

# Beddington Infants' School

## Policy for Science

*We are scientists because we are curious about the world around us. We ask open minded questions that empower us to be full members of our community and planet.*



### Intent

The vision for our school is rooted in an understanding of, and respect for, the incredible capacity of every child.

With a focus on basic skills and strong academic achievement our curriculum has evolved to enable each child to engage at a high level and therefore to achieve to his/her personal best. Our provision is inspired by the Italian **Reggio Emilia Approach**. It is an experiential provision for both children and adults.

**'Tell me and I forget. Teach me and I remember. Involve me and I learn.'** Benjamin Franklin

### Children

- are respected as individuals with something valuable to say
- have a genuine input into the direction of their learning
- are empowered to engage fully with the learning process, to take personal responsibility and to develop skills for life.
- are given a variety of opportunities to explore the world in which they live, indoors and outside, developing positive attitudes to all weathers
- are supported in developing positive relationships with children and adults across the school
- are given regular, meaningful opportunities to express themselves

### What is Science?

Science should be fun. It is a unique way of looking at the world. Science involves children in finding out about the world through their own activities and making some sense of the results through their own thinking. It is concerned with understanding the way things are and why they behave as they do. Children are confronted by Science in their daily life but being able to look at

the world scientifically requires the development of particular knowledge and understanding, skills and attitudes.

***Our aims in teaching science are that all children will:***

- To foster children's natural curiosity about the world
- To develop scientific knowledge and understanding
- For children to observe living and inanimate things and to recognise characteristics such as pattern and order
- To ensure that children have regular, relevant and pleasurable experiences of science
- To provide equal opportunities for all children
- To provide a structure from which we can all ensure continuity and progression both within the school and for transfer to other schools
- To develop attitudes that are positive to science, such as open-mindedness, respect for evidence, perseverance and critical reflection
- To match learning experiences to the abilities, aptitudes, needs and expectations of the children so that they may fulfill their scientific potential
- To develop the intellectual and practical skills that allow the children to explore the world of science
- To develop an understanding of the links between Science and technology
- To ensure sensitivity and respect for the environment and all it contains
- To gain knowledge about safety and to develop a responsible attitude for scientific exploration

## **Implementation**

### Early Years Foundation Stage

Children have open-ended opportunities to explore science during independent learning. Structured, exploratory play occurs daily. Children have the opportunity to work collaboratively and individually, responding to open-ended questions posed by adults. Verbal feedback is a valuable way to take the children's thinking and learning further.

Resources are available during continuous provision to enable our learners to explore a range of skills independently. The permanent areas that link to science are imaginative play, construction, the world, technology and creative play. These are permanent areas in both nursery and reception. science is linked to the following areas of learning:

- communication and language
- understanding the world
- expressive arts and design

Ongoing observations are made in these areas to record and assess the development of skills.

Observations are recorded in children's individual learning journeys.

### Key Stage One

Children will develop their science skills and knowledge through adult focus group learning and independent challenges across the learning environment.

Following the National Curriculum guidelines children learn about:

In Year 1:

- 1) **Working Scientifically**
- 2) **Plants**
- 3) **Animals, including humans**
- 4) **Everyday materials**
- 5) **Seasonal change**

In Year 2:

- 1) **Working Scientifically**
- 2) **Living Things and their Habitats**
- 3) **Plants**
- 4) **Animals including humans**
- 5) **Uses of everyday materials**

**The emphasis in our teaching of science is on:**

- First hand interactive experience where possible.
- Discussions with targeted questions from different resources.
- Encouraging children to take control of their own learning.
- Using a variety of mediums and strategies to deliver knowledge.
- Ensuring children use this acquired knowledge in a variety of ways.

**Planning in science is a process in which all teaching staff are involved.**

- Long term plans/Curriculum Map
- Medium term plans
- Knowledge Organisers
- Weekly plans
- Plans are checked regularly by the Senior Leadership Team.

**Children's progress in science is recorded through:**

- Ongoing assessments, with a termly summative assessment.
- Photos/Videos/Artwork.
- Regular feedback.
- Pupil Voice.

**Reporting to families occurs formally and informally through:**

- Curriculum letters informing families of coverage.
- Sending learning home to be shared termly.
- Sharing Learning Sessions each half term.
- Open Evenings (3 per year).
- End of Year Reports.

**Resources used include:**

- First hand practical experience
- Through this, children will be given opportunities to observe, discover and learn from first hand experiences.
- Through collections of living and non-living things, models and through the children's own interests.
- By making provision for free activity and experiments with basic materials.

- By using the resources of the immediate environment of the school, local community, visits to places of interest further a field and inviting STEM visitors.
- By producing stimuli for children to conduct their own simple experiments and problem solving activities using relevant apparatus.
- By providing opportunities for children to use books, stories, pictures, charts and visual cards when and where appropriate to gather information.
- By encouraging children to communicate their findings appropriately to others, by discussion and recordings. Such recordings may be in the form of charts, graphs, pictures, paintings, collages, and will reflect the capabilities of individual children.
- By giving pupils opportunities, where appropriate, in their study of science to develop and apply their information communication technology (ICT) capabilities both at home and at school.
- Ideas will arise from children's interests and from cross-curricular topics, themes or projects introduced by teachers.

### **Pupils with additional needs:**

When planning science activities, differentiation is considered so that all children can access the science curriculum.

A range of teaching strategies will be employed catering to the children's needs. For example a more practical approach or pictorial recordings may be used with children that find accessing the writing part of the science curriculum difficult.

Accelerated learners are given the opportunity to carry out further research into the area being taught. They will also be extended through different types of open questions that encourage the children to think more empathetically. Accelerated learners will be encouraged to work with increasing independence and taught the strategies with which to do so.

### **Diversity**

We provide an inclusive science curriculum, which is appropriate and accessible to the needs and abilities of all pupils in accordance with the School's Equal Opportunity Policy. We use the pupils' personal experiences when learning about a range of cultures and traditions. We are committed to providing an unbiased curriculum.

### **Impact**

At the end of EYFS children should have achieved the following ELGs:

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.
- Explore the natural world around them.
- Describe what they see, hear and feel whilst outside.
- Recognise some environments that are different to the one in which they live.
- Understand the effect of changing seasons on the natural world around them

By the End of Key Stage 1 children should:

Working scientifically

During years 1 and 2, pupils 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.

**By the End of Year 1 children should:**

Plants

- identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.
- identify and describe the basic structure of a variety of common flowering plants, including trees.

Animals, including humans

- identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.
- identify and name a variety of common animals that are carnivores, herbivores and omnivores
- describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets).
- identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.

Everyday materials

- distinguish between an object and the material from which it is made.
- identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.
- describe the simple physical properties of a variety of everyday materials
- compare and group together a variety of everyday materials on the basis of their simple physical properties.

Seasonal changes

- observe changes across the 4 seasons.
- observe and describe weather associated with the seasons and how day length varies.

**By the End of Year 2 children should:**

Living things and their habitats

- explore and compare the differences between things that are living, dead, and things that have never been alive.

- identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.
- identify and name a variety of plants and animals in their habitats, including microhabitats describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.

### Plants

- observe and describe how seeds and bulbs grow into mature plants
- find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.

### Animals, including humans

- notice that animals, including humans, have offspring which grow into adults.
- find out about and describe the basic needs of animals, including humans, for survival (water, food and air).
- describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.

### Uses of everyday materials

- identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.
- find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

- Children will be given the opportunity to work independently and in groups. The groups may be of mixed or matched ability depending on the task set.

Practical, investigative, oral, written and problem solving activities will be pursued. Open-ended tasks providing opportunities for further research and discussion will also be used.

- The children's learning in Years 1 and 2 will be mainly recorded in their Independent Learning Folder. This folder will provide a record of the progress made within science during the year and will be a source of evidence for assessments. Marking will be used to inform future planning as well as providing the children with guidance on how to improve their work.
- In the Foundation Stage Science is taught through Knowledge and Understanding of the World.

**Reviewed: February 2023**