

Progression of skills and knowledge

## SUBJECT: SCIENCE



Statement of INTENT: Science stimulates and excites pupils' curiosity about phenomena and events in the world around them. It also satisfies this curiosity with knowledge. Science links practical experience with ideas and it engages learners at many levels. Through science, pupils understand how major scientific ideas contribute to technological change - impacting on industry, business, medicine and quality of life. Pupils recognise the cultural significance of science and trace its worldwide development. They learn to question and discuss science-based issues that may affect their own lives, the direction of society and the future of the world.

Age related Breadth of Study									
EYFS	KS1	KS2							
The Natural World Children at the expected level of development will: - Explore the natural world around them, making observations and drawing pictures of animals and plants; - Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class; - Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	Working scientificallyasking simple questions and recognising that theycan be answered in different waysobserving closely, using simple equipmentperforming simple testsidentifying and classifyingusing their observations and ideas to suggestanswers to questionsgathering and recording data to help in answeringquestions.Plantsidentify and name a variety of common wild andgarden plants, including deciduous and evergreentrees 🗹 identify and describe the basic structure of avariety of common flowering plants, including trees.observe and describe how seeds and bulbs grow intomature plantsfind out and describe how plants need water, lightand a suitable temperature to grow and stay healthy.Animals including humansidentify and name a variety of common animalsincluding fish, amphibians, reptiles, birds andmammalsidentify and name a variety of common animals thatare carnivores, herbivores and omnivoresdescribe and compare the structure of a variety ofcommon animals (fish, amphibians, reptiles, birdsand mammals, including pets)identify, name, draw and label the basic parts of thehuman body and say which part of the body isassociated with each sense.notice that animals, including humans, haveoffspring which grow into adults	Working scientifically           asking relevant questions and using different types of scientific enquiries to answer them           setting up simple practical enquiries, comparative and fair tests           making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of           equipment, including thermometers and data loggers           gathering, recording, classifying and presenting data in a variety of ways to help in answering questions           recording findings using simple scientific language, drawings, labeled diagrams, keys, bar charts, and tables           using straightforward scientific evidence to answer questions for new values, suggest improvements and raise further questions           using straightforward scientific evidence to answer questions, including recognising and controlling variables where necessary           taking measurements, using a range of scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs           recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs           recording data and results of bighas and other presentations           requirements, using a range of scientific evidence to answer questions in closs, standy tables where appropriate           recording data and results of inferent parts of flowering plants; nots, sten/trunk, leaves and flowers           reporting and presenting findings. From enquires, including conclusions, scale relationships and explanations of and							

find out about and describe the basic needs of	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
animals, including humans, for survival (water, food	use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
and air)	Forces and magnets
describe the importance for humans of exercise,	compare how things move on different surfaces notice that some forces need contact between two objects, but magnetic forces can act at a distance
eating the right amounts of different types of food,	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
and hygiene.	materials
Materials	describe magnets as having two poles predict whether two magnets will attract or repel each other, depending on which poles are facing.
distinguish between an object and the material from	explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
which it is made	identify the effects of air resistance, water resistance and friction, that act between moving surfaces
identify and name a variety of everyday materials,	recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. Living things and their habitats
including wood, plastic, glass, metal, water, and rock	recognise that living things can be grouped in a variety of ways
describe the simple physical properties of a variety	explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
	recognise that environments can change and that this can sometimes pose dangers to living things. describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird
of everyday materials	describe the life process of reproduction in some plants and animals.
compare and group together a variety of everyday	describe how living things are classified into broad groups according to common observable characteristics and based on similarities and
materials on the basis of their simple physical	differences, including microorganisms, plants and animals give reasons for classifying plants and animals based on specific characteristics.
properties.	give reasons for classifying prants and animals based on specific characteristics. Properties and States of matter
identify and compare the suitability of a variety of	compare and group materials together, according to whether they are solids, liquids or gases
everyday materials, including wood, metal, plastic,	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)
glass, brick, rock, paper and cardboard for particular	identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.
	compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity
uses	(electrical and thermal), and response to magnets
find out how the shapes of solid objects made from	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
some materials can be changed by squashing,	give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
bending, twisting and stretching.	demonstrate that dissolving, mixing and changes of state are reversible changes
Seasonal 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.
observe changes across the four seasons	Sound
observe and describe weather associated with the	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
seasons and how day length varies.	find patterns between the volume of a sound and the strength of the vibrations that produced it
Living things and their habitats	recognise that sounds get fainter as the distance from the sound source increases.
explore and compare the differences between things	Electricity identify common appliances that run on electricity
that are living, dead, and things that have never	construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
been alive	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
identify that most living things live in habitats to	recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit recognise some common conductors and insulators, and associate metals with being good conductors.
which they are suited and describe how different	associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
habitats provide for the basic needs of different	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 use recognised symbols when representing a simple circuit in a diagram.
kinds of animals and plants, and how they depend	Earth and Space
on each other	describe the movement of the Earth, and other planets, relative to the Sun in the solar system
identify and name a variety of plants and animals in	describe the movement of the Moon relative to the Earth describe the Sun, Earth and Moon as approximately spherical bodies
their habitats, including microhabitats	use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.
describe how animals obtain their food from plants	Evolution and inheritance
and other animals, using the idea of a simple food	recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years
chain, and identify and name different sources of	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.
food.	

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Explore the natural	Ask simple questions	Asking simple	Asking relevant	Ask relevant	Plan different	Plan different types of
world around	and recognise that	questions and	questions and	questions and	types of scientific	scientific enquiries to
them, making	they can be answered	recognising that they	using different	using different	enquiries to	answer their own or others'
observations and	in different ways	can be answered in	types of scientific	types of scientific	answer	questions, including
drawing pictures of		different ways	enquiries to	enquiries to	questions,	recognising and controlling
animals and plants.	Use simple equipment		answer them	answer them	including	variables where necessary
	to observe closely	Observing closely,			recognising and	
Know some		using simple	Setting up simple	Set up simple	controlling	Take measurements, using a
similarities and	Perform simple tests	equipment	practical enquiries,	practical	variables where	range of scientific
differences			comparative and	enquiries,	necessary	equipment, with increasing
between the	Identify and classify	Communicate	fair tests	comparative and		accuracy and precision,
natural world		his/her ideas, what		fair tests	Take	taking repeat readings when
around them and	Use his/her	he/she does and	Making systematic		measurements,	appropriate
contrasting	observations and ideas	what he/she finds	and careful	Make systematic	using a range of	
environments,	to suggest answers to	out in a variety of	observations and,	and careful	scientific	Record data and results of
drawing on their	questions	ways	where	observations	equipment, with	increasing complexity using
experiences and			appropriate,	and, where	increasing	scientific diagrams and
what has been read	Gather and record data	Performing simple	taking accurate	appropriate,	accuracy and	labels, classification keys,
in class.	to help in answering	tests	measurements	taking accurate	precision, taking	tables, scatter graphs, bar
	questions		using standard	measurements	repeat readings	and line graphs
Understand some		Identify, group and	units, using a	using standard	when	
important		classifying	range of	units, using a	appropriate	Use test results to make
processes and			equipment,	range of		predictions to set up further
changes in the		Using their	including	equipment,	Record data and	comparative and fair tests
natural world		observations and	thermometers and	including	results of	
around them,		ideas to suggest	data loggers	thermometers	increasing	Report and present findings
including the		answers to questions		and data loggers	complexity using	from enquiries, including
seasons and		noticing similarities,	Gathering,		scientific	conclusions, causal
changing states of		differences and	recording,	Gather,	diagrams and	relationships and
matter.		patterns	classifying and	recording,	labels,	explanations of and degree
			presenting data in	classifying and	classification	of trust in results, in oral and
		Gathering and	a variety of ways	presenting data	keys, tables,	written forms such as
		recording data to	to help in	in a variety of	scatter graphs,	displays and other
		help in answering	answering	ways to help in	bar and line	presentations
		questions	questions	answering	graphs	
			Recording findings	questions		Identify scientific evidence
			using simple	Record findings	Use test results	that has been used to
			scientific language,	using simple	to make	support or refute ideas or
			drawings, labelled	scientific	predictions to set	arguments
			diagrams, keys,	language,	up further	
			bar charts, and	drawings,	comparative and	Describe and evaluate their
			tables	labelled	fair tests	own and other people's

	diagrams, keys,		scientific ideas related to
Reporting on	bar charts, and	Report and	topics in the national
findings from	tables Report on	presenting	curriculum (including ideas
enquiries,	findings from	findings from	that have changed over
including oral and	enquiries,	enquiries,	time), using evidence from a
written	including oral	including	range of sources
explanations,	and written	conclusions,	Talige of sources
displays or	explanations,	causal	Group and classify things
presentations of	displays or	relationships and	and recognise patterns
results and	presentations of	explanations of	and recognise patterns
conclusions	results and	and a degree of	Find things out using a wide
conclusions	conclusions	trust in results, in	range of secondary sources
Using results to	CONCIUSIONS	oral and written	of information
draw simple	Use results to	forms such as	
conclusions, make	draw simple	displays and	Use appropriate scientific
predictions for	conclusions,	other	language and ideas from the
new values,			national curriculum to
· ·	make predictions	presentations	
suggest	for new values,	Idontify colontific	explain, evaluate and communicate his/her
improvements and	suggest	Identify scientific	-
raise further	improvements	evidence that has	methods and findings
questions	and raise further	been used to	
	questions	support or refute	
Identifying		ideas or	
differences,	Identify	arguments	
similarities or	differences,		
changes related to	similarities or		
simple scientific	changes related		
ideas and	to simple		
processes	scientific ideas		
	and processes		
Using			
straightforward	Use		
scientific evidence	straightforward		
to answer	scientific		
questions or to	evidence to		
support their	answer questions		
findings.	or to support		
	their findings.		

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Eggs in incubator –	Identify, name,	Identify and name a	Identify that	Describe the simple	Describe the	Describe the
chicks and ducks –	draw and label	variety of common	animals, including	functions of the basic	changes as humans	changes as
observations of and	the basic parts of	animals including fish,	humans, need the	parts of the digestive	develop to old age	humans develop
exploring processes	the human body	amphibians, reptiles,	right types and	system in humans	(Puberty)	to old age (Sex
and changes in the	and say which	birds and mammals	amount of nutrition,			education)
natural world.	part of the body		and that they			
	is associated	Group animals according	cannot make their			Identify and name
Caring for ourselves	with each sense	to what they eat	own food; they get			the main parts of
<ul> <li>healthy living</li> </ul>			nutrition from what			the human
		Identify and name a	they eat			circulatory
Caring for our pets		variety of common				system, and
and animals		animals that are	Identify that			describe the
		carnivores, herbivores	humans and some			functions of the
Caterpillar to		and omnivores	other animals have			heart, blood
Butterfly –			skeletons and			vessels and blood
observations of and		Describe and compare the	muscles for support,			
exploring processes		structure of a variety of	protection and			Recognise the
and changes in the		common animals (fish,	movement.			impact of diet,
natural world.		amphibians, reptiles,				exercise, drugs
		birds and mammals,	Construct and			and lifestyle on
		including pets)	interpret a variety			the way their
			of food chains,			bodies function
		Understand that animals,	identifying			
		including humans, have	producers,			Describe the ways
		offspring which grow into	predators and prey			in which nutrients
		adults				and water are
			Identify the			transported
		Describe the basic needs	different types of			within animals,
		of animals, including	teeth in humans			including humans
		humans, for survival	and their simple			
		(water, food and air)	functions			
		Describe the importance				
		for humans of exercise,				
		eating the right amounts				
		of different types of food,				
		and hygiene				

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
l Space						Describe the movement of the Earth, and other planets, relative to the Sun in the solar system Describe the movement of the Moon relative to the	
Earth and Space						Earth Describe the Sun, Earth and Moon as approximately spherical bodies Use the idea of the Earth's rotation to explain day and night and the apparent	
						movement of the sun across the sky.	

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Electricity			real 2	Identify common appliances that run on electricity Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers 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 Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit Recognise some common conductors and insulators, and associate metals with being good conductors	Tear 4		Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit 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 Use recognised symbols when representing a simple circuit in a diagram.

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

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	How do vehicles				Compare how things	Explain that	
	move?				move on different	unsupported objects	
	Investigate with				surfaces	fall towards the	
	toy vehicles.					Earth because of the	
	How can you				Notice that some	force of gravity	
	make a car roll				forces need contact	acting between the	
	faster?				between two	Earth and the falling	
					objects, but	object	
	Floating and				magnetic forces can		
	sinking				act at a distance	Identify the effects	
						of air resistance,	
	Explore Magnets				Observe how	water resistance and	
S					magnets attract or	friction, that act	
เอเ					repel each other and	between moving	
g					attract some	surfaces	
Na					materials and not	Decenting that some	
					others	Recognise that some	
Forces and Magnets						mechanisms,	
S S					Compare and group together a variety of	including levers, pulleys and gears,	
e Ce					everyday materials	allow a smaller force	
o					on the basis of	to have a greater	
Ĺ					whether they are	effect	
					attracted to a	enect	
					magnet, and identify		
					some magnetic		
					materials		
					materials		
					Describe magnets as		
					having two poles		
					Predict whether two		
					magnets will attract		
					or repel each other,		
					depending on which		
					poles are facing.		

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
				Recognise that they			Recognise that light
				need light in order to			appears to travel in
				see things and that			straight lines
				dark is the absence of			
				light			Use the idea that light
							travels in straight lines to
				Notice that light is			explain that objects are
				reflected from			seen because they give
				surfaces			out or reflect light into
							the eye
				Recognise that light			
L.				from the sun can be			Explain that we see things
Light				dangerous and that			because light travels from
E.				there are ways to			light sources to our eyes
				protect their eyes			or from light sources to
				- · · · ·			objects and then to our
				Recognise that			eyes
				shadows are formed			
				when the light from a			Use the idea that light
				light source is blocked			travels in straight lines to
				by an opaque object			explain why shadows
				Find notherne in the			have the same shape as
				Find patterns in the			the objects that cast them.
				way that the size of			them.
				shadows changes			

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Living things and their habitats	All about Penguins – What do they need to live? Where do they live? Compare Worthing to Antarctica. Paint and draw penguins Making a Wormery and drawing underground animals Farm visit – animals and their babies and where our food comes from.			Recognise that living things can be grouped in a variety of ways Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment	Recognise that environments can change and that this can sometimes pose dangers and have an impact on living things	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Describe the life process of reproduction in some plants and animals.	Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals Give reasons for classifying plants and animals based on specific characteristics.

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
EYFS Sand and Water play Make Playdough	Year 1 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	Year 2 Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses Describe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	Year 3	Year 4	Year 5Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnetsKnow that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solutionUse knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporatingGive reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plasticDemonstrate that dissolving, mixing and changes of state are reversible changesExplain 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.	Year 6

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EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fruit and	Identify and name			Identify and describe		
Vegetables -	a variety of			the functions of		
growing Turnips	common wild and			different parts of		
	garden plants,			flowering plants:		
	including			roots, stem/trunk,		
	deciduous and			leaves and flowers		
	evergreen trees					
				Explore the		
	Identify and			requirements of		
	describe the basic			plants for life and		
	structure of a			growth (air, light,		
	variety of			water, nutrients from		
	common			soil, and room to		
	flowering plants,			grow) and how they		
	including trees			vary from plant to		
				plant		
	Observe and					
	describe how			Investigate the way in		
	seeds and bulbs			which water is		
	grow into mature			transported within		
	plants			plants		
	Find out and			Explore the part that		
	describe how			flowers play in the life		
	plants need			cycle of flowering		
	water, light and a			plants, including		
	suitable			pollination, seed		
	temperature to			formation and seed		
	grow and stay			dispersal.		
	healthy					

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
				Compare and group			
				together different			
				kinds of rocks on the			
				basis of their			
				appearance and simple			
				physical properties			
S							
) C				Describe in simple			
Rocks				terms how fossils are			
				formed when things			
				that have lived are			
				trapped within rock			
				Recognise that soils			
				are made from rocks			
				and organic matter.			

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Seasonal Changes	Autumn Walk	Observe changes across the 4 seasons					
	Winter and then Spring Walk and observational drawing of Spring Flowers	Observe and describe weather associated with the seasons and how day length varies					
	Summer Walk						

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
					Identify how sounds are made, associating some of them with something vibrating		
					Recognise that vibrations from sounds travel through a medium to the ear		
Sound					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		

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Making Jam Tarts				Compare and group materials		
	Make Ice Lollies				together, according to whether		
	and exploring ice				they are solids, liquids or gases		
	cooking eggs						
ter					Observe that some materials		
matter					change state when they are heated		
of n					or cooled, and measure or research		
					the temperature at which this		
States					happens in degrees Celsius (°C)		
St							
					Identify the part played by		
					evaporation and condensation in		
					the water cycle and associate the		
					rate of evaporation with		
					temperature		