Science Intent and Progression

At New Hinksey, we believe that the study of Science is essential for developing well-rounded, knowledgeable, and culturally aware individuals. Through the exploration of the natural world, our pupils will gain a deeper understanding of scientific principles and processes, equipping them to navigate the complexities of the future.

Our primary intent in teaching Science is to cultivate a genuine curiosity and appreciation for the diverse phenomena, systems, and concepts that shape our understanding of the universe. We aim to develop the critical thinking and analytical skills that are essential for success in the 21st century. We want our pupils to engage with scientific data, identify patterns and trends, and draw insightful conclusions about the interactions between various scientific disciplines and the world around them.

Furthermore, our Science curriculum is closely aligned with the school's improvement priorities, which emphasise the importance of developing pupils' vocabulary, reading comprehension, and ability to communicate effectively. By weaving these elements throughout our Science lessons, we aim to support the overall academic progress and achievement of our pupils.

Through hands-on experiments, investigations, and collaborative projects, we encourage our pupils to ask questions, explore hypotheses, and apply their knowledge to real-world scenarios. This approach not only fosters a love for Science but also prepares them to become informed and responsible citizens in an increasingly scientific and technological world.

CYCLE A 2024_25

	Autumn	Spring	Summer
Reception	Seasonal Change - Why Do we Have Seasons?	Animals - Why do Animals Choose to Live Where they do?	Plants - What are the names of the different parts of plants and which ones will we find in our gardens and woodlands?
Year 1 and 2	How do seasons change? What are our seen body parts called and what do we mean by the five senses?	Why do animals choose to live where they do?	What are the names of the different parts of plants?
Year 3 and 4	What is electricity and why is it so important in our lives? What are the types of rocks on Earth?	Which materials can or cannot be changed back to their original form?	Why do humans have skeletons and muscles? What do we mean by a force?
Year 5 and 6	What do we know about the life cycles of humans and other animals	What is a force and how does it impact on the way things move?	How do our eyes help us to see?

CYCLE B 2025_26

	Autumn	Spring	summer
Reception	Seasonal Change - Why Do we Have Seasons?	Everyday Materials - What are the properties of different materials?	Plants - What are the names of the different parts of plants and which

			ones will we find in our gardens and woodlands?
Year 1 and 2	How are animals classified? Why is it important to keep our bodies healthy?	What are the properties of different materials?	What do plants and trees need to grow?
Year 3 and 4	Why do we have light and dark and what is its impact on our everyday life? How is sound created and how does it travel?	What happens to the food we eat?	Which wild animals and plants thrive in our local environment? How are living things grouped?
Year 5 and 6	What do we know about the Sun, Earth, Moon and the Planets? How have living things on Earth changed over time?	How does the heart work and why is it so important?	How does electricity work and how does its power vary? How are living things grouped and classified?

Science Progression

Disciplinary Knowledge Progression

	Reception	Year 1 and 2	Year 3 and 4	Year 5 and 6
Scientific Inquiry	Curiosity: Pupils are encouraged to explore their environment and ask questions about the world around them.	Pupils are encouraged to explore their surroundings and ask simple questions about what they observe.	Pupils are taught to ask relevant questions and use different types of scientific enquiries to answer them.	Pupils develop a deeper understanding of scientific ideas and begin to analyse functions, relationships, and interactions systematically.

	They engage in play-based activities that promote curiosity and wonder about natural phenomena.	They begin to recognise that questions can be answered in different ways.	They learn to set up simple practical enquiries, including comparative and fair tests.	They select the most appropriate methods for answering scientific questions, including more complex investigations.
Observation	Pupils develop observational skills by looking closely at objects, plants, and animals. They learn to describe their observations using simple language, focusing on what they see, hear, and feel.	Pupils closely observe objects, materials, and living things using simple equipment (e.g., hand lenses, egg timers).	Pupils make systematic observations and take accurate measurements using standard units and a range of equipment, including thermometers and data loggers. They gather, record, and classify data in various ways to help answer their questions.	Pupils encounter abstract scientific concepts and learn to recognise how these ideas help them understand and predict natural phenomena.
Investigations	Pupils participate in simple investigations, such as testing how different materials behave (e.g., wet vs. dry). They begin to make predictions based on their observations and experiences.	They perform simple tests and gather data to help answer their questions. Pupils learn to identify and classify objects based on their characteristics. They start to sort and group items, recognising patterns and relationships.	Pupils learn to draw simple conclusions from their investigations and use scientific language to discuss their findings. They begin to identify new questions arising from their data and make predictions based on their observations.	They explore causal relationships in their data and identify evidence that supports or refutes their hypotheses. Pupils are encouraged to critically evaluate their methods and findings, suggesting improvements and raising further questions. They learn to justify their conclusions using evidence and scientific reasoning.
Communication	Pupils share their findings through drawings, verbal explanations, and discussions with peers and adults. They start to use basic scientific vocabulary to describe their experiences.	Pupils record their findings using simple scientific language, drawings, and verbal explanations. They begin to communicate their ideas to different audiences in various ways. Use their observations and ideas to suggest answers to questions	Pupils report on their findings through oral and written explanations, displays, or presentations. They learn to use simple scientific language and visual aids to communicate their results effectively.	Pupils refine their ability to communicate scientific ideas and findings using appropriate scientific vocabulary. They present their investigations through detailed reports, presentations, and discussions, demonstrating their understanding of the scientific process.

Progression in Scientific Enquiry				
	- Understand how to use test results to make predictions and set up further comparative and fair tests - Know how to report and present findings from enquiries, including conclusions, causal relationships, and the degree of trust in results - Recognise the role of scientific evidence in supporting or refuting ideas or arguments	- Use test results to make predictions and set up further tests - Report and present findings, including conclusions and causal relationships - Identify scientific evidence that supports or refutes ideas	- Prediction, causal relationship, scientific evidence	
	- Understand how to plan different types of scientific enquiries to answer questions, including recognising and controlling variables - Know how to take measurements using a range of scientific equipment with increasing accuracy and precision, including repeat readings - Recognise the importance of recording data and results using scientific diagrams, labels, tables, scatter graphs, bar and line graphs	- Plan different types of scientific enquiries - Take accurate measurements using a range of equipment - Record data and results using scientific representations	- Variables, accuracy, precision, scientific representations	
	- Understand how to gather, record, classify, and present data in various ways to help answer questions - Know how to record findings using scientific language, drawings, diagrams, keys, charts, and tables - Recognise that results can be used to draw simple conclusions, make predictions, and suggest improvements	- Gather, record, classify, and present data - Record findings using scientific language and representations - Use results to draw conclusions, make predictions, and suggest improvements	- Data, scientific language, conclusion, prediction	
	- Understand that relevant questions can be asked and different types of enquiries used to answer them - Know how to set up simple practical enquiries, including comparative and fair tests - Recognise the importance of making systematic and careful observations, and taking accurate measurements	- Ask relevant questions - Set up simple practical enquiries - Make systematic observations and take accurate measurements	- Enquiry, comparative, fair test, measure	
	- Understand that questions can be answered in different ways - Know that observations and ideas can be used to suggest answers - Recognise that data can be gathered and recorded to help answer questions	- Identify and classify - Use observations and ideas to suggest answers - Gather and record data	- Classify, record, data	
 Start here	- Understand that asking questions is part of science - Know that observations can be made using senses - Recognise that simple tests can be carried out to find answers	- Ask simple questions - Observe closely using senses - Perform simple tests	- Question, observe, test	 Start here
	Knowledge	**Skills**	**Vocabulary**	

Reception

Plants	Seasons	Animals	Living Things	Everyday Materials	Light
Notice patterns on natural things	Know that it is usual to see the Moon and stars at night. Know that the Sun moves across the sky during the day and the Moon does the same at night. Know the Moon seems to change shape over time and there are times when it cannot be seen at all. Collect information about the weather	Know which animals are nocturnal and what nocturnal means. Know up to 5 species of birds Name 5 creatures and their habitats Know abou the 5 senses	Know the names of a number of minibeasts	Know what a magnet is Know that some materials bend and/or stretch. Know that some things can float on water Know that vehicles move differently across different surfaces	Begin to know how the Sun gives us light in the daytime. Know how shadows are formed and how to make shadow puppets. Know it is reasonable to be afraid of the dark but that is because there is no light. Know the colours of the rainbow

Year 1 and 2

Plants	Seasons	Animals	Living Things	Everyday Materials	Rocks

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.	Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.	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.	Explore and compare the differences between things that are living, dead, and things that have never been alive.	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.	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.
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.		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.	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.	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.	

			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.		

Year 3 and 4

Plants	Animals	Living Things	Everyday Materials	Light
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	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.	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 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	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.	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 an opaque object find patterns in the way that the size of shadows change.

formation, and seed dispersal.		environment. Recognise that environments can change and that this can sometimes pose dangers to living things.		

Electricity	Magnets	States of Matter	Sound
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.	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	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.	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.

Year 5 and 6

Electricity	Earth and Space	Forces	Inheritance and Evolution	Light	Animals	Living Things
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.	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.	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.	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.	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.	Describe the changes as humans develop to old age. 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.	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. 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.