Science Curriculum Statement

At St Catherine's Catholic Primary School, we believe that Science is a core subject which is paramount in igniting pupils' curiosity and confidence to explore and discover the world around them, so that they develop a deeper understanding of the world we live in. Our long-term vision for Science is that all pupils access high-quality weekly Science lessons and progress their learning through practical and enjoyable lessons which fosters a love of inquiry and a thirst for knowledge. Our Science curriculum encourages pupils to be like Scientists by working scientifically, developing a love for STEM topics and the skills required for a future occupation within this industry. These skills include enquiry-based thinking, problem solving and resilience. Through our Science curriculum, we also aim to promote and develop transferable skills such as observation, communication and teamwork and allow mathematical skills to be applied. Children will find that Science can be inspiring and fun and will experience the joy of having wonderful ideas, explorations and investigations. We want our children to be confident, independent, life-long learners who explore the world around them.

Intent

-To promote the love of Science across a broad inclusive curriculum which is accessible to all pupils.
-To develop pupils understanding of how STEM topics can be used in the wider world.
-To provide a curriculum which ensures coverage of objectives in Development Matters for Early Years Foundation Stage.
-To provide a curriculum which ensures coverage of the Science National Curriculum for children in KS1 and KS2.
-To develop scientific skills and knowledge across school.
-To inspire children to have an inquisitive mindset.
-To promote practical and theory-based learning.
-To expose children to challenges in Science which require them to think like a scientist.
-To provide children with opportunities to enhance their learning through Science trips, visitors, events, competitions and clubs.

EYFS Expectations

The Early Years Foundation Stage (EYFS) is a structure of learning, development and care for children aged birth to five years old. At St. Catherine's our EYFS uses Development Matters to monitor and ensure pupil progression. Development Matters consists of seven areas of learning which aim to promote all aspects of a child's development. Science comes under the Specific Area 'Understanding the World' (UTW) and Prime Areas 'Communication and Language' and 'Personal Social and Emotional Development'. In EYFS children use a range of 'Characteristics of Effective Learning' in their independent learning. These can be seen as complementing 'Working Scientifically'.

Development Matters	Characteristics of Effective Learning	Areas of learning
Three and Four Year Olds	Playing and exploring – children investigate and experience things, and 'have a go'.	Understanding the World -Use all their senses in hands-on exploration of natural materials.

	Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements. Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things.	-Explore collections of materials with similar and/or different properties. -Talk about what they see, using a wide vocabulary. -Show interest in different occupations. -Explore how things work. -Plant seeds and care for growing plants. -Understand the key features of the life cycle of a plant and an animal. -Begin to understand the need to respect and care for the natural environment and all living things. -Explore and talk about different forces they can feel. -Talk about the differences between materials and changes they notice. <u>Communication and Language</u> -Use a wider range of vocabulary. -Understand 'why' questions, like: "Why do you think the caterpillar got so fat? <u>Personal, Social and Emotional Development</u> -Be increasingly independent in meeting their own care needs, e.g., brushing teeth, using the toilet, washing and drying their hands thoroughly. -Make healthy choices about food, drink, activity and toothbrushing.
Reception	Playing and exploring – children investigate and experience things, and 'have a go'. Active learning – children concentrate and keep on trying if they encounter difficulties, and enjoy achievements. Creating and thinking critically – children have and develop their own ideas, make links between ideas, and develop strategies for doing things.	<u>Understanding the World</u> -Recognise some similarities and differences between life in this country and life in other countries. -Explore the natural world around them. -Describe what they see, hear and feel whilst outside. -Recognise some environments that are different from the one in which they live. -Understand the effect of changing seasons on the natural world around them. <u>Communication and Language</u> -Learn new vocabulary. -Use new vocabulary through the day. -Ask questions to find out more and to check. they understand what has been said to them. -Describe events in some detail. -Articulate their ideas and thoughts in well-formed sentences.

		-Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. -Engage in non-fiction books. <u>Personal, Social and Emotional Development</u> -Manage their own needs - Personal hygiene. -Know and talk about the different factors that support their overall health and wellbeing: • regular physical activity • healthy eating • toothbrushing • sensible amounts of 'screen time' • having a good sleep routine • being a safe pedestrian

Science National Curriculum

The national curriculum for science aims to ensure that all pupils:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future

Key Stage 1 National Curriculum

<u>Working scientifically</u>

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:

- asking simple questions and recognising that they can be answered in different ways
- 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.

Lower Key Stage 2 National Curriculum

<u>Working scientifically</u>

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:

- 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 findings.

Upper Key Stage 2 National Curriculum

Working scientifically

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:

- 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

Implementation

-Science lessons taught weekly across the academic year from EYFS to Year 6.
-Teachers complete formative assessments in Science half termly to monitor pupil

progression.
-Science to be taught both indoors and outdoors.
-Teachers create fun and engaging lessons.
-Children encouraged to ask and answer their own questions.
-Children given opportunities to use their scientific skills and research to discover answers.
-Visits from professionals within the STEM industry.
-Extra-curricular learning opportunities through STEM club and Science homework.
-Science trips to enhance learning.
-Children take part in school/local/national events.

Impact

-Science will be an inclusive curriculum which can be accessed by all.
-Science lessons will engage and inspire pupils to develop a love of Science and STEM topics.
-Children will develop a love for enquiry and a thirst for knowledge from an early age.
-Children will see themselves as Scientists.
-Children will have heightened awareness of the world around them.
-Children will have a greater understanding of how Science is used in the wider world.
-Children will achieve age related expectations in Science at the end of their cohort year.
-Children will retain Scientific knowledge and skills and build upon this each year.
-Children will develop their enquiry-based thinking, problem solving, resilience and transferable life skills.
-Children will be confident, independent, lifelong learners.