



Sandbach School Science Curriculum:

Year 9 Science Curriculum Sequence

Intent: To build on prior knowledge from the transition & induction phase: Students will revisit these 10 key topics of forces, electromagnetism, energy, waves, matter, reactions, earth, organisms in different context. In addition students will apply their understanding of the scientific method in practical investigations.

W.S ideas to be Introduced:
 1 Development of scientific thinking
 2 Experimental skills and strategies
 3 Analysis and evaluation
 4 Scientific vocabulary, quantities, units, symbols and nomenclature
HT1

<u>HT1</u>	<u>HT2</u>	<u>Term 2</u>	<u>Term 3</u>
<u>Sets 2-4</u> 9B Plant Growth Biology 9B Plant Growth	<u>Sets 2-4</u> Cells Biology Cells	<u>Sets 2-4</u> No Biology topics Biology Organisation	<u>Sets 2-4</u> Organisation Biology Disease (finish)
<u>Sets 2-4</u> Start 9F Reactivity Chemistry Atomic structure (reactivity covered in greater detail in Y10)	<u>Sets 2-4</u> Atoms Chemistry Atoms	<u>Sets 2-4</u> Periodic table Chemistry Periodic table	<u>Sets 2-4</u> Structure & bonding Chemistry Structure & bonding
<u>Sets 2-4</u> 9I/J Forces & electricity Physics Conservation & dissipation of energy	<u>Sets 2-4</u> No physics Physics Energy transfer by heating	<u>Sets 2-4</u> Energy transfers Physics Energy resources / Start Electric Circuits	<u>Sets 2-4</u> Electricity Physics Finish Electric circuits, Electricity in the home

Why start here? These are the topics that cover the basic principles of science. Including cells, atomic structure & energy. For Biology Y9 – transport osmosis & active transport is left of the cells topic until Y10 GCSE topics as these topics are too challenging at this stage.	Why move onto these units? These are the topics that cover the basic principles of science. Including cells, atomic structure & energy.	Why move onto these units? These are the topics that cover the basic principles of science. Including cells, atomic structure & energy.	Why move onto these units? These are the topics that cover the basic principles of science. Including cells, atomic structure & energy.
Outline of content: Eukaryotes and prokaryotes, Animal and plant cells, Cell specialisation, Cell differentiation, Microscopy Energy stores and systems, Changes in energy, Energy changes in systems, Power, Temperature changes in a system and specific heat capacity	Outline of content: Stem cells, Chromosomes, Mitosis and the cell cycle, Diffusion Atoms, elements and compounds, Mixtures The development of the model of the atom (common content with physics), Relative electrical charges of subatomic particles, Relative atomic mass Energy transfers in a system, Efficiency, National and global energy resources.	Outline of content: Principles of organisation, The human digestive system The heart and blood vessels, Blood, Plant tissues Plant organ systems The periodic table, Development of the periodic table, Metals and non-metals, Group 0, Group 1, Group 7 National and global energy resource, Standard circuit diagram symbols, Series and parallel circuits, Electrical charge and current, Current, resistance and potential difference, Resistors	Outline of content: Communicable (infectious) diseases, Bacterial diseases, Fungal diseases, Protist diseases, Human defence systems, Vaccination, Antibiotics and painkillers, Discovery and development of drugs. Photosynthesis, Respiration Chemical bonds, Ionic bonding, Ionic compounds, Covalent bonding, Metallic bonding, Properties of ionic compounds, Properties of small molecules, Polymers, Giant covalent structures, Properties of metals and alloys, Structure and bonding of carbon. Direct and alternating potential difference, Mains electricity, Power, Energy transfers in everyday appliances, The National Grid. Changes of state and the particle model, Density of materials, Changes of state, Internal energy, Particle motion in gases
Teaching these topics here supports: B3&4 Organisation, B5-7 Disease. C3 Structure & bonding. P2 Energy transfer by heating.	Teaching these topics here supports: B5-7 Disease. C3 Structure & bonding. C4 Quantitative chemistry.	Teaching these topics here supports: C5 Reactivity	Teaching these topics here supports: C5 Reactivity
These topics feed from: Y7 Cells & organisms., Y7 Atoms, elements & compounds., Y7 mixtures and separation Y7 Energy topic 8K Energy transfer	These topics feed from: Y7 Cells & organisms, 8C Breathing & respiration. Y7 Atoms, elements & compounds, 8F Periodic table. Y7 Energy topic, 8K Energy transfer	These topics feed from: Y7 Cells & organisms., 8A Food & nutrition, 8C Breathing & respiration. Y7 Atoms, elements & compounds. 7J Current electricity	These topics feed from: 8E Combustion. 8D Unicellular organisms. 7G Particle model, 7L Energy.