

	Nursery	Reception	Year 1	Year 2	End of Key Stage 1
Observing	General sensory observations of animals and plants. Simple descriptions of the world around them.	General sensory observations of animals and plants. Simple descriptions of the world around them.	Identify, classify and describe a variety of plants, animals and materials. Refine observations (more descriptive).	Refined observations made though use of equipment (microscopes, magnifying glasses etc.). Describe observations using scientific language.	Working scientifically The pupil can, using appropriate scientific language from the national curriculum: ask their own questions about
Researching	Looking at objects and pictures and discussing what they can see.	Looking at objects and pictures and discussing what they can see.	Engaging with texts and using a variety of sources to research (internet, library, databases).	Using research to inform discussion and decision making.	what they notice; use different types of scientific enquiry to gather and record data, using simple equipment where appropriate, to answer questions; observe changes over time;
Questioning	Asks questions about aspects of their familiar world	Asks questions about aspects of their familiar world.	Ask questions about their world and the world around them (what I can see, smell, taste, touch etc).	Begin to ask questions with relevance to a topic. Increasingly asking about unknown phenomena.	notice patterns; group and classify things; carry out simple comparative tests;



	Generating a variety of	Generating a variety of	Identify an appropriate	Beginning to refine ideas –	find things out using secondary
Planning	ideas for testing (not	ideas for testing (not	approach to answer a set	only changing one factor.	sources of information;
	always realistic /	always realistic	question.		
ă	appropriate).	/appropriate).	December 1995	Recognise different ways	communicate their ideas, what
一			Recognise different ways to	to answer a question.	they do and what they find out in a variety of ways.
	Simple guess - what	Simple guess - what	answer a question. Simple prediction based on	Confidently considering	variety of ways.
ව	might happen?	might happen?	experiment.	known occurrences when	Science content
;⊨	Inghi happon.	Inght happen.	Охроппона.	making a prediction	
Predicting			Beginning to consider	(hypothesis).	The pupil can:
9			research / known		
٦			occurrences.	Explain reasons for	name and locate parts of the
				prediction.	human body, including those
	Measure by direct	Measure by direct	Standard units of	Select most appropriate	related to the senses [Y1], and
	comparison.	comparison.	measurement.	measurement and	describe the importance of
	Non-standard units of	Nigo standard voits of		equipment.	exercise, a balanced diet and hygiene for humans [Y2];
	Non-standard units of	Non-standard units of	Use simple equipment to	Lice a variety of standard	Trygierie for flumaris [12],
g	measurement.	measurement.	measure length, time, capacity, weight).	Use a variety of standard units of measurement.	describe the basic needs of
_ :=	Simple comparative	Simple comparative	capacity, weight).	difficulties of infeasurement.	animals for survival and the main
ns	vocabulary – bigger,	vocabulary – bigger,		Use scientific vocabulary	changes as young animals,
Measuring	smaller.	smaller.		to aid measurement.	including humans, grow into adults
J €					[Y2];
	Talking about objects	Talking about objects			
	and events.	and events.			describe the basic needs of plants
	0: 1	0			for survival and the impact of changing these and the main
	Simple recording –	Simple recording –			changing these and the main changes as seeds and bulbs grow
	pictures / images.	pictures / images.			changes as seeds and builds grow



Reporting	Talking about objects and events. Simple recording – pictures / images.	Talking about objects and events. Simple recording – pictures / images.	Using precise scientific vocabulary to describe an event. Complete pre-prepared tables and graphs. Simple labels for diagrams.	Create own charts and tables. Clearly labelled diagrams using scientific vocabulary.	into mature plants [Y2] identify whether things are alive, dead or have never lived [Y2]; describe and compare the observable features of animals from a range of groups [Y1];
Interpreting	Noticing 'which worked best' – simple comparative statements. Answer initial question simply.	Noticing 'which worked best' – simple comparative statements. Answer initial question simply.	Consider what results show – why did X happen? Answer initial question using results.	Explain outcomes and how they were achieved. Relate results to initial question using scientific vocabulary. Identify patterns in data and explain.	group animals according to what they eat [Y1], describe how animals get their food from other animals and/or from plants, and use simple food chains to describe these relationships [Y2]; describe seasonal changes [Y1];
Evaluating			Identifying how their investigation worked – what worked well, what didn't? Notice anything that affected results i.e. changes in temperature etc.	Suggest how to improve experiment. Identify if it was effective and link to scientific knowledge. What have we learnt from investigation?	name different plants and animals and describe how they are suited to different habitats [Y2]; distinguish objects from materials, describe their properties, identify and group everyday materials [Y1] and compare their suitability for different uses [Y2].



Progression of Science Knowledge Skills and Concepts

Eyes / Nose / Mouth
Ears / Hands / Fingers
Feet / Toes / Arm / Leg
Animal / Tree / Leaf
Flower / Stem / Seed
Material / Wood / Glass
Paper / Hard / Soft
Summer / Day / Spring
Dark / Autumn / Light
Winter / Night / Season
Moon / Sun / Earth
Star / Loud / Quiet

Herbivore / Carnivore Omnivore / Animal Human / Face / Hair Leg / Knee / Arm / Elbow Back / Head / Toes / Ear Hand / Eye / Fingers Mouth / Nose / Fish Birds / Tree / Petals Trunk / Fruit / Branch Roots / Leaves / Bulb Flowers / Seed / Stem Material / Metal / Wood Rock / Plastic / Hard Glass / Soft / Paper Fabric / Material Smooth / Shiny / Rough Summer / Day / Spring Dark / Autumn / Light Winter / Night / Season Moon / Sun / Earth Moon / Planet / Space Sun / Star / Loud / Quiet Volume / Sound

Animals including humans: Fish / Reptiles Mammals / Birds Amphibians (+ examples of each) / Herbivore Omnivore Carnivore / Leg / Arm Elbow / Head / Ear / Nose Back / Wings / Beak

Plants: Deciduous Evergreen trees / Leaves / Flowers (blossom) / Petals Fruit / Roots / Bulb / Seed Trunk / Branches / Stem

Everyday materials: Wood / Plastic / Glass Paper / Water / Metal Rock / Hard / Soft / Bendy Rough / Smooth

Seasonal Changes: Summer / Spring / Autumn Winter / Sun / Day / Moon Night / Light / Dark Animals including humans: Survival / Water / Air Food / Adult / Baby Offspring / Kitten / Calf Puppy / Exercise Hygiene

Plants: Seeds / Bulbs Water / Light / Growth Temperature

Living things and their habitats: Living / Dead Habitat / Energy / Desert Food chain / Predator Prey / Woodland / Pond

Everyday materials and their uses: Hard / Soft Stretchy / Stiff / Shiny Dull / Rough / Smooth Bendy / Waterproof Absorbent / Opaque Transparent / Brick Paper / Fabrics Squashing / Bending Twisting / Stretching Elastic / Foil

Vocabulary



	Year 3	Year 4	Year 5	Year 6	End of Key Stage 2
	Begin to make	Make systematic and	Begin to take	Take measurements,	Working scientifically
	systematic and careful	careful observations and,	measurements, using a	using a range of scientific	
	observations and,	where appropriate, take	range of scientific	equipment, with increasing	The pupil can, using appropriate
	where appropriate, take	accurate measurements	equipment, with increasing	accuracy and precision,	scientific language from the
	accurate	using standard units,	accuracy and precision,	taking repeat readings	national curriculum:
	measurements using	using a range of	taking repeat readings	where appropriate.	
	standard units, using a	equipment, including	where appropriate.		describe and evaluate their own
	range of equipment,	thermometers and data		Identify patterns that might	and others' scientific ideas related
	including thermometers	loggers.	Begin to identify patterns	be found in the natural	to topics in the national curriculum
	and data loggers.	Danis to last tos	that might be found in the	environment.	(including ideas that have changed
	Danis to last for	Begin to look for	natural environment.	Males thesis are statistics	over time), using evidence from a
	Begin to look for	naturally occurring	Degin to make their own	Make their own decisions	range of sources;
. <u>></u>	naturally occurring patterns and	patterns and relationships and decide	Begin to make their own decisions about what	about what observations to make, what	ack their own guestions about the
e	relationships and	what data to collect to	observations to make, what	measurements to use and	ask their own questions about the scientific phenomena that they are
SC	decide what data to	identify them.	measurements to use and	how long to make them for	studying, and select the most
Observing	collect to identify them.	identity them.	how long to make them for	and whether to repeat	appropriate ways to answer these
	Concot to identity trioin.	Help to make decisions	and whether to repeat them.	them.	questions, recognising and
	Help to make decisions	about what observations	and misules to repeat them.		controlling variables where
	about what	to make, how long to	Choose the most	Choose the most	necessary (i.e. observing changes
	observations to make,	make them for and the	appropriate equipment and	appropriate equipment	over different periods of time,
	how long to make them	type of simple equipment	explain how to use it	and explain how to use it	noticing patterns, grouping and
	for and the type of	that might be used.	accurately.	accurately.	classifying things, carrying out
	simple equipment that		-	-	comparative and fair tests, and
	might be used.	Learn to use new	Begin to interpret data and	Can interpret data and find	finding things out using a wide
		equipment appropriately	find patterns.	patterns.	range of secondary sources);
	Learn to use some new	(e.g. data loggers).			
	equipment.		Select equipment on my	Select equipment on my	



	appropriately (e.g. data	Can see a pattern in my	own.	own.	use a range of scientific equipment
	loggers).	results.	OWII.	Owii.	to take accurate and precise
	loggers).	results.	Can make a set of	Can make a set of	measurements or readings, with
	Begin to see a pattern	Can choose from a	observations and say what	observations and say what	repeat readings where
	in my results.	selection of equipment.	the interval and range are.	the interval and range are.	appropriate;
					эргэрия,
	Begin to choose from a	Can observe and	Begin to take accurate and	Accurate and precise	record data and results using
	selection of equipment.	measure accurately	precise measurements – N,	measurements – N, g, km,	scientific diagrams and labels,
		using standard units	g, kg, mm, cm, mins,	mm, cm, mins,	classification keys, tables, scatter
	Begin to observe and	including time in minutes	seconds, cm ² V, km/h, m per	seconds,cm ² V, km/h, m	graphs, bar and line graphs;
	measure accurately	and seconds.	sec, m/ sec Graphs – pie,	per sec, m/ sec Graphs –	
	using standard units		line.	pie, line, bar (Y6).	draw conclusions, explain and
	including time in minutes and seconds.		I can make accurate and	I can make accurate and	evaluate their methods and
	minutes and seconds.		precise measurements.	precise measurement.	findings, communicating these in a variety of ways;
	I can make systematic		precise measurements.	precise measurement.	variety of ways,
	and careful				raise further questions that could
	observations.				be investigated, based on their
	Begin to recognise	Begin to recognise when	Begin to recognise which	Recognise which	data and observations.
D D	when and how	and how secondary	secondary sources will be	secondary sources will be	
arching	secondary sources	sources might help to	most useful to research	most useful to research	Science content
5	might help to answer	answer questions that	their ideas.	their ideas.	
g	questions that cannot	cannot be answered			The pupil can:
ese	be answered through	through practical			name and describe the functions
(e)	practical investigations.	investigations.			of the main parts of the digestive
8					[Y4], musculoskeletal [Y3] and



Progression of Science Knowledge Skills and Concepts

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Ask relevant questions and use different types of scientific enquiries to answer them e.g.

-Why does the moon appear as different shapes in the night sky?

-Why do shadows change during the day? -Where does a fossil come from? Ask relevant questions and use different types of scientific enquiries to answer them e.g.

-Why are steam and ice the same thing?

-Why is the liver important in the digestive system?

-What do we mean by pitch when it comes to sound?

Plan different types of scientific enquires to answer given questions.

Begin to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Plan different types of scientific enquiries to answer their own or others' questions.

Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.

circulatory systems [Y6]; and describe and compare different reproductive processes and life cycles in animals [Y5];

describe the effects of diet, exercise, drugs and lifestyle on how the body functions [Y6];

name, locate and describe the functions of the main parts of plants, including those involved in reproduction [Y5] and transporting water and nutrients [Y3];



Progression of Science Knowledge Skills and Concepts

everyday phenomena
and the relationships
between living things
and familiar
environments.
Begin to develop their

Begin to explore

Begin to develop their ideas about functions, relationships and interactions. Begin to raise their own questions about the world around them.

Confidently considering known occurrences when making a prediction (hypothesis).

Explain reasons for prediction.

Explore everyday phenomena and the relationships between living things and familiar environments.

Begin to develop their ideas about functions, relationships and interactions. Raise their own questions about the world around them.

Confidently considering known occurrences when making a prediction (hypothesis).

Begin to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.

Begin to explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and interactions more systematically.

Begin to recognise some more abstract ideas and begin to recognise how these ideas help them to understand how the world operates.

Begin to recognise scientific ideas change and develop over time.

Confidently considering known occurrences when making a prediction (hypothesis).

Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.

Explore and talk about ideas, ask their own questions about scientific phenomena, analyse functions, relationships and interactions more systematically.

Begin to recognise more abstract ideas and begin to recognise how these ideas help them to understand how the world operates.

Begin to recognise scientific ideas change and develop over time.

Confidently considering known occurrences when

use the observable features of plants, animals and microorganisms to group, classify and identify them into broad groups, using keys or other methods [Y6];

construct and interpret food chains [Y4];

construct and interpret food chains [Y4];

describe the requirements of plants for life and growth [year 3]; and explain how environmental changes may have an impact on living things [Y4];

use the basic ideas of inheritance, variation and adaptation to describe how living things have changed over time and evolved [Y6]; and describe how fossils are formed [Y3] and provide evidence for evolution [Y6];

group and identify materials [year 5], including rocks [Y3], in different

Planning



			Explain reasons for predictions.	making a prediction (hypothesis).	ways according to their properties, based on first-hand observation;
				Explain reasons for prediction.	and justify the use of different everyday materials for different uses, based on their properties
	Begin to make some	Make some decisions	Begin to select the most	Select the most	[Y5];
	decisions about which	about which types of	appropriate ways to answer	appropriate ways to	
	types of enquiry will be	enquiry will be the best	science questions using	answer science questions	describe the characteristics of
	the best way of	way of answering	different types of scientific	using different types of	different states of matter and
D	answering questions	questions including	enquiry (including observing	scientific enquiry	group materials on this basis; and
⊆	including observing	observing changes over	changes over different	(including observing	describe how materials change
Predicting	changes over time,	time, noticing patterns,	periods of time, noticing	changes over different	state at different temperatures,
Ġ	noticing patterns,	grouping and classifying,	patterns, grouping and	periods of time, noticing	using this to explain everyday
<u>e</u>	grouping and	carrying out simple	classifying, carrying out	patterns, grouping and	phenomena, including the water
_	classifying, carrying out simple comparative and	comparative and fair tests, finding things out	comparative and fair tests and finding things out using	classifying, carrying out comparative and fair tests	cycle [Y4];
	fair tests, finding things	using secondary	a wide range of secondary	and finding things out	identify and describe what
	out using secondary	sources.	sources of information).	using a wide range of	happens when dissolving occurs in
	sources.			secondary sources of	everyday situations; and describe
	333.333.			information.)	how to separate mixtures and



	Make systematic and	Make systematic and	Take measurements using	Take measurements,	solutions into their components
	careful observations	careful observations and,	a range of scientific	using a range of scientific	[Y5];
g	and, where appropriate,	where appropriate, take	equipment, with increasing	equipment, with increasing	
Measuring	take accurate	accurate measurements	accuracy and precision,	accuracy and precision,	identify, with reasons, whether
	measurements using	using standard units,	taking repeat readings	taking repeat readings	changes in materials are
as	standard units, using a	using a range of	when appropriate (Y5	when appropriate (Y6	reversible or not [Y5];
<u>\(\text{\ti}\text{\ti}}}\\ \text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\texi}}}\text{\text{\text{\text{\text{\ti}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}}</u>	range of equipment,	equipment, including	maths focus including	focus including capacity,	
\geq	including thermometers	thermometers and data	capacity and mass).	mass, ratio and	use the idea that light from light
	and data loggers (Year	loggers (Year 4 focus).		proportion).	sources, or reflected light, travels
	3 focus).				in straight lines and enters our
	Gather, record, classify	Gather, record, classify	Gather, record, classify and	Record data and results of	eyes to explain how we see
	and present data in a	and present data in a	present data in a variety of	increasing complexity	objects [Y6], and the formation
ľ	variety of ways to help	variety of ways to help in	ways to help in answering	using scientific diagrams	[Y3], shape [Y6] and size of
モ	in answering questions	answering questions	questions drawings,	and labels, classification	shadows [Y3];
0	drawings, labelled	drawings, labelled	labelled diagrams, keys and	keys, tables, scatter	
Reporting	diagrams, keys and	diagrams, keys and child	child constructed bar charts	graphs, bar and line	use the idea that sounds are
Ř	child constructed bar	constructed bar charts	and tables (Year 4 focus).	graphs (Year 6 focus).	associated with vibrations, and
	charts and tables (Year	and tables (Year 4			that they require a medium to
	3 focus).	focus).			

Interpreting and Evaluating



St Mary's Catholic Primary School and Nursery

Progression of Science Knowledge Skills and Concepts

I am beginning to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.

Am beginning to use straightforward scientific evidence to answer questions or to support their findings.

With help, am beginning to look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.

With support, am beginning to identify new questions arising from the data, make new predictions and find ways of improving Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.

Use straightforward scientific evidence to answer questions or to support their findings.

With help, look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions.

With support, identify new questions arising from the data, make new predictions and find ways of improving what they have already done. Am beginning to report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.

Begin to identify scientific evidence that has been used to support or refute ideas or arguments.

Begin to draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific knowledge and understanding to explain their findings.

Begin to use test results to make predictions to set up further comparatives and fair tests. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. Identify scientific evidence that has been used to support or refute ideas or arguments.

Draw conclusions based on their data and observations, use evidence to justify their ideas, use scientific knowledge and understanding to explain their findings.

Use test results to make predictions to set up further comparatives and fair tests.

travel through, to explain how sounds are made and heard [Y4];

describe the relationship between the pitch of a sound and the features of its source; and between the volume of a sound, the strength of the vibrations and the distance from its source [Y4];

describe the effects of simple forces that involve contact (air and water resistance, friction) [Y5], that act at a distance (magnetic forces, including those between like and unlike magnetic poles) [Y3], and gravity [Y5];

identify simple mechanisms, including levers, gears and pulleys, that increase the effect of a force [Y5];

use simple apparatus to construct and control a series circuit, and describe how the circuit may be affected when changes are made to it and use recognised symbols



what they have already	Can see a pattern in my	Begin to look for different	Look for different causal	to represent simple series circuit
done.	results.	causal relationships in their	relationships in their data	diagrams [Y6];
		data and identify evidence	and identify evidence that	
Am beginning to see a	Can say what I found	that refutes or supports their	refutes or supports their	describe the shapes and relative
pattern in my results.	out, linking cause and	ideas.	ideas.	movements of the Sun, Moon,
	effect.			Earth and other planets in the
Am beginning to say		Use their results to identify	Use their results to identify	solar system; and explain the
what I found out, linking	Can say how I could	when further tests and	when further tests and	apparent movement of the sun
cause and effect.	make it better.	needed.	observations are needed.	across the sky in terms of the
			Separate opinion from	Earth's rotation and that this
Am beginning to say	Can answer questions	Begin to separate opinion	fact.	results in day and night [Y5].
how I could make it	from what I have found	from fact.		
better.	out.		Can draw conclusions and	
		Begin to draw conclusions	identify scientific evidence.	
Am beginning to		and identify scientific		
answer questions from		evidence.	Can use simple models.	
what I have found out.			Know which evidence	
		Can use simple models.	proves a scientific point.	
		Know which evidence		
		proves a scientific point.	Use test results to make	
		Begin to use test results to	predictions to set up	
		make predictions to set up	further comparative and	
		further comparative and fair	fair tests.	
		tests.		



	Animals including	Animals including	Animals including humans:	Animals including humans:	
	humans: Movement	humans: Mouth / Tongue	Foetus / Embryo / Womb	Circulatory / Heart / Blood	
	Muscles / Bones / Skull	Teeth / Molar / Incisor	Gestation / Baby / Toddler	Vessels / Veins / Arteries	
	Nutrition / Skeletons	Oesophagus / Stomach	Teenager / Elderly / Growth	Oxygenated / Valve	
		Small intestine / Canine	Development / Puberty	Deoxygenated / Exercise	
	Plants: Air / Light / Soil	Large intestine		Respiration	
	Water / Nutrients	Herbivore / Carnivore	Living things and their		
	Reproduction / Flower		habitats: Mammal / Bird	Living things and their	
	Transportation	Living things and their	Reproduction / Insect	habitats: Classification	
	Dispersal / Pollination	habitats: Vertebrates	Amphibian / Offspring	Vertebrates / Invertebrates	
>		Fish / Amphibians		Micro-organisms	
<u>a</u>		Reptiles / Birds / Habitat	Properties and changes of	Amphibians / Reptiles	
\supset	Rocks: Fossils / Soils	Mammals / Snails / Slugs	materials: Hardness	Mammals / Insects	
2	Sandstone / Granite	Invertebrates / Worms	Solubility / Transparency		
Vocabulary	Marble / Pumice	Spiders / Insects	Conductivity / Magnetic	Evolution and Inheritance:	
2	Crystals / Absorbent	Environment	Filter / Evaporation	Fossils / Adaptation	
			Dissolving / Mixing	Evolution / Characteristics	
Key	Light: Light / Shadows	States of Matter: Solid		Reproduction / Genetics	
\mathbf{Y}	Mirror / Reflective	Liquid / Gas / Heating	Earth and Space: Earth		
	Dark / Reflection	Evaporation / Freezing	Sun / Moon / Axis / Rotation	Light Refraction : Light	
		Condensation / Particles	Day / Night / Star	Reflection / Spectrum	
	Forces and magnets:	Temperature	Phases of the Moon	Rainbow / Colour	
	Magnetic / Force		Constellation		
	Contact / Attract / Repel	Sound: Volume / Pitch		Electricity Cells: Wires	
	Friction / Poles	Vibration / Wave / Tone	Forces: Air resistance	Bulbs / Switches / Buzzers	
	Push / Pull	Speake	Water resistance / Friction	Battery / Circuit / Series	
			Gravity / Newton / Gears	Conductors / Insulators	
		Electricity Cells: Wires	Pulleys	Amps / Volts / Cell	
		Bulbs / Switches			



Buzzers / Battery Circuit / Series, Conductors / Insulators		