



	Year 3	Year 4	Year 5	Year 6
Biology	<p><u>Plants</u></p> <p>The Year 3 Lifecycle of a Plant topic builds on the KS1 understanding of plants and how they grow.</p> <p>Children identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. They explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. Children take part in maintaining growth in their own mature plants. They then investigate the way in which water is transported within plants and explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p> <p>This learning is working towards the Year 5 topic of Animal Life Cycles where they will explore the process of reproduction in plants and animals.</p> <p><u>Animals Including Humans</u></p> <p>The Year 3 topic of Skeletons, Movement and Muscles builds on the KS1 understanding of Humans and Animals.</p> <p>Children identify that animals, including humans, need the right type and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. They identify that humans and some other animals have skeletons and that they have muscles for support, protection and movement.</p> <p>This learning is working towards the Year 4 topics of Teeth and Digestion and their learning in Y6 about the circulatory system in the Animals, Including Humans topic. The Year 3 Nutrition and Diet topic builds on the Y2 topic of Healthy Lifestyles.</p> <p>Children identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. They investigate further to discover what nutrients we get from different foods, and how these nutrients help our bodies. They design healthy diets, create ideas for new exercise programs, and investigate into the issue of the impact of unhealthy diets. They will use this knowledge to debate whether fast food should be banned. Finally, they will take a look at healthy diets for our pets and how they compare to ours</p>	<p><u>Teeth and Digestion</u></p> <p>Through independent research, children are able to identify the different types of teeth in humans and their simple functions. They investigate how different liquids can affect the enamel on your tooth and draw conclusions as to why different liquids can damage out teeth. This builds on prior learning in KS1 and Y3 within the strand of Animals, including humans.</p> <p>By the end of the term, children should be able to describe the simple functions of the basic parts of the digestive system in humans.</p> <p><u>Living Things and Their Habitats</u></p> <p>In Summer 1, children learn about the classification of animals and use branching keys to sort animals using their prior learning within the strands of Animals, including Humans and Living things and their habitats. This work is linked to the geographical topic of 'Beneath the Canopy' which focuses on the rainforests. Food chains are also investigated, building on prior learning within Y2.</p>	<p><u>Living Things and Their Habitats</u></p> <p>Studying biology in previous years, the children have looked at animals including humans in every year since Year 2. They continue to study living things and their habitats which the children have looked at in Year 4 with a focus on how they reproduce and will continue to look at in further detail in Year 6 with regards evolution.</p>	<p><u>Evolution and Inheritance</u></p> <p>In the unit 'Evolution and Inheritance', we learnt about how offspring inherit physical attributes from their parents. We learnt about Darwin's theory of evolution and natural selection. The children investigate the idea of this with the 'Battle of the Beaks' lesson, where they use apparatus to simulate different beaks. The unit ends with a look at how humans have evolved over time, comparing their physicality and skeletons.</p> <p><u>Living Things and Their Habitats</u></p> <p>This is a unit that the children study to some degree in every year group throughout Key Stage 2. In Year 6, we begin by looking at what an organism is and revisiting the acronym MRS NERG (first introduced in Year 2) to provide the criteria for this. We revise groups of living things, before building on previous study from Year 4 by using classification keys specifically to classify different species of an animal (we focus on different species of frogs). We extend this by creating our own classification keys. The unit ends with a focus on life cycles of different animal groups.</p> <p><u>Animals Including Humans</u></p> <p>Here, the unit 'Animals including humans' begins with study of the different systems of the human body including the digestive system, skeletal system and the muscular system. There is then an age-related shift to a focus on circulation and the heart. To help children visualise and understand this concept we act out the process of respiration using drama. This is built upon by investigating the effect of exercise on heart rate which incorporates mathematical skills as the children create their own line graphs. The unit ends with a look at how we can lead healthy lives, focusing on the effects of substances such as alcohol on the body and the need for a balanced diet.</p>



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Chemistry	<p><u>Rocks and Soils</u></p> <p>During the Rocks and Soils topic, Year 3 build on the KS1 understanding of Grouping and Changing Materials.</p> <p>We start by making links to our Volcanoes and Earthquakes topic. We discuss the layers of the Earth and linked with work in geography, explore different kinds of rocks and soils, including those in the local environment. We then move onto comparing and grouping together different kinds of rocks on the basis of their appearance and simple physical properties. Children are able to identify and classify rocks according to whether they have grains or crystals. Pupils work scientifically by observing rocks and exploring how and why they might have changed over time. Pupils explore different soils and identify similarities and differences between them. Pupils research and discuss the different kinds of living things whose fossils are found in sedimentary rock and learn and explain the process by which fossils are formed. This learning builds the foundation for the Year 6 topic of Evolution where they will explore the information provided by fossils.</p>	<p><u>States of Matter</u></p> <p>In our Autumn 1 topic, we explore states of matter. This starting point allows the children to develop a great foundational understanding of solids, liquids and gases, and how the particles behaved within them. Children obtain the knowledge by carrying out a range of investigations. This is the first time children will encounter States of Matter, but it builds the foundations for the next unit within Y5. The children also learn about the water cycle.</p> <p>Physics</p> <p><u>Changes in State</u></p> <p>Spring 1 allows the children to refer back to their previous learning through our 'Heating and Cooling' topic. This topic allows children to consolidate their understanding and use of scientific equipment e.g. thermometer. Changes of state are investigated. Emphasis is placed on fair testing and how we can improve future investigations.</p>	<p><u>Materials and How They Can Be Changed</u></p> <p><u>Materials, Their Properties and Uses</u></p> <p>In Autumn 1 children move on to exploring the properties of materials and their uses. They identify common materials and learn to group them based on their properties and give reasons why certain materials have certain uses by explanation of fair testing. They will explore the properties of elasticity, strength, durability, thermal insulation.</p> <p>In Autumn 2 Y5 begin their chemistry with a focus on changes in state. The begin with a recap of materials and their states before moving on to changes in state, mixing, dissolving and filtering. All of this learning comes together in a fair test.</p>	



Physics	Year 3	Year 4	Year 5	Year 6
	Forces	Electricity	Forces	Electricity
	<p>During the Forces and Magnets topic Year 3 build on the KS1 teaching and learning around Naming and Comparing Materials.</p> <p>We start by comparing and grouping together varieties of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. We compare how things move on different surfaces. We make predictions and observe how magnets attract or repel each other and attract some materials and not others. We learn that some forces need contact between two objects, but magnetic forces can act at a distance. We conduct investigations, children having to identify variables and constants and equipment required. They practise the skills of interpreting results and drawing conclusions. They present information in tables and sorting diagrams. This learning is work towards the Y5 unit learning about different types of Forces and how some mechanisms can support them</p> <p><u>Light and Shadows</u></p> <p>During the Light and Shadow topic, Year 3 build on the KS1 topics of Seasonal Change and their knowledge of sight from Our Human Body. We start by consolidating our understanding of lights sources and the difference between light and dark. Then we progress onto investigating how and why shadows are formed. The children investigate into how to make shadows bigger or smaller. We conduct investigations, children creating investigation questions, making predictions, identifying variables and constants and equipment required. They practise the skills of interpreting results and drawing conclusions. They present information in tables and sorting diagrams. We make links to RE with shadow puppets. This learning is working towards the Year 4 topic of Electricity and Year 6 investigations on light and how it travels.</p>	<p>In our Autumn 2 topic, we begin by identifying which objects run on electricity and if they use heat, light and sound energy. This is the first unit on Electricity which is revisited in Y6. They explore the different electrical components and how to assemble them to make a simple circuit to light a bulb. Furthermore, children identify the differences between conductors and insulators.</p> <p><u>Sound</u></p> <p>In Summer 2, Sound is the topic which children are taught for the first time as a discrete unit and expended upon in Y6. It builds upon prior learning of our senses in KS1.</p> <p>Children learn that sounds travel through vibrations and they investigate the patterns between the pitch of a sound and the object that produces it as well as investigating how the volume of sounds is linked to the strength of the vibrations.</p>	<p>Having previously studied forces and magnets in Year 3, we return to the topic of forces by now looking at them in more detail. This involves looking at concepts such as friction, air resistance and water resistance. We also look at the force of gravity within this topic which we return to look at in greater detail during our Earth &amp; space topic next term.</p> <p><u>Earth and Space</u></p> <p>In this topic, Year 5 look at Earth, space and the planets. We study the concept of gravity, why the planets orbit the sun and how this affects daytime, shadows and seasons. This carries from Year two when they learn about the moon landing and become fascinated by the earth and space.</p>	<p>This unit builds on previous work from Year 4, where the children learnt about insulators and conductors and electricity at a basic level. This unit begins with a look at Thomas Edison and Nikola Tesla. The children then learn circuit symbols, and construct some of their own circuit diagrams. The idea of complete and broken circuits is taught using the 'Energy Stick'. Voltage is then studied which leads into the children planning and conducting their own investigation around the relationship between the brightness of bulbs and wire length. Children also plan and design their own circuit to send Morse code messages to each other.</p> <p><u>Light</u></p> <p>The children learn about light. They begin by learning that light travels in straight lines and reflects from objects. We then investigated how shadows are formed, building on vocabulary learnt in Year 3, such as transparent, translucent and opaque. Before investigating how shadows change over time throughout the day, the children learn about refraction before finishing the unit with the light spectrum.</p>