

Below outlines the learning focus for each term

Term	Learning Focus		Conceptual Development
	Knowledge	Skills	
Autumn 1	<p><b>Living things and their habitats</b> 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>Be introduced to the idea that broad groupings, such as microorganisms, plants and animals can be subdivided.</p> <p>Classify animals into commonly found invertebrates (such as insects, spiders, snails, worms) and vertebrates (fish, amphibians, reptiles, birds and mammals), through direct observations where possible</p>	<p>To use classification systems and keys to identify some animals and plants in the immediate environment.</p> <p>To research unfamiliar animals and plants from a broad range of other habitats and decide where they belong in the classification system.</p> <p>To research into the significance of the work of scientists such as Carl Linnaeus, a pioneer of classification</p>	<p><b>Build upon:</b> Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment - Year 4</p> <p><b>Prepare for:</b> <i>Learn about the difference between species</i> <i>Learn that heredity as the process by which genetic information is transmitted from one generation to the next</i> <i>Learn about a simple model of chromosomes, genes and DNA in heredity,</i> <i>Learn about the part played by Watson, Crick, Wilkins and Franklin in the development of the DNA mode</i> KS3</p>
Autumn 2	<p><b>Electricity</b> Identify recognised symbols when representing a simple circuit in a diagram.</p> <p>Represent a simple circuit in a diagram using recognised symbols</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><i>Note: Pupils are expected to learn only about series circuits, not parallel circuits. Pupils should be taught to take the necessary precautions for working safely with electricity</i></p>	<p>To systematically identify the effect of changing one component at a time in a 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>Design and make a set of traffic lights, a burglar alarm or some other useful circuit.</p>	<p><b>Build upon:</b> Construction of a simple series circuits, to help them to answer questions about what happens when they try different components, for example, switches, bulbs, buzzers and motors – Year 4</p> <p><b>Prepare for:</b> <b><u>Electricity</u></b> <i>To measure currents in amperes,</i> <i>To learn in detail about series and parallel circuits,</i> <i>Learn about</i> <i>-current as flow of charge which is measured in volts,</i> <i>-battery and bulb ratings;</i> <i>resistance, measured in ohms, as the ratio of potential difference (p.d.) to current</i> <i>Be introduced to vocabulary- volts resistance, ohms, potential difference (p.d)</i> KS3</p>

Spring 1	<p><b>Light</b></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>Recognise that light appears to travel in straight lines</p> <p>Use the idea that light travels in straight lines to explain</p> <ul style="list-style-type: none"> <li>- that objects are seen because they give out or reflect light into the eye</li> <li>- why shadows have the same shape as the objects that cast them.</li> </ul>	<p>Decide on the most suitable location of a mirror to suit purpose – eg location of rear-view mirrors on cars</p> <p>Design and make a periscope and using the idea that light appears to travel in straight lines to explain how it works.</p> <p>To investigate the relationship between light sources, objects and shadows by using shadow puppets.</p> <p>To extend their experience of light by looking at a range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water and coloured filters (they do not need to explain why these phenomena occur).</p>	<p><b>Build upon:</b></p> <p>Exploring the way that light behaves, including light sources, reflection and shadows - Year 3</p> <p>Prepare for:</p> <p><b><u>Light waves – KS3</u></b></p> <p>To know the similarities and differences between light waves and waves in matter</p> <p>To understand that light waves travel through a vacuum</p> <p>To know the speed of light</p> <p>To understand transmission of light through materials: absorption, diffuse scattering and specular reflection at a surface</p> <p>To use a ray model to explain imaging in mirrors, the pinhole camera, the refraction of light and action of convex lens in focusing -the human eye</p>
Spring 2	<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>Describe the ways in which nutrients and water are transported within animals, including humans.</p> <p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</p> <p>Learn how to keep their bodies healthy and how their bodies might be damaged – including how some drugs and other substances can be harmful to the human body</p>	<p>To explore the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.</p>	<p><b>Build upon:</b></p> <p>Learn about the main body parts and internal organs (skeletal, muscular and digestive system) to explore and answer questions that help them to understand how the circulatory system enables the body to function - Years 3 and 4</p> <p><b>Prepare for:</b></p> <p><b>Health</b></p> <p><i>Learn the effects of recreational drugs (including substance misuse) on behaviour, health and life processes – KS3</i></p> <p><b><i>The skeletal and muscular systems</i></b></p> <p><i>the structure and functions of the human skeleton, to include support, protection, movement and making blood cells</i></p> <p><i>biomechanics – the interaction between skeleton and muscles, including the measurement of force exerted by different muscles</i></p> <p><i>the function of muscles and examples of antagonistic muscles</i></p> <p>KS3</p>

<p>Summer 1</p>	<p><b>Evolution and inheritance</b></p> <p>To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</p> <p>To 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>To identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p> <p>To be introduced to the idea that characteristics are passed from parents to their offspring, for instance by considering different breeds of dogs, and what happens when, for example, labradors are crossed with poodles.</p> <p>To appreciate that variation in offspring over time can make animals more or less able to survive in particular environments, for example, by exploring how giraffes' necks got longer, or the development of insulating fur on the arctic fox.</p> <p>To find out about the work of palaeontologists such as Mary Anning and about how Charles Darwin and Alfred Wallace developed their ideas on evolution.</p>	<p>To observe and raise questions about local animals and how they are adapted to their environment</p> <p>To compare how some living things are adapted to survive in extreme conditions, for example, cactuses, penguins and camels.</p> <p>Analyse the advantages and disadvantages of specific adaptations, such as being on two feet rather than four, having a long or a short beak, having gills or lungs, tendrils on climbing plants, brightly coloured and scented flowers.</p>	<p><b>Build upon</b></p> <p>The topic on rocks in year 3 where children learnt to describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p> <p>Children to find out more about how living things on earth have changed over time.</p> <p><b>Prepare for :</b></p> <p><b>Genetics and evolution</b> <i>Learn about the difference between species</i></p> <p><i>Understand and identify variations between species and between individuals of the same species- meaning some organisms compete more successfully, which can drive natural selection</i></p> <p><i>Learn about the changes in the environment which may leave individuals within a species, and some entire species, less well adapted to compete successfully and reproduce, which in turn may lead to extinction – KS3</i></p>
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