

St Patrick's Catholic Primary School Science Curriculum Intent







	Advent	Lent	Pentecost
Nursery	Understanding the word – the natural word	Understanding the word – the natural word	Understanding the word – the natural word
	Knows how to play with small-world models such as a farm, a garage or a train track.	Knows how to explore collections of materials with similar and/or different properties.	Knows how to ask questions about aspects of my familiar world such as the place where I live or the natural world.
	Knows about and notices features of objects in		
	the Environment	Knows how to plant seeds and care for growing plants.	Knows how to talk about some of the things I have observed such as plants, animals, natural and found objects.
	Knows how to use all their senses in hands-on	Knows that they need to respect and care for	
	exploration of natural materials.	the natural environment and all living things. (starting to)	Knows how to talk about why things happen and how things work.
	Knows to show care and concern for living things		
	and the environment	Knows how to talk about what they see, using a wide vocabulary.	Knows about and is developing an understanding of growth, decay and changes over time.
		Knows how to explore and talk about	
		different forces they can feel.	Knows about and understands the key features of the life cycle of a plant and an animal.
		Knows how to talk about the differences between materials and changes they notice.	
Reception	Understanding the word – the natural word	Understanding the word – the natural word	Understanding the word – the natural word
	Knows how to ask questions about aspects of my		Explore the natural world around them,
	familiar world such as the place where I live or the natural world.	Knows how to talk about why things happen and how things work.	making observations and drawing pictures of animals and plants;

Science





Knows how to talk about some of the things I
have observed such as plants, animals, natural
and found objects.

Knows about and is developing an understanding of growth, decay and changes over time.

Knows how to show care and concern for living things and the environment.

Knows how to explore the natural world around them.

Knows how to describe what they see, hear and feel whilst outside.

Knows how to recognise some environments that are different to the one in which they live.

Knows and understands the effect of changing seasons on the natural world around them.

Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class;

Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Y1 Animals including humans

Know what a fish is Know what an amphibian is

Know what a reptile is Know what a bird is Know what a mammal is Know what a carnivore is Know what an herbivore is Know what an omnivore

is
Know the structure of fish
Know the structure of
amphibians
Know the structure of

reptiles

Plants

Know a variety of common wild plants
Know a variety of common garden plants
Know what deciduous trees are
Know what evergreen trees are
Know the basic structure of a variety of common flowering plants

Ask simple questions and recognise that they can be answered in different ways.

Use of Everyday Materials

Know what materials objects are made from Know a variety of materials
Know the physical properties of wood
Know the physical properties of plastic
Know the physical properties of glass
Know the physical properties of metal
Know the physical properties of water
Know the physical properties of rock
Know how to compare and group everyday
materials

Ask simple questions and recognise that they can be answered in different ways. Observe closely, using simple equipment. Perform simple tests. Identify and classify.

Seasonal changes

Know the changes across the four seasons Know the weather associated with each season Know that day length varies between the seasons

Ask simple questions and recognise that they can be answered in different ways.

Observe closely, using simple equipment. Perform simple tests.

Identify and classify.

Use observations and ideas to suggest answers to questions.

Gather and record data to help answer questions.

Investigation: Scientist:







	Know the structure of birds Know the structure of mammals Know the basic parts of the human body Know the parts of the body associated with senses	Observe closely, using simple equipment. Perform simple tests. Identify and classify. Use observations and ideas to suggest answers to questions. Gather and record data to help answer questions.	Use observations and ideas to suggest answers to questions. Gather and record data to help answer questions. Investigation: Scientist:	
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Y2	Living things and their habitats Know that some things are living, dead and have never been alive Know what a habitat is	Animals including humans Know that animals, including humans, have offspring which grow into adults	Plants Know that seeds and bulbs grow into mature plants Know that plants need water, light and a suitable temperature to grow and stay healthy	Uses of everyday Materials Know that suitability of everyday materials for particular uses Know that solid objects made from some materials can be changed by squashing, bending, twisting and stretching

Science





Know that most living things live in habitats that are suited to their needs Know the habitats of plants and animals Know what a microhabitat is Know how animals obtain their food from plants and other animals Know how to use a simple food chain Know different sources of food

Ask simple questions and recognise that they can be answered in different ways.
Observe closely, using simple equipment.
Perform simple tests.
Identify and classify.
Use observations and ideas to suggest answers to questions.
Gather and record data to help answer questions.

Investigation: Scientist:

Know the basic needs of animals for survival Know the importance of exercise, diet and hygiene for humans

Ask simple questions and

recognise that they can be answered in different ways.
Observe closely, using simple equipment.
Perform simple tests.
Identify and classify.
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Investigation: Scientist: Rachel Carson Ask simple questions and recognise that they can be answered in different ways.

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Investigation:
Scientist:

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Investigation:

Scientist: Charles Macintosh





Y3 Animals including humans- skeletons and digestive system

Know that animals, including humans, need the right amount of nutrition
Know that animals, including humans, get nutrition from what they eat

Know that humans and some other animals have skeletons and muscles for support, protection and movement

Ask relevant questions and use different types of scientific enquiry to answer them.
Set up simple practical enquiries, comparative and fair tests.
Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment, including thermometers and data loggers.

Plants- Living things

Know the functions of differ net flowering plants: roots, stem/truck, leaves and flowers
Know that plants need air, light, water, nutrients from soil, and room to grow for life and growth Know how water is transported within plants
Know the part flowers play in the life cycle of a flowering plant

Ask relevant questions and use different types of scientific enquiry to answer them. Set up simple practical enquiries, comparative and fair tests. Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment, including thermometers and data loggers. Gather, record, classify and present data in a

Rocks

Know different types of rock based on their appearance and simple physical properties
Know that fossils are formed when living things are trapped within the rock
Know that soils are made from rocks and organic matter

Ask relevant questions and use different types of scientific enquiry to answer them. Set up simple practical enquiries, comparative and fair tests. Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment, including thermometers and data loggers. Gather, record, classify and present data in a variety of ways to help in answering questions.

Forces and Magnets

Know that things move

differently on different surfaces Know that some forces need contact between two objects Know that magnetic forces can act at a distance Know how magnets attract of repel each other Know that magnets attract some materials and not others Know that magnets have two poles Know whether a magnet will attract or repel each other based on which poles are facing

Ask relevant questions and use different types of scientific enquiry to answer them.
Set up simple practical enquiries, comparative and fair tests.
Make systematic and careful observations

Light

Know that you need light in order to see things
Know that dark is the absence of light
Know that light it reflected from surfaces
Know that light from the sun can be dangerous
Know ways to protect eyes from the sun
Know that shadows are formed when light from a
light source is blocked by an opaque object
Know that patterns are formed in the way that the
size of shadows change

Ask relevant questions and use different types of scientific enquiry to answer them.

Set up simple practical enquiries, comparative and fair tests.

Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment, including thermometers and data loggers.

Gather, record, classify and present data in a variety of ways to help in answering questions.

Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.

Report on findings from enquiries, including oral and written explanations, displays of presentations of results and conclusions.

Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.

Identify differences, similarities or changes related to simple scientific ideas and processes.





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Investigation:

Scientist: Marie Curie

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Investigation:

Scientist: George

Washington Carver

Investigation: Scientist: William Smith

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Investigation: Scientist:





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Y4	Living things and their	Animals including	States of matter	Sound	Electricity
	habitats Know that living things can be grouped in a variety of ways Know that classification keys help group, identify and name a variety of living things Know that environments can change and this can sometimes pose dangers to living things Ask relevant questions and use different types of scientific enquiry to answer them. Set up simple practical enquiries, comparative and fair tests. Make systematic and careful observations and, where appropriate, take accurate measurements	know the simple functions of the basic parts of the digestive system in humans Know the different types of teeth in humans and their simple functions Know how to construct a variety of food chains Know how to use a food chain to identify producers, predators and prey Ask relevant questions and use different types of scientific enquiry to answer them. Set up simple practical enquiries, comparative and fair tests.	Know what a solid, liquid and gas is Know how to group materials together, according to whether they are solids, liquids or gases Know that some materials can change state when they are heated Know that some materials can change state when they are cooled Know that temperature is measured in degrees Celsius (°C) Know the part of evaporation and condensation in the water cycle	Know how sounds are made by vibrations Know that vibrations from sounds travel through a medium to the ear Know the pattern between the pitch of a sound and features of the object that produced it Know the pattern between the volume of a sound and the vibrations that produced it Know that sounds get fainter as the distance from the sound source increases Ask relevant questions and use different types	Know what an appliance is Know common appliances that run of electricity Know how to construct a simple series electrical circuit Know the basic parts of a simple series circuit Know if 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. Know that a switch opens and closes a circuit Know what a conductor is Know what an insulator is Know common conductors and insulators Ask relevant questions and use different types of scientific enquiry to answer them. Set up simple practical enquiries, comparative and fair tests. Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment, including thermometers and data loggers. Gather, record, classify and present data in a variety of ways to help in answering questions.





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Know the rate of evaporation with temperature

Ask relevant questions and use different types of scientific enquiry to answer them. Set up simple practical enquiries, comparative and fair tests. Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment, including thermometers and data loggers. Gather, record, classify and present data in a variety of ways to help in answering questions. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Report on findings from enquiries, including oral and written explanations, displays

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Report on findings from enquiries, including oral and written explanations, displays of presentations of results and conclusions.

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Identify differences, similarities or changes related to simple scientific ideas and processes. Use straightforward scientific evidence to answer

questions or to support their findings.

Investigation:

Scientist: Thomas Edison





	Investigation: Classify living things in local and wider environments. Scientist:	Use straightforward scientific evidence to answer questions or to support their findings. Investigation: Scientist:	of presentations of results and conclusions. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Identify differences, similarities or changes related to simple scientific ideas and processes. Use straightforward scientific evidence to answer questions or to support their findings. Investigation: Scientist:	improvements and raise further questions. Identify differences, similarities or changes related to simple scientific ideas and processes. Use straightforward scientific evidence to answer questions or to support their findings. Investigation: Scientist: Alexander Graham Bell	
Y5	Living things and their habitats Know the life cycle of a mammal Know the life cycle of an amphibian Know the life cycle of an insect Know the life cycle of a bird Know the difference in life cycles of a mammal,	Animals including humans Know the changes as humans develop to old age Know how babies grow and develop Know how young people grow and develop Know how adults grow and develop	Properties and changes of materials Know the properties of everyday materials including their hardness, solubility, transparency, conductivity and response to magnets Know that some materials will dissolve in	Forces Know that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Know the effects of air resistance, water resistance and friction, that act between moving surfaces.	Earth and Space Know the movement of the Earth, and other planets, relative to the Sun in the solar system. Know the movement of the Moon relative to the Earth. Know that the Sun, Earth and Moon are spherical Know that the Earth's rotation is associated with day and night Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.





an amphibian, an insect and a bird. Know the process of reproduction in some plants and animals

Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Use test results to make predictions to set up further comparative and fair tests. Report and present findings from enquiries, including conclusions,

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in oral and written forms

such as displays and

other presentations.

liquid to form a solution Know how mixtures might be separated, including through filtering, sieving and evaporating Know that dissolving, mixing and changes of state are reversible changes. Know 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.

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

Take measurements, using a range of scientific equipment, with increasing accuracy and precision,

Know that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Plan different types of

scientific enquiries to answer questions, including recognising and controlling variables where necessary. Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Use test results to make predictions to set up further comparative and fair tests.

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Report and present findings from enquiries, including conclusions, casual relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.

Investigation: Scientist:







	casual relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. Investigation: Compare lifecycles. Scientist: Eva Crane	Investigation: Survey of different family members. Scientist:	taking repeat readings when appropriate. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Use test results to make predictions to set up further comparative and fair tests. Report and present findings from enquiries, including conclusions, casual relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. Investigation: Scientist: Stephanie Kwolek	Report and present findings from enquiries, including conclusions, casual relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. Investigation: Scientist: Isaac Newton.	
Y6	Living things and their habitats	Evolution and Inheritance	Animals including humans	Electricity Know that the	Light Know light travels in straight lines
		Know that living things have changed over time	Know the main parts of a circulatory system	brightness of a lamp and volume of a buzzer	Know that objects are seen because they give out or reflect light into the eye





Know how living things are classified into broad groups Know that living things are classified into microorganisms, plants and animals

Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Use test results to make predictions to set up further comparative and fair tests. Report and present findings from enquiries,

Know that fossils provide information about living things that inhabited the Earth millions of years ago
Know that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.
Know that animals and

plants adapt to suit their

environment in different

ways and that adaption

may lead to evolution.

Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Record data and results of increasing complexity using scientific diagrams and labels, classification

Know the functions of the heart, blood vessels and blood
Know the impact of diet, exercise, drugs and lifestyle on the way their bodies function.
Know the ways in which nutrients and water are transported within animals. Including humans.

Plan different types of scientific enquiries to answer questions. including recognising and controlling variables where necessary. Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter

is associated with the number and voltage of cells used in the circuit Know the variations of how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches Know how to use recognised symbols in a circuit diagram

Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Take measurements. using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter

Know that light travels from light sources to our eyes or from light sources to objects and then to our eyes

Know that shadows have the same shape as the objects that cast them

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

Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.

Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.

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

Report and present findings from enquiries, including conclusions, casual relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.

Investigation: Shadows. Scientist: Isaac Newton.







Science



