

Science Big Ideas learning journey – Years 7 and 8

Years 5 & 6 We learnt about...	Y5 <i>The Sun, Earth and planets</i> Y6 <i>Investigating light and shadows</i>	Y5 <i>Investigating forces, levers, gears and pulleys</i> Y6 <i>Making circuits and changing components</i>	Y5 <i>Testing properties and designing uses for materials</i>	Y6 <i>Reversible changes states and separating mixtures</i>	Y6 <i>Irreversible changes</i>	Y5 <i>Human lifecycle and puberty</i> Y6 <i>Life cycles of different animals</i>	Y5 <i>Parts of a plants and how plants reproduce</i>	Y6 <i>Human circulatory system and how to be healthy</i>	Y6 <i>How living things have evolved over time</i> <i>Fossilisation</i>
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YEAR 7	PHYSICS	CHEMISTRY	BIOLOGY	YEAR 8
AUTUMN	BIG IDEA EARTH IN SPACE Understanding the importance of the earth and the systems of space given in perspective and time.	BIG IDEA SUBSTANCES AND PROPERTIES Substances are either made of a single chemical substance or a mixture of substances which each have distinct properties.	BIG IDEA THE CELLULAR BASIS OF LIFE Organisms are made of one or more cells, which need a range of energy and molecules to carry out life processes.	AUTUMN
Cell structures Cell shapes/sizes Diffusion and the cell membrane	BIG IDEA ELECTRICITY AND MAGNETISM The everyday world is largely a consequence of electrical change. Understanding electricity and magnetism helps us develop technology in important ways.	BIG IDEA PARTICLES AND STRUCTURE All matter is made up of atoms. The behaviour and structural arrangement of atoms explains the properties of different materials.	BIG IDEA HEALTH AND DISEASE Organisms must stay engaged with the world and defend the health of themselves and others from infectious organisms in their environment and other organisms.	Organisms and their environments Food webs/chains, ecosystems, decomposers, interdependence
Elements & compounds Atoms, molecules, symbols, formulae	BIG IDEA MATTER Substances are made of particles and waves. Understanding particles helps us to design our world.	BIG IDEA CHEMICAL REACTIONS During a chemical reaction, atoms are rearranged forming new substances.	BIG IDEA ORGANISMS AND THEIR ENVIRONMENTS All organisms, including humans, depend on others with whom they interact. The environment in which they live affects organisms that live there.	Chemical Change Oxidation, thermal decomposition, reactions
Describing forces Balanced / unbalanced Friction, Energy stores / transfers	BIG IDEA FORCES AND MOTION Forces make things change. Understanding forces helps us to predict and control physical change.	BIG IDEA EARTH CHEMISTRY Substances can move within and between the atmosphere, hydrosphere, geosphere and biosphere as part of large scale earth systems.	BIG IDEA HEREDITY AND LIFE CYCLES Genetic information is passed from each generation to the next, through meiosis and the environment affect the features, growth and development of organisms.	Sound & Light waves Vibrations, insulation, dissipation, models, waves, reflection, shadows
SPRING	BIG IDEA SOUND, LIGHT AND WAVES Waves transfer information. Understanding waves helps us to communicate.	BIG IDEA DYNAMIC EARTH The Earth's crust is constantly changing as tectonic plates move and other rocks to new forms.	BIG IDEA VARIATION, ADAPTION AND EVOLUTION Differences between organisms select species to evolve by natural selection of better adapted individuals. The great diversity of organisms is the result of evolution.	SPRING
Cells, tissues, organ systems Supplying cells Digestive, circulatory Gas exchange Skeleton and muscles				Variation, adaptation & evolution Variation, species, adaptation, evolution, fossil evidence, competition
Substances & Mixtures Separating solutions Particle model Melting/boiling points				Heating & Cooling Temperature, thermal stores, conduction
The solar system and beyond Planets, stars, galaxies, gravity, seasons				Understanding Chemical Reactions Combustion, reaction equations/formulae, conservation of mass
SUMMER				Floating & Sinking Upthrust, volume, displacement, pressure, convection
Reproduction Puberty, gametes, organs, fertilisation, conception, menstruation, contraception, plant reproduction				SUMMER
Acids & Alkalies Indicators, PH, neutralisation				Human Health & lifestyles Diet, obesity, deficiency, starvation, exercise, drugs, alcohol, smoking/vaping
Electric circuits Drawing symbols, current, voltage, series, parallel				The Solar system and beyond catch up

Conceptual understanding of the Big Ideas in Science continues through Years 9, 10 & 11

	Progress Check 1	Progress Check 2	Progress Check 3	Target
Grade Achieved				

Dynamic Earth
Rock/mineral types, Earth's structure, weathering/erosion, rock changes – pressure, cementing, heating

