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 7:

KPI	Milestones
Biology	
Cells	Explain the similarities and differences between plant and animal cells and the functions of the components of a cell
	Give examples of specialised animal and plant cells, linking structure and function
	Explain which substances move into and out of cells, including diffusion
Body Systems	Explain how the adaptations of the parts of the gas exchange system help them perform their function
	Explain how the actions of the ribcage and diaphragm lead to inhaling and exhaling
	Explain the role of the joints in the skeleton
	Explain how antagonistic pairs of muscles cause movement
Reproduction	Label the main structures of the male and female reproductive system, and explain their functions
	Explain the sequence of fertilisation and implantation
	Describe the stages of the menstrual cycle as a timed sequence of events
Chemistry	
Particles	Explain why there is a period of constant temperature during melting and freezing (the latent phase)
	Describe why diffusion is faster at higher temperatures, using the concept of how fast particles are moving
	Explain, using particle diagrams, what happens to gas pressure as the temperature increases
Elements, Atoms & Compounds	Compare the properties and uses of different elements

	Differentiate elements from compounds when given names and properties
Chemical Reactions	Convert word equations into formula equations
	State what happens to the mass of the reactants and products in chemical reactions
	Explain the difference between exothermic and endothermic reactions
Acids & Alkalis	Explain what 'concentrated' and 'dilute' mean, in terms of the number of particles present
	Categorise substances as strong or weak acids and alkalis using pH values
	Predict the formulae for products of reactions between acids and metals, or acids and bases
Physics	
Forces	Explain which pairs of forces are acting on an object
	Explain why drag forces and friction slow things down in terms of forces
	Explain how the effect of gravity changes moving away from Earth
	Explain the difference between balanced and unbalanced forces
Sound	Describe sound as the transfer of energy through vibrations and explain why sound cannot travel through a vacuum
	Compare and contrast waves of different loudness and frequency
	Explain how parts of the ear transfer vibrations and how your hearing can be damaged
Light	Describe what happens when light interacts with materials & State the speed of light
	Explain how images are formed in a plane mirror including the law of reflection
	Explain the difference between specular reflection and diffuse scattering
	Describe and explain what happens when light is refracted & what happens when light travels through a lens
	Describe how the eye and pinhole camera work
	Explain why a prism forms a spectrum and how primary and secondary colours mix

Space	Describe the structure of the Universe in detail, in order of size and of distance away from the Earth
	Explain how total eclipses are linked to phases of the Moon