



Science Curriculum Map 2019-20

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

Year 3

Our changing World	In this unit pupils will learn how to classify plants at different times of the year. When working scientifically pupils will make careful observations of leaves, bark, buds, tree shape and flowers. They will use this information to classify the plants and will record the information using keys.
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 the 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.

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	
Our changing world	This unit is taught throughout the academic year and allows pupils to see how the natural world around us changes with the seasons. This builds upon the 'our changing world' unit that they have experienced in years 3 and 4. In year 5 they focus on the physical characteristics of organisms and how they are adapted to the environment they live in. Through working scientifically they will understand the need to plan scientifically and refine their skills of measurement, testing, recording and observation.
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	
Getting the energy your body needs	Pupils will look at the human skeleton and muscles and how the combination of the two enable us to move effectively. They will then move on to look at aerobic and anaerobic respiration.
Eating, drinking and breathing	In this unit pupils will learn about healthy diets and the impacts of deficiencies in diet, the digestive system and the breathing system.
Mixing, dissolving and separating	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.
Elements, compounds and reactions	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.
Forces and their effects	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.
Energy transfers and sound	Pupils will investigate different energy types and how they are transferred. They will then go on to look at sound energy in more detail as well as the structure of the human ear.

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 ecosystems	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. They will also look at relationships in the environment.
Explaining physical changes	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 practical investigations to decipher if a reaction is a physical or chemical change.
Explaining chemical changes	Pupils will be introduced to acids, alkalis and indicators and how they are used in the home and industry. They will then look at combustion and air pollution, and its impact on our planet.
Exploring contact and non-contact forces	Pupils will continue to develop their knowledge and understanding of magnetic forces, they will then go on to learn about electrostatic forces. Pupils will be introduced to the ideas linked to pressure, floating and sinking then link these ideas to gravity and space travel.

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)
Using the Earth sustainably	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.
Waves and energy transfer	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 wave energy.
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.