

Science – Year 9	Chemistry	Biology	Physics
Key Knowledge and understanding	<p><u>Atomic Structure</u> including Chemical equations Separating mixtures History & structure of the atom Ions & isotopes Electronic structure</p> <p><u>The Periodic Table</u> including Development of the Periodic Table Alkali metals & Halogens <i>Transition elements</i></p> <p><u>Structure & Bonding</u> including Ionic bonding Covalent bonding Metallic bonding Isomers of carbon <i>Nanoparticles</i></p>	<p><u>Communicable diseases</u> including Health & disease Pathogens Viral, bacterial and fungal diseases Human defence responses <i>Growing and preventing bacterial growth</i> <i>Plant diseases & defence responses</i></p> <p><u>Preventing & treating disease</u> including Vaccination Antibiotics & painkillers Discovering & developing drugs <i>Making & using monoclonal antibodies</i></p> <p><u>Non-communicable diseases</u> including Cancer Smoking & the risk of disease Diet, exercise & disease Alcohol & other carcinogens</p> <p><u>Ecology</u> including Measuring abundance and distribution Adaptations to the environment Competition</p>	<p><u>Energy resources</u> including Energy demands Energy from wind, water, the Sun, the Earth</p> <p><u>Waves</u> including Nature & properties of waves Reflection & refraction <i>Sound waves</i> <i>Ultrasound</i> <i>Seismic waves</i></p> <p><u>Electromagnetic spectrum</u> including Light, infra-red, microwaves, radio waves, ultraviolet, x-rays, gamma rays Communications X-rays in medicine</p>
Progression	Recall of scientific knowledge. Development of mathematical skills. Application of this knowledge to explain observations of the world around us.	Recall of scientific knowledge. Development of mathematical skills. Application of this knowledge to explain observations of the world around us.	Recall of scientific knowledge. Development of mathematical skills. Application of this knowledge to explain observations of the world around us.

Challenge	Extend knowledge to explain the scientific concepts in a wider range of unknown contexts.	Extend knowledge to explain the scientific concepts in a wider range of unknown contexts.	Extend knowledge to explain the scientific concepts in a wider range of unknown contexts.
Skills	Correct identification & utilisation of techniques to separate mixtures Extrapolating patterns in results to untested situations. Understanding of the limitations of scientific models.	Interpret and display data in different formats including tables and graphs.	Rearranging and substituting in equations
Scope ie Local/Global	Application to the everyday world both local and global. Knowledge of scientists working across the world and sharing discoveries.	Application to the everyday world both local and global. Links to healthy lifestyle.	Application to the everyday world both local and global. Environmental impact of different energy resources.
Assessment	Summative topic test assessing factual knowledge and understanding of the main concepts.	Summative topic test assessing factual knowledge and understanding of the main concepts.	Summative topic test assessing factual knowledge and understanding of the main concepts.