## CURRICULUM INTENT: PREP SCHOOL CURRICULUM - SCIENCE

Our aim is for children to make sense of the world that they live in and to challenge concepts in a scientific way. We encourage children to ask questions, test hypotheses and practically investigate concepts around us. Children's natural curiosity in science is championed especially in our focus on Scientific Enquiry. Children predict how things behave, explain what is happening and analyse concepts in our ever changing technological and scientific world. Children are encouraged to elicit natural curiosity through their own scientific enquiries promoting a sense of autonomy in the subject.

By the time our pupils leave Year 6 we aim to ensure that their skills reflect the expectation of the national curriculum and they will:

- Become fluent in the fundamentals of science, ensuring that pupils develop conceptual understanding and the ability to recall and apply knowledge accurately.
- Utilise scientific vocabulary within high order thinking and challenging scientific enquiry.
- Problem solving utilising concepts covered in investigations and theory work. The format of hypothesising from scientific knowledge and testing investigative skills in conjunction with scientific vocabulary covered will equip children to make reasoned judgments in their scientific understanding.

CURRICULUM IMPLEMENTATION: SCIENCE									
	AUTUM	IN TERM	SPRING TERM		SUMMER TERM		TRIPS AND		
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	EVENTS		
	Animals including	Light	Rocks	Forces and	Plants	Scientific Enquiry			
	humans			magnets					
	Explore the 5 key	Identify the	Explore the	Explore contact	Compare the effect	How can a solar	Rocks – Natural		
	food groups.	difference	formation and	and noncontact	of different factors	oven be made	History Museum		
	Learn about the	between light	properties of	forces.	on plant growth.	more effective:			
Voor 3	nutrition in the	sources and non-	igneous rocks.	Compare how	Identify and	posing questions			
Knowledge	food we eat.	light sources.	Explore the	things move on	describe the	and writing			
Knowledge	Learn about the	Explore the light	formation and	different surfaces.	functions of	predictions.			
	different types of	that comes from	properties of	Explore different	different parts of a	How can a solar			
	skeletons.	the sun and how to	sedimentary and	types of magnets.	flowering plant	oven be made			
	Learn	stay safe.	metamorphic	Explore the	and how they are	more effective:			
	about the		rocks.	properties of	used in	recording and			
	human			magnets and	photosynthesis.	presenting results.			

	skeleton. Learn about animals and their skeletons. Explore the role of muscles.	Explore materials which are reflective. Discover how shadows are formed. Investigate how shadows change throughout the day. Investigate how you can change the size of a shadow.	Weathering and the suitability of rocks for different purposes. Explore how water contributes to the weathering of rocks. Understand how fossils are formed. Explore different types of soil.	everyday objects that are magnetic. Understand that magnetic forces can act at a distance. Explore the everyday uses of magnets.	Investigate the way in which water is transported within plants.	How can a solar oven be made more effective: recording and presenting results. Making a cake: fair testing, controls and variables. Making a cake: scientific enquiry.	
	Literacy Keywords, Full sentences.	Literacy Recording findings using simple scientific language.	Literacy Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	Literacy Setting up simple practical enquiries, comparative and fair tests.	Literacy Reporting on findings from enquiries, including oral and written explanations.	Literacy Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	
Year 3 Skills	Numeracy Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.	Numeracy Light units -Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.	Numeracy -Mass units. -Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.	Numeracy -Force units, - Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including	Numeracy Number of plants -Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.	Numeracy General units -Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including	

	SMSC Healthy living and understanding of dietary healthy habits Subject Specific Skills Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.	SMSC Caring for the Environment. Understanding the environmental factors of light energy Subject Specific Skills Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions -Recording findings using simple scientific language,	SMSC Caring for the Environment – understanding rocks in the environment and to look after local habitats Subject Specific Skills Force concepts. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.	thermometers and data loggers. SMSC Careers Focus – Engineering and Construction. Subject Specific Skills Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions -Setting up simple practical enquiries, comparative and	SMSC Caring for the Environment – Awareness of conserving plants and trees for humans to survive Subject Specific Skills Asking relevant questions and using different types of scientific enquiries to answer them Setting up simple practical enquiries, comparative and fair tests.	thermometers and data loggers. SMSC Careers – Scientist careers. Problem solving skills and higher order thinking developed Subject Specific Skills Asking relevant questions and using different types of scientific enquiries to answer them Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.	
		drawings, labelled diagrams, keys, bar charts, and tables.		fair tests.			
Voor 4	Animals including humans	Electricity	Sound	States of matter	Living things and their habitats	Living things and their habitats – Conservation	Living Things and their habitats –
Knowledge	Identify the organs in the digestive system	Explore electrical appliances and electrical safety	Identify how sounds are made	Compare and group the 3 states of matter	Explore different habitats	Describe ecosystems and how they are affected by	Natural History Museum

	Describe the functions of the main organs in the digestive system	Learn about electrical components in a series circuit	Explore how vibrations from sounds travel through a medium to the ear	Explore how particles behave in solids, liquids and gases	Research a habitat	changes in the seasons Understand human impact on the environment through deforestation	
	of human teeth and their functions	electrical circuits	insulation	points	animals can be classified	pollution	
	Investigate the effects of different liquids on the teeth	Explore conductors and insulators	Explore volume	Explore freezing and boiling points	Create a classification key	Understand water pollution	
	Understand food chains and Explore food webs	Learn about electrical switches and Investigate how electrical components can change within a circuit	Explore pitch and Explore sounds from near and from far	Explore evaporation and condensation and Understand the water cycle	Adaptations and classification within species and Explore and classify pond plants	Explore methods that can be used to conserve water and -Understand that humans can have a positive impact on nature	
Year 4 Skills	Literacy Recording findings using simple scientific language	Literacy Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Literacy Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusion	Literacy Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	Literacy Recording findings using simple scientific language	Literacy Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	
	Numeracy Setting up simple practical enquiries,	Numeracy Electricity units	Numeracy Sound units	Numeracy	Numeracy Gathering, recording,	Numeracy Pollution statistics	

comparative and	-Making systematic	-Making systematic	States of Matter	classifying and	-Making systematic
fair tests	and careful	and careful	Units-Volumes and	presenting data in	and careful
understanding the	observations and,	observations and,	Mass of solids	a variety of ways	observations and,
units and	where appropriate,	where appropriate,	-Making systematic	to help in	where appropriate,
measurements	taking accurate	taking accurate	and careful	answering	taking accurate
involved	measurements	measurements	observations and,	questions	measurements
	using standard	using standard	where appropriate,		using standard
	units, using a range	units, using a range	taking accurate		units, using a range
	of equipment,	of equipment,	measurements		of equipment,
	including	including	using standard		including
	thermometers and	thermometers and	units, using a range		thermometers and
	data loggers	data loggers	of equipment,		data loggers
			including		
			thermometers and		
			data loggers		
SMSC	SMSC	SMSC	SMSC	SMSC	SMSC
Healthy Living –	Careers –	Careers –	Careers –	Caring for the	Caring for the
linked with PSHE of	Engineering and	Engineering and	Engineering	Environment –	Environment –
Health Me and	focus on	Musician.	-Caring for the	understanding	Conservation
looking after	renewable sources	-Healthy living	environment of	conservation of	learning to help
yourself	caring for the	(understanding	different states	habitats and the	humanity to live in
	environment	care for our ears)		importance to	harmony with
				prevent	nature
				endangering	
				species	
Subject Specific Skill	s				
-Making systematic	-Using	-Identifying	-Gathering,	-Identifying	-Gathering,
and careful	straightforward	differences,	recording,	differences,	recording,
observations	scientific evidence	similarities or	classifying and	similarities or	classifying and
-Reporting on	to answer	changes related to	presenting data in	changes related to	presenting data in
findings from	questions or to	simple scientific	a variety of ways	simple scientific	a variety of ways
enquiries,	support their	ideas and	to help in	ideas and	to help in
including oral and	findings	processes	answering	processes	answering
written	-Gathering,	-Setting up simple	questions	-Reporting on	questions
explanations	recording,	practical enquiries,		findings from	

	-Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	classifying and presenting data in a variety of ways to help in answering questions	comparative and fair tests -Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	-Using straightforward scientific evidence to answer questions or to support their findings -Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	enquiries, including oral and written explanations, displays or presentations of results and conclusions	-Using straightforward scientific evidence to answer questions or to support their findings -Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	
	Earth and Space Explore the solar system and its planets Understand the heliocentric model	Living things and their habitats Understand the life process of a plant Understand the life cycles of mammals	Properties of materials Exploring properties of materials Explore thermal conductors and	Changes of materials Use evaporation to recover the solute from a solution Recognise and describe reversible	Animals including humans Identify the key stages of a mammal's life cycle Explore the gestation periods	Forces Explore gravity and the life and work of Isaac Newton Examine the connection	World Space Day in October – Dress up in space related items and research information for presentations to
Year 5 Knowledge	of the solar system Explain the Earth's movement in space	Compare the life cycles of insects and amphibians	thermal insulators Explore the hardness of materials	changes Observe chemical reactions and describe how we know new	of mammals Learn about foetal development	between air resistance and parachutes Explore factors which affect an object's ability to resist water	class. London Zoo (Living Things and their habitats)
	Explain the Earth's rotation and night and day	Understand the life cycle of birds and reptiles	Discover materials that become soluble in water	Investigate rusting reactions	Investigate the hand span of different aged children	Investigate the effects of friction on different surfaces	

	Explain the movement of the Moon	Know about the life and work of Jane Goodall and David Attenborough	Investigate the solubility of materials	Investigate burning reactions	Learn about the changes experienced during puberty	Investigate mechanisms - levers and pulleys	
	Design a planet using knowledge gained	Research and present the life cycle of a creature	Explore how mixtures could be separated by filtering, sieving, evaporating or magnets	Investigate chemical reactions - acids and bicarbonate of sod	Describe the changes humans may experience during adulthood and old age	Investigate mechanisms - gears	
Year 5 Skills	Literacy -Reporting and presenting findings from enquiries	Literacy Reading and accounts of former space explorers -Identifying scientific evidence that has been used to support or refute ideas or arguments	Literacy -Reporting and presenting 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	Literacy -Reporting and presenting findings from enquiries, including conclusions, in oral and written forms	Literacy -Identifying scientific evidence that has been used to support or refute ideas or arguments	Literacy -Reporting and presenting 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	
	Numeracy -Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking	Numeracy -Recognising and controlling variables where necessary with the correct measurements	Numeracy -Measurements of materials Taking measurements, using a range of scientific equipment, with increasing	Numeracy -Using test results to make predictions to set up further comparative and fair tests	Numeracy -Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking	Numeracy -Force calculations and units -Taking measurements, using a range of scientific equipment, with increasing accuracy	

repeat readings		accuracy and		repeat readings	and precision,	
when appropriate		precision, taking		when appropriate	taking repeat	
		repeat readings			readings when	
		when appropriate			appropriate	
SMSC	SMSC	SMSC	SMSC	SMSC	SMSC	
Understanding the	Caring for the	Recycling. Focus on	Recycling	Caring for the	Careers in	
solar system and	Environment –	utilising products	Focus on creative	Environment and	Engineering	
big bang theories	habitat knowledge	for inventions and	use of materials for	Healthy Me.	-Understanding of	
linked with PSHE	for future	creative work with	sustainability	-Careers –	energy saving and	
	sustainability to	art	-Careers in	Veterinarian and	with renewable	
	preserve habitats		Chemistry and	Medicine	forces	
			, Physics pathways			1
	ı	Subject Sp	ecific Skills	<b>L</b>	<b>1</b>	1
Identifying	Planning different	Planning different	Reporting and	Recording data and	-Identifying	1
scientific evidence	types of scientific	types of scientific	presenting findings	results of	scientific evidence	
that has been used	enquiries to	enquiries to	from enquiries,	increasing	that has been used	
to support or	answer questions,	answer questions,	including	complexity using	to support or	
refute ideas or	-Reporting and	including	conclusions, causal	scientific diagrams	refute ideas or	
arguments	presenting findings	recognising and	relationships and	and labels,	arguments	
	from enquiries -	controlling	explanations of	classification keys,		
		variables where	and a degree of	tables, scatter		
		necessary	trust in results, in	graphs, bar and		
			oral and written	line graphs		
			forms such as			1
			displays and other			1
			presentations			1
Reporting and		Using test results	Identifying	Reporting and	Planning different	1
presenting findings		to make	scientific evidence	presenting findings	types of scientific	1
from enquiries -		predictions to set	that has been used	from enquiries,	enquiries to	1
including		up further	to support or	including	answer questions,	1
conclusions, causal		comparative and	refute ideas or	conclusions, causal	including	1
relationships and		fair tests	arguments	relationships and	recognising and	1
explanations of				explanations of	controlling	1
and a degree of				and a degree of	variables where	1
trust in results.				trust in results, in	necessary	1

					oral and written forms such as displays and other presentations		
	Electricity	Light	Evolution and inheritance	Animals including humans	Living things and their habitats	Looking after the environment	
	Describe the parts of an electric circuit	Explore how light travels	Understand how offspring vary and are not identical to their parents	Understand the function of the heart and its role in the circulatory system	Classify living organisms	Learn about climate change	Conference of the Parties Prep Conference (CoP)
	Explore voltage and its effect on an electrical circuit	Explore reflection	Learn about animal adaptations	Identify and compare blood vessels	Understand the kingdoms of life	Explore ways to reduce how much rubbish is sent to landfill	
Year 6	Apply knowledge to identify and correct problems in a circuit	Explore reflection and explain how it can be used to help us see	Learn about plant adaptations	Explore blood	Classify living things using the Linnaean system	Explore ways to reduce energy consumption	
Knowledge	Investigate what affects the output of a circuit	Investigate how shadows can change	Explore what we can learn from fossils	Learn how the body transports water and nutrients	Identify the characteristics of different types of microorganisms	Explore what happens when fuels are burnt	
	Build a set of traffic lights	Investigate how we can show why shadows have the same shape as the object that casts them	Explore the theory of evolution	Investigate what affects your heart rate	Investigate asexual reproduction through spore dispersal	Explore the outcomes of COP 26	
	Apply knowledge of conductors and insulators	Investigate how we see objects	Explore human evolution	Learn about the impact of drugs and alcohol on the body	Classify and describe a living organism	Compare data associated with the weather	
	Literacy	Literacy	Literacy	Literacy	Literacy	Literacy	

	-Reporting and	-Planning different	-Identifying	-Reporting and	-Identifying	-Reporting and
	presenting findings	types of scientific	scientific evidence	presenting findings	scientific evidence	presenting findings
	from enquiries,	enquiries to	that has been used	from enquiries,	that has been used	from enquiries,
	including	answer questions,	to support or	including	to support or	including
	conclusions, causal	including	refute ideas or	conclusions, causal	refute ideas or	conclusions, casual
	relationships and	recognising and	arguments	relationships and	arguments	relationships and
	explanations of	controlling		explanations of		explanations in
	and a degree of	variables where		and a degree of		written and oral
	trust in results, in	necessary		trust in results, in		form such as
	oral and written			oral and written		presentations
	forms such as			forms such as		
	displays and other			displays and other		
	presentations			presentations		
	Numeracy	Numeracy	Numeracy	Numeracy	Numeracy	Numeracy
	Recording data and	-Units of Light	-Reporting and	-Volume of blood	-Taking	-Pollution statistics
	results of	-Recording data	presenting findings	-Recording data	measurements,	-Using test results
	increasing	and results of	from enquiries -	and results of	using a range of	to make
Voor 6 Skille	complexity using	increasing	including	increasing	scientific	predictions to set
rear o skills	scientific diagrams	complexity using	conclusions, causal	complexity using	equipment, with	up further
	and labels,	scientific diagrams	relationships and	scientific diagrams	increasing	comparative and
	classification keys,	and labels,	explanations of	and labels,	accuracy and	fair tests
	tables, scatter	classification keys,	and a degree of	classification keys,	precision, taking	-Recording data
	graphs, bar and	tables, scatter	trust in results - in	tables, scatter	repeat readings	and results of
	line graphs	graphs, bar and	oral and written	graphs, bar and	when appropriate	increasing
		line graphs	forms such as	line graphs		complexity using
			displays and other			scientific diagrams
			presentations			and labels,
						classification keys,
						tables, scatter
						graphs, bar and
						line graphs
	SMSC	SMSC	SMSC	SMSC	SMSC	SMSC
	Career Focus -	-Renewable	-Careers –	-Healthy living	-Caring for the	-Caring for the
	Engineering	sources and	Palaeontologists	-An understanding	Environment	Environment
	-Caring for the	awareness of the	-Caring for the	of healthy diets	-Understanding of	
	Environment	environment	Environment	Careers - Medicine	the world we live	

				1		1			
	-Sustainability		-Understanding of		in, in relation to	-Awareness of			
			humans and our		nature working	sustainability for	1		
			ancestors		hand in hand with	the environment	1		
					mindfulness		1		
			Subject Sp	ecific Skills					
	Planning different	Record data and	Reporting and	Taking	Reporting and	-Recording data	1		
	types of scientific	results of	presenting findings	measurements,	presenting findings	and results of	1		
	enquiries to	increasing	from enquiries -	using a range of	from enquiries,	increasing	1		
	answer questions,	complexity using	including	scientific	including	complexity using	1		
	including	scientific diagrams	conclusions, causal	equipment, with	conclusions, causal	scientific diagrams	1		
	recognising and	and labels	relationships and	increasing accuracy	relationships and	and labels,	1		
	controlling	Identifying	explanations of	and precision,	explanations of	classification keys,	1		
	variables where	scientific evidence	and a degree of	taking repeat	and a degree of	tables, scatter	1		
	necessary	that has been used	trust in results - in	readings when	trust in results, in	graphs, bar and			
	-Compare and give	to support or	oral and written	appropriate	oral and written	line graphs			
	reasons for	refute ideas or	forms such as	-Identifying	forms such as	-Recording data	1		
	variations in how	argument	displays and other	scientific evidence	displays and other	and results of			
	components	-Planning different	presentations	that has been used	presentations	increasing	1		
	function, including	types of scientific	Animals adapted	to support or	-Planning different	complexity using	1		
	the brightness of	enquiries to	to suit their	refute ideas or	types of scientific	scientific diagrams			
	bulbs, the loudness	answer questions,	environment in	arguments	enquiries to	and labels,	1		
	of buzzers and the	including	different ways and	-Planning different	answer questions,	classification keys,	1		
	on/off position of	recognising and	that adaptation	types of scientific	including	tables, scatter	1		
	switches Planning	controlling	may lead to	enguiries to	recognising and	graphs, bar and	1		
	different.	variables where	evolution.	answer questions,	controlling	line graphs	1		
		necessary.		including	variables where	-Identifying	1		
		,		recognising and	necessary.	scientific evidence	1		
				controlling	,	that has been used	1		
				variables where		to support or	1		
				necessary diet		refute ideas or			
				exercise heart rate.		arguments.			
				1	1				
Children demo	nstrate a recall of	facts and investiga	tion concepts from	n long term memor	ту.				
Children show	Children show confidence in believing that they will achieve and show resilience when problems are encountered.								
Each child achi	eves objectives (e>	(pected standard)	for year group.						
	ten enna demeves objectives (expected standard) for year group.								

The development of the ability to recognise links between science topics and further cross-curricular connections.

Science skills are developed, using scientific language to explain ideas, and children can independently apply the concept to new problems. Children show a high level of pride in the presentation and understanding of the work.

Children will be able to garner greater confidence in the articulation of concepts and the correct use of scientific vocabulary whilst

developing a growth mindset in investigations and learning experiences in relation to the world around them.

Each child will nurture a self-autonomy in their learning by independently evaluating scientific results and reflecting on their learning.