



# Whitehall Nursery and Infant School

## Science Policy

### Rationale

Science at Whitehall Nursery and Infant School is a means to provide pupils with learning opportunities to investigate the world around them and to develop and extend their knowledge of natural phenomena. They will be encouraged to learn about new things and develop skills which will allow them access later to other areas of knowledge on a personal, national and global level. Pupils will be allowed the opportunity to carry out specific investigations in order to assist them to make disciplined enquires themselves using ideas to solve problems. Positive scientific practice will help to create independent learners through generating an acceptance of uncertainty in events, an ability to co-operate with others and an ability to analyse information around them critically.

### Aims and objectives

To support and encourage, all pupils to:

1. Develop attitudes of curiosity, perseverance and co-operation.
2. Observe and find patterns by classifying and comparing.
3. Question, predict and hypothesise.
4. Explore, repeat activities and devise tests which are 'fair', understanding why 'fair testing' is vital.
5. Co-operate with each other, contribute their own ideas, respect the opinion of others and share ideas.
6. Communicate their findings verbally and practically as well as in writing, charts and models. To utilise their knowledge and skills in I.C.T to interpret and communicate their findings, where it enhances their learning.
7. Develop manipulative skills which help them to use a variety of tools and equipment.
8. Develop an understanding of scientific ideas that will help them to achieve a greater knowledge and understanding of themselves and their place in the world.
9. Develop a set of attitudes which will promote scientific ways of thinking, including open-mindedness, perseverance and objectivity.

### Science and the National Curriculum

For the purposes of assessment and recording, the Attainments for Key Stage 1 are:

- Animals including humans
- Living things and their habitats
- Seasonal changes
- Plants
- Materials

When planning units or individual scientific work opportunities and support should be given to allow pupils to develop the following skills:

- Observing
- Sorting/Classifying
- Comparing/Measuring
- Investigating
- Questioning
- Hypothesising
- Fair Testing

- Designing and Making
- Recording
- Communicating

### **Science in the EYFS**

Foundation Stage teaching of Science is based around the 'Understanding the World', mainly 'the World' from 'Development Matters' (the Early years curriculum objectives), but some aspects through 'People and Communities', such as noticing similarities and differences and talking about things that they have observed. Science makes a significant and positive contribution to the EYFS objectives of developing a child's knowledge and understanding of the world around them, creating a sense of awe and wonder about science. As the scientific part of this area of the curriculum, pupils investigate objects and materials and their properties, learn about change and patterns, similarities and differences, and question how and why things work, preparing them to extend and further develop these skills in Key Stage 1.

### **SMSC and PHSE**

All pupils at Whitehall Nursery and Infant School will have access to every aspect of Science Education at all times, in line with the schools 'Equal Opportunities' policy. The children's cultural development will be shown through interest in exploring, improving understanding of and showing respect for scientific discoveries from different cultures, including our own, by both genders and by learning environmental issues and how they can help to solve them. The children's moral development will be progressed by looking at how to keep a fair test and what kind of tests we can do that are morally good and the social progression will be through working together to discover new scientific knowledge. Excellence in Science at Whitehall Nursery and Infant School will be celebrated through the quality displays of scientific work in classrooms and a portfolio of work achieved across all Key Stages. At Whitehall, teaching and experiencing awe and wonder is our way of engaging children in the brilliance of Science.

### **Pupils' Experiences**

In science opportunities will be created for pupils to:

- go on walks around the local area in all of the different seasons to observe the changes to the local environment and to experience plants growing naturally around them
- take part in science days and assemblies throughout the year for all year groups in school. In these assemblies all of the children get to take part in science experiments such as seeing the effects of different chemicals being mixed together. We have butterflies and chicks in school at different times of the year to allow the children to see the life cycle of caterpillars for themselves and observe changes over time.
- go on trips, such as to the farm and Safari Park, where they can see first-hand what animals look like, how they are different and similar, what they eat, how they live, and visitors that come to our school with animals that the children can see close up and even hold, such as the birds of prey company, that allows the children to get experiences with animals to notice similarities and differences.
- work with plants and observe the weather – measuring and observing change over time
- work with man-made materials to discover and experiment with in the classroom to test the suitability of material and to gain a deeper understanding of observing fair tests and making scientific conclusions

### **Science and Inclusion**

At Whitehall Nursery and Infant School we teach science to all pupils, whatever their ability. Science forms part of the school curriculum policy to provide a broad and balanced education to all pupils. Opportunities that set suitable learning challenges and respond to each pupil's differing needs are provided to ensure all pupils make progress.

### **Assessment for learning**

Children demonstrate their ability in science in a variety of different ways. Teachers will assess children's learning by making informal judgments as they observe them during lessons. By asking frequent and

directed questions, throughout the lessons, to assess their learning and immediately address any misconceptions. On completion of a piece of work, the teacher assesses the work and gives oral or written feedback, as necessary, to support the child in making progress. Pupils are also encouraged to make judgments about how they can improve their own work. A judgement is made by the class teacher with regard to the progress a child has made and this is recorded on a subject specific matrix. The subject leader looks at examples of children's work across the year groups and monitors these against the expected attainment for the end of key stage. Subject matrixes are gathered in termly by subject leaders to monitor progress of individual children within classes.

## **Resources**

Fundamental resources for each year group's practical needs are based within the classroom. Additional equipment is organised in the Resource Room using labelled boxes for each unit of work which include a full list of all resources in each box. A list of all available resources can also be located on the 'T' drive.

The School Library contains a stock of books on Science based subjects. Additional reference books are located in the Science Resource boxes in the resource room.

## **Monitoring**

The coordination and planning of the science curriculum is the responsibility of the subject leader, who also:

- supports colleagues by keeping informed about current developments in subject and providing a strategic lead and direction for this subject
- discusses progress with the head teacher and evaluates the strengths and weaknesses in their subject and highlighting areas for further improvement
- arranges time to review evidence of the children's work
- observes science lessons taught by class teacher in order to provide constructive feedback, highlighting positive areas and areas for improvement; directing colleagues to sources of support including in house good practise;
- Provide a termly summary to Governors.

**This policy will be reviewed every three years.**

Signed: Rebecca Skidmore

Date: September 2020

## Appendix I – Science progression

Science strand	EYFS (the world 40–60, ELG)	Year 1	Year 2
Working scientifically	<ul style="list-style-type: none"> <li>-Looks closely at similarities, differences, patterns and change.</li> <li>-Makes observations of animals and plants and explains why some things occur and talks about change.</li> </ul>	<ul style="list-style-type: none"> <li>-Ask simple questions and recognise they can be answered in different ways.</li> <li>-Perform simple tests.</li> <li>-Use simple equipment to observe closely.</li> <li>-Identify and classify.</li> <li>-Use observations and ideas to suggest answers to questions.</li> <li>-Gather and record data to help in answering questions.</li> </ul>	<ul style="list-style-type: none"> <li>-Ask simple questions and recognise they can be answered in different ways including use of scientific language from the NC.</li> <li>-Use simple equipment to observe closely including changes over time.</li> <li>-Communicate his/her ideas, what he/she does, and what he/she finds out in a variety of ways.</li> <li>-Perform simple comparative tests.</li> <li>-Identify, group and classify.</li> <li>-Use his/herttheir observations and ideas to suggest answers to questions noticing similarities, differences and patterns.</li> <li>-Gather and record data to help in answering questions including from secondary sources of information.</li> </ul>
Animals including humans	<ul style="list-style-type: none"> <li>-Looks closely at similarities, differences, patterns and change.</li> <li>-Makes observations of animals and plants and explains why some things occur and</li> </ul>	<ul style="list-style-type: none"> <li>-Identify and name a variety of common animals e.g. mammal, reptile, amphibian, fish, bird, insect.</li> <li>-Group animals according to what they eat.</li> <li>-Identify and name a variety of common animals that are carnivores, herbivores and</li> </ul>	<ul style="list-style-type: none"> <li>-Understand that animals, including humans have offspring which grow into adults.</li> <li>-Describe the basic needs of animals, including humans for survival (water, food and air).</li> <li>-Describe the importance for humans of</li> </ul>

	<p>talks about change.</p> <p>-Knows about similarities and differences in relation to places, objects, materials and living things.</p>	<p>omnivores.</p> <p>-Identify and name a variety of common animals including carnivores, herbivores and omnivores.</p> <p>-Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets.)</p> <p>-Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with which sense.</p>	<p>exercise, eating the right amounts of different types of food and hygiene.</p> <p>-Year 2 can revisit this when covering the needs of humans in Autumn 2</p>
<p>Living things and their habitats</p>	<p>-Secure animals incl. humans EYFS learning.</p> <p>Introduce Yr. 2 learning.</p>	<p>-Secure animals incl. humans EYFS/Yr. 1 learning.</p> <p>Introduce Yr. 2 learning.</p>	<p>-Explore and compare the differences between things that are living, dead and things that have never been alive.</p> <p>-Identify that most living things live in habitats to which they are suited and describe how different habitats that provide for the basic needs of different kinds of animals and plants and how they depend on each other.</p> <p>-Identify and name a variety of plants and animals in their habitats, including micro-habitats.</p> <p>-Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain and identify and name</p>

			different sources of food.
Seasonal changes	<ul style="list-style-type: none"> <li>-Looks closely at similarities, differences, patterns and change.</li> <li>-Talks about features of their environment and how they vary from one another.</li> <li>-Knows about similarities and differences in relation to places, objects, materials and living things.</li> </ul>	<ul style="list-style-type: none"> <li>-Observe changes across the four seasons.</li> <li>-Observe and describe weather associated with the seasons and how the day length varies.</li> </ul>	<ul style="list-style-type: none"> <li>-Secure EYFS/Yr. 1 learning by revisiting weather daily and observing over time and comparing the seasons</li> </ul>
Plants	<ul style="list-style-type: none"> <li>-Looks closely at similarities, differences, patterns and change.</li> <li>-Talks about features of their environment and how they vary from one another.</li> <li>-Knows about similarities and differences in relation to places, objects, materials and living things.</li> </ul>	<ul style="list-style-type: none"> <li>-Identify and name a variety of common and wild green plants, including deciduous and evergreen trees.</li> <li>-Identify the basic structure of a variety of common wild and garden plants, including trees.</li> </ul>	<ul style="list-style-type: none"> <li>-Observe and describe how seeds and bulbs grow into mature plants.</li> <li>-Describe how plants need water, light and a suitable temperature to grow and stay healthy and describe the impact of changing these.</li> </ul>
Materials	<ul style="list-style-type: none"> <li>-Looks closely at similarities, differences, patterns and change.</li> <li>-Knows about similarities and differences in relation to</li> </ul>	<ul style="list-style-type: none"> <li>-Distinguish between an object and the material from which it is made.</li> <li>-Identify and name a variety of materials including wood, plastic, glass, metal, water and rock.</li> </ul>	<ul style="list-style-type: none"> <li>-Identify and compare the suitability of a variety of everyday materials, including wood, plastic, metal, glass, brick, rock, paper and cardboard for particular uses.</li> <li>-Describe how the shapes of solid objects</li> </ul>

	places, objects, materials and living things.	<ul style="list-style-type: none"><li>-Describe the simple physical properties of a variety of everyday materials.</li><li>-Compare and group together a variety of everyday materials on the basis of their simple physical properties.</li></ul>	made from some materials can be changed by squashing, bending, twisting and stretching.
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