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 **Forces** - Types of forces, balanced and unbalanced and forces in action **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 **T4: Particles and Separation Techniques** - The particles model, changing state, - 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: Reactivity and Extraction of Metals** - The reactivity series, displacement reactions. **T4: Waves** - Transverse vs longitudinal, sound, light, colour, the eye. **Planet Earth**	**Bio: Microbes and Disease** - Pathogens, transmission, prevention, white blood cells, vaccines. **Inheritance** - Genetics, DNA structure, Probability, genetic disorders, cloning, genetic modification **Plants** - Photosynthesis, reproduction, organs, deficiency diseases. **Coordination and Homeostasis (GCSE topic)** - Hormones, endocrine vs exocrine, neurone structure, reflex arcs, conscious responses, diabetes. **Chem: Energy and Reactions (investigation and test)** - Endo and exo-thermic reactions, drawing and interpreting reaction profiles, measurement of enthalpy changes, introduction to moles. **Atmospheric Chemistry** - Composition of the atmosphere, evolution of the atmosphere,

	Reproduction - Reproductive systems in men and women, fertilisation, pregnancy, birth	- The rock cycle, fossils, weathering, erosion.	maintain balance in the atmosphere, the greenhouse effect and climate change, AQI, air pollution - causes and action. **Making Salts** - Indicators, acids, bases, alkalis, making soluble salts from insoluble bases and soluble alkalis **Practical Techniques.** - Measuring enthalpy changes using simple calorimetric techniques - Making soluble salts from insoluble and soluble bases **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, Newton's Laws, the journey of a parachutist, rocket/parachute investigation, moments and levers.

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	Research Projects (renewable energy & air quality in Kathmandu) Practical Investigations (enthalpy & parachutes) End of Topic Tests