### Stratford-sub-Castle Primary School - Science knowledge & skills progression v 4.0

	Reception	End of EYFS		
Physical Development	<ul> <li>Know and talk about the different factors that support their overall health and well-being – regular physical activity – healthy eating – toothbrushing – sensible amounts of screen time – having a good sleep routine.</li> </ul>	ELG: Personal, Social and Emotional Development  • Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.		
Understanding the World. The Natural World	<ul> <li>Explore the natural world around them. Describe what they see, hear and feel outside.</li> <li>Understand the effect of changing seasons on the natural world around them.</li> </ul>	ELG: Understanding the World Natural World  Natural		

KS1	Butterly (Year 1) Knowledge and Work	ing Scientifically	Owl (Year 1/2) Knowledge and Working Scientifically			
Living things			Key Knowledge:	Working Scientifically:		
and their			Explore and compare differences	Investigating and observing (Y2)		
habitats			between things that are living, dead,	Make observations and comparisons		
			and things that have never been alive.	using simple equipment and following		
				simple instructions		
			Identify most living things live in			
			habitats to which they are suited.	With support, use first-hand		
				experience and simple information		
			Describe how different habitats	sources to answer questions		
			provide for the basic needs of different			
			kinds of animals and plants, and how	Evaluating and concluding (Y2)		
			they depend on each other.	Record findings in simple ways		
			Identify and name a variety of plants			
			and animals in their habitats, including			
			micro-habitats.			
			Describe how animals obtain their			
			food from plants and other animals,			
			using the idea of a simple food chain,			
			and different sources of food.			
Animals	Key Knowledge:	Working Scientifically:	Key Knowledge:	Working Scientifically:		
including	ino, inicial de la company		Identify, name, draw and label the	, and the same of		
humans	Identify, name, draw and label the	Investigating and observing (Y1)	basic parts of the human body and say	Investigating and observing (Y1)		
	basic parts of the human body and	Make observations using appropriate	which part of the body is associated	Make observations using appropriate		
	say which part of the body is	senses	with each sense.	senses		
	associated with each sense.	Explore using the senses		Explore using the senses		
		Make simple comparisons and	Identify and name a variety of	Make simple comparisons and		
	Identify and name a variety of	groupings	common animals including fish,	groupings		
	common animals including fish,		amphibians, reptiles, birds and			
	amphibians, reptiles, birds and	Evaluating and concluding (Y1)	mammals.	Evaluating and concluding (Y1)		
	mammals.	Communicate findings in simple ways		Communicate findings in simple ways		
			Identify and name a variety of			
	Identify and name a variety of		common animals that are carnivores,	Investigating and observing (Y2)		
	common animals that are carnivores,		omnivores and herbivores.	With support, use first-hand		
	omnivores and herbivores.			experience and simple information		
			Describe and compare the structure of	sources to answer questions		
	Describe and compare the structure		a variety of common animals (fish,			
	of a variety of common animals (fish,			Evaluating and concluding (Y2)		

	amphibians, reptiles, birds and mammals, including pets).		amphibians, reptiles, birds and mammals, including pets).  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.	Record findings in simple ways including tables and graphs
Plants	Key Knowledge: Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.  Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.	Working Scientifically:  Evaluating and concluding (Y1) Collect evidence to try and answer a questions. Communicate findings in simple ways.	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.  Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.  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.	Evaluating and concluding (Y1) Collect evidence to try and answer a questions. Communicate findings in simple ways.  Investigating and observing (Y2) Make observations and comparisons using simple equipment and following simple instructions. With support, use first-hand experience and simple information sources to answer questions  Planning and Predicting(Y2) With support, suggest some ideas and questions to be investigated. Think about how to collect evidence Suggest what might happen.  Evaluating and concluding (Y2) Record findings in simple ways including tables and graphs.

Seasonal	Key Knowledge:	Working Scientifically:	Key Knowledge:	Working Scientifically:
Changes	Observe changes across the four	Planning and predicting (Y1)	Observe changes across the four	Planning and predicting (Y1)
	seasons.	Suggest what might happen.	seasons. (Around school)	Suggest what might happen.
	(Tree in outdoor learning area)	Suggest simple ways to test ideas.		Suggest simple ways to test ideas.
			Observe and describe weather	
	Observe and describe weather		associated with the seasons and how	
	associated with the seasons and how		day length varies.	
	day length varies.			
Everyday	Key Knowledge:	Working Scientifically:	Key Knowledge:	Working Scientifically:
materials	Distinguish between an object and	Investigating and observing (Y1)	Distinguish between an object and the	Investigating and observing (Y1)
	the material from which it is made.	Make observations using appropriate	material from which it is made.	Make observations using appropriate
		senses.		senses.
	Identify and name a variety of	Explore using the senses.	Identify and name a variety of	Explore using the senses.
	everyday materials, including wood,	Make simple comparisons and	everyday materials, including wood,	Make simple comparisons and
	plastic, glass, metal, water, and rock.	groupings.	plastic, glass, metal, water, and rock.	groupings.
	Describe the simple physical	Evaluating and concluding (Y1)	Describe the simple physical	Evaluating and concluding (Y1)
	properties of a variety of everyday	Collect evidence to try and answer a	properties of a variety of everyday	Collect evidence to try and answer a
	materials.	questions.	materials.	questions.
		Communicate findings in simple ways.		Communicate findings in simple ways.
	Compare and group together a	0	Compare and group together a variety	
	variety of everyday materials on the		of everyday materials on the basis of	Investigating and observing (Y2)
	basis of their simple physical		their simple physical properties.	Make observations and comparisons
	properties.			using simple equipment and following
			Identify and compare the suitability of	simple instructions.
			a variety of everyday materials,	With support, use first-hand
			including wood, metal, plastic, glass,	experience and simple information
			brick, rock, paper and cardboard for	sources to answer questions.
			particular uses.	
				Planning and predicting (Y2)
			Find out how the shapes of solid	With support, suggest some ideas and
			objects made from some materials can	questions to be investigated.
			be changed by squashing, bending,	Think about how to collect evidence
			twisting and stretching.	Suggest what might happen.
				Think about and discuss whether
				comparisons and tests are fair or
				unfair.
				Evaluating and concluding (Y2)
				Say whether what happened was
				exactly what happened.
				exactly what happened.

\*\* In Owl Class, Year 1's are taught the Year 1 curriculum for the topic. Year 2's revise what they learnt in Year 1 (in either Butterfly Class or Owl Class) and progress onto the Year 2 curriculum. The exception is living things and their habitats which is year 2 curriculum, so some year 1 children will overlearn that in Owl Class.

## Stratford-sub-Castle Primary School - Science knowledge progression v 4.0

UPPER SCHOOL	Woodpecker (Year 3/4)	Fox (Year 4/ 5)		Robin (Year 5/6)	
Living things and their habitats	WOODPECKER (Year 3/4)	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 to living things.	Working scientifically: Planning and predicting (Y4) Recognise why it is important to collect data to answer questions.  Suggest questions that can be tested.  Put forward and explain own ideas and testing and making predictions.  Investigating and observing (Y4) Measure length, volume, time, temperature and force in standard units of measurement using simple equipment.  Evaluating and concluding (Y4) Explain what the evidence shows in a scientific way and whether it supports the prediction.	Key Knowledge: 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.	Working scientifically: Planning and predicting (Y5) Recognise that scientific ideas are based on evidence and creative thinking.  Investigating and observing (Y5) Select information from provided sources.  Evaluating and concluding (Y5) Draw conclusions and communicate them using appropriate scientific language.  Investigating and observing (Y6) Select information from provided sources.  Evaluating and concluding (Y6) Draw conclusions and communicate them using appropriate scientific language.

				Suggest improvements to their work.	Give reasons for classifying plants and animals based on specific characteristics.	
Sound	Key Knowledge: Identify how sounds are made, associating some of them with something vibrating.	Working scientifically: Planning and predicting (Y4) Recognise why it is important to collect data to answer questions.	Key Knowledge: Identify how sounds are made, associating some of them with something vibrating.	Working scientifically: Planning and predicting (Y4) Recognise why it is important to collect data to answer questions.		
	Recognise that vibrations from sounds travel through a medium to the ear.	Suggest questions that can be tested.  Put forward and explain own ideas and testing and making predictions.	Recognise that vibrations from sounds travel through a medium to the ear.  Recognise that get	Suggest questions that can be tested.  Put forward and explain own ideas and testing and making predictions.		
	Recognise that get fainter as the distance from the sound source increases.	With support, consider what constitutes a fair test.	fainter as the distance from the sound source increases.	With support, consider what constitutes a fair test.		
	Find patterns between the pitch of a sound and features of the object that produced it.	Investigating and observing (Y4) Measure length, volume, time, temperature and force in standard units of measurement using simple equipment.	Find patterns between the pitch of a sound and features of the object that produced it.	Investigating and observing (Y4) Measure length, volume, time, temperature and force in standard units of measurement using simple equipment.		
		Evaluating and concluding (Y4)		Evaluating and concluding (Y4)		

		Explain what the evidence shows in a scientific way and whether it supports the prediction.  Identify simple trends and	Explain what the evidence shows in a scientific way and whether it supports the prediction.  Identify simple trends and patterns.	
Rocks	Key Knowledge: Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.  Describe in simple terms how fossils are formed when things that have lived are trapped within rock.  Recognise that soils are made from rocks and organic matter.	patterns.  Working scientifically: Investigating and observing (Y3) Make observations and comparisons. Use first-hand experience and simple information sources to answer questions.  Evaluating and concluding (Y3) Communicate findings in a variety of ways.		
Plants	Key Knowledge: Identify and describe the basic structure of a variety of common	Working scientifically: Investigating and observing (Y3) Make observations and comparisons.		

	flowering plants, including trees.  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.	Use first-hand experience and simple information sources to answer questions.  Planning and predicting (Y3) Respond to suggestions and, with support, put forward own ideas about testing. Make predictions.  With support,				
	growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to	predicting (Y3) Respond to suggestions and, with support, put forward own ideas about testing. Make predictions.				
Electricity	Key Knowledge: Identify common appliances that run on electricity.	Working scientifically: Planning and predicting (Y4)	Key Knowledge: Identify common appliances that run on electricity.	Working scientifically: Planning and predicting (Y4)	Key Knowledge: Associate the brightness of a lamp or the	Working scientifically: Planning and predicting (Y6)

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.

Suggest questions that can be tested.

Put forward and explain own ideas and testing and making predictions.

With support, consider what constitutes a fair test.

Evaluating and concluding (Y4)
Explain what the evidence shows in a scientific way and whether it supports the prediction.

Identify simple trends and patterns.

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.

Suggest questions that can be tested.

Put forward and explain own ideas and testing and making predictions.

With support, consider what constitutes a fair test.

Evaluating and concluding (Y4)
Explain what the evidence shows in a scientific way and whether it supports the prediction.

Identify simple trends and patterns.

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.

Make predictions based on scientific knowledge and understanding.

Suggest methods of testing, including fair testing, and how to collect evidence, ensuring it is sufficient and appropriate.

#### Investigating and observing (Y6)

Carry out a fair test identifying key features to be considered.

Make a variety of relevant observations and measurements using simple apparatus appropriately.

Decide when observations/measurements need to be checked in order to give more reliable data.

#### Evaluating and concluding (Y6)

Communicate findings in a variety of ways – tables, bar graphs and line graphs, including appropriate use of ICT.

Provide explanations for differences in results.

Draw conclusions and communicate them using appropriate scientific language.

Earth and Space			Rey Knowledge: 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.  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.	Working scientifically: Planning and predicting (Y5) Recognise that scientific ideas are based on evidence and creative thinking.  Investigating and observing (Y5) Select information from provided sources.  Evaluating and concluding (Y5) Draw conclusions and communicate them using appropriate scientific language.		
Light	Key Knowledge: Recognise that they need light in order to see things and that dark is the absence of light.	Working Scientifically: Investigating and observing (Y3) Make observations and comparisons. Use first-hand experience and simple information sources to answer questions.			Key Knowledge: Recognise that light appears to travel in straight lines.  Use the idea that light travels in straight lines to explain that object are seen because the	Make predictions based on scientific knowledge and understanding.  ht les including fair testing, and how to collect evidence,

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. Planning and predicting (Y3)

Respond to suggestions and, with support, put forward own ideas about testing. Make predictions. With support, consider what constitutes a fair test. With support, plan and carrying out a fair test.

Evaluating and concluding (Y3)
Communicate findings in a variety

of ways.
Say whether what happened was expected and draw simple conclusions. With support, identify simple patterns and suggest

explanations.

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.

# <u>Investigating and observing</u> (Y6)

Carry out a fair test identifying key features to be considered.

Make a variety of relevant observations and measurements using simple apparatus appropriately.

Decide when observations/measurements need to be checked in order to give more reliable data.

Select information from appropriate sources.

## Evaluating and concluding (Y6)

Communicate findings in a variety of ways – tables, bar graphs and line graphs, including appropriate use of ICT.

Provide explanations for differences in results.

Draw conclusions and communicate them using appropriate scientific language.

Identify trends, patterns and results that do not fit the pattern.

_

including their Make predictions based on scientific hardness, knowledge. solubility, transparency, Suggest methods of conductivity testing, including fair (electrical and testing. thermal), and response to Suggest how to magnets. collect evidence. Suggest suitable equipment. Know that some materials will dissolve in liquid to form a solution, Carry out a fair test, and describe how explaining why it is to recover a fair. substance from a solution. Understand why observations and Use knowledge of measurements need solids, liquids and to be repeated. gases to decide how mixtures might be Communicate separated, findings in a variety including through of ways – tables, bar filtering, sieving graphs and line and evaporating. graphs, including appropriate use of Give reasons, ICT. based on evidence from comparative Identify trends and patterns giving and fair tests, for explanations for the particular uses these. 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.	Draw conclusions and communicate them using appropriate scientific language.		
Animals including humans	Key Knowledge: 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.	Working Scientifically: Investigating and observing (Y3) Make observations and comparisons. Use first-hand experience and simple information sources to answer questions.  Evaluating and concluding (Y3)	Key Knowledge: 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,	Working scientifically: Planning and predicting (Y4) Recognise why it is important to collect data to answer questions. Suggest questions that can be tested.  Put forward and explain own ideas and testing and making predictions.	Key Knowledge: 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.	Working scientifically: Investigating and observing (Y5) Select information from provided sources.  Planning and predicting (Y6)  Make predictions based on scientific knowledge and understanding.  Suggest methods of testing, including fair testing, and how

Identify that humans and sor other animals have skeletons and muscles for support, protection and movement.	of ways.	identifying producers, predators and prey.	With support, consider what constitutes a fair test.  Investigating and observing (Y4) Measure length, volume, time, temperature and force in standard units of measurement using simple equipment.  Evaluating and concluding (Y4) Explain what the evidence shows in a scientific way and whether it supports the prediction.  Suggest improvements to their work.  Identify simple trends or patterns.	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.	to collect evidence, ensuring it is sufficient and appropriate.  Investigating and observing (Y6) Carry out a fair test identifying key features to be considered.  Make a variety of relevant observations and measurements using simple apparatus appropriately.  Decide when observations/measurements need to be checked in order to give more reliable data.  Select information from appropriate sources.  Evaluating and concluding (Y6) Communicate findings in a variety of ways — tables, bar graphs and line graphs, including appropriate use of ICT.  Provide explanations for differences in results.  Draw conclusions and communicate them using appropriate scientific language.  Identify trends, patterns and results that do not fit the pattern.
---	----------	--	---	---	---

Forces	Key Knowledge:	Working	Key Knowledge:	Working scientifically:
	Compare how	Scientifically:	Explain that	Planning and predicting (Y5)
	things move on	Investigating and	unsupported objects	Make predictions based on
	different surfaces.	observing (Y3)	fall towards the	scientific knowledge.
		Make observations	Earth because of the	
	Notice that some	and comparisons.	force of gravity	Suggest methods of testing,
	forces need	Use first-hand	acting between the	including fair testing.
		experience and		
	contact between	simple information	Earth and the falling	Suggest how to collect
	two objects, but	sources to answer	object.	evidence.
	magnetic forces	questions.		
	can act at a	Manay wa lawath	Identify the effects	Suggest suitable equipment.
	distance.	Measure length, volume and time in	of air resistance,	
		standard units of	water resistance and	Investigating and observing
	Observe how	measurement using	friction, that act	<u>(Y5)</u>
	magnets attract	simple equipment	between moving	Carry out a fair test, explaining
	or repel each	Simple equipment	surfaces.	why it is fair.
	other and attract	Planning and		
	some materials	predicting (Y3)	Recognise that some	Understand why observations
	and not others.	Respond to	mechanisms,	and measurements need to be
	una not others.	suggestions and,	including levers,	repeated.
	Compare and	with support, put	pulleys and gears,	= 1 ··· 1 ·· 1 ·· 0/E)
	•	forward own ideas	allow a smaller force	Evaluating and concluding (Y5)
	group together a	about testing.		Communicate findings in a
	variety of	Ü	to have a greater	variety of ways – tables, bar
	everyday	Make predictions.	effect.	graphs and line graphs,
	materials on the	·		including appropriate use of ICT.
	basis of whether	With support,		ici.
	they are attracted	consider what		Identify trends and patterns
	to a magnet, and	constitutes a fair		giving explanations for these.
	identify some	test.		Draw conclusions and
	magnetic	With support, plan		communicate them using
	materials.	and carrying out a		appropriate scientific
		fair test.		language.
	Describe magnets			36
	as having two	Evaluating and		
	poles.	concluding (Y3)		
	poles.	Communicate		
		findings in a variety		
		of ways.		

	Predict whether two magnets will attract or repel each other, depending on which poles are facing.	Say whether what happened was expected and draw simple conclusions.  With support, identify simple patterns and suggest explanations.		
Evolution and Inheritance			Key Knowledge: Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.  Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.  Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	Working scientifically: Planning and predicting (Y6) Consider how scientists have combined evidence from observation and measurement with creative thinking to suggest new ideas and explanations for phenomena.  Evaluating and concluding (Y6) Draw conclusions and communicate them using appropriate scientific language.

\*\* Highly unlikely that a child will go from Woodpecker Class year 4 to Robin Year 5. Therefore, full coverage of science curriculum is certain.

Key: Year 1\_Year 2\_Year 3\_Year 4 Year 5 Year 6