Woodlands Primary School	Chemistry	Physics	Biology	Biology
2023-2024	Cycle 1	Cycle 2	Cycle 3	Cycle 4
EYFS Animals Including Humans Materials Note: EYs in a different order due matching overall topics. Animals Including Humans Materials		Seasonal Change and Forces	Plants	
Y1	Everyday Materials	Seasonal Change	Animals Including Humans	Plants
Y2 Note: Y2 curriculum includes three biology topics but no physics.	Uses of Everyday Materials	Animals Including Humans	Living Things and their Habitats	Plants
Y3	Rocks	Light / Forces	Animals Including Humans	Plants
Y4	States of Matter	Sound / Electricity	Animals Including Humans	Living Things and their Habitats
Y5 Note: Y5 Properties and Changes in Materials split across Y5 and Y6 due to size.	Properties and Changes in Materials	Forces / Earth and Space	Animals Including Humans	Living Things and their Habitats

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Note: Y5 Pr Materials split a	Y6 roperties and Changes in across Y5 and Y6 due to size.	Properties and Changes in Materials	Light / Electricity	Animals Including Humans	Evolution and Inheritance / Living Things and their Habitats
Early Years	Knowledge Focus		Working Scien	tifically Focus	
Autumn	 Animals and Humans Explore the natural world around them. Understand the key features of the life cycle of a plant and an animal. 				
Winter	 Materials Explore materials with different properties. Explore natural materials, indoors and outside. Use all their senses in hands on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about the differences between materials and changes they notice. 				
Spring	 Seasonal Change and Forces Understand the effect of changing seasons on the natural world around them. Explore and talk about different forces they can feel. 				

Plants

- Explore the natural world around them.
- Plant seeds and care for growing plants.

Year One	Knowledge Focus	Working Scientifically Focus
Autumn	 Everyday Materials Everyday Materials (Y1NC) 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. 	 Pupils might work scientifically by: performing simple tests to explore questions, for example: 'What is the best material for an umbrella?for lining a dog basket?for curtains?for a bookshelf?for a gymnast's leotard?' (Y1 Everyday Materials Notes and Guidance) KS1 Working Scientifically observing closely, using simple equipment using their observations and ideas to suggest answers to questions asking simple questions and recognising that they can be answered in different ways performing simple tests
Winter	 Seasonal Change Seasonal Change (Y1NC) observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies. 	 Pupils might work scientifically by: making tables and charts about the weather; and making displays of what happens in the world around them, including day length, as the seasons change. (Y1NC Seasonal Change Notes and Guidance) KS1 Working Scientifically gathering and recording data to help in answering questions

Spring	 Animals, including Humans Animals, Including Humans (Y1NC) 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 	Investigate habitats in and around school and what plants and animals live there. (Y1NC Animals, Including Humans Notes and Guidance) KS1 Working Scientifically • using their observations and ideas to suggest answers to questions • identifying and classifying
	 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. 	
Summer	 Plants (Y1NC) 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 	Pupils might work scientifically by: observing closely, perhaps using magnifying glasses, and comparing and contrasting familiar plants; describing how they were able to identify and group them, and drawing diagrams showing the parts of different plants including trees. Pupils might keep records of how plants have changed over time, for example the leaves falling off trees and buds opening; and compare and contrast what they have found out about different plants. (Y1NC Plants Notes and Guidance) KS1 Working Scientifically identifying and classifying gathering and recording data to help in answering questions performing simple tests observing closely, using simple equipment
Year Two	Knowledge Focus	Working Scientifically Focus
Autumn	 <u>Uses of Everyday Materials</u> <u>Uses of Everyday Materials (Y2NC)</u> 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. 	 Pupils might work scientifically by: comparing the uses of everyday materials in and around the school with materials found in other places (at home, the journey to school, on visits, and in stories, rhymes and songs); observing closely, identifying and classifying the uses of different materials, and recording their observations. (Y2NC Uses of Everyday Materials Notes and Guidance) KS1 Working Scientifically observing closely, using simple equipment using their observations and ideas to suggest answers to questions performing simple tests

Winter	 Living Things and their Habitats Living Things and their Habitats (Y2NC) explore and compare the differences between things that are living, dead, and things that have never been alive 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. 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 	 Pupils might work scientifically by: describing the condition is different habitats and microhabitats (under log, on stony path, under bushes); and find out how the conditions affect the number of plants and animals that live there. (Y2NC Living Things and their Habitats Notes and Guidance) KS1 Working Scientifically gathering and recording data to help in answering questions identifying and classifying using their observations and ideas to suggest answers to questions
Spring	 Animals, including Humans Animals, including Humans (Y2NC) 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. 	 Pupils might work scientifically by: observing, through video or first hand observation and measurement, how different animals, including humans, grow; asking questions about what things animals need for survival and what humans need to stay healthy; and suggesting ways to find answers to their questions. (Y2NC Animals, including Humans Notes and Guidance) KS1 Working Scientifically observing closely, using simple equipment using their observations and ideas to suggest answers to questions asking simple questions and recognising that they can be answered in different ways
Summer	 Plants and Growing Plants (Y2NC) 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. 	 Pupils might work scientifically by: observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or observing similar plants at different stages of growth; setting up a comparative test to show that plants need light and water to stay healthy. (Y2 Plants Notes and Guidance) KS1 Working Scientifically identifying and classifying gathering and recording data to help in answering questions performing simple test observing closely, using simple equipment
Year Three	Knowledge Focus	Working Scientifically Focus

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Autumn	 Rocks Rocks (Y3NC) 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. 		 Pupils might work scientifically by: observing rocks, including those used in buildings and gravestones, and exploring how and why they might have changed over time; using a hand lens or microscope to help them to identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them. Pupils might research and discuss the different kinds of living things whose fossils are found in sedimentary rock and explore how fossils are formed. Pupils could explore different soils and identify similarities and differences between them and investigate what happens when rocks are rubbed together or what changed occur when they are in water. They can raise and answer questions about the way soils are formed. (Y3NC Rocks Notes and Guidance) LKS2 Working Scientifically setting up simple practical enquiries, comparative and fair tests using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables asking relevant questions and using different types of scientific enquiries to answer them
Winter	Light Light (Y3NC)Forces and Mag Forces and Mag Compare In observe hu compare		nets nets nets (Y3NC) ow things move on different surfaces : some forces need contact between two objects, but magnetic forces can act at a distance w magnets attract or repel each other and attract some materials and not others nd group together a variety of everyday materials on the basis of whether they are attracted to a nd identify some magnetic materials lagnets as having two poles
Spring	 Animals, including Humans Animals, including Humans (Y3NC) Identify that humans and some other animals have skeletons and muscles for support, protection and movement. Identify the nutrition and resources in different global habitats which help keep animals alive 		 Pupils might work scientifically by: identifying and grouping animals with and without skeletons and observing and comparing their movement; exploring ideas about what would happen if humans did not have skeletons. They might compare and contrast the diets of different animals (including their pets) and decide ways of grouping them according to what they eat. They might research different food groups and how they keep us healthy, and design meals based on what they find out. (Y3NC Animals, including Humans Notes and Guidance) LKS2 Working Scientifically recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions identifying differences, similarities or changes related to simple scientific ideas and processes
Summer	 Plants Plants (Y3NC) 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. 		 Pupils might work scientifically by: comparing the effect of different factors on plant growth, for example, the amount of light, the amount of fertiliser; discovering how seeds are formed by observing the different stages of plant life cycles over a period of time; looking for patterns in the structure of fruits that relate to how the seeds are dispersed. They might observe how water is transported in plants, for example, by puting cut, white carnations into coloured water and observing how water travels up the stem to the flowers. (Y3NC Plants Notes and Guidance) LKS2 Working Scientifically setting up simple practical enquiries, comparative and fair tests gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using straightforward scientific evidence to answer questions or to support their findings.

Year Four	Knowledge Focus		Working Scientifically Focus
Autumn	 States of Matter States of Matter (Y4NC) 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. 		 Pupils might work scientifically by: grouping and classifying a variety of different materials; exploring the effect of temperature on substances such as chocolate, butter, cream. They could research the temperature at which materials change state, for example, when iron melts or when oxygen condenses into a liquid. They might observe and record evaporation over a period of time, for example, a puddle in the playground or washing on a line, and investigate the effect of temperature on washing drying or snowmen melting. (Y4NC States of Matter Notes and Guidance) LSK2 Working Scientifically making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions using straightforward scientific evidence to answer questions or to support their findings.
Winter	Sound Electricity Sound (Y4NC) identify how sounds are made, associating some of them with something vibrating identify (Y4NC) recognise that vibrations from sounds travel through a medium to the ear of find patterns between the pitch of a sound and features of the object that produced it identify (Y4NC) find patterns between the volume of a sound and features of the object that produced it identify (Y4NC) recognise that sounds get fainter as the distance from the sound source increases. identify (Y4NC) LSK2 Working Scienting (Y4NC) identify (Y4NC)		C) common appliances that run on electricity t a simple series electrical circuit, identifying and naming its basic parts, including es, bulbs, switches and buzzers whether or not a lamp will light in a simple series circuit, based on whether or not the part of a complete loop with a battery e that a switch opens and closes a circuit and associate this with whether or not a hts in a simple series circuit e some common conductors and insulators, and associate metals with being good ors tifically g findings using simple scientific language, drawings, labelled diagrams, keys, bar nd tables
Spring	 Animals, including Humans Animals, including Humans (Y4NC) 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. 		 Pupils might work scientifically by: comparing the teeth of carnivores and herbivores and suggesting reasons for differences; finding out what damages teeth and how to look after them. They might draw and discuss their ideas about the digestive systems and compare them with models or images. (Animals, including Humans Notes and Guidance) LKS2 Working Scientifically recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using straightforward scientific evidence to answer questions or to support their findings. identifying differences, similarities or changes related to simple scientific ideas and processes
Summer	 Living Things and their Habitats Living Things and their Habitats (Y4NC) Recognise that living things can be grouped in a variety of ways. 		Pupils might work scientifically by: using and making simple guides or keys to explore and identify local plants and animals; making a guide to local living things; raising and answering questions based on their observations of animals and what they have found out about other animals they have researched. LKS2 Working Scientifically • gathering, recording, classifying and presenting data in a variety of ways to help in answering questions

 Explore and use classification keys to help group, identify and name a variety of living thin in their local and wider environment. Recognise that environments can change and that this can sometimes pose dangers to livit things. 	 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
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Year Five	Knowledge Focus		Working Scientifically Focus
Autumn	 Properties and Changes of Materials Properties and Changes of Materials (Y5NC) 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 give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic 		 Pupils might work scientifically by: carrying out tests to answer questions, for example, 'Which materials would be the most effective for making a warm jacket, for wrapping ice cream to stop it melting, or for making blackout curtains?' They might compare materials in order to make a switch in a circuit. (Y5 NC Properties and changes of materials) UKS2 Working Scientifically taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate using test results to make predictions to set up further comparative and fair tests reporting and presenting 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
Winter	 Earth and Space Earth and Space (Y5NC) 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. 	Forces Forces (Y5NC) • explain gravity a • Identify • Recogni smaller UKS2 Working Sci • recordir labels, c • identify argume	that unsupported objects fall towards the Earth because of the force of acting between the Earth and the falling object the effects of air resistance, water resistance and friction. ise that some mechanisms, including levers, pulleys and gears allow a force to have a greater effect. ientifically ng data and results of increasing complexity using scientific diagrams and classification keys, tables, scatter graphs, bar and line graphs ring scientific evidence that has been used to support or refute ideas or ents.
Spring	 <u>Animals, including Humans</u> <u>Animals Including Humans (Y5 NC)</u> describe the changes as humans develop to old age. 		 Pupils could work scientifically by researching the gestation periods of other animals and comparing them with humans. (Y5NC Animals, including Humans Notes and Guidance) UKS2 Working Scientifically recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs reporting and presenting 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

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		 taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
Summ	 Living Things and their Habitats Living Thing and their Habitats (Y5NC) Describe the differences in the life cycle of a mammal, an amphibian, an insect and a bird. describe the life process of reproduction in some plants and animals 	 They might try to grow new plants from different parts of the parent plant, for example, seeds, stem and root cuttings, tubers, bulbs. They might observe changes in an animal over a period of time (for example, by hatching and rearing chicks), comparing how different animals reproduce and grow (YSNC Living Things and their Habitats Notes and Guidance) UKS2 Working Scientifically planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary reporting and presenting 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

Year Six	Knowledge Focus		Working Scientifically Focus
Autumn	 Properties and Changes of Materials Properties and Changes of Materials (Y5NC) 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 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 		 They could observe and compare the changes that take place, for example, when burning different materials or baking bread or cakes. They might research and discuss how chemical changes have an impact on our lives, for example, cooking, and discuss the creative use of new materials such as polymers, super-sticky and super-thin materials. (Y5NC Properties and Changes of Materials) UKS2 Working Scientifically taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate using test results to make predictions to set up further comparative and fair tests reporting and presenting 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 using test results to make predictions to set up further comparative and fair tests
Winter	 Light Light (Y6NC) 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. 	Electricity Electricity (Y6N	 C) e the brightness of a lamp or the volume of a buzzer with the number and voltage of id in the circuit e and give reasons for variations in how components function, including the brightness, the loudness of buzzers and the on/off position of switches ognised symbols when representing a simple circuit in a diagram. entifically ng data and results of increasing complexity using scientific diagrams and labels, ation keys, tables, scatter graphs, bar and line graphs ing scientific evidence that has been used to support or refute ideas or arguments.
Spring	 Animals, including Humans Animals, Including Humans (Y6NC) identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood 		 Pupils might work scientifically by: exploring the work of scientists and scientific research about the relationships between diet, exercise, drugs, lifestyle and health. UKS2 Working Scientifically identifying scientific evidence that has been used to support or refute ideas or arguments.

	 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. 		 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs reporting and presenting 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
Summer	 Evolution and Inheritance Evolution and Inheritance (Y6NC) 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. 	Living Things an Living Things an describe h and based give reaso UKS2 Working Scientif reporting explanatic presentati taking me repeat rea planning o variables v	And their Habitats and their Habitats and their Habitats (Y6NC) how living things are classified into broad groups according to common observable characteristics d on similarities and differences, including microorganisms, plants and animals ons for classifying plants and animals based on specific characteristics fically and presenting findings from enquiries, including conclusions, causal relationships and ons of and degree of trust in results, in oral and written forms such as displays and other ions asurements, using a range of scientific equipment, with increasing accuracy and precision, taking adings when appropriate different types of scientific enquiries to answer questions, including recognising and controlling where necessary