








## Broadway Infant School – Science Progression of skills 2022-2023

### Working Scientifically Skills:

Working Scientifically Skills	EYFS	Key Stage One
 <p><b>Asking Questions</b></p>	<p>Understands 'why' questions, like: "Why do you think the caterpillar got so fat?" (N – C&amp;L L,A&amp;U)</p> <p>Asks questions to find out more and to check he/she understands what has been said to him/her. (Rec – C&amp;L S)</p> <p><b>Makes comments about what he/she has heard and asks questions to clarify understanding.</b> (ELG – C&amp;L S)</p>	<p>Ask people questions and use simple secondary sources to find answers</p> <p>Explore the world around them and ask their own simple questions</p>
 <p><b>Making Predictions</b></p>		<p>Begin to recognise different ways in which they might answer scientific questions</p>
 <p><b>Setting up tests</b></p>		<p>Carry out simple tests</p> <p>Experience different types of science enquiries, including practical activities</p>
 <p><b>Observing and Measuring</b></p>	<p>Talk about what they see, using a wide vocabulary. (N – UTW NW)</p>	<p>Use their observations and ideas to suggest answers to questions</p> <p>Observe closely using simple equipment With help, observe changes over time</p> <p>Use simple measurements and equipment (e.g. hand lenses, egg timers) to gather data</p>

 <p><b>Recording Data</b></p>		<p>Record simple data</p> <p>With help, they should record and communicate their findings in a range of ways and begin to use simple scientific language</p>
 <p><b>Interpreting and Communicating Results</b></p>		<p>With guidance, they should begin to notice patterns and relationships</p> <p>Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them (identifying and classifying)</p>
 <p><b>Evaluating</b></p>	<p>Uses talk to help work out problems and organise thinking and activities, explaining how things work and why things might happen. (Rec – C&amp;L S)</p>	<p>Talk about what they have found out and how they found it out</p>

Over the year pupils should carry out several investigations which involve different types of enquiry. The 6 different types of enquiry that they need to experience are:

- comparative / fair testing
- research
- observation over time
- pattern seeking
- identifying, grouping and classifying
- problem solving

### **Comparative / fair testing**

Changing one variable to see its effect on another, whilst keeping all others the same.



### **Research**

Using secondary sources of information to answer scientific questions.



### **Observation over time**

Observing changes that occur over a period of time ranging from minutes to months.



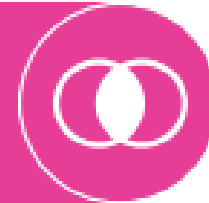
### **Pattern-seeking**

Identifying patterns and looking for relationships in enquiries where variables are difficult to control.



### **Identifying, grouping and classifying**

Making observations to name, sort and organise items.



### **Problem-solving**

Applying prior scientific knowledge to find answers to problems.



## Working Scientifically in the EYFS

I question why things happen.

I have my own ideas.

I begin to use science vocabulary.

I test my ideas.

I can talk about plants, animals, natural and found objects.

I notice similarities and differences.

I can create simple representations of people and objects.

I use equipment and tools carefully.



## Working Scientifically in Key Stage One

I ask simple questions.

I perform simple tests.

I use simple scientific vocabulary.

I can compare things. I sort and group them.

I recognise that questions can be answered in different

I use simple equipment to make measurements.

I can talk about what I have found out.

I gather and record simple data in different ways.





## EYFS and Key Stage 1 – Science content progression

Plants	Living things & their habitats	Animals including Humans	Seasonal Changes	Materials
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EYFS	Year 1 – Statutory requirements	Year 2 – statutory requirements
	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	
Manages own basic hygiene and personal needs, including dressing and going to the toilet and understands the importance of healthy food choices. (Rec - P,S&ED MS)		Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene
Knows and can talk about the different factors that support overall health and wellbeing; regular physical activity, healthy eating, tooth brushing, sensible amounts of screen time and having a good sleep. (Rec - P,S&ED MS)		
	Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)	
	Identify and name a variety of common animals that are carnivores, herbivores and omnivores Group animals according to what they eat	Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)
Understands the key features of the life cycle of an animal. (N – UTW NW)	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals	Notice that animals, including humans, have offspring which grow into adults
<b>Explores the natural world around him/her, making observations and drawing pictures of animals and plants.</b> (ELG – UTW NW)		Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy
Understands the key features of the life cycle of a plant. (N – UTW NW)	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
Plants seeds and cares for growing plants (N – UTW NW)		
		Explore and compare the differences between things that are living, dead, and things that have never been alive
		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
	Identify and name a variety of wild and garden plants including deciduous and evergreen trees	Identify and name a variety of plants and animals in their habitats, including micro-habitats

Is beginning to understand the need to respect and care for the natural environment and all living things. (N – UTW NW)		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
Recognises some environments that are different to the one in which he/she lives. (Rec – UTW NW)		
Understands the effect of changing seasons on the natural world around him/her (Rec – UTW NW)	Observe changes across the four seasons	
<b>Understands some important processes and changes in the natural world around him/her including the seasons and changing states of matter.</b> (ELG – UTW NW)		
<b>Knows some similarities and differences between the natural world around him/her and contrasting environments, drawing on his/her experiences.</b> (ELG – UTW NW)	Observe and describe weather associated with the seasons and how day length varies	
Talks about the differences between materials and changes he/she notices. (N – UTW NW)	Distinguish between an object and the material from which it is made	
Explores collections of materials with similar and/or different properties. (N – UTW NW)	Describe the simple 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
Explores different materials freely, in order to develop their ideas about how to use them and what to make. (N – EA&D CWM)	Compare and group together a variety of everyday materials on the basis of their simple physical properties	
<b>Safely uses and explores a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</b> (ELG – EA&D CWM)		
Uses all senses in hands-on exploration of natural materials. (N – UTW NW)	Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock	Describe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching
Explores and talks about different forces they can feel. (N – UTW NW)		
Describes what they can see, hear and feel whilst outside (Rec – UTW NW)		
Explores how things work (N - UTW P,C&C)		
Use new vocabulary in different contexts. (Rec – C&L S)		

UTW – Understanding the World (NW – Natural World, P,C & C – People, Cultures and Communities)

EA & D- Expressive arts and design (CWM – creating with materials)

C & L – Communication and Language (L, A & U – Listening, Attention and Understanding)

P, S & ED – Personal, Social and Emotional Development (MS – Managing Self)

In EYFS the characteristics of effective learning are the foundations on which the working scientifically skills build in Key Stage 1. While children are playing and exploring, teachers should be modelling, encouraging and supporting them to do the following:

Show curiosity and ask questions

Make observations using their senses and simple equipment

Make direct comparisons

Use equipment to measure

Record their observations by drawing, taking photographs, using sorting rings or boxes and, in Reception, on simple tick sheets

Use their observations to help them to answer their questions

Talk about what they are doing and have found out

Identify, sort and group.



## **Assessment in Science**

Teachers can see that some of the statements from the Teacher Assessment Framework are not taught in the final year of Key Stage 1. Therefore, they should draw on assessments that have been made earlier in the key stage to make their judgement. As a result of this, Year 1 teachers will know when it is their responsibility to collect assessment evidence for those areas indicated on the Key Stage 1 science content assessment grid. This will be recorded on Target Tracker and the assessment tracking document.

The statements highlighted in yellow (below) refer to the end of Key Stage 1 'pupils can' assessment statements from the KS1 Teacher Assessment Framework. This enables teachers in Year 1 to identify which areas of the science curriculum will contribute towards a child's final Key Stage 1 judgement.

The ultimate aim is for teachers of Year 1 to input assessment judgements throughout the first year of the key stage so that the responsibility of the Year 2 teacher is to ensure that the remaining statements are taught and assessed thoroughly as well as to address any gaps in learning.

Please note: Requirements for working scientifically have not been highlighted in yellow until the end of key stage Year 2 science assessment record, however, must always be taught and assessed through science content in the programme of study.

## Year 1 Science Assessment Record (highlighted yellow are the end of key stage assessment indicators)

To judge that a pupil is working at the expected standard in science, teachers need to have evidence which demonstrates that the pupil meets all of the 'working scientifically' statements and all of the 'science content' taught in the final year of the key stage. Where possible, teachers should draw on assessments that have been made earlier in the key stage to make their judgement against this framework.

*Working Scientifically: working at the expected standard  
(KS1 NC requirements)*

Asking simple questions and recognising that they can be answered in different ways

Use simple equipment to observe closely

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

*Science Content: working at the expected standard  
(Y1 NC requirements)*

Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees (Y1 Plants)

Identify and describe the basic structure of a variety of common flowering plants, including trees (Y1 Plants)

Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals (Y1 Animals)

Identify and name a variety of common animals that are carnivores, herbivores and omnivores (Y1 Animals)

Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds, mammals, including pets) (Y1 Animals)

Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense (Y1 Animals)

Distinguish between an object and the material from which it is made (Y1 Materials)

Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock (Y1 Materials)

Describe the simple physical properties of a variety of everyday materials (Y1 Materials)

Compare and group together a variety of everyday materials on the basis of their simple physical properties (Y1 Materials)

Observe changes across the four seasons (Y1 Seasonal Changes)

Observe and describe weather associated with the seasons and how day length varies (Y1 Seasonal Changes)

### **ICT Links and apps that will enhance Science teaching at Broadway:**

Explorify

Pic collage (app) – *good for children that struggle to record written information*

Purple Mash

Science through stories - <https://www.stem.org.uk/teaching-science-through-stories#5-7>

Virtual tee – seeing inside the body

Microscope to be linked to the laptops or ipads

## Year 2 Science Assessment Record (highlighted yellow are the end of key stage assessment indicators)

To judge that a pupil is working at the expected standard in science, teachers need to have evidence which demonstrates that the pupil meets all of the 'working scientifically' statements and all of the 'science content' taught in the final year of the key stage. Where possible, teachers should draw on assessments that have been made earlier in the key stage to make their judgement against this framework.

### Working Scientifically: working at the expected standard (KS1 NC requirements)

Ask their own questions about what they notice and recognise they can be answered in different ways using scientific vocabulary (as listed in the NC)

use different types of scientific enquiry to gather and record data, using simple equipment where appropriate to answer questions including:

- Observing changes over time (using simple equipment)
- Noticing similarities, differences and patterns
- Identifying, grouping and classifying things
- Carrying out simple comparative tests
- Gather and record data, finding answers to questions using secondary sources of information

communicate their ideas, what they do and what they find out in a variety of ways

Using observations and ideas to suggest answers to questions noticing similarities, differences and patterns

### Science Content: working at the expected standard (Y2 NC requirements)

name and locate parts of the human body, including those related to the senses (Y1 Animals)

describe the importance of exercise, balanced diet and hygiene for humans (Y2 Animals)

describe the basic needs of animals for survival (Y2 Animals)

describe the main changes as young animals, including humans, grow into adults (Y2 Animals)

describe basic needs of plants for survival and the impact of changing these (Y2 Plants)

describe the main changes as seeds and bulbs grow into mature plants (Y2 Plants)
identify whether things are alive, dead or have never lived (Y2 Living Things)
describe and compare the observable features of animals from a range of groups (Y1 Animals)
group animals according to what they eat (Y1 Animals)
describe how animals get their food from other animals and/or from plants, and use simple food chains to describe these relationships (Y2 Living Things)
describe seasonal changes (Y1 Seasonal Changes)
name different plants and animals (Y2 Plants / Y2 Living Things)
describe how different plants and animals are suited to different habitats (Y2 Living Things)
distinguish objects from materials, describe their properties (Y1 Materials)
identify and group everyday materials, and compare their suitability for different uses (Y2 Materials)

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