

## Understanding the World – Science

### Intent

In Early Years we capitalise on children's thrill of discovery and their instinctive desire to know, understand and find out more by:

- Providing freedom to explore, investigate and experiment using the five senses
- Cultivating children's curiosity about how and why things work and how things change
- Encouraging questioning, testing out of ideas and drawing conclusions
- Fostering children's excitement and pleasure in the awe and wonder of natural phenomena



Redscope  
Primary  
School

### Implementation

Science is valued and promoted through direct teaching and purposeful learning opportunities across different themes throughout the year. We use planned themes and capitalise on unplanned moments that present themselves to talk about living things, materials and changes. These include natural objects, new life and recycling. For each theme we have identified the scientific knowledge and skills that we will teach ensuring that knowledge and skills are regularly revisited.

We cover the following themes:

**This is Me:** through this topic children will learn about changes and living things

**Seasons throughout the year:** children will learn about changes, materials and living things. In Autumn children will visit Barker's Park and observe the autumnal changes and in Winter children will learn about animals from the North and South Poles. We will create 'fake' snow from crystals, slowly adding water and watch how it changes from one state to another.

**Mad about Minibeasts:** through this topic children will learn about changes and living things and talk about lifecycles.

**What a wonderful world:** through this topic children will learn about changes and living things and talk about lifecycles, planting seeds and caring for the plants. This will help children to understand the need to respect and care for the natural environment and all living things and understand the key features of the life cycle of a plant.

Through this topic, children will learn about significant events in a prehistoric age – Dinosaurs.

**Science Week:** This year each year group will be focusing on a scientist. REY: James Herriot (Vet), FS1: David Bellamy (Botanist), FS2: Tiera Fletcher (Engineer for NASA).

Even though we follow these key experiences, there is flexibility within these plans to allow for spontaneous events and activities and for when we might need to adapt our implementation depending on the children's current needs or interests.

In addition to Science being taught as a discrete subject, opportunities are also provided for children to practise and apply scientific knowledge and skills through investigation and exploration in all areas of the provision e.g. magnets, to investigate which objects are magnetic and which are non-magnetic. Investigation areas, inside and outdoors, are resourced with a range of scientific equipment and materials which offer opportunities for children to observe, investigate, explore and experiment. Adults know the characteristics of a good scientist. They model technical language and scientific behaviours and attitudes encouraging children to ask questions, test out ideas, carry out investigations and draw conclusions.

#### Skills 2-3 years

- Explore and respond to different natural phenomena in setting and on trips e.g.
  - standing in the rain with wellies and umbrellas

#### Skills 3-4 years

- Use all their senses in hands-on exploration of natural materials.
- Explore collections of materials with similar and/or different properties.

#### Skills 4-5 years

- Learn new vocabulary
- Use talk to help work out problems and organise thinking and activities, and to explain how

<ul style="list-style-type: none"> <li>➤ walking through tall grass</li> <li>➤ splashing in puddles</li> <li>➤ observing the spring daffodils and cherry blossom</li> <li>➤ looking for worms and minibeasts</li> <li>➤ planting, watering and looking after plants/vegetables/fruit they have grown from seeds/bulbs</li> <li>➤ Collect natural materials, such as leaves and conkers picked up from the pavement or park during autumn</li> <li>➤ begin to understand the need to respect and care for the environment – classroom/outdoors</li> <li>➤ Observe seasonal changes - Note changes during visits to Barker's Park</li> </ul>	<ul style="list-style-type: none"> <li>• Talk about what they see, using a wide vocabulary.</li> <li>• Begin to make sense of their own life-story and family's history. <ul style="list-style-type: none"> <li>➤ Share and talk about their family photos</li> </ul> </li> <li>• Explore how things work</li> <li>• Show interest in different occupations <ul style="list-style-type: none"> <li>➤ During Black History Month – circle time talking about parents/carers' occupations</li> <li>➤ During Superheroes topic invite Dentist/Hygienist or dental nurse, a Police Officer or a Nurse</li> <li>➤ Research a Scientist during Superhero topic</li> <li>➤ Role play/Home Corner set-up as a Fire Station, Hospital, Dentist or police cell</li> </ul> </li> <li>• Plant seeds and care for growing plants</li> <li>• Begin to understand the need to respect and care for the natural environment and all living things. <ul style="list-style-type: none"> <li>➤ Whole school project on Conservation – children learn about water pollution and keeping our oceans and waters clean.</li> <li>➤ Care for classroom/outdoors/ recycling</li> <li>➤ Growing vegetables (turnips)</li> </ul> </li> <li>• Understand the key features of the life cycle of a plant and an animal. <ul style="list-style-type: none"> <li>➤ Talk about and sequence the lifecycle of a butterfly</li> <li>➤ Care for the butterflies</li> <li>➤ Talk about and sequence the lifecycle of a sunflower</li> <li>➤ Plant and care for a sunflower</li> </ul> </li> <li>• Explore and talk about different forces they can feel. <ul style="list-style-type: none"> <li>➤ Magnetism - attract, repel, magnet.</li> </ul> </li> <li>• Talk about the differences between materials and changes they notice. <ul style="list-style-type: none"> <li>➤ Talk about and sequence the lifecycle of a sunflower</li> <li>➤ Observe seasonal changes</li> <li>➤ Children note and record the weather (daily weather chart/discussions)</li> </ul> </li> </ul>	<p>things work and why they might happen (C&amp;L)</p> <ul style="list-style-type: none"> <li>• Understand the effect of changing seasons on the natural world around them: <ul style="list-style-type: none"> <li>➤ Share texts with the children about the changing seasons</li> <li>➤ Trip to Barker's Park</li> </ul> </li> <li>• Explore the natural world around them</li> <li>• After close observation, draw pictures of the natural world, including animals (raise chickens) and plants</li> <li>• Observe and interact with natural processes, e.g. ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water</li> <li>• Understand the need to respect and care for the natural environment and all living things <ul style="list-style-type: none"> <li>➤ Recycling</li> </ul> </li> <li>• Understand the changing nature of some materials</li> <li>• Name and explore their 5 senses, explaining in simple terms what their 5 senses are</li> <li>• Describe what they see, hear and feel whilst outside:</li> <li>• Name and describe some plants and herbs whilst playing in the mud kitchen</li> <li>• Recognise some environments that are different to the one in which they live. <ul style="list-style-type: none"> <li>• Know and talk about the different factors that support their overall health and wellbeing (PSE): <ul style="list-style-type: none"> <li>- regular physical activity</li> <li>- healthy eating <ul style="list-style-type: none"> <li>➤ toothbrushing Visit from Kimberworth Dental Practice to demonstrate how to</li> </ul> </li> </ul> </li> </ul> </li> </ul>
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	<ul style="list-style-type: none"> <li>➤ Note changes during visits to Barker’s Park</li> <li>➤ Share texts with the children about the changing seasons</li> <li>    Talk about the changes they notice:</li> <li>➤ when making Chocolate Easter Nests</li> <li>➤ when making porridge</li> <li>➤ when baking Gingerbread Men</li> <li>➤ when creating the North/South poles (snow)</li> <li>➤ when making jelly</li> <li>➤ exploring how you can shine light through some materials, but not others</li> <li>➤ placing ice cubes indoors and outside</li> <li>• Explore how things work <ul style="list-style-type: none"> <li>➤ Investigate wind-up toys, pull back toys etc</li> <li>➤ Explore the natural world around them and talk about what they see, using a wide vocabulary.</li> <li>➤ Use appropriate equipment to support investigations e.g. magnifying glasses when on a Minibeast Hunt/habitats, looking at woodlice under a log</li> </ul> </li> <li>• Understand ‘why’ questions, like: “Why do you think the ice melted quicker indoors?”</li> <li>• Make healthy choices about food, drink, activity and toothbrushing <ul style="list-style-type: none"> <li>➤ Visit from Kimberworth Dental Practice to demonstrate how to clean their teeth efficiently and discuss healthy foods</li> <li>➤ Daily healthy snack time</li> </ul> </li> </ul>	<p>clean their teeth efficiently and discuss healthy foods</p> <ul style="list-style-type: none"> <li>- sensible amounts of ‘screen time’</li> <li>- having a good sleep routine</li> <li>- being a safe pedestrian</li> </ul>
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**Impact** By the end of Foundation Stage children will be able to:

- Talk about the properties of materials
- Carry out an investigation
- Make a sensible prediction
- Talk about similarities and differences
- Name the parts of plants and animals
- Record findings
- Draw conclusions
- Observe, notice and make comparisons
- Talk about the characteristics of weather and seasons
- Talk about reversible and irreversible changes

## Early Learning Goals linked to Science

### Understanding the World (the Natural World)

- Explore the natural world around them, making observations and drawing pictures of animals and plants;
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class;
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

### Personal, Social and Emotional Development (Managing Self)

- Manage their own basic hygiene and personal needs, including dressing, going to the toilet, and understanding the importance of healthy food choices.

### Links to Key Stage One National Curriculum

During years 1 and 2, children should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions.