



SCIENCE PROGRESSION GRID

Intent: At Dorothy Barley Infant School we believe that a high-quality Science curriculum provides the foundations for understanding the world. Science encompasses the acquisition of new knowledge, concepts and skills; encouraging pupils to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural wonders that occur on our planet. During active and engaging lessons, pupils will learn and discuss scientific theories and processes, which will enable them to answer scientific questions about the world. They will develop scientific enquiry skills and use scientific language to explain concepts confidently. They are therefore well prepared for the Science curriculum at Key Stage Two and beyond.

SHINE:

- S** – Sparking curiosity
- H** – Hands on and active learning
- I** – Independence
- N** – New knowledge and skills
- E** – Empowering experiences

SMSC:

- S** – Spiritual
- M** – Moral
- S** – Social
- C** – Cultural

NURSERY

RECEPTION

YEAR 1

YEAR 2

KEY VOCABULARY

animal
material
plastic
wood
plant
seed
grow
caterpillar
butterfly
float
sink

body
legs
chest
back
bones
melting
freezing
sound
hard
soft
leaves
stem
roots
flower
light
shadow
weather

season
temperature
deciduous
evergreen
fruit
bulb
trunk
fish
amphibian
reptile
mammal
bird
carnivore
herbivore
omnivore
absorbent
flexible
opaque
transparent
waterproof

habitat
microhabitat
food chain
predator
prey
producer
climate
minerals
germination
extinct
life cycle
offspring
hygiene
exercise
disease
suitability
conductor
insulator

NURSERY

RECEPTION

YEAR 1

YEAR 2

Working Scientifically

Use all of their senses in hands-on exploration of the natural world

Classify natural materials e.g. rocks, leaves

Use magnifying glasses to observe

Care for animals and take part in first hand scientific explorations of animal life cycles (ducklings)

Identify common materials, animals and plants

Explore scientific content using non-fiction texts

Observe a plant as it grows and changes

Explore the natural world around them

Observe the natural world as seasons change

Sort and classify different animals, for example by size or animal group

Explore scientific content using non-fiction texts

Use magnifying glasses to closely observe animals

Identify and classify different materials

Observing over time
Observe the effect of changing seasons on the natural world
Use simple equipment to observe closely
Record observations

Fair and comparative tests
Understand that we test one thing at time when investigating
After guidance from the teacher, conduct a simple fair test
Use simple units to measure and record
Share what they think could happen during an investigation

Identifying and classifying
Use properties to identify and sort e.g. materials, animals, plants
Use their own criteria to sort animals
Use simple guides such as plant spotters to help them identify

Research
Use age appropriate non-fiction texts to extend their understanding of scientific concepts

Pattern seeking
Notice simple patterns over a period of time

Observing over time
Use simple equipment to observe closely (magnifying glasses and microscopes)
Record observations
Use simple equipment to record measurements gathered from observation (e.g. plant growth)

Fair and comparative tests
Identify whether a test is fair or not
Collect results from a fair and comparative test
Make a prediction based on scientific understanding
Record results in a table
Work with the teacher to draw a simple conclusion
Use standard units to measure
Begin to work in a group to design a fair test

Identifying and classifying
Use scientific properties to classify into a group (e.g. living/dead/has never lived)

Research
Use age appropriate non-fiction texts to extend their understanding of scientific concepts
With guidance from the teacher, use appropriate online sources to extend scientific understand e.g. habitats

Pattern seeking
Notice simple patterns over a period of time

Plants

Plant seeds and care for growing plants Understand the key features of the life cycle of a plant Understand that all plants grow from seeds Understand what a plant needs to grow Show and explain the concepts of growth, decay and change	Identify and describe plants common to the local area Understand that some plants produce flowers and some do not Begin to name feature of plants, such as trunks, leaves and roots	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.	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
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Animals, Including Humans

Understand the key features of the life cycle of an animal Care for animals and take part in first hand scientific explorations of animal life cycles (ducklings, butterflies) Understand that all animals change as they grow, but some changes are bigger than others Name common animals and begin to describe their features	Identify and describe animals common to the local area, as well as common land and water animals Understand that some animals eat meat, others eat plants and some eat both Name the major parts of the human body Describe the function of major parts of the body e.g. vision (eyes)	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	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
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Everyday Materials

Explore collections of materials with similar and/or different properties Explore and talk about different forces they can feel: <ul style="list-style-type: none">• How water pushes up when they try to push a plastic boat under• How they can stretch elastic but cannot bend a metal• Magnetic attraction and repulsion	Observe and interact with natural processes: <ul style="list-style-type: none">• Ice melting• Light travelling through transparent material• An object casting a shadow• A boat floating on water Name some common materials Sort items according to what material they are made of	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	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
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<p>Talk about the differences between materials and changes they notice</p> <p>Explore how different materials sink and float</p> <p>Explore how you can shine light through some materials, but not others</p> <p>Investigate shadows</p> <p>Explore melting</p>	<p>Begin to use scientific vocabulary to describe materials e.g. hard/soft</p>	<p>Compare and group together a variety of everyday materials on the basis of their simple physical properties</p>	
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Seasonal Changes

<p>Use all of their senses in hands-on exploration of the natural world</p> <p>Show and explain the concepts of growth, decay and change</p>	<p>Explore the natural world around them</p> <p>Understand the effect of changing seasons on the natural world around them</p> <p>Observe the natural world as seasons change</p>	<p>Observe changes across the four seasons</p> <p>Observe and describe weather associated with the seasons and how day length varies</p>	
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Living Things and Their Habitats

<p>Begin to understand the need to respect and care for the natural environment and all living things</p>	<p>Understand that animals live in different environments on a large scale e.g. land vs ocean</p> <p>Understand the importance of caring for animals and the environment in which they live</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 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-habitat</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 different sources of food</p>
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Assessment

Key Enquiry: Big Questions

Nursery

Understanding the World

What materials can we see?

Can we name and describe animals?

How do animals grow and change?

How do plants grow?

What floats and what sinks?

What can we bend, stretch and snap?

Reception

Understanding the World

What are the different parts of my body?

How are animals different to each other?

What sounds can we hear?

What do we notice about different plants?

How can we describe different materials?

How can we create shadows?

Year 1

Everyday Materials

How can we classify materials

Animals, including Humans

How do humans use their senses?

How can we identify different animals?

Plants

How can we identify different plants?

Seasonal Changes

How does the weather change with the seasons?

Year 2

Everyday Materials

What materials are best to use for particular purposes?

Animals, including Humans

What do animals and humans need to survive?

Why are diet and exercise important?

Living Things and their Habitats

How do animals survive in different habitats?

Plants

How do plants grow and survive?