

Key Performance Indicators	Year 7 Milestones - Science
<b>Biology</b>	
<b>Cells and organisation</b>	I can describe what a cell is; and I can explain how to use a microscope to observe cells.
	I can describe the functions and components of a cell; and I can describe the similarities and differences between plant and animal cells.
	I can describe examples of specialised animal cells; and I can describe examples of specialised plant cells.
	I can name some substances that move into and out of cells; and I can describe the process of diffusion.
	I can describe what a unicellular organism is; I can describe the structure of an amoeba; I can describe the structure of a euglena.
<b>Respiration and Breathing Systems</b>	I can define and state examples of tissues, organs and organ systems; and I can explain the hierarchy of organisation in a multicellular organism.
	I can describe the structure of the gas exchange system; and I can describe how parts of the gas exchange system are adapted to their function.
	I can describe the process of inhaling and exhaling; and I can describe how a bell jar can be used to model what happens during breathing; and I can explain how to measure lung volume.
	I can describe the structure of the skeleton; and I can describe the functions of the skeletal system.
	I can describe the role of joints in movement; and I can explain how to measure the force exerted by different muscles.
	I can describe the function of major muscle groups; and I can explain how antagonistic muscles cause movement.
<b>Reproduction (including Plants)</b>	I can state the difference between adolescence and puberty; I can describe the main changes that take place during puberty.
	I can describe the main structures in the male and female reproductive systems; and I can describe the function of the main structures.
	I can describe the structure and function of gametes; and I can describe the processes of fertilisation.
	I can describe what happens during gestation; and I can describe what happens during birth.
	I can state what the menstrual cycle is; and describe the main stages in the menstrual cycle.

Reproduction (including Plants)	I can identify the main structures of a flower; and I can describe the process of pollination; and I can describe the differences between wind-pollinated and insect-pollinated plants.
	I can describe the process of fertilisation in plants; and I can describe how seeds and fruits are formed.
	I can state the ways seeds can be dispersed; and I can describe how a seed is adapted to its method of dispersal.
<b>Chemistry</b>	
The Particulate Nature of Matter	I can describe how materials are made up of particles; and I can use the particle model to explain why different materials have different properties.
	I can describe the properties of a substance in its three states; and I can use ideas about particles to explain the properties of a substance in its three states.
	I can use the particle model to explain changes of state involving solids and liquids; and I can interpret data about melting points.
	I can use the particle model to explain boiling; and I can interpret data about changes of state.
	I can describe changes of state involving gases; and I can use the particle model to explain evaporation, condensation, and sublimation.
	I can use the particle model to explain diffusion; and I can describe evidence for diffusion.
	I can use the particle model to explain gas pressure; and I can describe the factors that affect gas pressure.
Atoms and Elements	I can state what an element is; and I can recall the chemical symbols for six elements.
	I can state what atoms are; and I can compare the properties of one atom of an element to the properties of many atoms.
	I can state what a compound is; and I can explain why a compound has different properties to the elements in it.
	I can write the chemical names for some simple compounds; and I can write and interpret chemical formulae.
Chemical Reactions	I can describe what happens to atoms in chemical reactions; and I can explain why chemical reactions are useful; and I can compare chemical reactions to physical changes.
	I can identify reactants and products in word equations; and I can write word equations to represent chemical reactions.
	I can predict products of combustion reactions; and I can categorise oxidation reactions.

Chemical Reactions	I can identify decomposition reactions from word equations; and I can use a pattern to predict products of decomposition reactions.
	I can explain conservation of mass in chemical reactions; and I can calculate masses of reactants and products.
	I can describe the characteristics of exothermic and endothermic changes; and I can classify changes as exothermic or endothermic.
Acids and Alkalis	I can compare the properties of acids and alkalis; and I can describe the differences between concentrated and dilute solutions of an acid.
	I can use the pH scale to measure acidity and alkalinity; and I can describe how indicator categorise solutions as acidic, alkaline or neutral.
	I can describe how pH changes in neutralisation reactions; and I can state examples of useful neutralisation reactions.
	I can describe what a salt is; and I can predict the salts that form when acids react with metals or bases.
<b>Physics</b>	
Forces and Motion	I can explain what forces do; and I can describe what is meant by an interaction pair.
	I can describe how forces deform objects; and I can explain how solid surfaces provide a support force; and I can use Hooke's Law.
	I can describe the effect of drag forces and friction; and I can explain why drag forces and friction arise.
	I can describe the effects of a field; and I can describe the effect of gravitational force on Earth and in Space.
	I can describe the difference between balanced and unbalanced forces; and I can describe situations that are in equilibrium; and I can explain why the speed or direction of motion of objects can change.
Sound Waves and Energy Waves	I can describe the different types of wave and their features; and I can describe what happens when water waves hit a barrier; and I can describe what happens when waves superpose.
	I can describe how sound is produced and travels; and I can explain why the speed of sound is different in different materials; and I can contrast the speed of sound and the speed of light.
	I can describe the link between loudness and amplitude; and I can describe the link between frequency and pitch; and I can state the range of human hearing and describe how it differs from the range of hearing in animals.

Sound Waves and Energy Waves	I can describe how the ear works; and I can describe how your hearing can be damaged; and I can describe how a microphone detects sound.
	I can describe what ultrasound is; and I can describe some uses of ultrasound.
Light	I can describe what happens when light interacts with materials; and I can state the speed of light.
	I can explain how images are formed in a plane mirror; and I can explain the difference between specular reflection and diffuse scattering.
	I can describe and explain what happens when light is refracted; and I can describe what happens when light travels through a lens.
	I can describe how the eye works; and I can describe how a simple camera forms an image.
	I can explain what happens when light passes through a prism; and I can describe how primary colours add to make secondary colours; and I can explain how filters and coloured materials subtract light.
Space	I can describe the objects that I can see in the night sky; and I can describe the structure of the Universe.
	I can name the objects in the Solar System; and I can describe some similarities and differences between the planets of the Solar System.
	I can explain the motion of the Sun, stars and Moon across the sky; and I can explain why seasonal changes happen.
	I can describe the phases of the Moon; and I can explain why you see phases of the Moon; and I can explain why eclipses happen.