



Science Education

A Guide for Parents and Carers



Introduction

The Science curriculum aims to give children the ability and skills to work scientifically and learn about animals, humans, materials, plants, habitats, and seasonal changes. Children will have the opportunity to plan and participate in investigations, observations, testing, identification, classifying, gathering and recording their findings. Each term, children will work scientifically to challenge their current knowledge and understanding, develop their skills, and explore the world around them. The school will focus on developing a deeper knowledge of scientific concepts, which will allow children to think and act as scientists in a practical and engaging way. Children will learn how to reflect on their findings and draw comparisons which will determine their conclusions. The curriculum will inspire a passion for and a commitment to the subject.

At Nevill Road Infant School, we value science as a creative and enjoyable part of our broad and balanced school curriculum. We believe that it should be fully inclusive to every child, offering opportunities for challenge and a sense of understanding about the world that we live in. Our aim is to motivate the children to explore science as well as their own curious endeavours and natural interests. The children will be provided with many opportunities to work scientifically, invited to compare data that they collect, discover their environments and do this with open arms into questioning and exploring.

Our aims are to:

- Ensure that children become proficient in planning investigations and making observations.
- Equip children with the skills and understanding they need to carry out a fair test.
- Encourage children to evaluate and build conclusions based on their findings.
- Extend children's scientific knowledge of animals, humans, materials, plants, habitats and seasonal changes.
- Create a love of learning where children are free to explore their own curiosities and interests.
- Give children a sense of pride and achievement.
- Develop children's sense of awe and wonder.
- Encourage children to ask questions and recognise that questions may be answered in different ways.

The School's Curriculum Organisation

- 2-yr old provision, Nursery and Reception classes follow the EYFS curriculum guidance as well as 'Development Matters.' Science activities are derived predominantly from the Understanding the World area of learning.
- At Key Stage 1, the Scheme of Work has been developed from the National Curriculum Programmes of Study (PoS) for science, from the National Curriculum. Learning objectives have been mapped and allocated to each year group. These objectives were chosen to best-suit the termly topics, and to reflect continuity and progression in children's skills, knowledge and understanding through the Key Stage. The Scheme of Work is also underpinned by the school's Curriculum Drivers of 'The Seed', 'Being Brilliant' and 'Sense of Self'.

Year Group Curriculum

	EYFS	Y1	Y2
Autumn 1	Healthy food choices	Seasonal weather changes	Animals including humans
Autumn 2	Basic hygiene	Working scientifically (Healthy food choices)	Living things and their habitats
Spring 1	Materials	Everyday Materials	Working scientifically
Spring 2	Plants / Animals	Seasonal weather changes	Plants
Summer 1	Weather/seasons	Plants	Everyday materials
Summer 2	Changing states of matter	Animals including humans	Science recap/knowledge coverage

How do we teach Science?

The teacher will aim to develop a confident, creative and curious approach to working scientifically. To this end, children will be given an active role in choosing their materials and equipment to plan their investigations, and encouraged to critically evaluate their findings to draw conclusions and make connections. Tools and equipment should be named and explained. Teachers encourage the use of more technical vocabulary, for example, amphibians, deciduous, opaque, microhabitat etc. Demonstration should be used alongside examples to deepen investigations and spark children's curiosity. Hearing learning intentions and success criteria orally and seeing them visually will help the children to have a greater understanding of the skills needed to be a great scientist.

A) Plan

Early Years Foundation Stage:

Children choose the resources they need for their chosen activity, sometimes with support, sometimes without.

KS1:

Children ask simple questions and recognise that there may be more than one possible answer. They ask relevant questions and use different types of investigations / enquiries

to answer them. Children can set up simple practical investigations, make comparisons, and know how to plan a fair test.

B) Do

Early Years Foundation Stage:

Children know about similarities and differences in relation to places, objects, materials, and living things. They make observations of animals and plants, and explore a variety of materials, tools and techniques, experimenting with texture, form and function. Children also select and use technology for particular purposes.

KS1:

Children observe closely, using simple equipment, and perform simple tests / investigations. They also identify and classify. Children can use simple equipment such as thermometers and rulers.

C) Record

Early Years Foundation Stage:

Children represent their own ideas and thoughts.

KS1:

Children gather, record, classify and present data and findings to help answer their own questions or those of other people. They can record their findings using simple scientific language, drawings, and labelled diagrams.

D) Review

Early Years Foundation Stage:

Children talk about the features of their own immediate environment and how environments might vary from one another. They also explain why some things occur and can talk about changes.

KS1:

Children use their observations and ideas to suggest answers to questions. They can report on their findings from investigations using both oral and written explanations, displays, or presentations of their results and conclusions. They use results to draw simple conclusions, make predictions, suggest improvements, and raise further questions. Children can identify differences, similarities, and changes related to simple scientific ideas and processes, and can use simple scientific evidence to answer questions or to support their findings.

As a simple generalisation, children should proceed from 'structured play' to 'guided discovery' to increasingly independent learning. Teachers also need to be aware that rigid conditions are stifling and involve no skills for the child who will just produce a copy of the teacher's template, for example, selecting the same tools and equipment to carry out the demonstrated investigation rather than trying out their own methods and ideas.

Language we use

	Little Brown Bears & Nursery		Reception			Year 1		Year 2	
Animals Including Humans	head eyes nose mouth ears hands fingers feet toes arm leg animal bird	fish feathers fur skin hair wash clean germs grow	herbivore carnivore omnivore human animal wild fish birds elbow leg hair knee face	back head toes ear hands eye mouth nose fingers arm bird fish insect	scales fins gills wash clean germs grow fruit vegetables	herbivore carnivore omnivore amphibian reptiles mammals invertebrates land water backbone skeleton adult baby	toddler child teenager healthy strong energy meat plants classification	classification egg larva pupa adult growth nutrition respiration hygiene offspring needs survival carbohydrate	protein fat dairy exercise pollution global warming greenhouse gases emissions life cycle reproduce
Everyday Materials	material wood glass paper hard soft		material metal wood rock plastic flour butter hard paper brick fabric glass	bendy rough shiny smooth soft recycle		magnetic rubber elastic foil solid liquid gas crumble repurpose reuse stiff stretch	object dull	dissolve soluble insoluble solid liquid gas filter evaporate condense waterproof absorbent opaque	flexible resistant rigid reflective brittle transparent
Plants	tree leaf flower stem seed twig soil	grow water sun	tree trunk fruit branch roots petals leaves	bulb flowers seed stem berry stalk soil		oxygen live sun blossom bark bud water	germination deciduous evergreen light heat weeds shoot	germination reproduction temperature suitable nutrients wild flower dead	alive healthy compost fertiliser

Living Things and Their Habitats	Hot		arctic	habitat	habitat	rainforest	micro habitat	predator
	cold		desert	environment	meadow	arctic	log pile	species
	sea		ocean	fossils	woodland	litter	organism	energy
	pond		forest	hatch	grassland		reproduce	prey
	jungle		scales		river		living	polar
	wood		stream		beach		dead	produce
	feathers		lake		cliff		food chain	consume
	garden		brook		invertebrate		excretion	seashore
	water		diet		mountainous		respiration	
	Seasonal Changes	leaves	warm	Summer	cloud	Summer	daylight	degrees
trees		hot	Spring	thunder	Spring	temperature	Celsius	conduct
day		cold	Autumn	lightning	Autumn	thermometer	weather vane	insulate
night		wet	Winter	damp	Winter	rain gauge	anemometer	thermal
dark		dry	Moon	breezy	gust	length	climate	
light		rainbow	Sun	month	sleet		horizon	
weather		wind	year	fog	tornado		equator	
rain			season		rainfall		temperature	
snow			hail		sunrise		thermometer	
sun			sunlight		sunset		variable	
Working Scientifically	question	answer	question	result	investigate	record	investigation	map
	watch	test	observe	equipment	question	diagram	scientific	data
	same	sort	investigate	identify	predict	map	real life	chart
	different		predict	group	observe	compare	gather	findings
	light		experiment	describe	practical	contrast	equipment	contrast
	dark		react	compare	experiment	describe	identify	describe
	guess		bubble	similar	answer	world	fair test	biology
	see		explode	measure	fair test	Science	classify	chemistry
	smell		explore	record	equipment	classify	record	physics
	touch		sight	feel	identify		diagram	results

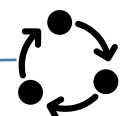
The questions we consider when planning an investigation



What are you trying to find out?



What do you predict will happen?



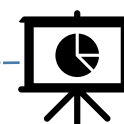
What equipment will you use?
What method will you use?
What will you keep the same?
What will you change?



What happened during the investigation?



What have you found out?



Was it a fair test?
What went well or not so well?
What could you investigate next?

