separation techniques	P1 Motion	B2 Cellular transport	C2 The Periodic table	P2 Forces 1
Acquired Knowledge / Skills	Describe the structure and function of the lungs and the mechanism of breathing. Describe blood circulation in humans, including structure of the heart, blood vessels and blood components. Explain the differences between aerobic and anaerobic respiration in terms of reactants, products formed and implications for the organism. Explain the impact of exercise, asthma and smoking on the human gas exchange system.	Understand and apply the principle of conservation of mass in chemical reactions. Write word equations to represent chemical reactions, particularly those involving metals. Write symbols and formula. Write balanced symbol equations. Describe the structure of polymers. Evaluate impact of production and disposal of plastics.	Identify and describe movement of levers and their function. Calculate simple moments. Describe pressure and the factors that increase or decrease the pressure acting on a surface. Calculate pressure acting on a surface. Use the particle model to explain pressure in gases and liquids.	To consolidate understanding of the structure of plant animal and bacterial cells. To describe specialised cells. To use microscopes and calculate sizes	To consolidate understanding of particle model. To explain the principles of separation techniques.	Describe the motion of an object and how it changes over time.	Consolidate understanding of diffusion. To extend to osmosis and active transport	Understand and use the currently accepted atomic model and Periodic Table.	Analyse the forces acting on an object and how they affect motion.
Practical skill	Measuring lung capacity	Make and record observations for chemical reactions.	Using newton meters to measure forces.	Making slides and using microscopes.	Chromatography Distillation.	Measuring speed and acceleration. Use of light gates.	Using mass change in potato chips to explain osmosis.	Measuring physical properties	Measuring forces
Target Vocabulary	Respiration Breathing Diffusion Aerobic Anaerobic Lung capacity Heart Artery Vein Capillary	Chemical Reaction Equation Reactivity Displacement Symbol Formula Rate Energy Catalyst	Lever Pivot Moment Turning Pressure Atmospheric Fluid Surface Hydraulic	Magnification Eye piece Objective lens Resolution Eukaryotic Prokaryotic Flagellum Plasmid Adaptations Microvilli	Particle Cooling curve Filtration chromatography Distillation Fractional distillation Purification Potable Sedimentation Chlorination	Displacement Scalar Vector Magnitude Direction Velocity Acceleration Deceleration Gradient	Diffusion Osmosis Active transport Concentration gradient Percentage change in mass	Atom Nucleus Electron Proton Neutron Mass number Atomic number Isotope Period Group	Balanced Unbalanced Weight Contact Gravitational Friction Thrust Repulsion Attraction
Assessment	9A Key Assessed task: Lung capacity and height (evaluation)	9B Key Assessed task: Rate of reaction (evaluation)	9C Key Assessed task: Pressure (evaluation)	Key Assessed task Cells and microscopes End of topic B1 test	Key Assessed task Separation techniques End of topic test C1 Baseline test B-2nd go	Key Assessed task Speed limits End of topic test P1	Key Assessed task Osmosis End of topic test B2	Key Assessed task Isotopes End of topic test C2	Key Assessed task Wheelbarrow End of topic test P2 End of Year 9 test

Note: due to restrictions regarding practical resources, different classes will cover the topics for each term in different order. All classes will have covered the same content by the end of each term.