

## KS3 Curriculum Plan

	LP1	LP2	LP3	LP4	LP5
<b>Year 7</b>	<b>Lab Safety, The particle model</b>	<b>Periodic Table, sound, and light</b>	<b>Cells, movement, and human reproduction</b>	<b>Breathing, Interdependence, and Plant reproduction</b>	<b>Separating mixtures</b>
<b>Knowledge</b>	Students will learn lab safety rules, and how to carry out experiments carefully and safely. Students will then know how solids, liquid and gases are composed of particles. Students will learn how to draw the three states of matter, and how bonds are transformed through changes of state. Finally students will learn what diffusion is, and how to explain its behaviour. Students will know what an element is, and how elements create the world around us. Students will know how the Periodic Table is constructed and the patterns shown on the different rows and periods.	Students will then learn about light and how when a light ray meets a different medium, some of it is absorbed and some reflected. Students will know how light reflects and refracts. Finally students learn about how colour is created and observed.  Students will learn how the properties of light and sound are covered under the topic of waves. Students will learn how to apply the key terminology of waves and their behaviour.	Students will learn the organelles of animal plant cells. They will also learn specialised animal and plant cells and how substances move by diffusion. Students will learn the levels of organisation in multi-cellular organisms.  Students will learn about the skeletal system and the changes which occur during puberty. They will be able to describe parts of the human reproductive systems and stages of development of a foetus. Finally, students will learn the timings of the menstrual cycle.	Students will learn the adaptations of the lungs for the gas exchange, be able to explain the process of inhalation and exhalation and the effects of smoking. Students will learn how to create food chains and webs. Students will learn about the levels of ecosystems and competition. Students will learn about plant reproductive system and difference between fertilisation and germination.	Students will learn about what pure substances consist of and their melting and boiling points. Students will learn about the separation techniques that we can use to separate substances.  Finally, students will learn about the methods chosen to separate a mixture depends on which physical properties of the substance.
<b>Procedural Knowledge</b>	Scientific Enquiry: Pupils use their acquired knowledge and understanding to suggest hypotheses and carry out practical investigations to test their predictions. Evaluating Skills: Using their practical skills and theoretical knowledge students will develop skills necessary for critical analysis. This will develop their independent thinking and logical reasoning.				
<b>Key Vocab</b>	Evaporate, Condense, Sublime, Atom, Molecule, Element, Compound	Vibration, Vacuum, Amplitude, Frequency, Peak, Crest, Trough, Pitch, Hertz, Pinna, Auditory canal, Cochlea, Reflect, Absorb, Incident ray, Angle of incidence, Angle of reflection	Nucleus, Cell membrane, Cytoplasm, Mitochondria, Vacuole, Chloroplast, Structural adaptations, Concentration, Uni-cellular, Antagonistic, Cartilage, Ligament, Tissue, Organ, Organ system	Bronchus, Trachea, Bronchiole, Alveolus, Producer, Consumer, Decomposer, Bioaccumulation, Community, Niche, Stigma, Carpel, Style, Ovary, Anther, Pollination	Solvent, Solute, Soluble, Insoluble, Filtrate, Residue, Chromatogram
<b>Year 8</b>	<b>Healthy Body and Organ Systems</b>	<b>Reaction and Extraction</b>	<b>Space and Photosynthesis</b>	<b>Inheritance, Genetics and Evolution</b>	<b>Newtonian Forces</b>
<b>Knowledge</b>	Students will learn how nutrients and components are needed to maintain a healthy lifestyle, and be able to plan a nutritional diet plan. Students will learn about the effects of drugs and alcohol on the body and be able to classify them.  Students will learn about organisation of the digestive system and how to investigate the role of bacteria and enzymes.  Students will learn about how the body undergoes respiration to support living. Finally, students will learn the use of Biotechnology.	Students will learn about acids and alkalis. Students will test a variety of chemicals, and how to investigate neutralisation. Students will learn about the reactions of metals and non-metals, and their products. Students will learn how metals can be arranged in the reactivity series.  Students will learn about the magnetic elements and the states of some elements at room temperature. Students will study the effects of climate change on average temperature.	Students will learn about the phases of the Moon, structure of the solar system and how rotation of the Earth causes Seasons.  Students will learn the structure of a leaf, how plants are adapted to the environment and investigate the process of photosynthesis.  Finally, students will learn how to isolate Glucose in a leaf.	Students will learn how organisms adapt and how characteristics are inherited. Students will learn the structure of DNA and the uses of DNA profiling.  Students will learn about the ethics of Genetic Modification and the Theory of Natural Selection. They will learn about the work of Charles Darwin and threat of Extinction. Students will also learn how preserve species.	Students will learn about resultant forces, and be able to name the forces acting on objects. Students will learn about the differences between mass and weight and learn that deformation is Changing shape due to a force.  Students will learn what forces are measured in, what tension is and how contact forces behave.
<b>Procedural Knowledge</b>	Scientific Enquiry: Pupils develop their practical skills to further advance understanding of the content of learning programme. Evaluating Skills: Students will begin to analyse data in more depth forming more complex conclusions, further developing logical reasoning and critical thinking skills. Communicating about science: In year 8, pupils writing and speaking is further developed as the nature of the course becomes more in depth. Key scientific language and command words are spoken about in greater depth for students to achieve a greater understanding of the topics.				
<b>Key Vocab</b>	Organs, Systems, Stimulant, Depressive, Legal, Illegal, Carbohydrates, Protein, Fats, Lipids, Amylase, Protease, Lipase, Stomach, Large Intestine, Small Intestine, Nanotechnology	Acids, Alkali, pH scale, Indicator, Metals, Salts, Ions, Hydrogen, Gas, Global Warming, Carbon Dioxide, Core, Crust, Mantle	Satellite, Galaxy, Asteroid, Axis, Season, Geocentric model, Heliocentric model, Chlorophyll, Producer, Stomata, Iodine, Nitrates, Phosphates	Evolution, Natural selection, Peer review, Extinct, Population, Endangered species, Conservation, Gene bank, Chromosomes, Gene mutation, Allele, Dominant, Recessive	Combustion, decomposition, conservation of mass, physical change, weight, mass, friction, contact force, deformation, compression, Hooke's Law, Pivot, Moment, Centre of mass
<b>Year 9</b>	<b>Electricity and Magnetism</b>	<b>Atomic Structure and the periodic table</b>	<b>Speed and Pressure</b>	<b>Cells, Cell Processes, Chemical energy</b>	<b>Motion and Energy</b>
<b>Knowledge</b>	Students will learn how to model voltage and how circuits work. Students will learn about components, how to calculate resistance and explain what current is within a circuit.  Students will also learn about the electric field and how they interact on objects. They will learn how to draw magnetic fields and how electromagnets work.	Students will learn the elements, their groups and their reactivity in the Periodic Table. Students will be able to construct Chemical Formulae. They will also learn about polymers and their behaviour.  Students will learn about energy stores and transfers. Students will learn about the conservation of energy, and how the total energy in a closed system stays the same.	Students will learn what happens to objects when a resultant force is upon them. They will also be able to construct distance-time graphs and calculate the speed of journeys.  Students will learn what pressure is how its properties when acting upon objects. Finally, students will learn about the different stresses that can act upon solids and how they will behave.	Students will know how to compare and contrast animal and plant cells. Students will then be able to identify and explain adaptations in specialised animal and plant cells, whilst describing the movement of substances through cells through Active Transport, Osmosis and Diffusion.  Students will learn how forces behave and state what forces there are. They will also learn how to investigate exothermic and endothermic reactions using a laboratory method.  Finally, students will learn how to Interpret energy level diagrams, explain what they are showing and explain what bond energies are.	Students will learn how to describe how jobs get done using an energy model where energy is transferred from one store at the start to another at the end. They will also learn how energy is transferred, conserved and dissipated, reducing the amount of useful energy. Students will learn how to calculate 'work done' and the energy transferred when a force moves an object. Students will learn about how we pay for our domestic electricity usage and what it is based on. Students will also explore advantages and disadvantages of where electricity can come from.  Students will learn about thermal energy, by particles in conduction and convection and radiation. Students will also learn about waves. Waves of higher amplitude or higher frequency transfer more energy. Student will learn how to describe the properties of speed, wavelength and reflection.
<b>Procedural Knowledge</b>	Scientific Enquiry: Students will have a good foundation from year 7 & 8 to further develop scientific enquiry skills. Students will use a wider range of scientific equipment to explain scientific phenomena. Evaluating Skills: Students will be able to call upon a range of resources to evaluate experiments, including observations, tabulated data and graphical data to form logical conclusion and evaluations. Communicating about science: Students will be able to confidently explain scientific concepts through practical work and written tasks. Students will be able to independently use scientific command words when answering questions on the topics studied.				
<b>Key Vocab</b>	Circuit breaker, solenoid, core, magnetic field, permanent magnet, voltage, ohms, series, parallel, amps, attract, repel, electrostatic force,	Nobel gases, unreactive, halogen, alkali metals, natural polymer, synthetic polymer, hydroxide, nitrate, sulphate, carbonate	Incompressible, upthrust, atmospheric pressure, stress, relative motion, acceleration, resultant force, equilibrium	Endothermic change, Exothermic change, energy level diagram, chemical bond, Nucleus, Cell membrane, Cytoplasm, Mitochondria, Vacuole, Chloroplast	Transverse wave, Longitudinal wave, electromagnetic spectrum, ionisation, compression, rarefaction, compression, radiation, conduction, convection, radiation