





## Science Long Term Planning Overview

Term	Autumn	Spring	Summer
	<p>Outcome: Cut, stick and sort animal pictures of herbivores/ carnivores/ omnivores</p> <p>Fieldwork: visit to Yorkshire Wildlife Park.</p>		

<b>Year 2</b>	<p><b>Animals including humans</b> <b>Recap</b></p> <ul style="list-style-type: none"> <li>✓ The basic needs of an animal</li> <li>✓ Basic need of animals/ humans to be happy and healthy</li> </ul> <p><b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ Understand that animals have offspring which grow into adults</li> <li>✓ Understand the importance of being healthy and exercising</li> <li>✓ Understand difference between what they need to survive and what they want</li> <li>✓ Know that some exercise makes the heart beat fast and some slow.</li> <li>✓ Begin to explore different food categories</li> <li>✓ Understand the importance of food hygiene</li> </ul> <p>Outcome: A poster based on all previous learning in topic., adding to it each lesson.</p>	<p><b>Living things and their habitats</b> <b>Recap</b></p> <ul style="list-style-type: none"> <li>✓ That animals live in special places that suit them</li> </ul> <p><b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ Compare difference between things that are dead/ living and never been alive.</li> <li>✓ Understand that most living things live in habitats they are suited to.</li> <li>✓ Begin to understand that creatures adapt to their habitats</li> <li>✓ Understand what is meant by food chain and look at examples.</li> </ul> <p>Outcome: Research factfile into different habitats of Animals in different areas of the world.</p>	<p><b>Everyday Materials</b> <b>Recap</b></p> <ul style="list-style-type: none"> <li>✓ The name of a variety of materials</li> </ul> <p><b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ Suitability of everyday materials for certain uses.</li> <li>✓ Discuss properties of materials (absorbancy)</li> <li>✓ Begin to make predictions in investigations</li> <li>✓ Understand that if a material does not absorb water, it is waterproof</li> <li>✓ Difference between natural and manmade objects</li> <li>✓ Understand what happens to particles when a material is heated</li> </ul> <p>Outcome: investigation best material for a waterproof cat shelter.</p>	<p><b>Everyday Materials</b> <b>Re-cap</b></p> <ul style="list-style-type: none"> <li>✓ materials knowledge from last topic</li> </ul> <p><b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ Discuss range of different balls and how bouncy they are</li> <li>✓ Look at elasticity of fabric</li> <li>✓ Identify and sort objects with different material properties</li> <li>✓ Consider importance of different material properties.</li> </ul> <p>Outcome: An investigation into flexibility of materials. Investigation into strongest paper to wrap a present.</p>	<p><b>Plants</b> <b>Re-cap</b></p> <ul style="list-style-type: none"> <li>✓ Previous plant knowledge (Y1)</li> </ul> <p><b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ Understand why it is important for a plant to spread its seeds.</li> <li>✓ Understand the terms 'disperse/ dispersal/ pollination</li> <li>✓ Understand that plants need water, light and a suitable temperature to grow.</li> <li>✓ Begin to discuss various functions of main parts of a plant</li> </ul> <p>Outcome: Use powder paint and cotton wool to explain pollination and seed dispersal.</p>	<p><b>Living things and their habitats</b> <b>Re-cap</b></p> <ul style="list-style-type: none"> <li>✓ Previous learning from autumn term</li> </ul> <p><b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ Identify and name a variety of plants and animals in their habitats, including microhabitats.</li> <li>✓ Understand that different habitats provide for the basic needs of different kinds of mini-beasts and plants and that they depend on each other.</li> <li>✓ Understand what is meant by a food chain and that living things need other living things to survive.</li> <li>✓ 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.</li> <li>✓ Understand that the sun's energy travels through a food chain and that this is called a 'transfer of energy'.</li> </ul> <p>Outcome: Make a microhabitat and observe the animals within it.</p>
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<b>Year 3</b>	<p><b>Animals including humans</b> <b>Recap</b></p> <ul style="list-style-type: none"> <li>✓ Learning of carnivore, herbivore and omnivore.</li> <li>✓ Importance of eating healthy</li> </ul>	<p><b>Light</b> <b>Recap</b></p> <p><b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ Understand that they need light in order to see things and that dark is the absence of light</li> </ul>	<p><b>Rocks</b> <b>Recap</b></p> <p><b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ Understand that different rocks have different qualities and features</li> <li>✓ Group rocks in different ways</li> </ul>	<p><b>Forces and Magnets</b> <b>Recap</b></p> <p><b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ Understand that forces are pushes and pulls which can make things move, stop or change shape.</li> </ul>	<p><b>Plants</b> <b>Recap</b></p> <ul style="list-style-type: none"> <li>✓ Previous knowledge from Y1 and Y2.</li> </ul> <p><b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ Understand the requirements of plants for life and growth and how they</li> </ul>	<p><b>Plants</b> <b>Recap</b></p> <ul style="list-style-type: none"> <li>✓ Previous learning from Y1, 2 and previous topic</li> </ul> <p><b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ Explore the parts that flowers play in the life cycle of a flowering plant</li> </ul>
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Year 4	<p>and exercising (Y2)</p> <ul style="list-style-type: none"> <li>✓ Exercise makes the heart beat faster (Y2)</li> </ul> <p><b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ Understand that animals need the right types and amount of nutrition.</li> <li>✓ Animals cannot make their own food; they get nutrition from what they eat.</li> <li>✓ Understand that animals can be grouped based on what they eat.</li> <li>✓ Understand the 5 food groups and the proportions of each needed to create a healthy, balanced diet.</li> <li>✓ Know the nutritional properties of carbohydrates, fruit and vegetables, proteins and dairy foods as well as importance of limiting fat and sugar intake.</li> <li>✓ Understand that not all animals have an internal skeleton</li> <li>✓ Know that a skeleton is needed for support, protection and movement.</li> <li>✓ Understand how muscles work in pairs to allow movement and maintain posture.</li> <li>✓ Know the diaphragm is used in breathing and the lungs transfer oxygen to the blood.</li> <li>✓ Know that muscles need more oxygen to work hard and this affects breathing rate.</li> </ul> <p><b>Outcome:</b> Make a skeleton string puppet. Investigation into lung capacity.</p>	<ul style="list-style-type: none"> <li>✓ Light travels in straight lines</li> <li>✓ White light is composed of a spectrum of coloured lights.</li> <li>✓ Notice that light is reflected from surfaces.</li> <li>✓ Understand that the sun is a light source and light from the sun can be dangerous.</li> <li>✓ Look at how objects made from different materials cast shadows</li> <li>✓ Understand opaque, transparent and translucent and the shadows these objects cast</li> <li>✓ Recognise that shadows are formed when the light from a light source is blocked by an opaque object</li> </ul> <p><b>outcome:</b> Silhouette artwork, children discuss key vocabulary and how a shadow forms.</p>	<p>according to their features</p> <ul style="list-style-type: none"> <li>✓ Be able to name 6 common rocks</li> <li>✓ Understand that rocks are formed in 3 different ways</li> <li>✓ Understand why some rocks are used for particular purposes.</li> <li>✓ Begin to understand the process of fossil formation.</li> </ul> <p><b>Fieldwork:</b> Creswell Crags- Rocks classification.</p> <p><b>Intended outcome:</b> Factfile on Mary Anning and work on fossil formation.</p>	<ul style="list-style-type: none"> <li>✓ Explore forces and discover that gravity and magnetism can act without contact</li> <li>✓ Observe how magnets attract or repel each other and attract some materials and not others.</li> <li>✓ Describe magnets have two poles.</li> <li>✓ Notice that some forces need contact between two objects, but magnetic forces can act at a distance.</li> </ul> <p><b>Outcome:</b> Children to design and make their magnet game (Fish and Rods)</p>	<p>vary from plant to plant</p> <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>✓ The way water is transported in plants</li> <li>✓ Begin to learn about the 7 life processes common to all living things.</li> </ul> <p><b>Outcome:</b> Plant growth investigation with different amounts of light.</p>	<ul style="list-style-type: none"> <li>✓ Learn about the work of the artist Georgia O’Keeffe.</li> <li>✓ Begin to know female parts of a plant.</li> <li>✓ Understand that flowers vary in size, colour, shape and form but all play a crucial role in reproduction</li> <li>✓ Discover the role played by insects in pollination</li> <li>✓ Know the different ways that seeds can be dispersed.</li> </ul> <p><b>Outcome:</b> Draw/ label a flowering plant and explain how seeds are dispersed. Make a 3D plant with different parts.</p>
	<p><b>Electricity</b> <b>Recap</b></p> <p><b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ Identify common appliances that run on electricity.</li> <li>✓ Construct a simple series electrical circuit</li> </ul>	<p><b>States of Matter</b> <b>Recap</b></p> <ul style="list-style-type: none"> <li>✓ Previous everyday materials topics Y1/2</li> </ul> <p><b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ Compare and group materials according to whether they are solid, liquids or gas.</li> </ul>	<p><b>Sound</b> <b>Recap</b></p> <p><b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ To begin to consider how sounds are made</li> <li>✓ Understand the term noise pollution</li> <li>✓ To identify how sounds are made,</li> </ul>	<p><b>Living things and their habitats</b> <b>Recap</b></p> <ul style="list-style-type: none"> <li>✓ Previous learning in Y2.</li> </ul> <p><b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ To recognise that living things can be grouped in a variety of ways.</li> <li>✓ To explore and use classification keys to help group, identify and</li> </ul>	<p><b>Animals including humans</b> <b>Recap</b></p> <ul style="list-style-type: none"> <li>✓ Previous learning from Y1,2 and 3.</li> </ul> <p><b>Learn:</b></p> <ul style="list-style-type: none"> <li>✓ Know the functions of human teeth and why they are different shapes,</li> </ul>	<p><b>Living things and their habitats</b> <b>Recap</b></p> <ul style="list-style-type: none"> <li>✓ Previous learning from Y2 and previous term.</li> </ul> <p><b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ Recognise that environments can change and that this</li> </ul>



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	<ul style="list-style-type: none"> <li>Identify and name basic parts of a circuit, including cells, wires, bulbs, switches and buzzers.</li> <li>Recognise some common conductors and insulators, and associate metals with being good conductors.</li> <li>Understand the dangers of electricity.</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> <p>Outcome: Use knowledge and understanding of electrical circuits to build a circuit with a buzzer and a switch.</p>	<ul style="list-style-type: none"> <li>Observe that some materials change state when they are heated or cooled, and know the temperature at which this happens in degrees Celsius (°C).</li> <li>Accurately use a thermometer</li> <li>Understand that liquids have a solidifying point and a boiling point.</li> <li>Begin to learn about elements of the water cycle.</li> </ul> <p>Outcome: Present learning from unit as a science expert choosing to do a poster or PP presentation.</p>	<ul style="list-style-type: none"> <li>associating some of them with something vibrating.</li> <li>To Recognise that vibrations from sounds travel through a medium to the ear.</li> <li>To Recognise that sounds get fainter as the distance from the sound source increases.</li> <li>Know that sound travels through different mediums, including air, water and solids.</li> <li>Notice patterns between the pitch and volume of a sound and the features of the object that produced it</li> <li>Explain why we see lightning before we hear thunder.</li> </ul> <p>Outcome: Investigation into the best material to reduce sound.</p>	<ul style="list-style-type: none"> <li>name a variety of living things.</li> <li>What living things they would find in their environment and why.</li> <li>That scientists classify living things by observing them.</li> </ul> <p>Outcome: Group living things found in local environment based on classification features and explain why they have done so.</p>	<ul style="list-style-type: none"> <li>To know how to keep teeth healthy.</li> <li>Know the basic parts of a human digestive system.</li> <li>Begin to understand the simple functions of the basic parts of the digestive system.</li> <li>Explain the different diets of carnivores, herbivores and omnivores.</li> <li>Define 'predator', 'prey' and 'producer'</li> <li>Construct and interpret a variety of food chains, identifying producers, predators and prey.</li> </ul> <p>Outcome: Create a piece of work of a food chain and draw/ label with scientific vocabulary.</p>	<ul style="list-style-type: none"> <li>can sometimes pose dangers to living things.</li> <li>Think about changes such as tides, seasons and climate change.</li> <li>Understand what deforestation is and look at the potential impact of it.</li> <li>Understand what they can do to help minimise the impact of climate change.</li> <li>Understand impact of declining numbers of certain animals (bumbees)</li> </ul> <p>Outcome: Plan to make positive changes to an area in the local environment using what they have learnt for evidence about why they are doing so.</p>
Year 5	<p><b>Earth and Space</b></p> <p>Recap</p> <ul style="list-style-type: none"> <li>Sun, Moon and Stars (FSU)</li> </ul> <p>Learn</p> <p>Describe the movement of the Earth and other planets relative to the Sun in the solar system.</p> <ul style="list-style-type: none"> <li>Describe the movement of the Moon relative to the Earth and Earth relative to the sun.</li> <li>Describe the Sun, Earth and Moon as approximately spherical bodies.</li> <li>Explain the stages of a Lunar Month.</li> <li>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</li> </ul> <p>Outcome: Produce an investigation which compares shadows over the course of a day to explain the movement of the Earth around the sun.</p>	<p><b>Forces</b></p> <p>Recap</p> <ul style="list-style-type: none"> <li>Push and Pull</li> <li>Forces act on different surfaces</li> <li>Gravity (Y3)</li> </ul> <p>Learn</p> <ul style="list-style-type: none"> <li>Explain that objects fall to Earth because of the force 'Gravity' .</li> <li>Identify the effects of air resistance, water resistance, friction and drag.</li> <li>Recognise the effect of mechanisms such as levers and pulleys.</li> </ul> <p>Outcome: Parachute air resistance investigation</p>	<p><b>Properties of Materials</b></p> <p>Recap</p> <ul style="list-style-type: none"> <li>Name a variety of materials (Y1)</li> <li>Simple physical properties, hard, soft (Y1 absorbernt (Y2)</li> <li>Suitability of some materials (Y2)</li> </ul> <p>Learn</p> <ul style="list-style-type: none"> <li>Group together everyday materials on the basis of their properties, including their hardness, transparency, conductivity (electrical and thermal), strength and durability.</li> <li>Define thermal insulator and thermal conductor</li> <li>Give reasons for the particular uses of everyday materials, including metals, wood and plastic</li> </ul> <p>Outcome: Plan and carry out an investigation into the best insulating material to keep drinks warm.</p>	<p><b>Changing materials</b></p> <p>Re-cap</p> <ul style="list-style-type: none"> <li>Identify that some materials can change- ice to water</li> <li>To know that ice/ water are the same material in different state (Y2)</li> <li>Know the temperature at which things melt/ freeze (Y4)</li> <li>Group materials based on whether they are solids, liquids or gas (Y4)</li> <li>Know the terms evaporation/ condensation (Y4)</li> </ul> <p>Learn</p> <ul style="list-style-type: none"> <li>Explain that some materials will dissolve into liquid to form a solution</li> <li>Define soluble, solubility, solution, solvent</li> <li>Explain how mixtures might separate including filtering, sieving and evaporation</li> <li>The definition of reversible/ irreversible changes</li> </ul> <p>Outcome: practical lesson on separating materials and best tools to use for this. Investigation into reversible/ irreversible change.</p>	<p><b>Living things and their habitats</b></p> <p>Re-cap</p> <ul style="list-style-type: none"> <li>Parts of a plant</li> <li>Identify common plants (Y1)</li> <li>Understand the term 'pollen' (Y1)</li> <li>Know what plants need to grow (Y2)</li> <li>Understand seed dispersal in plants (Y2)</li> <li>Basic human needs for survival (Y2)</li> <li>Understand that different plants have different needs (Y3)</li> <li>Describe functions of different parts of a plant (Y3)</li> <li>Transportation of water in plants (Y3)</li> <li>Identifying and classifying certain animals (Y4)</li> </ul> <p>Learn</p> <ul style="list-style-type: none"> <li>Self/cross pollination</li> <li>Reproductive parts of a plant</li> <li>Lifecycle of a flowering plant</li> <li>Describe differences of lifecycle of mammals, insects, birds and amphibians</li> <li>Understand what a botanical and zoological illustration is</li> </ul> <p>Outcome: Produce a botanical illustration based on information learnt about the reproductive parts of a plant.</p>	<p><b>Animals including humans</b></p> <p>Re-cap</p> <ul style="list-style-type: none"> <li>Parts of a Human body (Y1)</li> <li>Different senses (Y1)</li> <li>Identify different animals</li> <li>Understand animals like differet living conditions (Habitats)</li> <li>Understand difference between things that are living/ dead/ never been alive (Y2)</li> <li>Understand food chains (Y2)</li> <li>Understand importance of keeping healthy (Y2,3,4)</li> <li>Understand the terms herbivore, carnivore, omnivore and their diets (Y3, Y4)</li> <li>Skeletons/ muscles are for protection and movement(Y3)</li> </ul> <p>Learn</p> <ul style="list-style-type: none"> <li>The term gestation and the gestation periods of different animals.</li> <li>Describe changes of a human from a baby to old age.</li> <li>Changes during puberty in boys and girls</li> </ul> <p>Outcome: Create a table of gestation periods in different animals.</p>



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					Create a drawing of a lifecycle of a animal.	Fieldwork: Science trip to Clumber- pond dipping, habitats, nature walk.
<b>Year 6</b>	<p><b>Light</b>  <b>Recap</b>            Understanding of light from previous topic (Y3)  <b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ recognise that light appears to travel in straight lines</li> <li>✓ 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</li> <li>✓ 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</li> <li>✓ use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</li> <li>✓ <i>Understand the term- refraction</i></li> </ul> <p><b>Outcome:</b> Create a mini booklet about light.</p>	<p><b>Electricity</b>  <b>Recap</b>            ✓ Y4 electricity topic  <b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ The difference between electrical and non- electrical appliances</li> <li>✓ Look at scientific symbols for parts of a circuit</li> <li>✓ Learn the difference between volts and current</li> <li>✓ Make predictions on what will happen if the amount of volts is changed in a circuit</li> <li>✓ Look at the impact of using a higher volt than needed</li> <li>✓ Understand that the length of wires in a circuit affects its components</li> </ul> <p><b>Outcome:</b> Create an electricity investigation by which children create an enquiry question, make predictions, explain what their results show, and add the variables and equipment.</p>	<p><b>Living things and their habitats</b>  <b>Recap</b>            ✓ Classification (Y4)  <b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ Know who Liinnaeus was and his classification system</li> <li>✓ Create classification routes for a range of living things, identifying relatedness</li> <li>✓ Describe how living things are classified into groups according to observable characteristics and based on similarities and differences.</li> <li>✓ Give reasons for classifying plants and animals based on specific characteristics</li> <li>✓ Design and test out a classification key for birds, bees or butterflies</li> <li>✓ Design and test classification keys to classify leaves found in their local environment</li> </ul> <p><b>Outcome:</b> Classify unusual living things using their descriptions and online research.</p>	<p><b>Evolution and inheritance</b>  <b>Re-cap</b>            ✓ Fossil formation (Y3)            Animals including humans- reproduction (Y5)  <b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ Identify variations between themselves and a classmate</li> <li>✓ Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</li> <li>✓ Identify similarities &amp; differences between dog breeds and explain variation in terms of inheritance</li> <li>✓ To identify inherited characteristics in living things ·</li> <li>✓ To know that variation occurs within offspring as well as across a species</li> <li>✓ Recognise that living things have changed over time.</li> <li>✓ Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</li> <li>✓ Recognise that fossils provide information about living things that inhabited the Earth millions of years ago.</li> </ul> <p><b>Outcome:</b> Write a 'Just So' story about a living creature and a distinguishing characteristic explaining scientifically how the creature has evolved in terms of a specific characteristic</p>	<p><b>Animals including humans</b>  <b>Re-cap</b>            ✓ Previous learning in 'Animals including humans topic' (Y3 and Y2)  <b>Learn</b></p> <ul style="list-style-type: none"> <li>✓ Identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and blood.</li> <li>✓ To describe the functions of the different components of blood,</li> <li>✓ Explain that there are three types of blood vessels: arteries, veins and capillaries.</li> <li>✓ Understand that there are different blood groups.</li> <li>✓ Measure own pulse rate</li> <li>✓ Describe effects of exercise on pulse rate.</li> <li>✓ Explain that the heart acts like a pump and understand that the blood is pumped to all parts of the body and passes through the heart twice in each circulation.</li> <li>✓ To recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</li> <li>✓ Describe the ways in which nutrients and water are transported within animals, including humans.</li> <li>✓ Explain that the blood collects oxygen from the lungs and in exchange gets rid of carbon dioxide (respiration).</li> <li>✓ Describe the structure of the lungs.</li> <li>✓ Explain what happens when we breathe in and out</li> </ul> <p><b>Outcome:</b> D.A.R.E report            End of topic quiz on circulatory and respiratory systems.</p>	