

Y8 SCIENCE: KEY PERFORMANCE INDICATORS

Age Related Expectations (ARE)	Working at Greater Depth (GD)
A student is achieving the standards expected for their age. This includes: • Understands key scientific ideas: Can describe processes like photosynthesis, forces, or particle theory. • Uses scientific vocabulary correctly. • Carries out investigations using basic methods. • Records and presents data in tables, charts, or graphs. • Draws simple conclusions based on evidence. • Applies knowledge to familiar contexts.	A student shows deeper understanding and more advanced reasoning. This includes: • Demonstrating deep conceptual understanding of the key concepts. • Choosing efficient strategies and explains <i>why</i> they work. • Applying knowledge flexibly to unfamiliar or complex problems. • Making connections between different areas of maths. • Justifying reasoning and explores alternative methods.

Term	Unit of Work	KPIs
AUT1	Biology • Lungs and Gas Exchange • Respiration • Muscles and Bones	• describe the structure and function of the gas exchange system including alveoli and breathing mechanisms • explain how breathing rate is affected by exercise, smoking and disease • describe aerobic and anaerobic respiration using word equations • explain how respiration provides energy for living processes • describe how the skeletal and muscular systems work together to produce movement
AUT2	Chemistry • Periodic Table • Extracting Metals • Reactions of Acids	• describe trends in the periodic table including groups and periods • explain differences between metals and non-metals and their properties • describe the reactivity series and predict reactions of metals • explain methods of extracting metals based on reactivity • describe reactions of acids with metals, bases and carbonates using word equations
SPR1	Physics • Domestic and Static Electricity • Waves and Sound • Light	• describe how electricity is used safely in the home and explain circuit components • explain static electricity in terms of charge transfer and attraction/repulsion • describe sound as a wave and explain how pitch and volume are related to frequency and amplitude • explain how sound travels through different media • describe reflection and refraction of light using ray diagrams
SPR2	Biology • Inheritance and Selection • Drugs and Health • Microbes	• describe inheritance in terms of genes, DNA and chromosomes • explain how variation occurs and how natural selection leads to evolution • describe the effects of drugs on the body and distinguish between medical and recreational drugs • explain how lifestyle choices impact health • describe the role of microbes in disease and how infections spread and are controlled
SUM1	Chemistry • Describing Reactions • Earth and Atmosphere • Innovative Materials	• describe chemical reactions in terms of reactants and products and write word equations • explain exothermic and endothermic reactions using energy changes • describe the composition of Earth's atmosphere and how it has changed over time • explain the impact of human activity on the atmosphere including climate change • describe properties and uses of new materials including polymers and composites
SUM2	Physics • Application of Forces • Heat Transfer • Exploring Space	• describe forces including gravity, friction and drag and their effects on motion • calculate speed and interpret distance–time graphs • explain pressure in liquids and solids and its effects • describe energy transfer by conduction, convection and radiation • describe the structure of the solar system and explain day/night, seasons and orbits
	Working Scientifically throughout the year	• plan investigations by selecting variables and appropriate methods • choose suitable equipment and justify its use • present data using appropriate graphs and scales • analyse data to identify trends and explain relationships • draw conclusions and explain them using scientific understanding • evaluate reliability of results and identify sources of error • suggest specific improvements to increase accuracy and validity • apply scientific knowledge to explain unfamiliar contexts and data