Science

Approximate available lessons based on 4 lessons per week over 37 week year; assuming approximately 16 lessons missed for holidays/other subject activities/PSHE/exams

Exact curriculum timings are approximate due to holidays/ other subject trips and activities / PHSE / internal examinations

All topics across KS3 will have ongoing formative assessment including:

- Questioning techniques
- Peer/self-marking and assessments
- Written exercises
- Presentations
- Class activities
- Practical work

All topics will have some form of summative assessment to test the knowledge and skills covered within the topic. These will take the forms of:

- End of topic tests
- Projects
- Scientific Investigations

All topics will include practical work to ensure that the links between practical and theory are encouraged and emphasised.
The first topic in Year 7 is entirely devoted to scientific methods and investigations to ensure that all students are prepared for future practical work.

	Year 7	Year 8	Year 9
Topic and Content	**T1: How Science Works** - The scientific method, investigations, practical skills **Quantities and Measurements** **T2: Cells** - Organelles, specialised cells, microscopes **Acids and Alkalis** - Strong vs weak, the pH scales, indicators, common uses. **T3: Ecology and the Environment** - Predators and prey, food chains, food webs, adaptations **Space** - Planets, the solar system, the lunar cycle, seasons, gravity, space exploration **Particles and Solubility** - The particles model, changing state, **T4: Reproduction** - Reproductive systems in men and women, fertilisation, pregnancy, birth **Separation Techniques** - Filtration, evaporation, crystallisation, distillation	**T1: Diet and Digestion** - Organs, deficiency diseases, enzymes, biological molecules. **Basic Building blocks of Chemistry** - The Periodic Table, balancing equations, compounds vs mixtures, physical vs chemical reactions. **T2: Energy and Resources** - Useful and wasted energy, law of conservation, Sankey diagrams, circuits, generating electricity. **Cardiovascular System** - The lungs, the heart, vascular structure, respiration (aerobic and anaerobic) **T3: Plants** - Photosynthesis, reproduction, organs, deficiency diseases. **Reactivity and Extraction of Metals** - The reactivity series, displacement reactions. **T4: Waves** - Transverse vs longitudinal, sound, light, colour, the eye.	**Bio: Microbes and Disease** - Pathogens, transmission, prevention, white blood cells, vaccines. **Inheritance** - Genetics, DNA structure, Probability, genetic disorders, cloning, genetic modification **Coordination and Homeostasis (GCSE topic)** - Hormones, endocrine vs exocrine, neurone structure, reflex arcs, conscious responses, diabetes. **Chem: Energy and Reactions** - Endo and exo-thermic reactions, drawing and interpreting reaction profiles, measurement of enthalpy changes, introduction to moles. **Atomic Structure & Bonding** - Using the periodic table to describe the structure of the first 20 elements, comparison of ionic, covalent (simple and giant) and metallic structures (to include explaining their different properties).

		Planet Earth - The rock cycle, fossils, weathering, erosion.	**Practical Techniques.** - Carrying out a sequence of titrations and subsequent crystallisation in order to produce a "clean" dry salt sample. **Phys: Electrical Generation** - Energy transfers. How can electricity be generated? Comparing advantages and disadvantages of different methods of electricity generation dependent on local conditions. **Forces and Motion** - Drawing and interpreting FBD, calculating resultant force and describing the effect on the motion of a body, the journey of a parachutist, rocket/parachute investigation.
Skills assessed	**AO1:** Knowledge and understanding of scientific ideas **AO2:** Application of knowledge and understanding, analysis and evaluation of science **AO3**: Experimental skills, analysis and evaluation of data and scientific methods **AO4:** Scientific literacy and communication	**AO1:** Knowledge and understanding of scientific ideas **AO2:** Application of knowledge and understanding, analysis and evaluation of science **AO3:** Experimental skills, analysis and evaluation of data and scientific methods **AO4:** Scientific literacy and communication	**AO1**: Knowledge and understanding of scientific ideas **AO2:** Application of knowledge and understanding, analysis and evaluation of science **AO3:** Experimental skills, analysis and evaluation of data and scientific methods **AO4**: Scientific literacy and communication
Method of Summative Assessment	Projects Investigations End of Topic Tests	Projects Investigations End of Topic Tests	Projects Investigations End of Topic Tests