

Curriculum Overview – Science

Year group	Term	NC Objectives	Key skills, knowledge and suggested activities
This document should be read in conjunction with the National Curriculum which has suggested activities for each area.			
Year 1	Throughout the year	Seasonal changes <ul style="list-style-type: none"> observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies. 	<p>I can observe closely using simple equipment e.g. Tree study (magnifiers)</p> <p>I can describe how a tree changes through the seasons.</p> <p>I can describe how the changing seasons affect the environment around me (through observation/ Outdoor Learning)</p> <p>I can use my observations to suggest answers to questions e.g. What happens to trees through the seasons? Some trees lose their leaves but grow new ones in Spring.</p> <p>I can gather data to help in answering questions e.g. do all trees lose their leaves in winter?</p>
	Autumn 1	Everyday Materials <ul style="list-style-type: none"> distinguish between an object and the material from which it is made identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock describe the simple physical properties of a variety of everyday materials compare and group together a variety of everyday materials on the basis of their simple physical properties. 	<p>I can ask a simple question e.g. What types of material are there? What is my shoe made from?</p> <p>I understand that questions can be answered in different ways e.g. I could read a book/ carry out a test, to find an answer.</p> <p>I can carry out a simple test e.g. Testing water-proof materials</p>
	Autumn 2		
	Spring 1	Plants <ul style="list-style-type: none"> identify and name a variety of common wild and garden plants, including deciduous and evergreen trees identify and describe the basic structure of a variety of common flowering plants, including trees. 	<p>I can name and identify common plants & animals and things e.g. materials/ parts of the body/ parts of a plant.</p> <p>I can group / classify items e.g. materials, animals, plants.</p> <p>I can identify common carnivores/ herbivores/ omnivores</p>
	Spring 2		
	Summer 1	Animals including humans <ul style="list-style-type: none"> identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals identify and name a variety of common animals that are carnivores, herbivores and omnivores describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) 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>I can name and identify common plants & animals and things e.g. materials/ parts of the body/ parts of a plant.</p> <p>I can group / classify items e.g. materials, animals, plants.</p> <p>I can identify common carnivores/ herbivores/ omnivores</p> <p>I can gather data to help in answering questions</p> <p>I can research a mammal, amphibian, reptile, bird and fish.</p> <p>I can use appropriate language to share my findings</p>
	Summer 2		

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Year 2	Autumn 1	Materials <ul style="list-style-type: none"> identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. 	<p>I can gather data to help in answering questions</p> <p>I can research creative/ unusual uses of materials.</p> <p>I can use appropriate language to share my findings</p> <p>I can use my observations to suggest answers to questions.</p> <p>I can write a simple conclusion, answering my original question, based on my findings.</p>
	Autumn 2		
	Spring 1	Animals including Humans <ul style="list-style-type: none"> notice that animals, including humans, have offspring which grow into adults find out about and describe the basic needs of animals, including humans, for survival (water, food and air) describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. 	<p>I can ask a simple question e.g. What do animals need to survive?</p> <p>I understand that questions can be answered in different ways e.g. Carrying out research (using books/ internet) , testing, comparing, observing over time</p> <p>I can identify items e.g. animals/ in different habitats.</p> <p>Link to PSHE</p>
	Spring 2		
	Summer 1	Living Things and Habitats <ul style="list-style-type: none"> explore and compare the differences between things that are living, dead, and things that have never been alive 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 identify and name a variety of plants and animals in their habitats, including microhabitats 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>I can ask a simple question e.g. What is a food chain?</p> <p>I can identify items e.g. animals/ plants in different habitats.</p> <p>I can classify items e.g. materials- natural/ man-made, comparing animals in different habitats/ plants which have seeds/ bulbs.</p> <p>I can identify what different materials are used for.</p> <p>I can sort materials which can be squashed/ stretched etc.</p> <p>I can group/ sort living/ dead/ never been alive items</p> <p>I can use my observations to suggest answers to questions.</p> <p>I can use information (e.g. video) to answer what animals need to survive.</p>
	Summer 2	Plants <ul style="list-style-type: none"> observe and describe how seeds and bulbs grow into mature plants find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. 	<p>I can observe and describe what happens when a seed/ bulb grows into a plant.</p> <p>I can observe (& test) what plants need to stay healthy</p> <p>I can carry out a simple test. I can test to find out what plants need to stay healthy</p>
	Year 3	Autumn 1	Animals Including Humans <ul style="list-style-type: none"> 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 identify that humans and some other animals have skeletons and muscles for support, protection and movement.

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Autumn 2	<p>Forces & Magnets</p> <ul style="list-style-type: none"> compare how things move on different surfaces notice that some forces need contact between two objects, but magnetic forces can act at a distance observe how magnets attract or repel each other and attract some materials and not others 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 describe magnets as having two poles predict whether two magnets will attract or repel each other, depending on which poles are facing. 	<p>I know that my scientific questions can be answered in a range of ways e.g. research/ fair testing/ observation over time.</p> <p>I can take accurate measurements using a range of equipment e.g. rulers/ thermometers/ scales</p> <p>I can set up practical enquiries, comparative and fair tests.</p> <p>I can predict whether 2 magnets will attract/ repel each other.</p> <p>I can record findings using simple scientific language, drawings, labelled diagrams & bar charts.</p> <p>I can report on findings from enquiries e.g. oral/ written/ presentations.</p> <p>I can use appropriate scientific language to share my findings.</p> <p>I can identify differences, similarities or changes related to simple scientific ideas and processes.</p>
Spring 1	<p>Rocks</p> <ul style="list-style-type: none"> compare and group together different kinds of rocks on the basis of their appearance and simple physical properties describe in simple terms how fossils are formed when things that have lived are trapped within rock recognise that soils are made from rocks and organic matter. 	<p>I can compare and group different rocks, based on physical properties and appearance.</p> <p>I can group everyday materials, based on their magnetic qualities</p> <p>I can use straightforward evidence to answer questions or to support my findings.</p> <p>I can use results to draw simple conclusions (oral).</p> <p>I can write a simple conclusion, linked to the results.</p> <p>I can consider further investigation, based on the conclusion to my current experiment</p> <p>Visit to The Wilderness Centre</p>
Spring 2		
Summer 1	<p>Plants</p> <ul style="list-style-type: none"> identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers 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 investigate the way in which water is transported within plants explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. 	<p>I can take accurate measurements using a range of equipment e.g. rulers/ thermometers/ scales</p> <p>I can record findings using simple scientific language, drawings, labelled diagrams & bar charts.</p> <p>I can report on findings from enquiries e.g. oral/ written/ presentations.</p> <p>I can use appropriate scientific language to share my findings.</p> <p>I can identify differences, similarities or changes related to simple scientific ideas and processes</p>
Summer 2	<p>Light</p> <ul style="list-style-type: none"> recognise that they need light in order to see things and that dark is the absence of light notice that light is reflected from surfaces recognise that light from the sun can be dangerous and that 	<p>I can make systematic and careful observations e.g. investigating where/ when shadows are formed.</p> <p>I can find simple patterns in the way the size of a shadow changes</p> <p>I can use straightforward evidence to answer questions or to support my findings.</p>

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		<p>there are ways to protect their eyes</p> <ul style="list-style-type: none"> recognise that shadows are formed when the light from a light source is blocked by an opaque object find patterns in the way that the size of shadows change. 	<p>I can use results to draw simple conclusions (oral). I can write a simple conclusion, linked to the results. I can consider further investigation, based on the conclusion to my current experiment</p>
Year 4	Autumn 1	<p>Animals including Humans</p> <ul style="list-style-type: none"> describe the simple functions of the basic parts of the digestive system in humans identify the different types of teeth in humans and their simple functions construct and interpret a variety of food chains, identifying producers, predators and prey. 	<p>I can group living things in different ways. I can use classification keys to identify/ sort / group animals/ plants I can observe what happens to teeth as they decay over time e.g. tooth in coke/ sugary drink. I can gather, record, classify and present data in a variety of ways to help in answering questions. I can research different animal digestive systems. I can record findings using simple scientific language, drawings, labelled diagrams, <u>keys</u> & bar charts (e.g. sound/ digestive system/ circuit diagrams). I can report on findings from enquiries e.g. oral/ written/ presentations. I can use appropriate scientific language to share my findings</p>
	Autumn 2	<p>Sound</p> <ul style="list-style-type: none"> identify how sounds are made, associating some of them with something vibrating recognise that vibrations from sounds travel through a medium to the ear find patterns between the pitch of a sound and features of the object that produced it find patterns between the volume of a sound and the strength of the vibrations that produced it recognise that sounds get fainter as the distance from the sound source increases. 	<p>I know that my scientific questions can be answered in a range of ways- <u>using different scientific enquiry methods</u> e.g. research/ fair testing/ observation over time/ <u>pattern-seeking</u>. I can make systematic and careful observations, taking accurate measurements e.g. data –logging sound (dB), I can take accurate measurements using a range of equipment e.g. <u>data-loggers</u>, thermometers I can find patterns in e.g. sounds made by different sized objects e.g. saucepan lids (differing sizes) / elastic bands (differing thicknesses). I can set up practical enquiries, comparative and fair tests. I can set up a fair test to see how sound is affected by the listener's distance from the sound. I can gather, record, classify and present data in a variety of ways to help in answering questions. I can gather data (data loggers) relating to sound. I can record findings using simple scientific language, drawings, labelled diagrams, <u>keys</u> & bar charts (e.g. sound/ digestive system/ circuit diagrams). I can identify differences, similarities or changes related to simple scientific ideas and processes</p>
	Spring 1	<p>Electricity</p>	<p>I know that my scientific questions can be answered in a range of</p>

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	Spring 2	<ul style="list-style-type: none"> identify common appliances that run on electricity construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers 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 recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit recognise some common conductors and insulators, and associate metals with being good conductors. 	<p>ways- <u>using different scientific enquiry methods</u> e.g. research/ fair testing/ observation over time/ <u>pattern-seeking</u>.</p> <p>I can set up practical enquiries, comparative and fair tests.</p> <p>I can test circuits to see whether a bulb will light up.</p> <p>I can predict whether or not a switch will allow a bulb to light/ buzzer to sound.</p> <p>I can record findings using simple scientific language, drawings, labelled diagrams, <u>keys</u> & bar charts (e.g. sound/ digestive system/ circuit diagrams).</p> <p>I can use straightforward evidence to answer questions or to support my findings.</p> <p>I can use results to draw simple conclusions.</p> <p>I can write a conclusion answering my original question and linking my results to the conclusion made.</p> <p>I can explain my conclusion and consider how to make my experiment more reliable and / or accurate.</p> <p>I can make predictions for new values e.g. extending a graph/ extrapolating data.</p>
	Summer 1	<p>States of Matter</p> <ul style="list-style-type: none"> compare and group materials together, according to whether they are solids, liquids or gases 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) identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. 	<p>I know that my scientific questions can be answered in a range of ways- <u>using different scientific enquiry methods</u> e.g. research/ fair testing/ observation over time/ <u>pattern-seeking</u>.</p> <p>I can make systematic and careful observations, taking accurate measurements e.g. measuring the temperature at which water/ liquids evaporate (°C).</p> <p>I can take accurate measurements using a range of equipment e.g. <u>data-loggers</u>, thermometers</p> <p>I can observe/ measure when water begins to evaporate/ wax begins to melt.</p> <p>I can find patterns in e.g. sounds made by different sized objects e.g. saucepan lids (differing sizes) / elastic bands (differing thicknesses).</p> <p>I can set up practical enquiries, comparative and fair tests.</p> <p>I can set up a practical investigation to explore factors affecting evaporation rates.</p> <p>I can gather, record, classify and present data in a variety of ways to help in answering questions.</p> <p>I can research the Water Cycle.</p>
	Summer 2	<p>Living Things and Habitats</p> <ul style="list-style-type: none"> recognise that living things can be grouped in a variety of ways 	<p>I can group living things in different ways.</p> <p>I can use classification keys to identify/ sort / group animals/ plants</p>

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		<ul style="list-style-type: none"> explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment recognise that environments can change and that this can sometimes pose dangers to living things 	<p>I can use straightforward evidence to answer questions or to support my findings.</p> <p>I can use results to draw simple conclusions.</p> <p>I can write a conclusion answering my original question and linking my results to the conclusion made.</p> <p>I can explain my conclusion and consider how to make my experiment more reliable and / or accurate.</p> <p>I can make predictions for new values e.g. extending a graph/ extrapolating data.</p>
Year 5	Autumn 1	<p>Forces</p> <ul style="list-style-type: none"> explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object identify the effects of air resistance, water resistance and friction, that act between moving surfaces recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. 	<p>I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>I can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate e.g. newtonmeter readings</p> <p>I can use test results to make predictions to set up further comparative and fair tests.</p> <p>I can report and present findings from enquiries, including conclusions.</p> <p>I can write a conclusion, giving an answer to my original question linked to my results.</p> <p>I can explain what my results show.</p> <p>I can consider how to make my (future) investigation more reliable/ accurate/ valid.</p>
	Autumn 2	<p>Earth & Space</p> <ul style="list-style-type: none"> describe the movement of the Earth, and other planets, relative to the Sun in the solar system describe the movement of the Moon relative to the Earth describe the Sun, Earth and Moon as approximately spherical bodies use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. 	<p>I can identify patterns in apparent movements of the sun, in relation to shadow position (or length of shadow/ time of year).</p> <p>I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs.</p> <p>I can research our solar system and its planets</p> <p>I can report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.</p> <p>I can present information relating to my solar system research.</p>
	Spring 1	<p>Living Things and Their Habitats</p> <ul style="list-style-type: none"> describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird describe the life process of reproduction in some plants and animals 	<p>I can sort animals into groups based on their life cycles.</p> <p>I can find patterns in gestation periods in animals</p> <p>I can report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other</p>

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	Spring 2	Animals including humans <ul style="list-style-type: none"> describe the changes as humans develop to old age. learn about the changes experienced in puberty 	<p>presentations.</p> <p>I can sort animals into groups based on their life cycles. I can find patterns in gestation periods in animals I can report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.</p>
	Summer	Properties and changes of materials <ul style="list-style-type: none"> 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 know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic demonstrate that dissolving, mixing and changes of state are reversible changes 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>I can sort materials into grouped based on the way they behave e.g. solubility/ how to separate from other substances. I can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate - rates of dissolving- thermometers. I can use test results to make predictions to set up further comparative and fair tests. I can report and present findings from enquiries, including conclusions. I can write a conclusion, giving an answer to my original question linked to my results. I can explain what my results show. I can consider how to make my (future) investigation more reliable/ accurate/ valid.</p>
Year 6	Autumn 1	Animals including Humans <ul style="list-style-type: none"> identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function describe the ways in which nutrients and water are transported within animals, including humans. 	<p>I can sort/ identify/ classify animals, plants and micro-organisms in groups. I can sort animals into groups based on their adaptations to their environments. I can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate e.g. pulse/ oximeter . I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. - I can research how nutrients and water are transported around the body.</p>

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	Autumn 2	<p>Light</p> <ul style="list-style-type: none"> • recognise that light appears to travel in straight lines • 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 • 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 • use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. 	<p>I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>I can find patterns linking shadows and the shape of the object that cast them.</p> <p>I can use test results to make predictions to set up further comparative and fair tests</p> <p>I can report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. I can identify scientific evidence that has been used to support or refute ideas or arguments.</p> <p>I can report and present findings from enquiries, including conclusions.</p> <p>I can write a conclusion, giving an answer to my original question linked to my results.</p> <p>I can explain what my results show.</p> <p>I can consider how to make my investigation more reliable/ accurate/ valid.</p> <p>I can consider further investigations.</p>
	Spring 1	<p>Living Things & Their Habitats</p> <ul style="list-style-type: none"> • 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 • give reasons for classifying plants and animals based on specific characteristics. 	<p>I can sort/ identify/ classify animals, plants and micro-organisms in groups.</p> <p>I can sort animals into groups based on their adaptations to their environments.</p> <p>I can find links/ patterns between animal adaptations and environments which they are suited to.</p>
	Spring 2	<p>Evolution & Inheritance</p> <ul style="list-style-type: none"> • recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago • recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents • identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. 	<p>I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs - I can research evolution/ Darwin/ Darwin's findings.</p>

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	Summer 1	<p>Electricity</p> <ul style="list-style-type: none"> • associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit • 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 • use recognised symbols when representing a simple circuit in a diagram. 	<p>I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>I can investigate patterns in the brightness of a bulb/ voltage</p> <p>I can use test results to make predictions to set up further comparative and fair tests</p> <p>I can report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. I can identify scientific evidence that has been used to support or refute ideas or arguments.</p> <p>I can report and present findings from enquiries, including conclusions.</p> <p>I can write a conclusion, giving an answer to my original question linked to my results.</p> <p>I can explain what my results show.</p> <p>I can consider how to make my investigation more reliable/ accurate/ valid.</p> <p>I can consider further investigations.</p>
	Summer 2		