

## Year 8 Science Curriculum Map

Students will study the following eight units this year.

Unit Title	Description
Reproduction	The unit covers aspects of puberty and growth. The different components and functions of the male and female reproductive systems. Pregnancy and childbirth are also explored in this unit. Pupils should learn that harmful substances and viruses can cross the placenta into the foetus and affect development. Pupils should learn that a drug is any substance that changes the way the body or mind works; that drugs alter the way the body works physically or mentally. This unit covers how plants grow and the role of the leaf in photosynthesis. Students will learn about what happens to the glucose produced in leaves. They will explore why green plants are important in the environment. The unit covers leaves, photosynthesis, dispersal, and pollination. Pupils should learn about the products of photosynthesis and how plants respire. They will learn about the role of the root and adaptations of the leaves in photosynthesis
Periodic Table	In this unit pupils will explore the principles underpinning the Mendeleev periodic table. Students will learn the differences between atoms, elements, and compounds. They will be able to recall chemical symbols and use the periodic table alongside their knowledge to name different compounds. Students will understand that atoms join to form molecules and be able to recall formulae for selected compounds. This unit states that pupils will explore the properties of metals and non-metals. They will learn about alloys as mixtures of metals, their properties, and the importance of alloys such as steel and brass.
Electricity and Magnetism	In this unit pupils will study the concept of static electricity. They will Explain how objects can become charged, describe how charged objects interact and explore the idea of electric field. Pupils will study circuits and will be required to describe what is meant by current and to set up a circuit including an ammeter to measure current. Pupils will learn about potential difference and used this to explain resistance as the ratio of potential difference (p.d.) to current. Pupils will also study differences in resistance between conducting and insulating components Pupils will develop these ideas when studying series and parallel circuits. They will be required to describe how current and potential difference vary in series and parallel circuits and identify the pattern of current and potential difference in series and parallel circuits.
Chemical Reactions	This unit covers chemical reactions as the rearrangement of atoms. Students will learn to represent chemical reactions using formulae and equations. They will have the opportunity to carry out and make observations of the reactions of metal with oxygen, water, and acids. Students will then learn to write and balance the equations of these reactions. They will understand displacement reactions and the order of metals in the reactivity series. Students will also learn the use of carbon in obtaining metals from metal oxides.
Climate Change	In this unit students will explore how fuels burn and complete word and symbol equations on complete and incomplete combustion. They will study the carbon cycle and understand how carbon is continually recycled through the environment. Students will learn what makes up the earth's atmosphere. They will have the opportunity to learn about the causes of global warming and study these through scientific findings, and articles. This unit focuses on incorporating literacy skills into science. Students will use their skills to analyse research findings from selected sources and develop a plan to then produce a final writing in formal scientific style.
Motion and pressure	In this unit pupil will study the quantitative relationship between average speed, distance, and time and the relative motion of trains and cars passing one another. They will study representations of a journey on a distance–time graph by interpreting these graphs, calculating

	speed from the graph, and plotting data on a distance time graph accurately. Pupils will learn how to use the quantitative relationship between force, area, and pressure. Pupils will explore pressure in fluids by describing and explaining atmospheric pressure in liquids and gases. They will describe the factors that affect gas pressure and explain how atmospheric pressure changes with height. They will also describe how liquid pressure changes with depth and predict how water pressure changes. Additionally, pupils will be required to calculate pressure and apply ideas of pressure to different situations, as well as describing what is meant by 'moments' and calculating the moment of a force.
Acids and Bases	This unit covers acids and alkalis and how to neutralise substances and make salts. Students will learn about acids and alkalis and where to we use them. They will learn how acids and alkalis can be identified and distinguished from each other? What happens when an acid is added to an alkali? Where is neutralisation important? Bases should be emphasized and studied in detail.
Ecology	In this unit pupils will study the different relationships in an ecosystem. They will explore the interdependence of organisms in an ecosystem, including food webs and insect pollinated crops and will also explain various sampling techniques used to take measurements in an ecosystem. Pupils will look at how organisms affect, and are affected by, their environment, including the accumulation of toxic materials. Furthermore, they will study the importance of plant reproduction through insect pollination.

Working Scientifically	<p>Students will use their knowledge from the working scientifically unit in year 7 to further their skills in scientific investigations in year 8.</p> <p>Students will have the opportunity to undertake six working scientifically investigations throughout the year. These investigations will require students to design and carry out experiments in the three fields of science (biology, chemistry, and physics). Students will collect, present, and analyse results of scientific investigations to devise conclusions.</p>
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