

Science Curriculum Map 2022-23

It should be noted that the curriculum is taught in rotation so pupils are able to access the laboratories for practical work

Year 3	
Who am I?	In this unit pupils will experience constructing keys, learning to ask yes / no questions about characteristic differences between animals. When working scientifically pupils will undertake some field studies, make detailed observations and learn which features are useful for identification and classification.
Where does all that food go?	Pupils will learn about the human digestive system, the unit also explores what animals eat and how this information can be used to build food chains. When working scientifically pupils will ask and answer questions about teeth, digestion and food chains by carrying out research using secondary sources.
Human Impact	Pupils will investigate the positive and negative ways that humans change the environment, locally and globally with a focus on how this affects other living things. When working scientifically pupils will carry out surveys and collate data. They will then make their data manageable and present findings in bar charts, pictograms and written reports.
Good vibrations	In this unit pupils will build upon their understanding of hearing and senses. They will develop vocabulary for describing sounds and sound sources scientifically. They will explore ways to change the pitch and volume of sounds. When working scientifically pupils will look for patterns between the volume and the strength of vibrations the sound produces. They will also have the opportunity to set up comparative tests, take measurements, including using data loggers and report on their findings.
In a state	This unit introduces the concept of the states of matter. Pupils will learn the characteristic properties of solids, liquids and gases through physical investigation and by classification. When working scientifically pupils will make careful observations and explain what they show. They will observe and measure changes over time, first-hand and also using secondary sources of information.
Switched on	All pupils have an experience of electricity in their everyday lives and this unit will give them the opportunity to experience making simple circuits and distinguish between appliances powered by mains or battery sources. Working scientifically pupils will learn how to communicate using circuit diagrams and scientific language as well as planning and carrying out scientific investigations using the circuit equipment.

Year 4	
Circle of life	Pupils will compare and contrast different life cycles, identifying common features as well as the key differences. When working scientifically pupils will use secondary sources of information when carrying out investigations to answer a variety of science questions with increasing independence.
Reproduction in plants and animals	In this unit pupils will learn about the plant reproduction looking at flowering plants and asexual reproduction. In animal reproduction pupils will look at specific life cycle examples in mammals, birds, insects and amphibians and how they reproduce. When working scientifically pupils carry out observations of flowering plants and use secondary sources of information. They will report and present findings in a variety of ways including posters, fact cards and guides.
Marvellous mixtures	In this unit pupils develop their conceptual knowledge and understanding of how to separate different mixtures and the rate of dissolving a solute in a solution. Their use of scientific experience will require them to apply their knowledge to an unusual context and solve a mystery of separating a solution. When working scientifically pupils plan different types of enquiries to answer key questions, identifying key variables as needed. They will use a variety of scientific equipment with increasing accuracy and precision, and use different ways to present their findings.
Get sorted	Pupils will identify, compare and classify a variety of materials according to properties and uses. When working scientifically, pupils will plan and carry out different enquiry types to answer scientific questions about materials and their uses.
Feel the force	In this unit pupils will learn how levers, pulleys and gears allow a smaller force to have a greater effect. When working scientifically pupils will look at scientific ideas from the past and carry out investigations to support or refute famous scientists' ideas. They make predictions as a result of carrying out activities and go on to plan new investigations.
Earth and beyond	Pupils will develop their knowledge of the Earth's and other planets' place in the solar system, and their relationship with other bodies in space in particular the Sun. When working scientifically pupils will use models for exploring and demonstrating ideas, first-hand observations at night either in their gardens or the local area, secondary sources of information (web based and book based) to answer scientific questions increasingly independently and diagrams, charts and graphs for recording data.
Everyday materials	In this unit pupils will develop a deeper understanding of materials and why certain properties make them suitable for their job. When working scientifically pupils will plan and carry out comparative and repeatable tests to answer questions about how and why certain materials are selected and used because of their properties.

Year 5	
The nature library	This is a challenging unit where pupils will build on their previous knowledge of living things and deepen their knowledge of why and how organisms are classified. They will explore the process of classification and how it differs from identifying things. When working scientifically pupils will use observations and secondary sources of information to help classify organisms and use evidence to support or refute ideas.
Body pump	In this unit pupils will learn about the human circulatory system and how it enables bodies to function. They will find out how the heart works, the components of blood and the main vessels in the circulatory system. When working scientifically they will develop their laboratory skills and have their first experience of dissection, when they dissect a lamb's heart. They will also use secondary sources of information with increasing independence to answer questions related to the unit.
Body health	In this unit pupils will learn about how to keep the human body healthy and how their bodies might be damaged. The focus on lifestyle choices humans make, including diet, exercise and drug use and how these are informed by scientific evidence.
Everything changes	Pupils will use their knowledge of living things and apply it to a new scenario of variation in a species will make it better adapted to its environment and that over a long period of time the process of natural selection will lead to evolution of a species. They will also look at ideas around selective breeding and the ethical ideas surrounding the process. When working scientifically pupils will take measurements of plants to record variations and use scientific models to describe complex processes such as selective breeding.
Danger! Low voltage	In this unit pupils will develop their understanding of electrical circuits and build on the work in the year 3 unit Switched on. They will construct circuits with increased complexity and role play the flow of electricity in a circuit. When working scientifically pupils will carry out practical work building circuits, using scientific language and recording the circuits using scientific drawings.
Light up your world	In this unit pupils will develop their learning on how light enables us to see things and how objects reflect different amounts of light and shadows. Then they will develop an understanding of mirrors and the reflections that they form in order to build a periscope. When working scientifically, pupils will ask and propose questions about shadow formations as well as exploring quantitatively the formation of shadows.

Year 6	
Food webs and ecosystems	Pupils will look at the how organisms interact within an ecosystem and how this fragile balance is sustained.
Diet and Digestion	In this unit pupils will learn about healthy diets and the impacts of deficiencies in diet and the digestive system
Cells	In this unit pupils will look at how cells will work for an organism through organisation. They will develop a knowledge of cell organelles and how these work together to allow a cell to function.
Solubility and separating techniques	Pupils will be introduced into the world of using the chemistry laboratory and performing chemistry experiments. The unit is focussed on separation techniques looking at distillation, solubility and chromatography.
Particles	In this unit pupils will use the particle model to explain the phenomena of state of matter and to explain the properties of different materials. Pupils will conduct a series of practical investigations to decipher if a reaction is a physical or chemical change.
Forces, friction and speed.	In this unit pupils will gain an understanding of different types of forces and the things that they do. Pupils will be able to explain the impact of useful and unwanted friction and why these are important to everyday life. Levers and turning forces are the final set of forces to be explored by pupils along with their associated calculations.
Electricity	Pupils will develop their thinking on electrical circuits which they met in year 3 and year 5 and be introduced to different applications of circuits such as circuit breakers and Christmas lights.
Energy and fuel.	Pupils will investigate different energy types and how they are transferred. They will then go on to look at energy and how we use it to our advantage but not always with a positive outcome for the planet.

Year 7	
Magnetism and electricity	In this unit pupils will deepen their knowledge of magnetism and be introduced to the phenomena of temporary magnets via electromagnetism. They will then go on to develop their thinking on electrical circuits which they met in year 3 and year 5 and be introduced to different applications of circuits such as circuit breakers and Christmas lights.
Looking at plants and photosynthesis	Pupils will continue to develop their knowledge of plants through learning how to keep plants healthy and then their role as producers in a food chain.
Skeletons and muscles	In this unit pupils will investigate how the human body moves through modelling the skeleton and muscles looking at the relationship between form and function.
Breathing and respiration	In this unit pupils will discover that breathing and respiration are not the same thing, they will work on the function and mechanism of breathing and the role of respiration in every cell in the body.
Atoms, elements and compounds	Pupils will learn about the chemist's dictionary - the Periodic Table and the elements that make it up. They will use simple models to explain the chemical reactions performed in experiments completed in lessons.
Simple chemical changes	Pupils will be introduced to combustion, oxidation and the pH scale / neutralisation, they will learn how to use laboratory equipment safely and adeptly as they navigate these more technical experiments.
Light and sound	In this unit, pupils will look at energy transfers and focus in on energy in the home. They will then focus in on two forms of wave energy, light and sound energy.
Gravity and pressure	Pupils will continue to develop their knowledge and understanding of forces, they will then go on to learn about gravitational forces. Pupils will be introduced to the ideas linked to pressure then link these ideas to gravity and space travel.
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Year 8	
Cells - the building blocks of life	In this unit pupils will look at how cells will work for an organism through organisation. Following on from prior learning in year 4 pupils extend their knowledge on life cycles and reproduction in plants and animals (humans)
Chemistry in the Earth	In this unit the pupils will look at how the Earth's atmosphere has evolved over time and how humans have made an impact on it. They will also will focus in on the rock cycle
Motion on Earth and in space	Pupils will investigate the impact of forces in equilibrium, gravitational fields and the motion of the Earth. They will also look at motion in the form of distance-time graphs and calculating speed. Finally the unit will have the pupils looking at the stars and galaxies.
Complex chemical reactions	Pupils will revisit ideas about chemical reactions previously taught in years 4,6 and 7 then develop these to understand the more complex chemical reaction within the reactivity series, acid reactions and thermal decomposition.
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Review & revise	Pupils will revisit the units taught in years 6-8 and review their learning, identify the learning gaps to close them and look in detail how to answer questions to be able to gain the maximum marks possible.

