



## Science Curriculum Overview 2023-24



	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Nursery</b>	<p>Throughout nursery the children will cover these objectives:</p> <ul style="list-style-type: none"><li>Beginning to understand 'why' and 'how' questions.</li><li>Listens and responds to ideas expressed by others in conversation or discussion.</li><li>Learns new words very rapidly and is able to use them in communicating.</li><li>Uses talk to connect ideas, explain what is happening.</li><li>Questions why things happen and gives explanations.</li><li>Builds up vocabulary that reflects the breadth of their experiences.</li><li>Extends vocabulary, exploring the meaning of new words.</li><li>Notifies detailed features of objects in their environment.</li><li>Comments and asks questions about aspects of their familiar world and the natural world.</li><li>Can talk about some of the things they have observed such as plants, animals, natural and found objects.</li><li>Talks about why things happen and how things work.</li><li>Developing an understanding of growth, decay and changes over time.</li><li>Shows care and concern for living things and the environment.</li><li>Looks closely at similarities, differences, patterns and change.</li></ul>					
<b>Reception</b>	<ul style="list-style-type: none"><li>Extends vocabulary, especially by grouping and naming.</li><li>Uses talk to organise, sequence and clarify thinking, ideas, feelings and events</li><li>They develop their own narratives and explanations by connecting ideas or events.</li><li>They answer 'how' and 'why' questions about their experiences or events.</li><li>Shows some understanding that good practices with regard to exercise, eating, sleeping and hygiene can contribute to good health.</li><li>Looks closely at similarities, differences, patterns and change.</li><li>Children know about similarities and differences in relation to objects, materials and living things.</li><li>They make observations of animals and plants and explain why some things occur, and talk about changes.</li><li>Children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy</li></ul>					
<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</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 2</b>	<u>Uses of everyday materials</u>	<u>Living things and their habitats</u>	<u>Animals including Humans</u>	<u>Plants</u>	<u>Exploring and Investigating</u>	<u>Focused Assessments</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.	<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.	<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.	<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.	<b>Big Question - What new knowledge have you discovered?</b>  In this unit, the children will build on some of their Working Scientifically skills as they explore and complete investigations. Using a range of hands on activities they will learn to observe and make scientific discoveries from their enquiry work.	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>  <b>HEP Curriculum</b>	<u>Plants</u>	<u>Rocks</u>	<u>Light</u>	<u>Animals, including humans</u>	<u>Forces and Magnets</u>	<u>Bee project</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.	<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.	<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.	<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.	<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.	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>	<u>Animals, including humans</u>	<u>Sound</u>	<u>Living things and their habitats</u>	<u>Electricity</u>	<u>The History of Science</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.	<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.	<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.	<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.	<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.	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.
	<u>Animals, including humans</u>  <b>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 some drugs and other substances can be harmful to the human body.	<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</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, amphibians, reptiles, birds and mammals). They will discuss reasons why living things are placed in one group and not another.	<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.