







Chilthorne Domer Long Term Science Overview and Curriculum Rationale:

Our science curriculum is built on a carefully structured two-year rolling programme that ensures all children experience a coherent, progressive, and ambitious sequence of learning from Year 1 to Year 6. Each academic year is organised around six core areas of science—Animals, Plants, The Human Body, Energy and Forces, Earth and Space, and Materials and Matter—which are revisited annually to deepen understanding and build secure, connected knowledge over time.

Animals	Plants	The Human Body	Energy and Forces	Earth and Space	Materials and Matter
					


At the heart of our curriculum are five key scientific concepts: Energy, Structures and Systems, Changes and Cycles, Cause and Effect, and Sustainability - which provide a conceptual framework for all learning. These 'big ideas' are introduced in Key Stage 1 and explored with increasing depth and complexity throughout Key Stage 2.



In our mixed-age structure, the Year 1/2 class follows a unique annual programme that is repeated each year to ensure core scientific knowledge is consistently reinforced. Year 1 children are introduced to foundational concepts, while Year 2 children revisit and deepen their understanding through targeted enquiry and extended application. This approach ensures that all children build secure knowledge and progress appropriately within the same classroom environment. From Year 2/3 onwards, children follow a **two-year rolling programme** aligned with the Key Stage 2 curriculum. This structure allows for deliberate revisiting of key concepts while enabling topics to be explored in greater depth and complexity over time. The design ensures full coverage of the National Curriculum and supports long-term retention and progression in scientific thinking.

Scientific enquiry is a central component of every unit, providing all children with opportunities to apply their knowledge through purposeful, hands-on investigations. Even with a mixed-age class structure, enquiry-based learning is carefully structured to ensure that younger children consolidate foundational



skills while older children are challenged to deepen their understanding and refine their approach. Our progression of working scientifically skills is mapped from EYFS to Year 6 in our disciplinary knowledge grid, ensuring that each child builds on prior experiences and moves forward in their scientific thinking. This allows older children to extend their use of scientific vocabulary, design more complex investigations, and critically evaluate evidence, while younger children develop confidence in observation, questioning, and simple testing. This approach ensures that all learners make meaningful progress, regardless of their




	Asking questions and proposing theories >>>	Selecting a scientific enquiry >>>	Carrying out enquiries: planning >>>	Carrying out enquiries: using scientific apparatus correctly >>>	Carrying out enquiries: observing and measuring >>>	Using evidence to draw conclusions and ask new questions
EYFS	Explore the world around them and ask questions with adult support.	Informal exploration of the world around them using the concepts of scientific enquiry implicitly.	Discusses with adults how to find answers to their questions.	Use magnifying glasses and simple pocket microscopes to observe closely.	Informal discussion of comparison using non-standard units.	Discuss with peers and adults what they have found out. Children begin to answer 'how do you know?' questions from adults.
Year 1	Begin to ask simple questions about the world around them.	A) Research using secondary sources B) Grouping and classifying C) Observing over time D) Noticing patterns E) Comparative and fair testing	Listen carefully as an adult explains how to find answers using types of scientific enquiry – predominantly grouping and classifying and observing closely.	Use magnifying glasses and simple pocket microscopes to observe closely.	With support from adults, record simple data.	Talk about what they have found out during their enquiries.
Year 2	Ask simple questions related to a concept and discuss relevant thoughts and ideas. Recognise that the answers can be reached in different ways.		With adult support, perform simple tests to answer questions.	Use simple timers, such as egg timers to monitor simple tests.	Record simple data in a range of different ways.	Record and communicate findings in a range of different ways and begin to use simple scientific language.
Year 3	Ask a range of questions with different purposes such as discovering answers over time or making links and identifying patterns. Begin to consider possible answers to proposed questions.		Set up simple practical enquiries – begin to use comparative and fair testing.	Use rulers and simple measuring containers correctly in scientific enquiries. Use a range of data loggers.	Take accurate measurements using standard units for temperature, length and capacity.	Record findings using simple scientific language and labelled diagrams.
Year 4	Ask a range of questions to support and to further their understanding of a scientific enquiry. Propose multiple possible outcomes or responses and use scientific reasoning to consider each possible outcome.		Understand which enquiries will help to answer a specific question from across the range of enquiry types and contribute to class discussions around planning their implementation.	Experiment with electrical circuit apparatus, ensuring correct connections. Begin to use thermometers – digital and analogue.	Take accurate measurements using standard units for temperature, length and capacity	Use keys, bar charts and tables to present conclusions and explain in oral and written form. Begin to ask new questions which are raised by the outcomes of scientific enquiries.
Year 5	Devise questions, consider and put forward relevant theories and hypotheses.		Select the most appropriate type of scientific enquiry independently and plan its implementation.	Use of filtering apparatus and apparatus to measure weight.	Taking measurements using a range of scientific equipment with increasing accuracy and precision, taking repeat readings where appropriate.	Include conclusions, causal relationships and explanations of and degrees of trust in results, in oral and written forms such as displays and presentations.
Year 6	Devise questions, propose and scrutinise possible theories and identify the type of enquiry most relevant to answer proposed questions. Ask further questions based on results.		Plan an appropriate type of scientific enquiry, recognising and controlling variables where necessary.	Use mirrors, torches, safe laser pens and prisms to observe how light travels. Use heart rate monitors to measure pulse.	Explain how to gather and record data accurately using a range of equipment.	Identifying scientific evidence from their enquiries that can support or refute their ideas or arguments. Raise new enquiries based on the data gathered.



starting point.



Assessment for learning is seamlessly embedded within every unit. Each topic begins with purposeful opportunities for children to revisit prior knowledge through structured discussion, concept mapping, and retrieval practice, ensuring that foundational understanding is reinforced and misconceptions are addressed. This approach enables teachers to assess children's starting points and tailor instruction accordingly. Throughout enquiry-based lessons, children apply their knowledge through hands-on investigations, which serve as rich opportunities for formative assessment. As children engage with the working scientifically skills—such as observing, predicting, measuring, and evaluating—teachers gather evidence of understanding and progression. This continuous cycle of revisiting, applying, and reflecting ensures that learning is both deep and durable, and that all children are supported to make meaningful progress in their scientific thinking.





Science Long Term Overview

Year 1/2					
Term	Unit		Why this? Why now?	National Curriculum Programme of Study objectives	Substantive Knowledge covered within each unit by Year Group
Autumn 1	Energy and Forces		Although Forces is officially a Y3 unit, we feel it is important to introduce these ideas within KS1 to provide the children with an introduction to one of the most important 'big ideas' in science – energy. The children will also use this knowledge as a vehicle for beginning to work scientifically through a range of scientific enquiries. When we define energy as 'the power to make things happen or change', we recognise that energy takes many forms and is a key concept that will be referred to again and again throughout the academic year. Y1 and Y2 children will engage with the concept and the scientific enquiries at the appropriate level. Energy is such a fundamental idea in science that we have chosen to place it as the first unit encountered every academic year.		
Autumn 2	Animals		We introduce biology to the children through the lens of the variety of animals that live on our planet. To ensure that key classification knowledge is embedded, we split this learning across the year and revisit it later on. We remind the children about the big idea of 'energy' and show how animals are living things which need energy to 'power themselves' which they obtain from what they eat. At the start of the unit, we discuss what makes something alive and we link this with the basic needs of animals. In this unit, we take a different habitat each week (e.g. polar, ocean, rainforest, woodland, desert...) and explore the animals which inhabit them. Y1 children will focus on naming a variety of animals from each habitat and understanding the features of the main classes of animals: mammals, birds, reptiles, fish, and amphibians. Y2 children will follow the same theme but take their learning further by specifically considering how each animal is adapted to their habitat.	<p>Animals, including humans (Y1)</p> <ul style="list-style-type: none"> • identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) <p>Animals, including humans (Y2)</p> <ul style="list-style-type: none"> • find out about and describe the basic needs of animals, including humans, for survival (water, food and air) <p>Living things and their habitats (Y2)</p> <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 	

				<ul style="list-style-type: none"> identify and name a variety of plants and animals in their habitats, including micro-habitats 	
Spring 1	Materials and Matter		<p>In this unit, the children will begin by learning that science between the object and the material it is made from, and that our world is filled with many different materials all with different properties. They will be introduced to common materials. After this initial introduction, children will explore a different property each week (how it interacts with water, light, heat, pushing and pulling forces) through scientific enquiries. The Y1 children will primarily focus on vocabulary and the Y2 children will take this learning further and consider how these properties make the materials suitable for a specific focus.</p>	<p>Properties of everyday materials (Y1)</p> <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>Uses of everyday materials (Y2)</p> <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. 	
Spring 2	The Human Body		<p>At the start of this unit, we remind the children about the different classes of animals that we learned about in the autumn. We pose the question, 'What are we?' and then explore why humans are a type of mammal in the animal kingdom. The remainder of this unit introduces children to how the human body is structured and what it requires in order to function well. We link this with the big ideas of 'energy' and consider types of food. We come back to the big idea of 'Structures and Systems' and learn about how our senses help us to engage with the world around us. We will also learn about the importance of diet, exercise and hygiene and the effects these have on our bodies.</p>	<p>Animals, including humans (Y1)</p> <ul style="list-style-type: none"> 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>Animals, including humans (Y2)</p> <ul style="list-style-type: none"> describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene. <p>Living things and their habitats (Y2)</p> <ul style="list-style-type: none"> 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 	
Summer 1	Plants		<p>The children will have been monitoring changes to the world around them through the seasons since the beginning of the year. Our 'Plants' module is placed in Summer 1 so that the children can understand fully how plants are living things and their cycle and changes they go through. The Y1 children will be introduced to the basic parts of plants and then explore the question, 'Do all plants have...' considering how these same basic parts are evident in many different examples – first in the local area, then returning to a few of the habitats explored in the Animals unit, such as cacti in deserts and seeing the diversity in shape and size of these same few parts. During this unit, the children will consider how these basic parts help the plant to thrive. Children will be introduced through scientific enquiries to how seeds and bulbs germinate and grow into mature plants, and their life cycles.</p>	<p>Plants (Y1)</p> <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>Plants (Y2)</p> <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. 	






Summer 2	Animals		In the second part of the Animals unit, we will revisit the key elements of what it means for an animal to be alive, and the different habitats and animal classes the children explored. In this unit, we will take the learning further. Following this, the Y1 children will learn about animal diet, and specifically herbivores, carnivores and omnivores in a variety of habitats. The Y2 children will consider the idea of simple food chains and how the plants and different animals live together within their ecosystem. The Y2 children will also consider different examples of how the offspring of a variety of animals grow into adults. We link back to the idea of living things reproducing as a basic definition of what it means to be alive. Once this knowledge is gained, the children will conduct a range of scientific enquiries using this knowledge.	<p>Animals, including humans (Y1)</p> <ul style="list-style-type: none"> identify and name a variety of common animals that are carnivores, herbivores and omnivores <p>Animals, including humans (Y2)</p> <ul style="list-style-type: none"> notice that animals, including humans, have offspring which grow into adults <p>Living things and their habitats (Y2)</p> <ul style="list-style-type: none"> 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. 	
Throughout the year	Earth and Space		Rather than being blocked, the learning about how the Earth's seasons change and how this looks in the world around us in terms of plants, animals and weather, is returned to one week each half-term. Each half-term, the children will observe changes in their local environment in terms of plants, weather and climate. They will return to photos and data from previous half-terms to make comparisons.	<p>Seasonal changes (Y1)</p> <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 	


Year A			Year 2/3		
Term	Unit		Why this? Why now?	National Curriculum Programme of Study objectives	Substantive Knowledge covered within each unit by Year Group
Autumn 1	Energy and Forces		This unit revisits the foundational KS1 concept of energy as “the power to make things happen,” now applied to light and shadows. Children explore how light interacts with materials, building on their sensory experiences from KS1. Introducing light early in the year allows children to observe seasonal changes in daylight and shadow, anchoring abstract ideas in real-world phenomena. This unit also lays the groundwork for understanding reflection and refraction in later years, while developing early skills in prediction and fair testing.	<p>Light (Y3)</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 there are ways to protect their eyes recognise that shadows are formed when the light from a light source is blocked by a solid object find patterns in the way that the size of shadows change 	
Autumn 2	Animals		Building on KS1 classification and habitats, this unit introduces nutrition and food chains. Children begin to understand how energy flows through ecosystems, linking to the big ideas of systems and cause-effect. By sequencing this after Energy and Forces, children can apply their understanding of energy to biological systems. It also prepares them for more complex ideas of interdependence and adaptation in Year 4/5, while reinforcing classification and observational skills.	<p>Animals, including humans (Y3)</p> <ul style="list-style-type: none"> identify that animals, including humans, need the right types and amount of nutrition identify that humans and some other animals have skeletons and muscles for support, protection and movement 	



Spring 1	Materials and Matter		<p>This unit deepens understanding of materials by exploring their properties and states. Children investigate solids, liquids, and gases through hands-on enquiry, linking to changes and cycles. Positioned in spring, it allows for practical investigations involving temperature and melting/freezing. This unit builds on KS1 material vocabulary and introduces the scientific language and enquiry skills needed for reversible and irreversible changes in upper KS2.</p>	<p>Uses of everyday materials (Y2)</p> <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>States of Matter (Y4)</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 identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature 	
Spring 2	The Human Body		<p>Children revisit the human skeleton and muscles, building on KS1 knowledge of body parts and senses. This unit introduces systems thinking and links to energy through movement and nutrition. It's placed here to consolidate biological understanding before plant study and to prepare for the digestive and circulatory systems in later years. It also reinforces the idea of structure and function — a key concept across biology.</p>	<p>Animals, including humans (Y3)</p> <ul style="list-style-type: none"> identify that animals, including humans, need the right types and amount of nutrition <p>Animals, including humans (Y2)</p> <ul style="list-style-type: none"> describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene. 	
Summer 1	Plants		<p>Timed to align with seasonal growth, this unit explores plant structure and function. Children investigate how plants meet their needs and how water is transported. This reinforces the big ideas of systems and cycles and builds on earlier habitat learning. It also sets the stage for reproduction and classification in Year 4/5, while encouraging children to make detailed observations and comparisons in the natural world.</p>	<p>Plants (Y3)</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 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 	
Summer 2	Earth and Space		<p>Children explore rocks, soils, and seasonal changes, linking to sustainability and Earth systems. This unit consolidates observational skills developed throughout the year and encourages children to think about long-term environmental processes. It also introduces fossil formation, which supports evolutionary thinking in Year 5/6, and provides a foundation for understanding Earth's place in the solar system.</p>		





Year B




Year 2/3




Term	Unit		Why this? Why now?	National Curriculum Programme of Study objectives	Substantive Knowledge covered within each unit by Year Group
Autumn 1	Energy and Forces		This unit introduces magnets and forces, building on KS1 exploration of pushes and pulls. Children investigate how forces act at a distance and begin to classify materials based on magnetic properties. This early placement supports enquiry and links to the big idea of cause and effect. It also prepares children for more complex force interactions (e.g. gravity, resistance) in Year 4/5 and encourages them to think critically about invisible forces in the world around them.	<p>Forces and magnets (Y3)</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 describe magnets as having two poles predict whether two magnets will attract or repel each other 	
Autumn 2	Animals		Children revisit skeletons and muscles, now with a focus on movement and nutrition. This unit reinforces systems thinking and prepares children for more complex life cycle work later in KS2. The timing supports links to seasonal animal behaviour and builds on the autumn term's focus on forces and movement. It also strengthens understanding of how internal systems support survival and adaptation.	<p>Animals, including humans (Y3)</p> <ul style="list-style-type: none"> identify that animals, including humans, need the right types and amount of nutrition identify that humans and some other animals have skeletons and muscles for support, protection and movement 	
Spring 1	Materials and Matter		This unit builds on Year A by exploring different materials and their properties. Children investigate how materials interact with forces and energy, linking to sustainability and suitability for purpose. The spring term supports practical testing and comparison. This unit also introduces early ideas of change and permanence, which are essential for understanding chemical changes in upper KS2.	<p>Uses of everyday materials (Y2)</p> <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>States of Matter (Y4)</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 identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature 	
Spring 2	The Human Body		Children revisit nutrition and begin to explore how food supports bodily functions. This unit links to energy and systems and prepares children for digestive and circulatory system study in later years. It's placed here to build on prior animal and material knowledge and to reinforce the idea that biological systems are interdependent and dynamic.	<p>Animals, including humans (Y3)</p> <ul style="list-style-type: none"> identify that animals, including humans, need the right types and amount of nutrition 	
Summer 1	Plants		Children explore plant structure and reproduction, comparing different species. This unit reinforces cycles and systems and is timed to align with seasonal growth. Children build on Year A learning and begin to understand plant diversity and adaptation. It also introduces the concept of reproduction, which is essential for understanding inheritance and evolution in Year 5/6.	<p>Plants (Y3)</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 and how they vary from plant to plant investigate the way in which water is transported within plants 	


				<ul style="list-style-type: none"> explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal 	
Summer 2	Earth and Space 		<p>This unit revisits rocks and soils, now with a focus on fossil formation and environmental change. Children explore how Earth's systems evolve over time, linking to sustainability and long-term change. It consolidates observational and classification skills developed throughout the year and prepares children for solar system study and evolutionary concepts in upper KS2.</p>		





Year A		Year 4/5		
Term	Unit	Why this? Why now?	National Curriculum Programme of Study objectives	Substantive Knowledge covered within each unit by Year Group
Autumn 1	Energy and Forces 	<p>This unit introduces gravity and electricity, expanding on prior knowledge of light and magnetism. By exploring how energy drives systems and how forces act on objects, children begin to conceptualise invisible interactions in the physical world. Placing this unit early allows children to build on their understanding of energy from Year 2/3 and prepares them for more complex mechanisms in Year B. It also supports enquiry into prediction, measurement, and fair testing, deepening their working scientifically skills.</p>	<p>Electricity (Y4)</p> <ul style="list-style-type: none"> identify common appliances that run on electricity construct a simple series electrical circuit identify and name basic parts of a circuit recognise that a switch opens and closes a circuit recognise some common conductors and insulators <p>Forces and magnets (Y5)</p> <ul style="list-style-type: none"> explain that unsupported objects fall towards the Earth because of the force of gravity identify the effects of air resistance, water resistance and friction recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect 	
Autumn 2	Animals 	<p>Children revisit food chains and classification, now exploring life cycles across different animal groups. This builds on prior knowledge of habitats and reproduction and introduces the concept of biological diversity. The timing allows for seasonal comparisons and prepares children for evolutionary thinking in Year 5/6. It also reinforces systems thinking and encourages</p>	<p>Living things and their habitats (Y5)</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 	


			children to consider how organisms are adapted to their environments.		
Spring 1	Materials and Matter		This unit explores states of matter and reversible changes, building on earlier material properties. Children investigate how substances behave under different conditions, linking to cycles and cause-effect. Positioned in spring, it allows for practical investigations involving temperature and change. This unit lays the foundation for irreversible changes and separation techniques in Year B and supports deeper understanding of chemical processes.	Materials and their properties (Y4) <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 identify the part played by evaporation and condensation in the water cycle 	
Spring 2	The Human Body		Children study human development from birth to old age, linking to earlier learning about body systems and nutrition. This unit reinforces the idea of biological change over time and prepares children for circulatory system study in Year 5/6. It also encourages reflection on personal growth and health, supporting PSHE links and cross-curricular connections.	Animals, including humans (Y5) <ul style="list-style-type: none"> describe the changes as humans develop to old age 	
Summer 1	Plants		Children explore plant classification and reproduction, building on structural knowledge from Year 2/3. This unit introduces pollination and seed dispersal, linking to cycles and sustainability. Timed to coincide with seasonal growth, it supports observational enquiry and prepares children for evolutionary concepts in Year 5/6.	Living things and their habitats (Y5) <ul style="list-style-type: none"> describe the life process of reproduction in some plants and animals 	
Summer 2	Earth and Space		This unit revisits and deepens children' understanding of seasonal changes and introduces the water cycle as a key system within Earth science. Building on KS1 observations of weather and day length, children now begin to explore the scientific processes that underpin these changes, such as evaporation, condensation, and precipitation. Placing this unit in the summer term allows children to draw on a full year of seasonal observations, compare patterns across the year, and apply this knowledge to understand the cyclical nature of weather systems. This learning lays the foundation for more complex environmental and sustainability concepts in upper KS2, including climate, ecosystems, and human impact.	Materials and their properties (Y4) <ul style="list-style-type: none"> identify the part played by evaporation and condensation in the water cycle 	



Year B			Year 4/5		
Term	Unit		Why this? Why now?	National Curriculum Programme of Study objectives	Substantive Knowledge covered within each unit by Year Group
Autumn 1	Energy and Forces		This unit introduces sound and mechanisms, building on prior energy and force knowledge. Children explore how vibrations create sound and how simple machines multiply force. Placing this unit early supports enquiry into cause-effect and prepares children for more complex mechanical systems in Year 5/6. It also deepens understanding of energy transfer and physical interactions.	<p>Sound (Y4)</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>Forces and magnets (Y5)</p> <ul style="list-style-type: none"> explain that unsupported objects fall towards the Earth because of the force of gravity 	
Autumn 2	Animals		Children revisit classification and life cycles, now considering environmental impacts and sustainability. This unit builds on prior biological knowledge and encourages children to think critically about human influence on ecosystems. The timing supports links to global awareness and prepares children for evolutionary thinking in Year 5/6.	<p>Living things and their habitats (Y4)</p> <ul style="list-style-type: none"> recognise that living things can be grouped in a variety of ways 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>Living things and their habitats (Y5)</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 	
Spring 1	Materials and Matter		Children explore reversible and irreversible changes and separation methods, building on prior states of matter. This unit supports conceptual development in chemistry and links to sustainability. Spring timing allows for practical investigations and prepares children for more advanced chemical processes in Year 5/6.	<p>Materials and their properties (Y5)</p> <ul style="list-style-type: none"> compare and group together everyday materials on the basis of their properties know that some materials will dissolve in liquid to form a solution use knowledge of solids, liquids and gases to decide how mixtures might be separated give reasons for the uses of everyday materials demonstrate that dissolving, mixing and changes of state are reversible changes explain that some changes result in the formation of new materials 	





Spring 2	The Human Body		Children study the digestive system and teeth, linking to nutrition and bodily function. This unit reinforces systems thinking and prepares children for circulatory system study. It also supports enquiry into structure and function relationships while encourages children to consider how internal systems support survival.	Animals, including humans (Y4) <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 	
Summer 1	Plants		Children revisit plant reproduction and classification, now comparing different species and life cycles. This unit reinforces cycles and systems and is timed to align with seasonal growth. It prepares children for evolutionary concepts and encourages detailed observation and comparison.	Living things and their habitats (Y5) <ul style="list-style-type: none"> describe the life process of reproduction in some plants and animals 	
Summer 2	Earth and Space		Children explore sustainability and human impact, linking to environmental science and global responsibility. This unit consolidates learning across biology, chemistry, and physics and prepares children for solar system study in Year 5/6. It also encourages reflection on long-term change and stewardship.		

Year A		Year 5/6			
Term	Unit	Why this? Why now?	National Curriculum Programme of Study objectives	Substantive Knowledge covered within each unit by Year Group	
Autumn 1	Energy and Forces		Children study air and water resistance and complex circuits, building on prior force and electricity knowledge. This unit deepens understanding of energy transfer and prepares children for mechanical systems in Year B. Placing it early supports enquiry into prediction and measurement and reinforces the big idea of energy as a driver of change.	Forces and magnets (Y5) <ul style="list-style-type: none"> explain that unsupported objects fall towards the Earth because of the force of gravity identify the effects of air resistance, water resistance and friction recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect Electricity (Y6)	

				<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 • use recognised symbols when representing a simple circuit in a diagram 	
Autumn 2	Animals		Children explore reproduction, classification, and evolution, linking to prior life cycle and habitat knowledge. This unit introduces inheritance and prepares children for deeper evolutionary thinking. The timing supports seasonal comparisons and encourages children to consider long-term biological change.	<p>Living things and their habitats (Y6)</p> <ul style="list-style-type: none"> • describe how living things are classified into broad groups according to common observable characteristics • give reasons for classifying plants and animals based on specific characteristics <p>Evolution and inheritance (Y6)</p> <ul style="list-style-type: none"> • recognise that living things have changed over time • recognise that living things produce offspring of the same kind • identify how animals and plants are adapted to suit their environment 	
Spring 1	Materials and Matter		Children investigate properties and changes, including irreversible reactions. This unit supports conceptual development in chemistry and links to cause-effect and sustainability. Spring timing allows for practical enquiry and prepares children for separation techniques in Year B.	<p>Materials and their properties (Y5)</p> <ul style="list-style-type: none"> • compare and group together everyday materials on the basis of their properties • know that some materials will dissolve in liquid to form a solution • use knowledge of solids, liquids and gases to decide how mixtures might be separated • give reasons for the uses of everyday materials • demonstrate that dissolving, mixing and changes of state are reversible changes • explain that some changes result in the formation of new materials 	
Spring 2	The Human Body		Children study the circulatory system, heart function, and water transportation, building on prior human development knowledge. This unit reinforces systems thinking and prepares children for health and lifestyle studies. It also supports cross-curricular links with PSHE and encourages reflection on personal wellbeing	<p>Animals, including humans (Y6)</p> <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 	
Summer 1	Plants		Children explore classification and environmental dependencies, linking to sustainability and evolution. This unit builds on prior plant knowledge and prepares children for inheritance and adaptation. Timed to align with seasonal growth, it supports observational enquiry and systems thinking.	<p>Living things and their habitats (Y6)</p> <ul style="list-style-type: none"> • describe how living things are classified into broad groups according to common observable characteristics • give reasons for classifying plants and animals based on specific characteristics 	

Summer 2	Earth and Space 	Children study the solar system and apparent Sun motion, consolidating physics learning and linking to planetary systems. This unit encourages children to think about Earth's place in the universe and prepares them for abstract astronomical concepts. It also reinforces the big ideas of energy, cycles, and sustainability.	Earth and space (Y5) <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 	
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Year B			Year 5/6		
Term	Unit		Why this? Why now?	National Curriculum Programme of Study objectives	Substantive Knowledge covered within each unit by Year Group
Autumn 1	Energy and Forces 		Children explore mechanisms and light behaviour, building on prior force and energy knowledge. This unit deepens understanding of how systems interact and prepares children for KS3 physics. Placing it early supports enquiry into cause-effect and reinforces energy transfer concepts.	Light (Y6) <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 Forces and magnets (Y5) <ul style="list-style-type: none"> explain that unsupported objects fall towards the Earth because of the force of gravity identify the effects of air resistance, water resistance and friction recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. 	
Autumn 2	Animals 		Children revisit reproduction and evolution, now exploring inheritance and classification in more depth. This unit builds on prior biological knowledge and prepares children for transition to KS3. It also encourages critical thinking about adaptation and long-term change.	Evolution and inheritance (Y6) <ul style="list-style-type: none"> recognise that living things have changed over time recognise that living things produce offspring of the same kind identify how animals and plants are adapted to suit their environment Living things and their habitats (Y6) <ul style="list-style-type: none"> describe how living things are classified into broad groups according to common observable characteristics 	

				<ul style="list-style-type: none"> give reasons for classifying plants and animals based on specific characteristics 	
Spring 1	Materials and Matter		Children investigate reversible and irreversible changes and separation methods, consolidating chemistry learning. This unit supports conceptual development and prepares children for KS3 science. Spring timing allows for practical investigations and reinforces sustainability.	<p>Materials and their properties (Y5)</p> <ul style="list-style-type: none"> compare and group together everyday materials on the basis of their properties know that some materials will dissolve in liquid to form a solution use knowledge of solids, liquids and gases to decide how mixtures might be separated give reasons for the uses of everyday materials demonstrate that dissolving, mixing and changes of state are reversible changes explain that some changes result in the formation of new materials 	
Spring 2	The Human Body		Children study the circulatory system and lifestyle impacts, linking to health and wellbeing. This unit reinforces systems thinking and prepares children for PSHE and science integration. It also encourages reflection on personal choices and long-term health.	<p>Animals, including humans (Y6)</p> <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 	
Summer 1	Plants		Children explore sexual and asexual reproduction and compare life cycles, linking to evolution and inheritance. This unit consolidates biological understanding and prepares children for KS3. Timed to align with seasonal growth, it supports detailed observation and enquiry.	<p>Living things and their habitats (Y5)</p> <ul style="list-style-type: none"> describe the life process of reproduction in some plants and animals 	
Summer 2	Earth and Space		Children study sustainability and human impact, linking to environmental science and global responsibility. This unit consolidates learning across disciplines and encourages children to think critically about their role in protecting the planet. It also prepares them for transition to secondary science.	<p>Earth and space (Y5)</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 	