

**MALVERN WELLS**  
C.E. PRIMARY SCHOOL

# Science in the Early Years

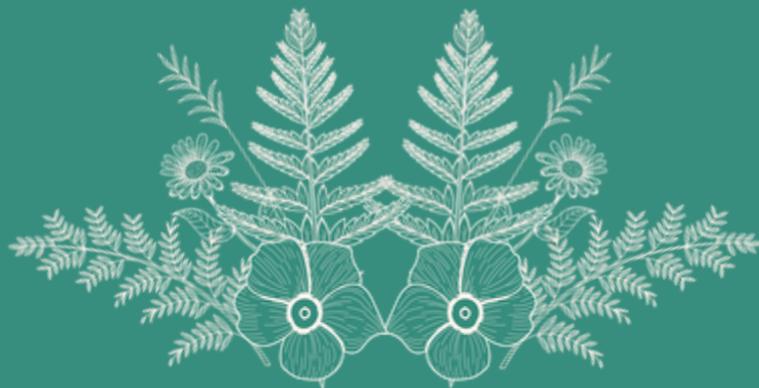
at Malvern Wells





“Infinitely curious about the world around them, children constantly observe and explore, take in new information, and generate their own ideas about how the world works.”

—INGRID CHARLUFOUR:  
M. Ed Early Childhood  
Science Education



# INTRODUCTION

An overview of what science is like in early years and where to find it in the curriculum.

## INTRODUCTION

Early years is all about exploring and investigating the world through first hand experiences. Young children are naturally curious and inquisitive and with sensitive responses from adults as well as enabling environments are able to think scientifically.



## SCIENCE IN EARLY YEARS



1.

Science is introduced through experiences that encourage children to explore their environment using the senses, make comparisons, measure, predict, investigate, test, observe, question, problem solve, record information.



2.

Science in the EYFS Framework falls predominantly under the Understanding the World area of learning. In addition, aspects within Communication and Language are important to the teaching and learning of Science. The Characteristics of Effective Teaching and Learning are threaded through all aspects of learning and are the fundamental ways in which children within EYFS learn.

## EYFS 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 & UNDERSTANDING

Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions.

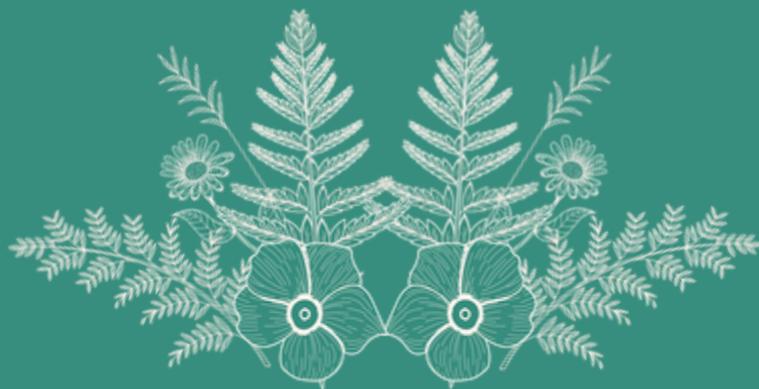
Make comments about what they have heard and ask questions to clarify their understanding.

# EYFS SCIENCE –EDUCATIONAL PROGRAMMES

## 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 experiences 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, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, 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.



# CHILD-INITIATED LEARNING

Key indicators and examples of effective practice when monitoring science in the early years, in relation to child-initiated learning through an enabling environment

# AN ENABLING SCIENCE LEARNING ENVIRONMENT - SAND



WHAT MIGHT I SEE CHILDREN DOING?

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

# AN ENABLING SCIENCE LEARNING ENVIRONMENT - WATER



WHAT MIGHT I SEE CHILDREN DOING?

- Exploring movement, force, speed and direction
- Investigating, predicting, testing and solving problems
- Exploring materials -what can water do and how does it move?
- Investigating how things work and why they happen and how objects behave in water e.g. dropping stones in water, playing with water wheels, flow of water, floating, sinking
- Using their senses to investigate water

# AN ENABLING SCIENCE LEARNING ENVIRONMENT - BLOCKS AND CONSTRUCTION



WHAT MIGHT I SEE CHILDREN DOING?

- 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 e.g make a truck that will carry some animals, a chair for teddy

# AN ENABLING SCIENCE LEARNING ENVIRONMENT - SMALL WORLD



WHAT MIGHT I SEE CHILDREN DOING?

- Exploring materials from the natural and man-made world e.g. making a miniature garden
- Talking about and recording their observations e.g. drawing a picture of their model farm, airport, zoo, home
- Developing scientific skills including predicting, observing, sorting

# AN ENABLING SCIENCE LEARNING ENVIRONMENT - DOUGH



WHAT MIGHT I SEE CHILDREN DOING?

- 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

# AN ENABLING SCIENCE LEARNING ENVIRONMENT - ART AND WORKSHOP



WHAT MIGHT I SEE CHILDREN DOING?

- Exploring the properties of different materials e.g paints, oil pastels, charcoal, inks, crayons, pencils, felt pens, papers, malleable materials etc
- Using their senses to explore texture and sounds
- Looking at similarities, differences, patterns and change e.g. when using different materials
- Exploring and recognising features of living things e.g. observational drawings of plants
- Finding out how things work and why e.g. which glue is strongest?

# AN ENABLING SCIENCE LEARNING ENVIRONMENT - WO O DWO RK



WHAT MIGHT I SEE CHILDREN DOING?

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

# AN ENABLING SCIENCE LEARNING ENVIRONMENT - OUTDOOR LEARNING



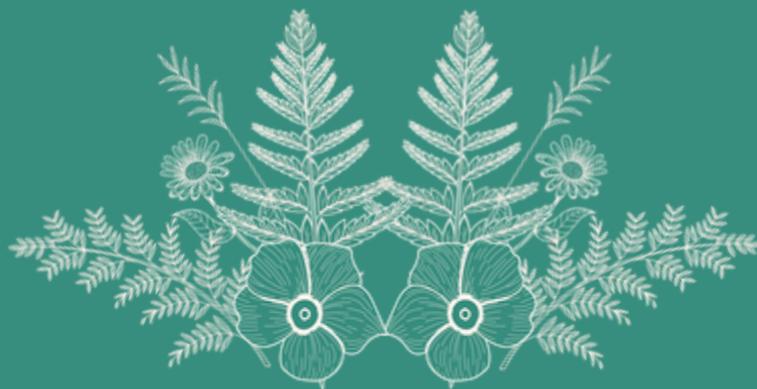
## WHAT MIGHT I SEE CHILDREN DOING?

- Exploring and observing changes in nature including the weather and the seasons
- Exploring and noticing cause and effect e.g. what happens when I jump in a deep puddle compared to a shallow puddle?
- 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 e.g. in the mud kitchen

# ADULTS SCAFFOLDING LEARNING DURING CHILD-INITIATED LEARNING

## WHAT SHOULD I SEE ADULTS DOING?

- Observing children and responding to their fascinations
- Responding to their ideas and suggestions
- Suggesting possibilities to extend their thinking
- Offering additional stimulus and resources when appropriate
- Playing alongside children to take learning forwards, suggesting ideas and showing what's possible
- Play alongside, or in small organised groups to model language, correct and/or extend vocabulary
- Sharing their own experiences and making suggestions
- Role modelling thinking aloud and commenting
- Modelling how to use equipment and resources
- Posing questions and/or 'ponderings' to stimulate ideas and add challenge e.g. What could you use instead? I wonder how? Tell me why?
- Using and introducing language and vocabulary linked to key learning



# ADULT-LED LEARNING

Key indicators of effective practice when  
monitoring science in the early years, in  
relation to adult-led learning

## WHAT SHOULD I EXPECT TO SEE WHEN ADULTS ARE LEADING A 'SCIENCE' ACTIVITY?



- Adults setting an intention for learning that is well- matched to the developmental stages of the children; building on what children already know and can do and show an interest in
- Adults guiding learning through playful, experiential activities which are presented in imaginative ways, are hands-on and require active participation from the children
- Activities and experiences that are as open-ended as possible to allow for children's imagination and active exploration and for them to express their own ideas
- Activities and experiences delivered with individual children, or small groups of children depending on the activity and the age of the children
- Adults using resources and materials that children are familiar with and have access to in their child-initiated learning
- Sensitive interaction through open-questioning, modelling thinking aloud and genuine interest and curiosity.