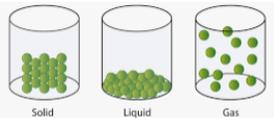


**Science Long Term Plan**

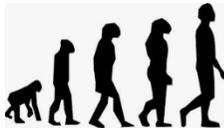
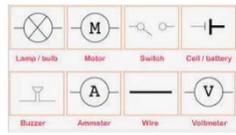
	KS1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year A	<p><b>Knowledge Progression</b></p>	<p><b>Animals Including Humans</b></p> <p>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p> <p>Notice that animals, including humans, have offspring which grow into adults</p> <p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p>	<p><b>Materials</b></p> <p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees.</p> <p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p> <p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>	<p><b>Seasonal Changes/ Weather</b></p> <p>Observe changes across the four seasons</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p> 	<p><b>Living Things and Their Habitats</b></p> <p>Identify and name a variety of plants and animals in their habitats, including microhabitats</p> <p>Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.</p> 	<p><b>Plants and Trees</b></p> <p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees.</p> <p>Observe and describe how seeds and bulbs grow into mature plants</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p><b>Materials</b></p> <p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p> <p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>
	<p><b>Topic</b></p>	<p><b>My Body</b></p> <p>Children think about how we grow and change. They explore our senses and how we use them. They think about healthy diet and exercise and how to make healthy choices.</p> 	<p><b>Brilliant Builders</b></p> <p>Explore and compare different materials and sort them into groups before writing songs based on their properties! Consider what it would be like if the tables were made of jelly or the chairs were chocolate! Then recreate the story of the three little pigs and predict what will happen to their houses.</p>	<p><b>Wild Weather</b></p> <p>In this block, think about the weather, learn how to present data and make your own weather forecast to present to the class. Play shadow tag and create bar charts to record shadow length over time. Set up rain gauges to observe rainfall and bring all the learning together in a recorded weather forecast for the school website!</p>	<p><b>Food Chains</b></p> <p>Talk about food chains and role play the interdependence between creatures in a chain, considering what part each plays in its survival. Explore the school grounds, looking for examples of food chains. Learn about water-based food chains and reconstruct them in tanks of water. Interpret the transfer of energy in a food chain through a dance, using masks and torches.</p>	<p><b>Growing Things</b></p> <p>Explore outside and prepare tubs for planting potatoes. Record the growth of a bean and look at how it develops. Can you recreate the plant with craft materials? Can you label the parts of the plant? Look really closely at little cress plants and draw what you see. Then pop them into egg sandwiches for an egg and cress snack!</p>	<p><b>Scientists and Inventors</b></p> <p>Children will learn about the inventions of Lego and ear muffs, and will explore the materials used to make them. They will investigate other materials that keep us warm, carrying out simple tests. Children will find out about the work of animal scientists, such as vets and zoo keepers.</p>

	KS1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year B	<p><b>Knowledge Progression</b></p>	<p><b>Animals Including Humans</b></p> <p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p> <p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</p>	<p><b>Materials</b></p> <p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees.</p> <p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p> <p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>	<p><b>Seasonal Changes/ Weather</b></p> <p>Observe changes across the four seasons</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p>	<p><b>Living Things and Their Habitats</b></p> <p>Identify and name a variety of plants and animals in their habitats, including microhabitats</p> <p>Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other</p> <p>Identify and name a variety of plants and animals in their habitats, including microhabitats</p>	<p><b>Plants and Trees</b></p> <p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees.</p> <p>Observe and describe how seeds and bulbs grow into mature plants</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p><b>Materials</b></p> <p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p> <p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>
	<p><b>Topic</b></p>	<p><b>Amazing Animals</b></p> <p><i>The children explore a variety of animals, naming and classifying them, using scientific vocabulary to group them then how they have adapted to survive in the wild.</i></p> 	<p><b>Everyday Materials</b></p> <p><i>We learn about the uses of everyday materials including wood, plastic, metal, glass, brick, paper and cardboard. Children then go on to compare the suitability of different everyday materials for different purposes.</i></p> 	<p><b>Weather Art</b></p> <p><i>Talk about the four seasons and make a seasons collage together. Go outside to experience the wind and make a windsock, windmill and bottle wind spinner in the classroom. Talk about the importance of the sun, design sun catchers to hang in the classroom and a sundial for the playground. Then explore shadows using torches and make shadow theatre characters to use with DIY light boxes and OHPs.</i></p> 	<p><b>Habitats and Homes</b></p> <p><i>Make a playground allotment complete with edible plants and bird scaring sculptures. Weed and tend the allotment; visit a farm; and explore farming with small world play. In groups, design a bug hotel and build it.</i></p> 	<p><b>Art and Nature</b></p> <p><i>Investigate and sort materials according to where they came from. Learn all about those materials that come from plants. Create a large pollen sculptures out of clay, find flowers outside in the playground and sketch them and then make a large model of the inside of a flower using junk modelling materials!</i></p>	<p><b>Scientists and Inventors</b></p> <p><i>Children will learn about the invention of the waterproof coat, and will explore other waterproof materials by carrying out simple tests. Children will find out about the work of doctors, and will learn about Elizabeth Garrett Anderson, the first woman doctor in Britain</i></p>

	LKS2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year A	<b>Knowledge Progression</b>	<b>Animals Including Humans</b> <ul style="list-style-type: none"> <li>Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</li> <li>Construct and interpret a variety of food chains, identifying producers, predators and prey.</li> <li>Describe the simple functions of the basic parts of the digestive system in humans</li> </ul>	<b>Materials</b> <ul style="list-style-type: none"> <li>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</li> <li>Describe in simple terms how fossils are formed when things that have lived are trapped within rock</li> <li>Recognise that soils are made from rocks and organic matter</li> </ul> 	<b>Sound</b> <ul style="list-style-type: none"> <li>Identify how sounds are made, associating some of them with something vibrating</li> <li>Recognise that vibrations from sounds travel through a medium to the ear</li> <li>Find patterns between the pitch of a sound and features of the object that produced it</li> <li>Find patterns between the volume of a sound and the strength of the vibrations that produced it</li> <li>Recognise that sounds get fainter as the distance from the sound source increases.</li> </ul>	<b>Living Things and Their Habitats</b> <ul style="list-style-type: none"> <li>Recognise that living things can be grouped in a variety of ways</li> <li>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> <li>Recognise that environments can change and that this can sometimes pose dangers to living things.</li> </ul>	<b>Forces &amp; Magnets</b> <ul style="list-style-type: none"> <li>Observe how magnets attract or repel each other and attract some materials and not others</li> <li>Describe magnets as having two poles</li> <li>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</li> </ul> 	<b>Forces &amp; Magnets</b> <ul style="list-style-type: none"> <li>Compare how things move on different surfaces</li> <li>Notice that some forces need contact between two objects, but magnetic forces can act at a distance</li> <li>Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials</li> </ul>
	<b>Topic</b>	<b>Our Bodies</b> <p>Children will learn about the functions of skeletons and muscles and discover how the human digestive system works. They will interpret and construct food chains.</p>	<b>Rocks, Fossils &amp; Soils</b> <p>The children will dig deep and unearth a fascinating world below ground. They will learn about rocks and soils, and the fossils that can be found buried deep.</p>	<b>Sounds Spectacular!</b> <p>During this topic, children will help to set up a new rhythm band and will understand the scientific aspects behind it all e.g. How will the audience hear the music?</p> 	<b>Food Chains</b> <p>In this unit children explore a variety of ways to identify, sort, group and classify living things. They learn 'vertebrates' and 'invertebrates' and use and create classification keys to group, identify and name living things from the local habitat and beyond.</p>	<b>Amazing Magnets</b> <p>Children will explore how magnets behave towards each other in a variety of different exciting challenges. They will discover that magnets have 2 poles and that same poles repel whilst opposite poles attract. They will learn that the world itself is a giant magnet!</p>	<b>Friction</b> <p>The class will learn about forces, friction and magnetic attraction. They will look at forces in the context of pushing and pulling, and will identify different actions as pushes or pulls.</p>

	LKS2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year B	<b>Knowledge Progression</b>	<b>Animals Including Humans</b> <ul style="list-style-type: none"> <li>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</li> <li>Identify the different types of teeth in humans and their simple functions</li> </ul>	<b>Materials</b> <ul style="list-style-type: none"> <li>Compare and group materials together, according to whether they are solids, liquids or gases</li> <li>Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)</li> <li>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</li> </ul> 	<b>Light</b> <ul style="list-style-type: none"> <li>Recognise that they need light in order to see things and that dark is the absence of light</li> <li>Notice that light is reflected from surfaces</li> <li>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</li> <li>Recognise that shadows are formed when the light from a light source is blocked by an opaque object</li> <li>Find patterns in the way that the size of shadows change.</li> </ul>	<b>Living Things and Their Habitats</b> <ul style="list-style-type: none"> <li>Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</li> <li>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</li> <li>Investigate the way in which water is transported within plants</li> <li>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</li> </ul>	<b>Electricity</b> <ul style="list-style-type: none"> <li>Identify common appliances that run on electricity</li> <li>Recognise some common conductors and insulators, and associate metals with being good conductors.</li> <li>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</li> </ul>	<b>Electricity</b> <ul style="list-style-type: none"> <li>Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery</li> <li>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</li> </ul> 
	<b>Topic</b>	<b>Keeping Healthy</b> <p>Children will gain understanding in nutrition, and conduct their own research in order to answer questions about how to keep healthy. They will look at teeth and develop further understanding about how to look after them.</p>	<b>States of Matter</b> <p>Children will have the opportunity to develop and showcase an understanding of all areas of states of matter, including how materials can change from one state to another, through a large range of simple practical enquiries.</p>	<b>Light and Shadows</b> <p>This topic will teach children about light, shadows, day, night and everything in between! Children will learn about how light travels, what shadows are and how the length and position of a shadow changes throughout the day.</p> 	<b>Plants</b> <p>Children will learn the names of different parts of plants, and the jobs they do. They will investigate what plants need to grow well and look into the transportation of water within plants. Children will also explore the different stages of the life cycle of a flowering plant.</p>	<b>It's Electric!</b> <p>Children will learn all about electrical circuits and test materials' ability to conduct electricity. They will build their own circuit to create a buzz-wire game.</p>	<b>Circuits</b> <p>Children will predict whether the switch will function correctly when placed in different positions in the circuit. They will create your own amazing electric powered person or robot.</p>

	UKS2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year A	<p><b>Knowledge Progression</b></p>	<p><b>Materials</b></p> <p>Compare and group together everyday materials on the basis of their properties, including their hardness, transparency, and conductivity (electrical and thermal).</p> <p>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p>	<p><b>Animals including humans</b></p> <p>Describe the changes as humans develop to old age.</p> 	<p><b>Living things and their habitats</b></p> <p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>Describe the life process of reproduction in some plants and animals.</p> 	<p><b>Earth and space</b></p> <p>Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</p> <p>Describe the movement of the Moon relative to the Earth.</p> <p>Describe the Sun, Earth and Moon as approximately spherical bodies.</p> <p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p> 	<p><b>Forces</b></p> <p>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</p> <p>Identify the effects of air resistance, water resistance and friction, which act between moving surfaces.</p> <p>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p>	<p><b>Changing materials</b></p> <p>Compare and group together everyday materials on the basis of their properties, including their solubility and response to magnets.</p> <p>Know that some materials will dissolve in liquid to form a solution.</p> <p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</p>
	<p><b>Topic</b></p>	<p><b>Music festival materials</b></p> <p>The annual Spring Music Festival launches in just over 2 months and you have been selected to form the 'materials committee'. Do you know your thermal insulators from your thermal conductors? Can you find the best materials for take-out bags and drinks bottles? You will need to carry out an impressive array of tests to identify which materials are up to the job for a variety of festival needs. Roll your festival sleeves up... you're going to need to get your hands dirty!</p> 	<p><b>Growing up and growing old</b></p> <p>One of the big publishing houses in the UK has approached you to write a children's non-fiction book about the human lifecycle. Can you research and collate information on growth, development, puberty and old age, and present it in a sensitive and logical way that is suited to children aged 8-12? Are you up for the challenge of creating a visually appealing and marketable book that will fly off the shelves? You have 6 weeks until the deadline...</p>	<p><b>It's the circle of life</b></p> <p>You have been commissioned to create an inspirational and informative collection of scientific illustrations on the theme of animal and plant life cycles. Develop your mastery of key art skills as you create accurate and eye catching illustrations that tell the life cycle story of a range of nature's wonders. Select your best work to be entered into the 'Excellence in Scientific Illustration' awards. Along the way hone your skills as a natural scientist and top off your work with an audience with David Attenborough, Jane Goodall and their natural scientist colleagues.</p>	<p><b>To infinity and beyond</b></p> <p>Prof Brian Cox is in the process of commissioning a new series of Stargazing programmes aimed at young children and he's hoping you are willing to help him out. He needs three episodes that cover the planets and solar system; night and day; and the lunar month. You will need to come up with a title for each episode and include practical and clear explanations and demonstrations of the science behind each phenomenon. Are you up for the challenge and do you have what it takes to be a Space Presenter?</p>	<p><b>May the forces be with you</b></p> <p>A rare and valuable meteorite has just landed on Earth and the Natural History Museum is sending in a recovery team to retrieve it. As the remote part of this retrieval team you need to overcome an array of challenges that will require you to put your knowledge and understanding of forces into action. May the forces be with you.</p>	<p><b>Changes of materials</b></p> <p>The Science Museum wants to expand its Science Kitchen education resource to include more exciting materials investigations. You have been selected to devise and write the materials to be included. You will need to carry out a range of investigations into the changes that occur to certain materials when they are heated, cooled and mixed with other materials to ensure your content is accurate and inspiring. Get your lab coats on - it's going to get messy!</p> 

	UKS2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year B	<b>Knowledge Progression</b>	<p><b>Evolution and Inheritance</b></p> <p>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</p> <p>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>	<p><b>Animals including humans</b></p> <p>Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</p> <p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans.</p>	<p><b>Living things and their habitats</b></p> <p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals.</p> <p>Give reasons for classifying plants and animals based on specific characteristics.</p> 	<p><b>Light</b></p> <p>Recognise that light appears to travel in straight lines.</p> <p>Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.</p> <p>Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.</p> <p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>	<p><b>Electricity</b></p> <p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</p> <p>Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.</p> <p>Use recognised symbols when representing a simple circuit in a diagram.</p>	<p><b>Consolidation</b></p> <p>Revision of all topics covered this year as well as looking at working scientifically objectives.</p>
	<b>Topic</b>	<p><b>Survival of the fittest</b></p> <p>Can you succeed in the Game of Survival? Take part in a series of challenges and see if you can accrue enough points to make it onto the Game of Survival leaders' board. You will need to have your evolutionary wits about you and a keen eye for the survival of the fittest.</p> 	<p><b>Pump it: the circulatory system</b></p> <p>The link between the arts and science has always been a complex one, but you are going to create an exhibition of art work that not only reflects the beautiful complexity of the human body but also acts as an accurate and informative presentation of the complex systems that help make us human. You will need to exhibit your art for others to see and learn from.</p>	<p><b>Classified information</b></p> <p>Take part in classification training, gaining credits along the way to gain your Classification Connoisseur qualification. Discover Linnaeus' system and identify a range of living things. Your challenge culminates in designing your own new creatures that fit within the classification system.</p>	<p><b>Theatre lighting technicians</b></p> <p>A crime has been committed and the UK Crime Lab needs a team to analyse its evidence against six suspects. They need a team with mathematical prowess and a scientific line of attack. Could you be the team to tackle the mystery of the West Hollow High School laptop thief?</p>	<p><b>It's electrifying</b></p> <p>Dare you enter the Dragons' Den and market your very own inventive festive lights decoration? Use motors, switches, bulbs and buzzers to make your product the stand-out choice of the dragons.</p> 	<p><b>The Science of Sport</b></p> <p>There is a lot more to sport than meets the eye and it is your job to explore the science behind it. Investigate and explore the grounds, the kit, the people, the physics and night time matches... and even reflect on your own sporting prowess in this revision block that can be taught across a half term, or in the form of a science week.</p>