Science KPI Indicators for 2023-24

Here are the KPI's for Science for the 2023-24 academic year. The table indicates the KPI and the milestones that will ensure students make expected progress within their year group.

Working scientifically is woven into all units, across both key stages, ensuring that all students are competent in investigating science.

Year 8:

KPI	Milestones
Biology	
Health & Lifestyle	Explain the role of each nutrient in the body
	Explain how each part of the digestive system works in sequence, including adaptations of the small intestine for its function and how enzymes affect the rate of digestion
	Explain the effects of drugs, alcohol and smoking on people's lifestyles
Ecosystem Processes	Know the reactants and products of photosynthesis including both the word and symbol equations
	Label the structures of the leaf and link these to their function. This includes the role of the chloroplast
	Explain deficiency symptoms in plants
	Know the reactants and products of aerobic and anaerobic respiration and explain the differences between the two types
	Explain the link between food chains and energy
	Explain why toxic materials have greater effect on top predators in a food chain
	Explain why different organisms within the same ecosystem have different niches
Adaptations and Inheritance	Describe how organisms are adapted to their environment
	Explain trends and draw detailed conclusions about predator-prey relationships
	Explain how characteristics are inherited through and coded for by genes
	Explain how natural selection leads to evolution and some factors that may have led to extinction

Chemistry	
The Periodic Table	Describe patterns in the properties of Group 1, 7 and 0 elements
Separation Techniques	Identify the appropriate separation technique for different mixtures
	Explain what a solubility graph shows
	Compare evaporation and distillation
Metals & Acids	Use formula equations to show what happens when metals react in different acids
	Explain the reactivity of metals according to how they react with oxygen
	Link a metal's reaction with its place in the reactivity series
	Explain why given displacement reactions are predicted to occur or not occur
The Earth	Give a detailed explanation of the sedimentary rock cycle
	Link properties of igneous and metamorphic rocks to their methods of formation
	Give a detailed description and explanation of a rock's journey through the rock cycle
Physics	
Electricity & Magnetism	Explain, in terms of electrons, why something becomes charged
	Set up simple circuits (series & parallel) and measure current and potential difference within them. Write conclusions based on their results
	Calculate resistance of a circuit and plot accurate results on a line graph
	Explain how an electromagnet works
Energy	Compare energy transfers to energy conservation
	Explain, in terms of particles, how energy is transferred
	Explain in detail the processes involved during heat transfers, why certain materials are good insulators and why some objects radiate more energy
	Explain how conservation of energy applies in one example
Motion & Pressure	Calculate speed from a distance-time graph
	Calculate pressure
	Use calculations to explain situations involving moments