

SCIENCE			Year: 7/8 Year 2		
AUTUMN		SPRING		SUMMER	
Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Theme/ topic: Safety introduction Cells Body Systems	Theme/ topic: Atoms, elements and compounds Periodic table	Theme/ topic: Forces and motion Pressure	Theme/ topic: Chemical reactions Acids and alkali, Reactions of metals	Theme/ topic: Health lifestyle	Theme/ topic: Electricity
By the end of this half term pupils will know:					
<p>Organisms are made of one or more cells, which need a supply of energy and molecules to carry out life processes.</p> <p><u>Tier 3 vocab:</u> Nucleus, membrane, cytoplasm, vacuole, mitochondria, chloroplast, reproductive, skeletal, muscular cardiovascular</p>	<p>Materials are either made of a single chemical substance or a mixture of substances which each have distinctive properties. The behaviour and structural arrangement of atoms explains the properties of different materials.</p> <p><u>Tier 3 vocab:</u> Nucleus, shells, electrons, neutrons protons, particles, molecules, bond, separation, group, period</p>	<p>Forces make things change. Understanding forces helps us to predict and control physical change.</p> <p><u>Tier 3 vocab:</u> Newton, scalar, vector, speed acceleration. braking</p>	<p>During chemical reactions, atoms are rearranged and new substances are formed.</p> <p><u>Tier 3 vocab:</u> Measuring cylinder, observation, pH, colour change effervescent indicator</p>	<p>Humans, depend on, interact with and affect the environments in which they live. The health of an individual results from interactions between its body, behaviour, environment and other organisms.</p> <p><u>Tier 3 vocab:</u> Diet exercise , alcohol, drugs, stimulants, depressant, recreational, addiction, withdrawal</p>	<p>The everyday world is largely a consequence of electrical charge. Understanding electricity and magnetism helps us develop technology to improve lives.</p> <p><u>Tier 3 vocab:</u> Positive negative, current, potential difference, resistance parallel series</p>

They will understand:					
Cells as the fundamental unit of living organisms, including how to observe, interpret and record cell structure using a light microscope. The functions organelles, the similarities and differences between plant and animal cell. Diffusion in the movement in and out of a cell. Adaptations of some unicellular organisms. Organisation of multicellular organisms: from cells to tissues to organs to systems to organisms	a simple atomic models, differences between atoms, elements and compounds, chemical symbols and formulae for elements the principles of the Periodic Table in respect to periods and groups; metals and non-metals	forces as pushes or pulls, arising from the interaction between two objects Be able to using force arrows in diagrams, adding forces in one dimension, balanced and unbalanced forces Understand forces are measured in newtons,	Chemical reactions as the rearrangement of atoms, representing chemical reactions using formulae and using equations. Defining acids and alkalis in terms of neutralisation reactions, the pH scale for measuring acidity/alkalinity; and indicators. The reactions of acids with metals to produce a salt plus hydrogen	The content of a healthy human diet, calculations of energy requirements in a healthy daily diet, the consequences of imbalances in the diet, including obesity, starvation and deficiency diseases. The effects of recreational drugs (including substance misuse) on behaviour, health and life processes	Electric current, measured in amperes, potential difference in volts in circuits, series and parallel circuits, currents add where branches meet and current as flow of charge. differences in resistance between conducting and insulating components
They will know how to:					
Students will be able to focus a microscope, make up a microscope slide. Work safely	Students will be able to read the periodic table, work out atomic mass, number of shells, number of outer shell electrons.	Students will focus on rearranging equations and identify correct quantities within the text. Reading graphs and identifying anomalous results	Students will use appropriate techniques, to set up measuring quantities with a high degree of accuracy, paying attention to health and safety.	Students will be plan health meals and make good choices about diet, exercise and lifestyle.	Use appropriate techniques, to set up working circuits, paying attention to health and safety.

Link to prior learning					
Identify that humans and some other animals have skeletons and muscles for support, protection and movement	Knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Compare and group together everyday materials on the basis of their properties,	Compare how things move on different surfaces, noticing that some forces need contact between two objects, but magnetic forces can act at a distance.	Can demonstrate that dissolving, mixing and changes of state are reversible changes. Can explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible.	identify that humans need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat	The ability to build simple circuits and name appliances which run on electricity. Identify incomplete circuits and simple component symbols