Introduce:
Analyse
Communicate
Evaluate
Solve

Key Stage 2 Curriculum
Asking questions
Making predictions
Setting up tests
Observing & Measuring
Recording data
Interpreting & communicating results
Evaluating

Sandbach School Science Curriculum:

Year 7 Science Curriculum Sequence

Intent: To build on prior knowledge from KS2: Students will develop an awe and wonder of science through the study of 10 key topics of forces, electromagnetism, energy, waves, matter, reactions, earth, organisms. In addition they will begin to develop an understanding of the scientific method.

HT1	HT2	HT3	HT4	HT5	HT6
Our School (Project) **7A Cells & Organisms** **7E Mixtures & Separation**	**7B Reproduction** **7F Acids & Alkalis** **7J Current electricity**	**7C Muscles & Bones** **7G Particle model**	**7D Ecosystems** **7K Forces**	**7H Atoms, element & compounds** **7L Sound & light**	**7I Energy** **8A Food & Nutrition**
Why these modules? This initial cross-curricular scheme supports the transition between KS2 and spiral curriculum, creating a sense of academic familiarity which encourages students to engage with Science. 7A has a clear link between organisms in KS2 and further modules in Y8,9,10	**Why These modules?** Students have had an introduction to Cells, which provides a bias for reproduction we will provide a basis. Acids & alkalis allows use to introduce more testing and evaluation. Current electricity will be the first topic on circuits, providing a basis for further study in Y8	**Why These modules?** Particles & electricity are key topics throughout KS4/ 5 gaining a foundation early on allows progress through the further curriculum. M&B allows links to be made from real life sports to Science.	**Why These modules?** Ecosystems & forces are Key topics throughout the KS3, 4 & 5 curriculum. Ecosystems allow students to demonstrate an understanding of interdependence in Science and Geography A good foundation in these topics allows students to access complex topics later in the curriculum.	**Why These modules?** A, E & C are fundamentals for chemistry and introduce the language of chemical equations. Sound & light builds on the energy topic at the beginning of Y7. It is also a foundation for Waves in KS4.	**Why These modules?** 7i energy here allows the energy topic from the project to be revisited by a science specialist. Food and nutrition links to Cells & ecosystems earlier in Y7. It also supports Y9 enzymes and KS5 digestion.
National Curriculum Links **Pupils will:** • Cell structure of animals and plants • Microscope use and preparation of samples • use appropriate techniques, apparatus, and materials during practical work, paying attention to **health and safety.** • the properties of the different states of matter (solid, liquid and gas) in terms of the particle model, including gas pressure • simple techniques for separating mixtures: filtration, evaporation, distillation and chromatography	**National Curriculum Links** **Pupils will:** • Understand reproduction in humans (as an example of a mammal), including the structure and function of the male and female reproductive systems. • Define acids and alkalis • Use the pH scale for measuring acidity/alkalinity; and indicators • Understand electric current, in circuits, **series** and parallel circuits, and current as flow of charge.	**National Curriculum Links** **Pupils will:** ▪ Describe the structure and functions of the human skeleton, inc biomechanics, antagonistic pairs and measurement of force. ▪ changes of state in terms of the particle model ▪ energy changes on changes of state	**National Curriculum Links** **Pupils will:** ▪ forces as pushes or pulls, arising from the interaction between 2 objects ▪ using force arrows in diagrams, adding forces in 1 dimension, balanced and unbalanced forces ▪ ask questions and develop a line of enquiry based on observations of the real world, alongside prior knowledge and experience ▪ Explain How organisms affect, and are affected by, their environment, including the accumulation of toxic materials.	**National Curriculum Links** **Pupils will:** • Explain sound needs a medium to travel, the speed of sound in air, in water, in solids • Explain that sound produced by vibrations of objects, in loudspeakers, detected by their effects on microphone diaphragm and the ear drum; sound waves are longitudinal • Describe simple (Dalton) atomic model • Explain Differences between atoms, elements and compounds • Use Chemical symbols and formulae for elements and compounds	**National Curriculum Links** **Pupils will:** • Explain the content of a healthy human diet: carbohydrates, lipids (fats and oils), proteins, vitamins, minerals, dietary fibre and water, and why each is needed • Explain the tissues and organs of the human digestive system & how the digestive system digests food (enzymes simply as biological catalysts) • energy as a quantity that can be quantified and calculated; the total energy has the same value before and after a change Energy transfers in heating, falling objects and machines.
Teaching Our School & 7A here supports: ▪ Engagement in Science ▪ 7G particles in HT3 ▪ 8K energy transfer ▪ Alternative technologies in technology ▪ Chemical analysis KS4Y8 metals & their uses ▪ Global warming in Geography ▪ Cells and Hormones in Year 10	**Teaching cells, mixtures and reproduction supports**: • Engagement in Science • Plant reproduction in Y8 • Y9 reactivity • Y9 electrical circuits • PHSCE -Relationships and sex education	**Teaching 7F Acids & Alkalis, 7J Current electricity, 7C Muscles & Bones supports** • Engagement in Science • D&T – electrical systems • PE –Gcse biomechanics • Y9 molecules & matter	**Teaching Ecosystems and forces supports**: ▪ Y9 plant Growth ▪ Y9 energy transfer ▪ Y10 forces ▪ Pe Biomechanics ▪ D&T – Technology of forces ▪ kS3 maths number & algebra	**Teaching sound & light & atoms elements & compunds here supports**: • Y8 food & nutrition • Y8 periodic table • Y8 metals & uses • KS5 - waves	**Teaching food & nutrition and energy s here supports**: ▪ Y10 Waves ▪ Y9 enzymes ▪ KS5 enzymes ▪ D&T – food technology ▪ PE – nutrition
Our School & 7A feeds from: ▪ KS2: Everyday materials ▪ KS2: Electricity ▪ KS2 – livings things and their habitats	**Cells, mixtures & reproduction feeds from**: ▪ KS2 – livings things and their habitats ▪ Ks2 - Uses of everyday materials ▪ KS2 formation of new material	: **Particle model, Current electricity, Muscles & Bones feeds from:** ▪ KS2 simple circuits ▪ Cells ▪ KS2 skeletons & Muscles	**Ecosystems Forces feeds from** ▪ Ks2 forces ▪ KS2:- classifying organisms	**Ecosystems, Atoms, element & compounds and sound & light feeds from**: ▪ KS2 making sounds ▪ 7G particles	**Openings & Endings feeds from**: ▪ Blended project (energy) ▪ KS2: Creative writing skills ▪ My Sister Lives on the Mantelpiece in Y7 ▪ Crime & Detection in Y7