



## Science Curriculum Overview 2023-24



	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p><b>Nursery</b></p> <p><i>Drawn from the Knowledge and skills progression (Natural World, Listening, Attention and Understanding and Speaking)</i></p>	To begin to explore some natural materials.	To begin to sort natural materials according to properties using new vocabulary such as, hard, soft, rough, smooth.	<p>Talk about what they see, using a growing vocabulary.</p> <p>Explore collections of materials with similar and/or different properties. E.g. shells, pebbles, pine cones, bark.</p> <p>To begin to understand who, where and when questions</p>	<p>Plant seeds and care for growing plants.</p> <p>Understand the key features of the life cycle of a plant and an animal.</p> <p>To observe and talk about the lifecycle of a duck.</p> <p>Begin to understand the need to respect and care for the natural environment and all living things.</p> <p>To begin to understand 'why' questions.</p>	<p>Observe and talk about the differences between materials and changes they notice. E.g. cooking and melting.</p> <p>To use a wider range of vocabulary that they have learnt throughout the year</p>	<p>Continue to talk about what they see, hear and feel using a growing vocabulary.</p> <p>Explore how things work. E.g. using gears, wind up toys, pulleys and cogs.</p> <p>Explore and talk about different forces they can feel. E.g. how the water pushes up when they try to push a plastic boat under it.</p> <p>Understand simple 'why' questions</p> <p>To begin to answer "I wonder" prompts during discussions, knowing that their ideas may differ from what others say.</p>
<p><b>Reception</b></p> <p><i>Drawn from the Knowledge and skills progression (Natural World, Listening, Attention and Understanding and Speaking)</i></p>	<p>To ask questions about the natural environment.</p> <p>To respect and care for their immediate environment.</p> <p>Pupils will explore change in materials from one state to another by combining different ingredients to make their own playdough.</p> <p>To learn new vocabulary and use picture cue cards to talk about an object.</p>	<p>To know about and recognise the signs of Autumn.</p> <p>Look closely at natural objects linked to Autumn and record what they see through drawings.</p> <p>To begin to link changes in weather to the seasons by completing a Weather chart, observing and describing the daily weather patterns.</p> <p>To know that animals behave differently in different seasons e.g. gathering food, hibernating.</p> <p>To observe and learn vocabulary linked to their local natural environment and begin to describe simple characteristics.</p> <p>To understand who, where and when questions.</p> <p>To answer who, where and when questions in front of whole class.</p> <p>To use new vocabulary throughout the day linked to different areas of learning.</p>	<p>To know about and recognise the signs of Winter.</p> <p>To explore materials in different states by observing Ice freezing and melting. They will describe and comment on what they observe.</p> <p>Describe what they see, hear and feel whilst outside.</p> <p>To explore the weather of other countries and discuss the type of clothes they would need to pack if they were to visit different places.</p> <p>To look at aerial views of the school setting and talk about what they can see, including buildings, open space, roads and other simple features.</p> <p>To ask who, where, when and what questions to find out more.</p>	<p>To know about and recognise the signs of Spring.</p> <p>To know about features of the area in which they live and talk about how it varies from another location e.g. a farm or jungle.</p> <p>Develop vocabulary needed to name specific features of the world, both natural and made by people.</p> <p>To reflect different locations through drawing and other art work.</p> <p>To know about different habitats.</p> <p>To understand and answer how and why questions.</p>	<p>To observe the growth of seeds and talk about changes.</p> <p>To know how to care for growing plants.</p> <p>To recognise, name and describe the life-cycle of a plant. (linked to peas and beans.)</p> <p>To reflect what they observe through drawings of growing plants.</p> <p>Describe what they see, hear and feel whilst outside with a wider range of vocabulary e.g. hard, soft, spiky, quiet, loud.</p> <p>To explore an object casting a shadow when making shadow puppets for traditional tales.</p> <p>To sow peas, beans and other plants.</p> <p>To know that some animals are nocturnal.</p> <p>To understand questions such as why and how.</p> <p>To ask a variety of questions to find</p>	<p>To know about and recognise the signs of Summer.</p> <p>To know that some things in the world are man-made and some things are natural.</p> <p>To harvest grown fruit and vegetables and talk about the changes over time.</p> <p>To know some important processes and changes in the natural world including states of matter. (How a boat floats on water)</p> <p>Talk about the life cycle of plants and animals and what they need to survive.</p> <p>To know about features of the world and talk about how we can look after it.</p> <p>To explore recycling and the impact of plastic on the oceans.</p> <p>To talk about why things happen and how things work.</p>

					things out and clarify understanding.  To answer 'why' questions linked to stories, non-fiction text and other areas of learning.	
<b>Year 1</b>	<u>Animals including humans</u>  <b>Big Question - Name and describe some common animals?</b>  During this topic, the children will explore and answer questions about animals in their habitat. They will try to understand how to take care of animals. Pupils will become familiar with the common names of some fish, amphibians, reptiles, birds and mammals, including those that are kept as pets. Pupils will have opportunities to learn the names of the main body parts through games, actions, songs and rhymes.	<u>Seasonal Changes (Autumn, Winter) –</u>  <b>Big Question - What season is it now and how do you know?</b>  During this topic, pupils will get the chance to observe and talk about changes in the weather and the seasons. The focus of this topic will be autumn and winter.	<u>Everyday materials</u>  <b>Big Question - How are materials used in our school?</b>  Pupils will explore, name, discuss and raise and answer questions about everyday materials so that they become familiar with the names of materials and properties. Pupils should explore and experiment with a wide variety of materials including for example: brick, paper, fabrics, elastic, foil.	<u>Plants</u>  <b>Big Question - Can you draw and label the main parts of a plant?</b>  Pupils will use the local environment throughout this topic to explore and answer questions about plants growing in their habitat. Where possible, they will observe the growth of flowers and vegetables that they have planted. They should become familiar with common names of flowers, examples of deciduous and evergreen trees, and plant structures.	<u>Seasonal Changes (Spring, Summer)</u>  <b>Big Question - What is your favourite season and why?</b>  Building on the topic from earlier in the year, during this topic, pupils will get the chance to observe and talk about changes in the weather and the seasons. This time, focusing on the seasons of spring and summer.	<u>Focused Assessments Scientists and Inventors</u>  Children will complete focused assessment in order to revisit and assess their science knowledge and progress. The activities are designed to assess what they can do and what they can remember from this year's learning in science. This will be done alongside learning about scientists and inventors who are linked to their learning.
<b>Year 2</b>	<u>Uses of everyday materials</u>  <b>Big Question - How do we choose materials?</b>  Pupils will begin to identify and discuss the uses of different everyday materials so that they become familiar with how some materials are used for more than one thing or different materials are used for the same thing. They will think about the properties of materials that make them suitable or unsuitable for particular purposes and they should be encouraged to think about unusual and creative uses for everyday materials.	<u>Living things and their habitats</u>  <b>Big Question - How do you know if something is alive?</b>  Pupils will be introduced to the idea that all living things have certain characteristics that are essential for keeping them alive and healthy. Pupils should be introduced to the terms 'habitat'. They should raise and answer questions about the local environment that help them to identify and study a variety of plants and animals within their habitat.	<u>Animals including Humans</u>  <b>Big Question - What do animals need to stay alive?</b>  Pupils will learn about the basic needs of animals for survival, as well as the importance of exercise and nutrition for humans. They will also be introduced to the processes of reproduction and growth in animals. The focus at this stage will be on questions that help pupils to recognise growth.	<u>Plants</u>  <b>Big Question - Can living things live forever?</b>  Building on this unit from Year 1, the pupils will now observe how different plants grow. Pupils will be introduced to the requirements of plants for germination, growth and survival, as well as to the processes of reproduction and growth in plants.	<u>Biodiversity - Minibeasts</u>  <b>Big Question – How are minibeasts important for our environment?</b>  In this unit about Biodiversity and Minibeasts, children will learn about the importance of biodiversity and what an ecosystem is. The unit focuses on minibeasts and habitats found in the UK. Children will learn about different types of minibeasts, their microhabitats, what they need from their habitat and how living things depend on each other in order to survive. They will also learn about the benefits of minibeasts for the planet and the important roles they play, including pollination.	<u>Focused Assessments</u>  Children will complete focused assessments (using TAPS) in order to revisit and assess their science knowledge and progress. The activities are designed to assess what they can do and what they can remember from this year's learning in science.
<b>Year 3</b>	<u>Plants</u>  <b>Big Question - What does a plant need to survive?</b>  Building on the previous learning with plants in KS1, the pupils will now be introduced to the relationship between structure and function: the idea that every part has a job to do. They will explore questions that focus on the role of the roots and stem in nutrition and support, leaves for nutrition and flowers for reproduction.	<u>Rocks</u>  <b>Big Question - Are all rocks the same?</b>  In this topic, pupils will explore different kinds of rocks and soils, including those in the local environment, where possible.	<u>Light</u>  <b>Big Question - What is the difference between a reflection and a shadow?</b>  Pupils will explore what happens when light reflects off a mirror or other reflective surfaces, including playing mirror games to help them to answer questions about how light behaves. They will also look for, and measure, shadows, and find out how they are formed and what might cause the shadows to change.	<u>Animals, including humans</u>  <b>Big Question - How do living things work?</b>  Pupils should continue to learn about the importance of nutrition and should be introduced to the main body parts associated with the skeleton and muscles, finding out how different parts of the body have special functions.	<u>Forces and Magnets</u>  <b>Big Question - What is a magnet and what can they do?</b>  During this topic, the pupils observe that magnetic forces can act without direct contact, unlike most forces, where direct contact is necessary (for example, opening a door, pushing a swing). They will explore the behaviour and everyday uses of different magnets.	<u>Bee project</u>  A look at the relationship between bees and their environment; importance in pollination, food, light and earth's magnetic field.

<b>Year 4</b>  <b>HEP Curriculum</b>	<u>States of Matter</u>  <b>Big Question - Is water always wet?</b>  Pupils will explore a variety of everyday materials and develop simple descriptions of the states of matter. Pupils will observe water as a solid, a liquid and a gas and will also observe the changes to water when it is heated or cooled.	<u>Animals, including humans</u>  <b>Big Question - What happens to food when it enters our bodies?</b>  In this topic, the pupils will build on work from Year 1 on human body parts. This time they will be introduced to the main body parts associated with the digestive system, for example, mouth, tongue, teeth, oesophagus, stomach and small and large intestine and explore questions that help them to understand their special functions.	<u>Sound</u>  <b>Big Question - How do we hear different sounds?</b>  During this topic, pupils will get the chance to explore and identify the way sound is made through vibration in a range of different musical instruments from around the world; and find out how the pitch and volume of sounds can be changed in a variety of ways.	<u>Living things and their habitats</u>  <b>Big Question - What plants and animals live in our local environments?</b>  Pupils will use the local environment to help them to identify and study plants and animals in their habitat. They will identify how the habitat changes throughout the year. Pupils will explore possible ways of grouping a wide selection of living things. Pupils will also explore examples of human impact (both positive and negative) on environments.	<u>Electricity</u>  <b>Big Question - Can we control electricity?</b>  Pupils will construct simple series circuits, trying different components, for example, bulbs, buzzers and motors, and including switches, and use their circuits to create simple devices. Pupils will draw the circuit as a pictorial representation, not necessarily using conventional circuit symbols at this stage; these will be introduced in Year 6.	<u>The History of Science</u>  Pupils learn about the history of science through a range of different investigations that cover topics from Year 3 and 4. This unit builds on topics such as plants, light and materials while crossing over with subjects such as history, science and art
<b>Year 5</b>  <b>HEP Curriculum</b>	<u>Properties and changes of material</u>  <b>Big Question - Can we change materials?</b>  In this topic, the pupils will build a more systematic understanding of materials by exploring and comparing the properties of a broad range of materials. They will explore reversible changes, including, evaporating, filtering, sieving, melting and dissolving, recognising that melting and dissolving are different processes. They will find out about how chemists create new materials.	<u>Animals, including humans</u>  <b>Big Question - How do bodies change as we get older?</b>  Pupils will learn about the stages in the growth and development of humans. They will also learn about the changes that humans experience during puberty.	<u>Forces</u>  <b>Big Question - How do things move?</b>  During this topic, pupils can explore falling objects and raise questions about the effects of air resistance. They should experience forces that make things begin to move, get faster or slow down. Pupils should explore the effects of friction on movement and find out how it slows or stops moving objects. Pupils will also explore the effects of levers, pulleys and simple machines on movement.	<u>Living things and their habitats</u>  <b>Big Question - Do all life cycles look the same?</b>  Pupils will study and raise questions about their local environment throughout the year. They will observe life-cycle changes in a variety of living things, for example, plants in the vegetable garden or flower border, and animals in the local environment. They may find out about the work of naturalists and animal behaviourists.	<u>Earth and Space</u>  <b>Big Question - Sun, Earth and Moon: what is moving?</b>  Pupils will be introduced to a model of the Sun and Earth that enables them to explain day and night. Pupils will learn that the Sun is a star at the centre of our solar system and that it has eight planets. They should understand that a moon is a celestial body that orbits a planet. Pupils will also find out about the way that ideas about the solar system have developed.	<u>The Scientific Method</u>  Pupils will learn about how scientists use the scientific method to get reliable data and make new exciting discoveries.  Placing the focused Scientific Method unit at the end of Year 5 nicely scaffolds this increasing autonomy expected in Year 6. Students culminate Year 5 by formalising terms, standards and analytical practices they have progressively acquired over Lower Key Stage 2.
<b>Year 6</b>	<u>Animals, including humans</u>  <b>Big Question - How do our choices affect how our bodies work?</b>  Pupils should build on their learning from years 3 and 4 about the main body parts and internal organs (skeletal, muscular and digestive system) to explore and answer questions that help them to understand how the circulatory system enables the body to function. Pupils should learn how to keep their bodies healthy and how their bodies might be damaged – including how	<u>Evolution and inheritance</u>  <b>Big Question - How do living things change over time and place?</b>  Building on what they learned about fossils in the topic on rocks in year 3, pupils will now find out more about how living things on earth have changed over time. They should be introduced to the idea that characteristics are passed from parents to their offspring. They should also appreciate that variation in offspring over time can make animals more or less able to survive in particular environments.	<u>Electricity</u>  <b>Big Question - Can we vary the effects of electricity?</b>  Building on their work in year 4, pupils will construct simple series circuits, to help them to answer questions about what happens when they try different components, for example, switches, bulbs, buzzers and motors. They should learn how to represent a simple circuit in a diagram using recognised symbols.	<u>Light (Trial HEP Curriculum)</u>  <b>Big Question - How do we see?</b>  During this topic, pupils will build on the work on light in year 3, exploring the way that light behaves, including light sources, reflection and shadows. They will discuss what happens and make predictions.	<u>Living things and their Habitats</u>  <b>Big Question - What is the same and what is different?</b>  Pupils should build on their learning about grouping living things in Year 4 by looking at the classification system in more detail. They will be introduced to groupings and how plants and animals can be subdivided. Through direct observations where possible, they should classify animals into commonly found invertebrates (such as insects, spiders, snails, worms) and vertebrates (fish,	<u>Preparing for secondary science (HEP science)</u>  This unit provides a transition unit for Year 6 pupils as they prepare for starting in secondary science. They will start to learn about equipment and methods that they will be using in Year 7 and beyond.

	some drugs and other substances can be harmful to the human body.				amphibians, reptiles, birds and mammals). They will discuss reasons why living things are placed in one group and not another.	
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