

Science in Early Years

A guide to this subject in
our school



1 - Introduction

Early Years is all about exploring and investigating the world through first hand experiences. Young children are naturally curious and inquisitive. With sensitive responses from adults alongside enabling environments they can be supported in learning to think scientifically.

Science is introduced through experiences that encourage children to explore their environment using their senses. They will also use skills in comparing, measuring, investigating, predicting, testing, observing, questioning, problem solving and recording.

Science in the EYFS curriculum falls predominantly under the Understanding the World area of learning. In addition, aspects of Communication and Language are important to the teaching of science. The Characteristics of Effective Teaching and Learning are threaded through all aspects of learning.



Science Early Learning Goals



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

Listening, Attention and Understanding

- Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to during whole class discussions and small group interactions
- Make comments about what they have heard and ask questions to clarify their understanding

Understanding the World

Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experience increases their knowledge and sense of the world around them—from visiting parks, libraries and museums to meeting important members of society such as police officers, fire fighters and nurses. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our socially, culturally, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.



2 - Child Initiated Learning

We know that there are key indicators and examples of effective practice that can be seen when monitoring Science in the Early Years, in relation to child initiated learning in an enabling environment. We know what we want to see children doing.

Sand

- * Exploring movement, force, speed and direction
- * Investigating, predicting, testing and solving problems
- * Exploring materials—what can sand do and how can it move?
- * Exploring changes in materials and textures by adding water
- * Beginning to understand cause and effect
- * Exploring the properties of dry and wet sand, comparing, looking at similarities and differences and patterns



Water

- * Exploring movement, force, speed and direction
- * Investigating, predicting, testing and solving problems
- * Exploring materials—what can water do and how can it move?
- * Investigating how things work and why things happen and how objects behave in water
- * Using their senses to investigate water



Block and Construction

- * Experimenting with different outcomes, exploring the consequences of cause and effect
- * Comparing different types of materials and their properties
- * Asking questions about how things work and why
- * Building for a variety of purposes



Small World

- Exploring materials from the natural and manmade world
- Talking about and recording observations
- Developing scientific skills involving predicting, observing and sorting





Dough

- Exploring materials and talking about their properties
 - Exploring movement and force
- Investigating, predicting, testing and solving problems
 - Beginning to understand cause and effect
 - Observing and talking about changes

Art and Design

- Exploring the properties of different materials
- Using their senses to explore texture and sounds
 - Looking at similarities, differences, patterns and change
 - Exploring and recognising features of living things through observation
 - Drawing plants
- Finding out how things work



Woodwork

- Exploring materials and talking about their properties
- Exploring movement and force
- Investigating, predicting, testing and solving problems
- Beginning to understand cause and effect



Outdoors

- Observing and exploring changes in nature, including weather and seasons
- Exploring and noticing cause and effect
- Showing interest in and finding out about living things
- Exploring movement, force, speed and direction
- Investigating, predicting, testing and solving problems
- Exploring materials and changes in materials



Adults scaffolding learning during child initiated play

Adults will be

- * Observing children and responding to their fascinations
- * Responding to the physical skills presented
- * Suggesting possibilities to extend their ideas and provide challenge
- * Offering other equipment and resources when appropriate
- * Playing alongside children to take learning forwards, suggesting ideas and showing what's possible
- * Playing alongside or in small groups to model, correct and extend vocabulary
- * Sharing their own experiences and making suggestions
- * Modelling how to use equipment and resources
- * Posing questions and ponderings to stimulate ideas and add challenge
- * Introducing and using language and vocabulary linked to key learning

3. Adult led Learning

We know that there are key indicators of effective practise when monitoring Science in the Early Years, in relation to adult led learning.

- * Adults setting an intention for learning that is well matched to the developmental stages of the children, building on the physical skills children already have
- * Adults guiding learning through playful, experiential activities which are presented in imaginative ways, are hands on and require participation from the children
- * Activities and experiences that are as open ended as possible to allow for children to respond in different ways, following their own ideas
- * Activities that are delivered to individual children, small groups of children depending on the activity and the age of the children.
- * Adults using resources and materials that the children are familiar with and have access to in child initiated play
- * Sensitive interaction through open questioning, modelling, thinking aloud and genuine interest and curiosity