



St Patrick's - Science Progression of Skills



Level Expected at the end of EYFS

We have selected the Early Learning Goals that link most closely to the Science National Curriculum.

Understanding the World (The World)

Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.

Physical Development (Health and Self-Care)

Children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe.

Key Stage 1 National Curriculum Expectations (Working Scientifically)	Lower Key Stage 2 National Curriculum Expectations (Working Scientifically)	Upper Key Stage 2 National Curriculum Expectations (Working Scientifically)
<p>During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> • asking simple questions and 	<p>During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p>	<p>During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p>

<p>recognising that they can be answered in different ways;</p> <ul style="list-style-type: none"> ● observing closely, using simple equipment; ● performing simple tests; ● identifying and classifying; ● using their observations and ideas to suggest answers to questions ● gathering and recording data to help in answering questions. 	<ul style="list-style-type: none"> ● 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, labelled diagrams, keys, bar charts, and tables; ● reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions; ● using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions; ● identifying differences, similarities or changes related to simple scientific ideas and processes; ● using straightforward scientific evidence to answer questions or to support their 	<ul style="list-style-type: none"> ● planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary; ● taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate; ● recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs; ● using test results to make predictions to set up further comparative and fair tests; ● 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; ● identifying scientific evidence that has been used to support or refute ideas or arguments.
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The Three I's for Science:

INTENT:

At St Patrick's Catholic Primary School, the children will experience a broad and balanced science curriculum, meeting the needs of all pupils. Children will experience collaborative learning, with engagement and enjoyment being at the forefront of the lessons.

Our intention is:

- To ensure teachers have the knowledge, resources and support to teach a highly engaging science curriculum
- To support all children to develop a high standard of scientific knowledge, incorporating scientific literacy and numeracy as well as cross curricular links to foundation subjects
- To enable children to use critical thinking skills in order to challenge and engage them in their learning
- To ensure that children's scientific understanding is embedded in their long-term memory
- To increase the science capital around the school
- To ensure that working scientifically skills are covered and understood by children

IMPLEMENTATION:

How we teach science:

- Scientific skills are taught from Foundation, through Understanding the World
- Our Engaging Science scheme is taught consistently from Year 1 to Year 6, with an overview provided to teachers to follow
- All year groups have a focus on vocabulary, verbally and in writing
- Practical sessions have a focus on working scientifically skills, where children are aware of the skill they are developing
- Previous learning is revisited, embedding learning in their long term memory

How we monitor and assess progress in science:

- Observations and conversations with children
- Engaging Science 'points to ponder'
- Termly data input
- Scrapbooks
- Marking and next steps
- Book looks
- Learning walks

- **Lesson visits**

We raise the science capital by exposing the children to:

- Weekly science club
- Educational visits
- STEAM week
- Practical experiments
- Science in the news
- Scientific careers
- Engaging displays

IMPACT:

At St Patrick's, the children are challenged and supported appropriately through a range of ways. There is a high quality teaching of 'Engaging Science' consistently throughout the school, with a focus on scientific vocabulary throughout. By the end of each Key Stage, children achieve good results and understanding in science.

Progression of Knowledge for Science

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
PLANTS	<ul style="list-style-type: none"> • Name some common plants, including deciduous and evergreen trees. • Label the structure of a variety of common plants. • Observe the growth 	<ul style="list-style-type: none"> • Observe, describe and measure the growth of bulbs and/or seeds. • Describe and explain what plants need to grow and stay healthy. 	<ul style="list-style-type: none"> • Identify and describe the functions of different parts of plants. • Explore the requirements of plants for life and growth (air, light, 	<ul style="list-style-type: none"> • Recognise that living things can be grouped in a variety of ways. • Group, identify and name a variety of living things in their local and wider 	<ul style="list-style-type: none"> • Describe the life process of reproduction in some plants and animals. 	<ul style="list-style-type: none"> • Describe how living things are classified into groups by similarities, differences and characteristics. • Give reasons for classifying plants

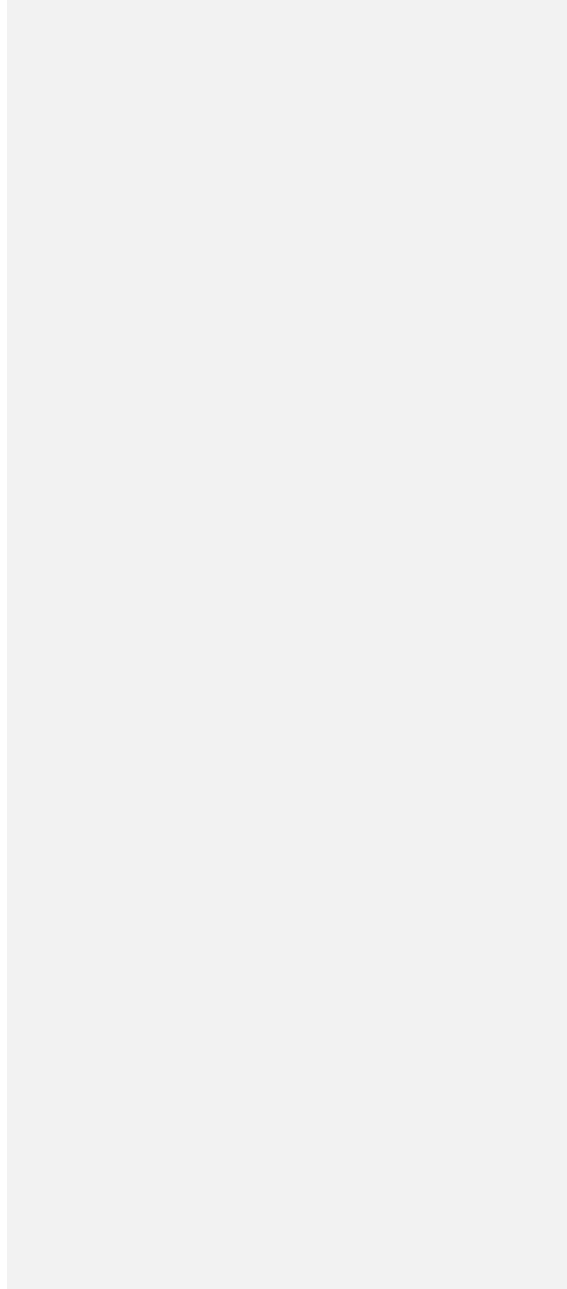
	of bulbs and/or seeds.	<ul style="list-style-type: none"> • Begin to understand that plants make their own food. 	<p>water, nutrients from soil, and room to grow) and how they vary.</p> <ul style="list-style-type: none"> • Investigate how water is transported through plants. • Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. 	<p>environment using classification keys.</p> <ul style="list-style-type: none"> • Recognise that environments can change and can pose dangers to living things. 		and animals based on characteristics.
ANIMALS INCLUDING HUMANS	<ul style="list-style-type: none"> • Name, label and describe uses of body parts. • Identify basic ways of keeping healthy. • Identify and name some common animals. • Classify animals by diet. 	<ul style="list-style-type: none"> • Understand that animals, including humans, have offspring which grow into adults. • Describe the basic needs of animals, including humans, for survival. • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. 	<ul style="list-style-type: none"> • Identify that animals, including humans, need the right types and amount of nutrition. • Identify that animals, including humans, cannot make their own food; and that they get nutrition from what they eat. • Identify that humans and some animals have skeletons and muscles for support, protection and movement. 	<ul style="list-style-type: none"> • Describe the simple functions of the basic parts of the digestive system in humans. • Identify different types of human teeth and their functions. • Construct and interpret a variety of food chains, identifying producers, predators and prey. • Construct and interpret food webs. 	<ul style="list-style-type: none"> • 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 the human life cycle. • Compare the life cycle of humans to that of other animals. • Describe the physical changes that take place in the human body during puberty. 	<ul style="list-style-type: none"> • Identify and name the main parts of the human circulatory system. • Explain the functions of the heart, blood vessels and blood. • Recognise the impact of diet, exercise, drugs and lifestyle on the human body. • Describe the ways in which nutrients and water are transported within animals, including humans. • Describe how living things are classified into groups by similarities, differences and characteristics. • Give reasons for classifying plants and animals based on characteristics.
MATERIALS	<ul style="list-style-type: none"> • Distinguish between an object 	<ul style="list-style-type: none"> • Identify and compare the 	<ul style="list-style-type: none"> • Classify and compare different 	<ul style="list-style-type: none"> • Classify and compare materials 	<ul style="list-style-type: none"> • Classify and group materials on the 	

	<ul style="list-style-type: none"> and a material. Name and describe the properties of everyday materials. Classify and compare everyday materials. Begin to understand that objects can change shape. 	<ul style="list-style-type: none"> suitability of everyday materials for different uses. Observe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. Classify and compare materials according to their basic properties. 	<ul style="list-style-type: none"> kinds of rocks on the basis of their appearance and simple properties. Describe how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter. 	<ul style="list-style-type: none"> according to whether they are solids, liquids or gases. 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). Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. 	<ul style="list-style-type: none"> basis of their properties. Recognise that some materials will dissolve in liquid to form a solution. Describe how to recover a substance from a solution. Describe how mixtures might be separated. Give reasons for the particular uses of everyday materials, including metals, wood and plastic. Demonstrate and explain reversible and irreversible changes. 	
SEASONAL CHANGES	<ul style="list-style-type: none"> Observe changes across the four seasons. Observe and describe weather associated with the seasons. Understand how and why day length varies. 		<ul style="list-style-type: none"> Recognise that light from the Sun can be dangerous. 		<ul style="list-style-type: none"> Explain day and night and the apparent movement of the sun across the sky (using the idea of Earth's rotation). 	
LIVING THINGS & THEIR HABITATS	<ul style="list-style-type: none"> Observe changes in the environment. Describe simple features of living things. Name some common plants, including deciduous and evergreen trees. Label the structure of a variety of common plants. Identify and name some common 	<ul style="list-style-type: none"> Identify and name plants and animals in their habitats, including micro-habitats. Describe how animals obtain their food (using simple food chains) and name different sources of food. Understand that living things live in suitable habitats for 	<ul style="list-style-type: none"> Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed 	<ul style="list-style-type: none"> Recognise that living things can be grouped in a variety of ways. Group, identify and name a variety of living things in their local and wider environment using classification keys. Recognise that environments can change and can pose dangers to 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Describe how living things are classified into groups by similarities, differences and characteristics. Give reasons for classifying plants and animals based on characteristics.

	<ul style="list-style-type: none"> animal. Classify animals by diet. Observe changes across the four seasons. 	<ul style="list-style-type: none"> their needs. Describe how habitats and living things depend on each other. Understand that animals, including humans, have offspring which grow into adults. Explore and compare the differences between things that are living, dead, and things that have never been alive. 	<ul style="list-style-type: none"> dispersal. Observe closely and identify animal homes. Suggest suitable sites for animal homes, explaining choices using simple scientific vocabulary. Provide homes and other methods to attract animals. 	<ul style="list-style-type: none"> living things. Construct and interpret a variety of food chains, identifying producers, predators and prey. Identify where humans have had an impact on an environment. Identify ways that humans can damage and protect an environment. 		
ROCKS	<ul style="list-style-type: none"> Distinguish between an object and a material. Name and describe the properties of everyday materials. Classify and compare everyday materials. 	<ul style="list-style-type: none"> Identify and compare the suitability of everyday materials for different uses. 	<ul style="list-style-type: none"> Classify and compare different kinds of rocks on the basis of their appearance and simple properties. Describe how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter. 			<ul style="list-style-type: none"> Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.
LIGHT	<ul style="list-style-type: none"> Name, label and describe uses of body parts and know which part is responsible for each sense. 		<ul style="list-style-type: none"> Recognise the difference between light sources and other shiny objects. Name a number of light sources, including the Sun. Recognise that light is needed to see things and that dark is the absence of light. Recognise that light is reflected from 			<ul style="list-style-type: none"> Understand that light appears to travel in straight lines. Explain that objects are seen because they give out, or reflect, light into the eye. Explain how we see things. Explain why shadows have the same shape as the

			<p>surfaces. Recognise that light from the Sun can be dangerous.</p> <ul style="list-style-type: none"> • Recognise that shadows are formed when light sources are blocked. • Identify patterns in how the size of shadows changes. 			<p>objects that cast them.</p> <ul style="list-style-type: none"> • Predict the size of shadows when the position of light sources change.
FORCES & MAGNETS		<ul style="list-style-type: none"> • Observe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. 	<ul style="list-style-type: none"> • Compare how things move on different surfaces. • Recognise that some forces need contact between two objects, but magnetic forces can act at a distance. • Observe how magnets attract or repel each other and attract some materials and not others • Classify and compare everyday materials on the basis of whether they are magnetic. • Identify some magnetic materials. • Describe magnets as having two poles. • Predict whether two magnets will attract or repel each other, depending on the direction of poles. 		<ul style="list-style-type: none"> • Explain why objects fall towards the Earth because of the force of gravity. • Identify the effects of air resistance, water resistance and friction that act between moving surfaces. • Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. 	
SOUND	<ul style="list-style-type: none"> • Name, label and describe uses of body parts and know which part is responsible for each sense. 			<ul style="list-style-type: none"> • Identify how sounds are made (associating some of them with vibration). • Recognise that vibrations from 		

				<p>sounds travel to the ear.</p> <ul style="list-style-type: none">• Identify patterns between the pitch of a sound and features of the object that produced it.• Identify 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.		
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ELECTRICITY				<ul style="list-style-type: none"> • Identify common electrical appliances. • Construct a simple electrical circuit. • Identify and name a circuit's basic parts. • 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 (identifying metals as good conductors). 		<ul style="list-style-type: none"> • 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. • Use recognised symbols when representing a simple circuit in a diagram.
EARTH & SPACE					<ul style="list-style-type: none"> • Describe the movement of the Earth, and other planets, relative to 	

					<ul style="list-style-type: none"> the Sun. Describe the movement of the Moon relative to the Earth. Describe the Sun, Earth and Moon as approximately spherical bodies. Explain day and night and the apparent movement of the sun across the sky (using the idea of Earth's rotation). 	
EVOLUTION & INHERITANCE		<ul style="list-style-type: none"> Understand that living things live in suitable habitats for their needs. Describe how habitats and living things depend on each other. 	<ul style="list-style-type: none"> Describe how fossils are formed when things that have lived are trapped within rock. 	<ul style="list-style-type: none"> Recognise that environments can change and can pose dangers to living things. 		<ul style="list-style-type: none"> Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Identify how animals and plants are adapted to suit their environment and that adaptation may lead to evolution.

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