

SCHEME OF LEARNING – SCIENCE – YEAR 7

Year 7	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
National Curriculum Content	<p><u>Introduction to Science – safety lesson and rules of the laboratory</u> <u>Prior learning testing</u> <i>Test of students to provide a baseline assessment.</i></p> <p>BIOLOGY Cells and movement Cells as the fundamental unit of living organisms, including how to observe, interpret and record cell structure using a light microscope</p> <p>The skeletal and muscular systems The structure and functions of the human skeleton, to include support, protection, movement and making blood cells</p> <p>Reproduction and growth Reproduction in humans (as an example of a mammal), including the structure and</p>	<p>BIOLOGY Ecology The interdependence of organisms in an ecosystem, including food webs and insect pollinated crops. The importance of plant reproduction through insect pollination in human food security</p> <p>how organisms affect, and are affected by, their environment, including the accumulation of toxic materials.</p> <p>CHEMISTRY Particles The particulate nature of matter The properties of the different states of matter (solid, liquid and gas) in terms of the particle model, including gas pressure. The changes of state in terms of the particle model. Diffusion in liquids and gases driven by differences in concentration and the</p>	<p>CHEMISTRY Atoms and compounds Atoms, elements and compounds A simple (Dalton) atomic model and differences between atoms, elements and compounds. Chemical symbols and formulae for elements and compounds</p> <p>Conservation of mass changes of state and chemical reactions.</p> <p>The Periodic Table The varying physical and chemical properties of different elements and the principles underpinning the Mendeleev Periodic Table. The properties of metals and non-metals</p> <p>Pure and impure substances The concept of a pure substance and mixtures, including dissolving. Simple techniques for</p>	<p>PHYSICS Forces Forces as pushes or pulls, arising from the interaction between two objects</p> <p>Using force arrows in diagrams, adding forces in one dimension, balanced and unbalanced forces and; with rubbing and friction between surfaces, with pushing things out of the way; resistance to motion of air and water</p> <p>Forces measured in Newtons, work done and energy changes.</p> <p>Contact and non-contact forces: gravity forces acting at a distance on Earth and in space, forces between magnets and</p>	<p>PHYSICS Waves, Light and Sound Vibrations, pitch and loudness</p> <p>Wave features</p> <p>Speed of a wave incl. speed of sound</p> <p>Structure of the ear and hearing</p> <p>Other examples of physical waves (eg water, earthquake)</p> <p>Light waves</p> <p>Reflection and Refraction</p> <p>Lenses</p> <p>Spectrum and colour</p> <p>Structure of the Eye and vision.</p>	<p>PHYSICS Space Scale of the Solar System</p> <p>Historical development of the modern model of the Solar System</p> <p>Luminous and nonluminous objects</p> <p>Effects of the Earth's rotation and orbit on years, months, days and seasons.</p> <p>Conditions required for life on Earth</p> <p>Possibility of life on other planets/exoplanets.</p>

	function of the male and female reproductive systems, menstrual cycle (without details of hormones), gametes, fertilisation, gestation and birth, to include the effect of maternal lifestyle on the foetus through the placenta.	difference between chemical and physical changes.	separating mixtures: filtration, evaporation, distillation and chromatography. The identification of pure substances. The properties of ceramics, polymers and composites (qualitative).	forces due to static electricity.		
Why?	These are key concepts and knowledge that are important to build on in further study of biological processes. This also builds on introductory activities from KS2?? (KC)	Study of ecology cover the key concepts and knowledge to build on in Year 8 when they study photosynthesis. It is also an introduction to the implications of changes in ecosystems (KC,UI) Particle theory is introduced to begin the use of models to understand the world around them. (NPM)	KC NPM	KC NPM	KC NPM	Situates the students within their wider Universe and provides them with a sense of their place within it. Reinforces concept that 'we only have one planet' suitable for life as we understand it. KC UI
Matrix reference	AO1 AO2 AO3 AO4	AO1 AO2 AO3 AO4	AO1 AO2 AO3 AO4	AO1 AO2 AO3 AO4	AO1 AO2 AO3 AO4	AO1 AO2 AO3 AO4
Assessments	Formative and summative assessments for each topic using the matrix	Formative and summative assessments for each using topic the matrix	Formative and summative assessments for each sport using the matrix	Formative and summative assessments for each topic using the matrix	Formative and summative assessments for each topic using the matrix	Formative and summative assessments for each topic using the matrix

Why? Codes linking to the National Curriculum:

KC - develop **scientific knowledge and conceptual understanding** through the specific disciplines of biology, chemistry and physics

NPM -develop understanding of the **nature, processes and methods of science** through different types of science enquiries that help them to answer scientific questions about the world around them

UI -are equipped with the scientific knowledge required to understand the **uses and implications** of science, today and for the future.