

Year 7

Term 1

Biology	Cells	What are living things made of? Cells are the building blocks of all living things. Students will learn about the different types of cells and their organelles and how cells divide. They will look at how specialised cells have structures which allow them to carry out their specific functions and consider the use of stem cells and transplants.
Chemistry	Acids & Alkalis	What are acids and alkalis? How can their reactions be useful to us? Students will test chemical substances to discover their pH, test the products of chemical reactions and make new substances.
Physics	Energy	Energy is vital. From the electricity in our homes to listening to our favourite songs, we need energy. Students will find out about the different types of energy and how it can be transferred. They will look at how heat is transferred and the importance of insulating our homes.

Term 2

Biology	Reproduction	How do different organisms reproduce? Students will discover the difference between asexual and sexual reproduction in both plants and animals. Pollination in plants and fertilisation in animals will be studied along with puberty, pregnancy, birth, how twins are formed and lifecycles.
Chemistry	Solutions	What are 'solutions'? How can we separate them into their component parts? Students will carry out experiments to find out about soluble and insoluble substances. They will learn how to purify water and they will also use chromatography to separate the components of coloured inks or pigments.
Physics	Simple Forces	Forces are all around us. We interact with them daily so it makes sense to start simple and investigate what a force is, how we can measure them and what forces can do for us.

Term 3

Biology	Ecology	How are living things adapted to their environment and how can we study them? Students will explore different environments and habitats and discover how plants and animals are adapted to live in a variety of conditions. Students will also consider human impact and how we can study the ecosystems.
Chemistry	Chemical Reactions	Students will learn about visible signs that a chemical reaction is taking place and will detect the products of chemical reactions. They will also investigate 'burning' and learn about the world issues associated with combustion of fuels.
Physics	Space Physics	The study of space and the universe. From our solar system to satellites sent to other galaxies, we will look at all aspects of space and answer the ultimate question...which planet would you most like to visit!

Year 8

Term 1

Biology	Food & Digestion	What does the body do with food? Students will explore the nutrient content of our food and carry out experiments to test food samples. They will be introduced to enzymes and their role within digestion. They will look at different types of diets required and what can happen if diets are not balanced and healthy.
Chemistry	Elements, Compounds & Mixtures	Scientists need to know what substances things are made up of. This unit studies the particles which make up the world around us. Experiments will enable students to make new compounds and alloys; they will also learn how to purify a mixture of salt and sand.
Physics	Particles & Matter	Have you ever wondered what makes everything? In particles and matter students get the opportunity to think about how particles behave and use theories to describe the properties of solids, liquids and gases, as well as looking at what happens to a substance when it changes state.

Term 2

Biology	Respiration & Exercise	What is respiration and why is it so important to life? In this topic students will discover how our bodies use the food we eat and the air we breathe. They will study the respiratory and circulatory systems and look at the
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		effect of exercise on them. This will be linked to sport and the importance of an active lifestyle.
Chemistry	Materials	Why do different materials have different jobs based on their properties and what helps us decide what to use? Students will look at the properties of different materials and consider the purposes they are best suited to. They will carry out experiments to make new substances from raw materials and will extract a metal from its ore.
Physics	Wave Properties	In this topic students study waves. From communication to medical applications why are waves useful to society? Simple wave properties are covered before looking at sound and how our ears work when detecting sounds.

Term 3

Biology	Plants, Animals & Food Chains	Why are plants so important? Here students will explore the importance of plants and why they need sunlight to grow. Students will look at the interactions between plants and animals and use their similarities to classify different groups.
Chemistry	The Earth	What are the processes that have shaped the earth? This unit looks at how the earth is moving, the types of rocks which make up the earth's crust, and the processes which lead to earthquakes and volcanic activity.
Physics	Electricity & Magnetism	We get hands on and start to construct circuits. From simple series circuit to more complicated parallel circuits we find out about current, voltage and resistance and how electrical circuits work

Year 9

Term 1

Biology	Body Bits	How does our body respond to changes in the environment? Students will look at the structure of the nervous system and the hormonal system and how they are able to control and coordinate the body. Students will also discover the importance of homeostasis and study vision defects and diabetes.
Chemistry	Acids & Alkalis	What type of substances are acids, alkalis and salts? Students will test chemical substances to discover their pH, make their own chemical indicator, carry out experiments to test the products of chemical reactions involving acids and alkalis. They will prepare and isolate a pure sample of a salt. They will carry out the 'neutralisation challenge'.
Physics	Further Forces	Building on a year 7 topic, students look at more complicated forces and find out why the pressure acting

		on a dam means it must be thicker at the base and why moments need to be equal for see-saws to balance.
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Term 2

Biology	Health & Disease	What causes illness and how can we defend ourselves? Students will explore how pathogens can infect our body and how our body is able to defend against them. Student will learn how vaccinations work and how drugs, alcohol and smoking can harm the body.
Chemistry	Reactivity Series	How can we predict the reactivity of a metal and how does reactivity affect the uses of metals? In this unit students will carry out experiments to investigate the reactivity of metals with water, acids and solutions of their compounds; they will learn to construct their own reactivity series for the metals studied and will apply this knowledge to make predictions about methods of extracting metals.
Physics	Light & the Eye	Building on the Year 8 topic of waves we now focus on light. Why are light rays reflected, refracted and diffracted? What is dispersion? And how does our eye use light to allow us to see? This topic is developed further at GCSE.

Term 3

Biology	Introduction to GCSE Cell Biology	What are the structural differences between cells and how does this enable them to perform specific functions? Students will revisit cell structure and function and the role of organelles. Students will look at how cells are organised into tissues and systems such as the digestive system.
Chemistry	Introduction to GCSE Elements and the Periodic Table	In this unit the students will build on their earlier work in Years 7 and 8 to further develop their understanding about pure substances and mixtures, learn about the nature of matter and find out what 'elements' and 'atoms' are made of. They will learn why The Periodic Table is such a useful tool for scientists and how it is used to make predictions and to explain chemical changes.
Physics		Students study the first GCSE topic, Energy, and build on prior knowledge to find out more. We look at how energy is generated in power stations, what factors affect how quickly something can heat up or cool down

	Introduction to GCSE Energy	and how the design of objects, such as the vacuum flask and car radiators, are able to maximise this.
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