

## Science Curriculum Overview

The rights and dignity of our children are at the heart of everything we do, every decision we and they make and every driver for making progress and helping our children to develop as responsible, valued global citizens who want to make a positive contribution to their and our world.

In our school, it is our intent that we help children to develop resilience, perseverance, autonomy and focus. Our children learn that they are valued and valuable, they are independent people in their own right and they have the power to do wonderful, amazing things at every stage of every day.

Every one of our children is a unique individual with their own strengths, aptitudes, interests and dreams. As a school community, we will endeavour to support each child to make the most of every opportunity we offer.

We provide enriching experiences to engage learners and in designing and developing our curriculum we have taken into consideration

- how children learn and remember; progress means knowing more and remembering more

- what our children need to succeed in life; the cultural capital they need to make aspirational choices and succeed beyond their time at Wingate Primary School.

The key drivers for our curriculum are:

Ambition and aspiration

Resilience and courage

Autonomy and independence

Perseverance and solution finding

Science is a fundamental part of everyday life and developing understanding in this area is essential for the future of our world. At Wingate Primary school, we believe Science encourages children to ask questions and develop an understanding of the world around them. Science at our school promotes investigation, questioning and hands on experiences led by children’s curiosity. We believe that all pupils should be taught essential aspects of the knowledge, methods, processes and uses of Science.

	Aut 1	Aut 2	Spr 1	Spr 2	Sum 1	Sum 2
<b>Rec.</b>	<p>Me and my Body – labelling the parts of the body</p> <p>The 5 senses.</p> <p>Drawing detailed pictures of natural objects – leaves, trees, insects, flowers, pinecones, fir trees, stick insects</p> <p>Weather Tree – identifying different weather types</p> <p>Seasonal changes – Autumnal changes, linked to animals of Britain and what they do. Autumnal walk to see the difference in leaves and beginning of winter and how bare the trees look along with</p>		<p>Looking after wildlife during winter</p> <p>Plants and growing – grow beans in transparent bags/containers and look at the parts of a plant and label</p> <p>Mini-beasts – building a bug hotel- what do mini-beasts need?</p> <p>Naming specific parts of the body with children – ear lobes, elbows, naming fingers, wrist, thigh, heel, palm, etc,</p> <p>Seasonal changes Winter –Discuss and recap prior discussions about the way it looks outside and the</p>			<p>Continue to plant and grow vegetables, fruit and plants (Lettuce, strawberries and sunflowers if no different interest from children)</p> <p>Investigate life cycles of butterflies using Insect Lore butterflies</p> <p>Explore the natural world around them. Forest school and Wingate Woods visits (plant/animal hunts)</p> <p>Know similarities and differences between the natural world around them and contrasting environments - Link to Handa’s surprise and Kenya and England</p>

	<p>the lack of animals around (why aren't there many animals around?) Learn about some nocturnal animals (linked to Maths Light and Dark)</p>	<p>changes from when we started school and the time it gets dark. Discuss weather vane and make predictions about the weather. In spring discuss the lighter days and the new beginning of plants and baby animals.</p>	<p>Linked to Dinosaurs topic – discussing the carnivores, omnivores and herbivores characteristics – link to animals in the present Naming parts of animals and insects bodies.</p> <p>Noticing the difference in the weather throughout the year, continue making predictions about what the weather is like in the 4 seasons and noticing patterns in each month</p>	
<p><b>Yr 1</b></p> <p><b>Seasonal Changes:</b> To observe changes across the four seasons • observe and describe weather associated with the seasons and how day length varies</p>	<p><b>Animals inc. Humans</b> To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <ul style="list-style-type: none"> <li>• identify and name a variety of common animals that are carnivores, herbivores and omnivores</li> <li>• describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</li> <li>• identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense</li> </ul>	<p><b>Materials</b> Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• distinguish between an object and the material from which it is made</li> <li>• identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</li> <li>• describe the simple physical properties of a variety of everyday materials</li> <li>• compare and group together a variety of everyday materials on the basis of their simple physical properties</li> </ul>	<p><b>Plants</b> Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</li> <li>• identify and describe the basic structure of a variety of common flowering plants, including trees</li> </ul>	
<p><b>Yr 2</b></p>	<p><b>Animals inc. Humans</b></p> <ul style="list-style-type: none"> <li>• notice that animals, including humans, have offspring which grow into adults</li> <li>• find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</li> <li>• describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</li> </ul>	<p><b>Living Things and their Habitats</b></p> <ul style="list-style-type: none"> <li>• explore and compare the difference between things that are living, dead, and things that have never been alive</li> <li>• identify that most living things live in habitats to which they are suited and describe how different habitats provide the basic needs of different kinds of animals and plants, and how they depend on each other</li> <li>• identify and name a variety of plants and animals in their habitats, including micro-habitats</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> </ul>	<p><b>Plants</b></p> <ul style="list-style-type: none"> <li>• observe and describe how seeds and bulbs grow into mature plants</li> <li>• find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</li> </ul>	<p><b>Materials</b></p> <ul style="list-style-type: none"> <li>• identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</li> <li>• find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</li> </ul>

<p><b>Yr 3</b></p>	<p><b>Animals inc. Humans</b></p> <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 that humans and some other animals have skeletons and muscles for support, protection and movement</li> </ul>		<p><b>Forces</b></p> <p>Pupils should be taught to:</p> <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>• observe how magnets attract or repel each other and attract some materials and not others</li> <li>• compare and group together a variety of everyday materials on the basis on whether they are attracted to a magnet, and identify some magnetic materials</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>	<p><b>Rocks</b></p> <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>	<p><b>Plants</b></p> <p>To identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <ul style="list-style-type: none"> <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>	<p><b>Light</b></p> <ul style="list-style-type: none"> <li>• recognise that they need light in order to see things and that the 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 a solid object</li> <li>• find patterns in the way that the size of shadows changes</li> </ul>
<p><b>Yr 4</b></p>	<p><b>Electricity</b></p> <ul style="list-style-type: none"> <li>• identify common appliances that run on electricity</li> </ul>	<p><b>States of Matter</b></p> <ul style="list-style-type: none"> <li>• compare and group materials together,</li> </ul>	<p><b>Sound</b></p> <ul style="list-style-type: none"> <li>• identify how sounds are made, associating</li> </ul>	<p><b>Living things and their habitats</b></p>	<p><b>Animals inc. Humans</b></p> <ul style="list-style-type: none"> <li>• describe the simple functions of the basic parts of the digestive system in humans</li> <li>• identify the different types of teeth in humans</li> </ul>	

	<ul style="list-style-type: none"> <li>• construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</li> <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> <li>• recognise some common conductors and insulators, and associate metals with being good conductors</li> </ul>	<p>according to whether they are solids, liquids or gases</p> <ul style="list-style-type: none"> <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>	<p>some of them with something vibrating</p> <ul style="list-style-type: none"> <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>	<p>to recognise that living things can be grouped in a variety of ways</p> <ul style="list-style-type: none"> <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>	<p>and their simple functions</p> <ul style="list-style-type: none"> <li>• construct and interpret a variety of food chains, identifying producers, predators and prey</li> </ul>	
<b>Yr 5</b>	<p><b>Properties and changes of Materials</b></p> <ul style="list-style-type: none"> <li>• compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets</li> <li>• know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</li> <li>• use knowledge of solids, liquids and gases to decide how mixtures</li> </ul>	<p><b>Forces</b></p> <ul style="list-style-type: none"> <li>• explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</li> </ul>	<p><b>Earth and Space</b></p> <ul style="list-style-type: none"> <li>• describe the movement of the Earth, and other planets, relative to the Sun</li> <li>• describe the movement of the Moon relative</li> </ul>	<p><b>Living things and their habitats</b></p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• describe the differences in the life cycles of a</li> </ul>	<p><b>Animals inc. Humans</b></p> <p>to describe the changes as humans develop to old age</p>	

	<p>might be separated, including through filtering, sieving and evaporating</p> <ul style="list-style-type: none"> <li>• demonstrate that dissolving, mixing and changes of state are reversible changes</li> <li>• 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</li> </ul>	<ul style="list-style-type: none"> <li>• identify the effects of air resistance, water resistance and friction, that act between moving surfaces</li> <li>• recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect</li> </ul>	<p>to the Earth</p> <ul style="list-style-type: none"> <li>• describe the Sun, Earth and Moon as approximately spherical bodies</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>mammal, an amphibian, an insect and a bird</p> <ul style="list-style-type: none"> <li>• describe the life process of reproduction in some plants and animals</li> </ul>	
<b>Yr 6</b>	<p><b>Electricity</b></p> <ul style="list-style-type: none"> <li>• associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>• 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</li> <li>• use recognised symbols when representing a simple circuit in a diagram</li> </ul>	<p><b>Light</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> </ul>	<p><b>Living Things and their Habitats</b></p> <ul style="list-style-type: none"> <li>• describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals</li> <li>• give reasons for classifying plants and animals based on specific characteristics</li> </ul>	<p><b>Animals inc. Humans</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>• 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> </ul>	<p><b>Evolution and Inheritance</b></p> <ul style="list-style-type: none"> <li>• recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</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 how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</li> </ul>

Working Scientifically and associated year group objectives will be taught within topics throughout the year.

Particular investigations are named as suggestions, and are altered to suit cohorts as staff see fit.