Holy Cross Catholic Primary - Skills & Knowledge Progression in Science

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Asking Questions	Show curiosity about the world around them by asking simple questions about plants, animals, materials and seasonal change, e.g. *"What is happening?" or "Why is this different?"*	Ask simple questions about the world around them, including plants, animals, materials, the human body and seasonal change. Ask questions to clarify observations and ideas, e.g. *"What is this object made from?" "What changes can we see in the trees this season?"" How are these plants the same?"*	Ask relevant scientific questions linked to materials, living things, plants and survival. Begin to suggest questions that can be investigated and answered in different ways, e.g. *"Which material is the strongest?" "What happens when we stretch this material?" "Why do animals live in different habitats?" "Does sunlight affect how a plant grows?"*	Ask relevant questions that can be investigated scientifically, linked to forces, movement, plant growth, light and materials. Begin to ask their own questions based on observations and prior knowledge, e.g. *"Which materials are magnetic?" "How does exercise affect our heart rate?" "How does the distance between an object and a light source affect the size of the shadow?" "How are different rocks similar and different?"*	Ask own scientific questions based on observations and prior knowledge, linked to digestion, sound, electricity, materials and environments. Questions are increasingly specific and investigable, e.g. *"What happens to food after it is swallowed?" "How does the volume change when the strength of a vibration changes?" "Which materials conduct electricity?" "How does temperature affect how quickly a solid melts?" "How do different environments affect how plants and animals survive?"*	Generate a range of scientific questions based on observations, prior learning and research. Questions are increasingly precise and may involve relationships, causes and effects, e.g. *"How do environmental conditions affect reproduction in living things?" "How does the position of the Earth affect day and night?" "What factors affect the speed of a falling object?" "How do life cycles differ between mammals, insects and amphibians?"*	Formulate increasingly complex scientific questions and hypotheses based on observations, prior knowledge and research. Questions explore relationships, patterns and causes and are independently generated, e.g. *"How does altering the voltage affect the performance of a circuit?" "How can organisms be grouped based on shared characteristics?" "How do inherited characteristics help organisms survive in their environment?" "Why do offspring show similarities and differences to their parents?" "How does light travel through different materials?"*
Planning Enquiries	Explore the environment through play, first-hand experiences and adult-led activities. Begin to decide how to find things out by choosing resources or suggesting actions.	Explore the world around them and help decide how to observe, compare or test, with adult guidance. Follow simple instructions for investigations.	Suggest simple ways to carry out investigations and comparisons. With support, decide what to observe or measure and begin to recognise the need for a fair test.	With guidance, plan simple fair tests and comparative enquiries. Identify what to observe or measure and begin to recognise variables that need to be controlled.	Independently plan fair tests and other types of enquiries. Identify variables to change, measure and keep the same. Choose appropriate equipment.	Select and plan the most appropriate type of enquiry (fair test, comparative, pattern-seeking, research or observation over time). Identify independent, dependent and control variables.	Independently plan and carry out a range of enquiries, selecting the most appropriate type. Confidently identify and control variables and justify choices of method and equipment.
Making Predictions	Say what they think might happen next based on experience, stories or observations, e.g. predicting what will happen to ice when it is brought inside.	Say what they think might happen based on what they have seen, done or already know.	Make simple predictions based on prior knowledge, observations or patterns they have noticed.	Make predictions based on prior knowledge, observations and simple scientific reasoning.	Make reasoned predictions using scientific knowledge and patterns identified from previous learning.	Make predictions using scientific knowledge, evidence from previous enquiries and clear reasoning.	Make well-reasoned predictions using scientific knowledge, evidence from prior investigations and, where appropriate, research.
Observation & Measurement	Observe carefully using all senses. Notice changes over time, such as seasonal changes, life cycles and changes in materials (e.g. ice melting, ingredients mixing).	Observe closely using their senses and simple equipment (e.g. hand lenses, weather charts). Notice changes over time and similarities and differences.	Observe closely and make simple measurements using standard units and basic equipment. Notice patterns and changes over time.	Make accurate observations and take measurements using standard units and a range of equipment. Observe changes over time and identify similarities and differences.	Take accurate measurements using a range of equipment and standard units. Observe changes over time and recognise patterns in results.	Take accurate and repeated measurements using a wide range of scientific equipment. Decide when to take repeat readings to improve reliability.	Take precise measurements using a wide range of equipment, choosing appropriate units and scales. Collect sufficient data to improve accuracy and reliability.
Recording	Talk about what they see and experience. Represent observations through drawings, marks, photographs or simple models, with adult support.	Record observations using drawings, simple labels, sorting activities, tick charts or photographs.	Record observations and results using tables, drawings, labelled diagrams, simple charts and pictograms.	Record findings using tables, labelled diagrams, simple bar charts and structured results formats.	Record data using tables, charts, labelled diagrams and a range of graphs, including bar charts.	Record data systematically using tables, labelled diagrams and a range of graphs, including line graphs.	Record data clearly and systematically using tables, labelled diagrams and a range of graphs, including line graphs. Present data in ways that support analysis.

Interpreting & Concluding	Describe what they have noticed and talk about similarities and differences, e.g. between environments, animals or materials. Begin to explain why changes happen using simple language.	Talk about what they have found out. Describe observations using simple scientific vocabulary.	Identify patterns in results and say what they have found out. Use simple scientific vocabulary to explain observations.	Identify patterns in results and use scientific language to explain what has happened. Draw simple conclusions linked to the enquiry question.	Use results to draw conclusions and explain findings using scientific vocabulary. Identify patterns and relationships.	Analyse results, identify patterns and relationships, and explain findings using appropriate scientific vocabulary. Draw conclusions linked clearly to the enquiry question.	Analyse data in depth, identify patterns and relationships, and use scientific vocabulary to draw clear conclusions linked to evidence. Consider whether results support or refute predictions.
Evaluating	Talk about what they enjoyed, what they found interesting and what they might like to try again, with adult prompting.	Talk about what they did, what worked well and what they enjoyed. With support, suggest what they might do differently next time.	Suggest how an investigation could be improved or repeated, and say whether it was fair, with support.	Identify what worked well in an investigation and suggest improvements, including how to make results more reliable.	Suggest improvements to enquiries, explain limitations and begin to comment on the reliability of results.	Evaluate the reliability of results, identify anomalies and sources of error, and suggest specific improvements to the enquiry method.	Critically evaluate enquiries, discussing reliability, validity and limitations. Identify anomalies, justify conclusions and suggest realistic improvements or further lines of enquiry.