



# Stukeley Meadows Primary School



Getting our best even better, every single day  
Be Kind – Work Hard – Aim High

## Science National Curriculum Objectives and Scientific Skills Progression

### EYFS to Year 6

This document is designed to assist with the teaching of scientific concepts and skills across EYFS, KS1 and KS2 and is aligned with the White Rose schemes of learning. This document identifies the year group the concepts and skills are explicitly taught and introduced. It enables teachers to plan units, which build on prior learning and prevents unnecessary repetition. It also gives teachers the information they need to check prior knowledge before moving on, to clarify any misconceptions and fill any gaps in knowledge and skills to help children to retain new learning. It can also be used to help teachers and families choose activities and books that will support the concepts and vocabulary the children are learning. For each of the major topic areas, you can then see which NC objectives are covered in that year, together with the term and block in which that objective is met in the White Rose Science schemes. The second part of this document highlights how disciplinary knowledge (titled working scientifically in the NC) progresses from Year 1 to Year 6. The working scientifically skills have been broken down into eight key areas.

#### National Curriculum objectives

Living things and their habitats						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recognise that different animals live in different habitats and eat different food.		Explore and compare the differences between things that are living, dead, and things that have never been alive <ul style="list-style-type: none"> <li>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</li> <li>Identify and name a variety of plants and animals in their habitats, including microhabitats</li> </ul>		Recognise that living things can be grouped in a variety of ways <ul style="list-style-type: none"> <li>explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> <li>Recognise that environments can change and that this can sometimes pose dangers to living things</li> </ul>	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird <ul style="list-style-type: none"> <li>Describe the life process of reproduction in some plants and animals</li> </ul>	Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals <ul style="list-style-type: none"> <li>Give reasons for classifying plants and animals based on specific characteristics</li> </ul>

		• 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				
		Spring 2, Summer 2, Summer 4		Autumn 1, Autumn 2 Spring 2 Summer 1, Summer 2	Spring 3 Summer 1, Summer 4	Autumn 1

Animals, including humans						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Identify and name common animals found in the local area, on a farm or in a zoo. • Identify and name basic parts of the human body associated with each sense.	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	Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat • Identify that humans and some other animals have skeletons and muscles for support, protection and movement	Describe the simple functions of the basic parts of the digestive system in humans • Identify the different types of teeth in humans and their simple functions • Construct and interpret a variety of food chains, identifying producers, predators and prey	Describe the changes as humans develop to old age	Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood • Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function • Describe the ways in which nutrients and water are transported within animals, including humans
	Autumn 1, Spring 2	Autumn 1, Autumn 2 Spring 2 Summer 2, Summer 4	Autumn 1, Autumn 2, Autumn 3	Summer 4, Summer 5	Spring 2	Summer 3, Summer 4

Plants						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Identify and name common plants found in the EYFS playground and the forest area.	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	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	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers • Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant •			

• Identify and describe basic structure of trees and flowers.	of common flowering plants, including trees		Investigate the way in which water is transported within plants • Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal			
	Spring 1, Spring 5 Summer 1, Summer 2	Spring 1, Spring 3, Summer 1, Summer 3	Summer 1, Summer 4			

Materials						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Identify and name a variety of everyday materials that make the play equipment provided to the children as well as the fixtures and fittings in the classroom. • Describe the simple physical properties of 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	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			Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets • know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution • use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating • Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic • Demonstrate that dissolving, mixing and changes of state are reversible changes • Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda	
	Autumn 3	Autumn 3			Spring 1, Summer 2	

## Rocks

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Experience sand and soil through play.			Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties <ul style="list-style-type: none"> <li>• Describe in simple terms how fossils are formed when things that have lived are trapped within rock</li> <li>• Recognise that soils are made from rocks and organic matter</li> </ul>			
			Autumn 5 Spring 1, Spring 2			

States of Matter						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Observe changes in states of matter through cooking and the freeze thaw process.				Compare and group materials together, according to whether they are solids, liquids or gases <ul style="list-style-type: none"> <li>• Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)</li> <li>• Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</li> </ul>		
				Autumn 3		

Electricity						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Experience electricity through playing with toys and torches that are powered by batteries. <ul style="list-style-type: none"> <li>• Identify basic differences between toys and items that are not powered by electricity, or those where batteries are not charged/have run out.</li> </ul>				Identify common appliances that run on electricity <ul style="list-style-type: none"> <li>• Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</li> <li>• Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery</li> <li>• Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</li> <li>• Recognise some common conductors and insulators, and associate metals with being good conductors</li> </ul>		Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit <ul style="list-style-type: none"> <li>• Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches</li> <li>• Use recognised symbols when representing a simple circuit in a diagram</li> </ul>
				Spring 3		Autumn 2

### Earth and space

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Identify and name the sun and moon. • Identify and name day and night.					<ul style="list-style-type: none"> <li>Describe the movement of the Earth and other planets relative to the sun in the solar system</li> <li>Describe the movement of the moon relative to the Earth</li> <li>Describe the sun, Earth and moon as approximately spherical bodies</li> <li>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</li> </ul>	
					Autumn 2	

### Seasonal changes

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Observe changes across the 4 seasons • Observe and describe weather. Observe and describe weather.	Observe changes across the 4 seasons • Observe and describe weather associated with the seasons and how day length varies					
	Autumn 2, Autumn 4, Spring 4 Summer 4					

### Sound

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Identify and name loud and quiet sound. • Experience sound and make sounds using play equipment and musical instruments.				Identify how sounds are made, associating some of them with something vibrating • Recognise that vibrations from sounds travel through a medium to the ear • Find patterns between the pitch of a sound and features of the object that produced it • Find patterns between the volume of a sound and the strength of the vibrations that produced it • Recognise that sounds get fainter as the distance from the sound source increases		
				Spring 1		

### Light

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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Identify and name dark and light • Observe shadows made from the sun and torches in play. • Use non-standard measurements to compare shadow size.			Recognise that they need light in order to see things and that dark is the absence of light • Notice that light is reflected from surfaces • Recognise that light from the sun can be dangerous and that there are ways to protect their eyes • Recognise that shadows are formed when the light from a light source is blocked by an opaque object • Find patterns in the way that the size of shadows change			Recognise that light travels in straight lines • Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye • Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes • Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them
			Spring 3			Spring 1

Forces and magnets						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Experience magnetic forces through play. • Identify that some materials are magnetic and some are not.			Compare how things move on different surfaces • Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance • Observe how magnets attract or repel each other and attract some materials and not others • Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials • Describe magnets as having 2 poles • predict whether 2 magnets will attract or repel each other, depending on which poles are facing		Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • Identify the effects of air resistance, water resistance and friction, that act between moving surfaces • Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect	
			Summer 2, Summer 3		Autumn 1	

Evolution and inheritance						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
						Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago • Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents • Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution
						Summer 1, Summer 2, Summer 3

Sustainability						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Explore their role in looking after the planet.	Recognise that if an action can be done forever or long term then it is sustainable or helpful to the planet. • Explore their role in looking after the planet. • Identifying where food comes from.	Recognise the negative impact of over-use of single-use plastic. • Identify how to reduce plastic waste. • understand what wild life does for us. • understand what we can do for the environment.	Recognise the negative impact of food waste. • Identify how we can reduce food waste. Recognise the importance of biodiversity. • Identify ways to increase biodiversity in our local area.	Recognise the impact of energy use on the planet. • Identify how they can reduce their energy use • Identify positive impacts reducing energy use has on the planet. • Understand the term deforestation and the impact it has on the planet.	Understand how global warming occurs with reference to human action. • Identify how their actions and choices can have a positive impact on the future of planet Earth. • Understand what plastic pollution is. • the impact of plastic pollution on the planet.	Understand what renewable energy is and how it can be used as an environmentally friendly alternative to fossil fuels. • Understand the non-renewable energy usage is contributing to global warming. • Understand that light pollution has an impact on living things on Earth. • Identify three types of light pollution. • Make links between this issue and previous sustainability units to understand that it is not an isolated issue.
	Spring 3, Summer 3	Autumn 4, Summer 5	Autumn 4, Summer 5	Spring 4, Summer 3	Autumn 3, Summer 3	Autumn 3, Spring 2

### Working scientifically (skills)

Ask questions						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Ask simple questions.	Ask simple questions.	Ask simple questions and recognise that they can be answered in different ways.	Ask questions and understand there are different enquiry types they could use to answer them	Ask relevant questions and use different types of scientific enquiry to answer them.	Ask scientific questions and begin to understand which questions would be best suited to each enquiry type.	Ask relevant scientific questions and choose which enquiry type would be best suited to answer them.

Plan						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Verbally state what they are going to with	Verbally state what they are going to investigate.	Make simple predictions based on a question.	Make relevant predictions.	Make predictions based on simple scientific knowledge.	Make predictions based on scientific knowledge. • With support, plan	Make predictions based on scientific knowledge. • Plan different types of

resources they are provided in play settings.		<ul style="list-style-type: none"> <li>Identify what they will change and keep the same.</li> </ul>	<ul style="list-style-type: none"> <li>Identify what they will change, observe and keep the same.</li> <li>With support, set up simple practical enquiries</li> </ul>	<ul style="list-style-type: none"> <li>Identify what they will change, observe or measure and keep the same.</li> <li>Set up simple practical enquiries, comparative and fair tests.</li> </ul>	different types of scientific enquiry. Where appropriate, identify the dependent, independent and controlled variables.	scientific enquiries to answer questions, including recognising and controlling variables where necessary.
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Make observations						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Observe closely.	Observe closely.	Observe closely, using simple equipment.	Begin to use scientific equipment to make observations.	Make systematic and careful observations.	Use a range of scientific equipment to make systematic and careful observations.	Use a range of scientific equipment to make systematic and careful observations with increased complexity.

Take measurements						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Compare size and weight using non-standard measurements when appropriate.	Carry out simple tests using non-standard measurements when appropriate.	Perform simple tests using standard units when appropriate.	Carry out tests and simple experiments and take measurements using standard units.	Take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.	Take accurate measurements using a range of scientific equipment. Start to take repeat readings when appropriate.	Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.

Gather, record and classify data						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.	Gather and record data to help in answering questions. <ul style="list-style-type: none"> <li>Identifying and classifying.</li> </ul>	Gather and record data in different ways to help answer questions. <ul style="list-style-type: none"> <li>Recording findings using simple scientific language, drawings, labelled diagrams, bar charts, and tables.</li> </ul>	Gather, record and classify data in a variety of ways to help in answering questions. <ul style="list-style-type: none"> <li>Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.</li> </ul>	Gather, record and classify data with increasing complexity to help in answering questions. <ul style="list-style-type: none"> <li>Record data using scientific diagrams and labels, classification keys, tables, bar and line graphs.</li> </ul>	Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.



**Present findings**

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Explain what they found out to an adult or partner.	Explain what they found out to an adult or a partner.	Talk about what they have found out and how they found it out. (non-statutory).	Report on findings from enquiries, including oral and written explanations.	Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	Report and present findings from enquiries, including conclusions. <ul style="list-style-type: none"> <li>• Begin to identify causal relationships in oral and written forms such as displays and other presentations.</li> </ul>	Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.

**Answer questions and make conclusions**

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Answer simple questions.	Answer simple questions.	Use their observations and ideas to suggest answers to questions.	Make simple conclusions. <ul style="list-style-type: none"> <li>• Use results, findings or observations to answer questions.</li> </ul>	Use straightforward scientific evidence to answer questions or to support their findings. <ul style="list-style-type: none"> <li>• Use results to draw simple conclusions.</li> <li>• Begin to identify differences, similarities or changes related to simple ideas or processes.</li> </ul>	Use scientific evidence to answer questions. <ul style="list-style-type: none"> <li>• Make conclusions based on scientific evidence and from their own testing and findings.</li> <li>• Identify differences, similarities or changes related to simple ideas or processes.</li> </ul>	Use scientific evidence to answer questions. <ul style="list-style-type: none"> <li>• Make conclusions based on scientific evidence and from their own testing and findings.</li> <li>• Identify scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>

**Evaluate**

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			Suggest questions for further investigation.	Begin to make predictions for new values, suggest improvements and raise further questions.	Make predictions for new values, suggest improvements and raise further questions.	Use test results to make predictions to set up further comparative and fair tests. <ul style="list-style-type: none"> <li>• Suggest investigation improvements including accuracy of results.</li> <li>• Provide some simple examples of how to extend the investigation.</li> </ul>