

# Science Big Ideas learning journey – Years 7 and 8

<b>Y5</b> The Sun, Earth and planets	<b>Y5</b> Investigating forces, levers, gears and pulleys	<b>Y5</b> Testing properties and designing uses for materials	<b>Y6</b> Reversible changes states and separating mixtures	<b>Y6</b> Irreversible changes	<b>Y5</b> Human lifecycle and puberty	<b>Y5</b> Parts of a plants and how plants reproduce	<b>Y6</b> Human circulatory system and how to be healthy	<b>Y6</b> How living things have evolved over time Fossilisation
<b>Y6</b> Investigating light and shadows	<b>Y6</b> Making circuits and changing components				<b>Y5</b> Life cycles of different animals			<b>Y6</b> How organisms are classified

YEAR 7			PHYSICS	CHEMISTRY	BIOLOGY	YEAR 8		
<b>Cell structures</b> Cell shapes/sizes Diffusion and the cell membrane	<b>Earth in Space</b> Considering the components of the earth and the weather. It takes gas as particles and mass.	<b>Substances and Properties</b> Substances are either made of a single chemical substance or a mixture of substances which each have different properties.	<b>THE CELLULAR BASIS OF LIFE</b> Organisms are made of one or more cells, which need a range of energy and nutrients to carry out life processes.	<b>Organisms and their environments</b> Food webs/chains, ecosystems, decomposers, interdependence				
<b>Elements &amp; compounds</b> Atoms, molecules, symbols, formulae	<b>Electricity and Magnetism</b> The everyday world is largely a consequence of the flow of electric charge. Understanding forces as a result of magnetic fields and electric fields helps to explain many important uses.	<b>Particles and Structure</b> All matter is made up of atoms. The behaviour and structural arrangements of atoms explains the properties of different materials.	<b>Health and Disease</b> Organisms must stay healthy to survive and thrive. The health of an individual results from interactions between its body, behaviour, environment and other organisms.	<b>Chemical Change</b> Oxidation, thermal decomposition, reactions				
<b>Describing forces</b> Balanced / unbalanced Friction, Energy stores / transfers	<b>Matter</b> Matter is made of particles and waves. Understanding forces helps to explain many important uses.	<b>Chemical Reactions</b> Chemical reactions occur when atoms are rearranged. Forces are involved in many important uses.	<b>Organisms and their environments</b> All organisms, including humans, depend on the environment in which they live for their survival and reproduction.	<b>Electric circuits</b> Drawing symbols, current, voltage, series, parallel				
<b>Cells, tissues, organ systems</b> Supplying cells Digestive, circulatory Gas exchange Skeleton and muscles	<b>Forces and Motion</b> Forces make things change. Understanding forces helps us to predict and control a range of changes.	<b>Earth Chemistry</b> Substances can move within and between the atmosphere, hydrosphere, geosphere and biosphere as part of large scale earth systems.	<b>Heredity and Life Cycles</b> Genetic information is passed from one generation to the next. This is how the environment affects the behaviour, growth and development of organisms.	<b>Variation, adaptation &amp; evolution</b> Variation, species, adaptation, evolution, fossil evidence, competition				
<b>Substances &amp; Mixtures</b> Separating solutions Particle model Melting/boiling points	<b>Sound, Light and Waves</b> Waves transfer information. Understanding waves helps us to communicate.	<b>Dynamic Earth</b> The Earth's crust is constantly changing as materials are formed and older rock is worn away.	<b>Variation, Adaption and Evolution</b> Organisms have evolved to survive in their environment. The great diversity of organisms is the result of evolution.	<b>Heating &amp; Cooling</b> Temperature, thermal stores, conduction				
<b>The solar system and beyond</b> Planets, stars, galaxies, gravity, seasons				<b>Understanding Chemical Reactions + acid &amp; alkalis</b> Combustion, reaction equations/formulae, acid and alkalis				
<b>Reproduction</b> Puberty, gametes, organs, fertilisation, conception, menstruation, contraception, plant reproduction				<b>Sound &amp; Light waves</b> Vibrations, insulation, dissipation, reflection, shadows				
<b>Acids &amp; Alkalis</b> Indicators, PH, neutralisation				<b>Human Health &amp; lifestyles</b> Diet, obesity, deficiency, starvation & exercise				
<b>Electric circuits</b> Drawing symbols, current, voltage, series, parallel								

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

