Subject Skills Ladder	Science	CAT: STEM

Year Group	Skills	Vocabulary/ Scientist study
Nursery	• Use all their senses in hands-on exploration of natural materials. • Explore collections of materials with similar and/or different properties. • Think about how things work. • Take part in understanding 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.	Scientific vocabulary: question answer,what?, why?, look, caring for living things
Reception	• Find out about the natural world around them, making observations and drawing pictures of animals and plants • 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. • Show curiosity about objects, events and people • Ask questions why things happen • Take part in open-ended activity • Take a risk, engage in new experiences and learn by trial and error • Find ways to solve problems / find new ways to do things / test their ideas • Develop ideas of grouping, sequences, cause and effect • Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world • Use senses to explore the world around them • Make links and notice patterns in their experiences • Make simple representations of events, people and objects • Build up vocabulary that reflects the breadth of their experience	Scientific vocabulary: question answer, explore, why?, how?, caring for living things

Subject Skills Ladder	Science	CAT: STEM

Year 1	**<u>Working scientifically (Sc1)</u>** **Use all 5 lines of enquiry during year:** ➢ Observation over time ➢ Pattern seeking ➢ Identifying, classifying and grouping, ➢ Comparative and fair testing ➢ Research using secondary sources • Ask simple questions when prompted • Consider ways of answering a question • Make relevant observations using simple equipment • Conduct simple tests, with support • Identify and classify with guidance • Gather and record data • Recognise findings • Use their observations and ideas to suggest answers to simple questions	Scientific vocabulary: question answer observe observing equipment identify classify sort diagram chart map data compare contrast describe group record Scientist study: Mae Jemison

Subject Skills Ladder	Science	CAT: STEM

Year 2	**<u>Working scientifically (Sc1)</u>** **Use all 5 lines of enquiry during year:** ➢ Observation over time ➢ Pattern seeking ➢ Identifying, classifying and grouping, ➢ Comparative and fair testing ➢ Research using secondary sources • Ask simple questions • Recognise that questions can be answered in different ways • Observe closely, using simple equipment • Carry out simple tests • Identify and classify a range of objects and materials • Record and communicate their findings in a range of ways and begin to use scientific language. • Gather and record data to help answer questions • Use their observations and ideas to suggest answers to simple questions	Scientific vocabulary: question answer observe observing equipment identify classify sort diagram chart map data compare contrast describe group record Scientist study: Rachel Carson

Subject Skills Ladder	Science	CAT: STEM

Year 3	**<u>Working scientifically (Sc1)</u>** **Use all 5 lines of enquiry during year:** ➢ Observation over time ➢ Pattern seeking ➢ Identifying, classifying and grouping, ➢ Comparative and fair testing ➢ Research using secondary sources • Ask relevant questions when prompted • Use different types of scientific enquiry to answer them • Set up simple and practical enquiries, comparative and fair tests with some support • Make systematic and careful observations, using simple equipment • Use standard units when taking measurements • With modelling and guidance, gather, record, classify and present data in a variety of different ways to help answer questions • With prompting, use various ways of recording, grouping and displaying evidence and suggest how findings may be presented • With prompting, consider conclusions from enquires • Assess how findings could be reported • Suggest possible improvements or further questions to investigate	Scientific vocabulary: research relevant questions, scientific enquiry, comparative and fair test, systematic, careful observation, accurate measurements equipment thermometer, data gather, record, classify, present record drawings, labelled diagrams, keys, bar charts, tables, conclusion, predictions, differences, similarities, changes, evidence, improve, guides, keys, construct, interpret. Scientist study: Mary Anning, Marie Curie, William Smith

Subject Skills Ladder	Science	CAT: STEM

Year 4	**<u>Working scientifically (Sc1)</u>** **Use all 5 lines of enquiry during year:** ➢ Observation over time ➢ Pattern seeking ➢ Identifying, classifying and grouping, ➢ Comparative and fair testing ➢ Research using secondary sources • Ask relevant questions • Devise different types of scientific enquiries to answer their questions • Administer simple and practical enquiries, comparative and fair tests • Make systematic and careful observations using a range of equipment, including thermometers and data loggers • Retrieve accurate measurements using standard units, where appropriate • Gather, record, classify and present data in a variety of ways to help to answer questions • Reproduce findings using simple scientific language, drawings and labelled diagrams • Record findings using keys, bar charts, and tables • Report on findings from enquiries, by annotating and illustrating. • Determine differences, similarities or changes related to simple scientific ideas and processes • Use straightforward scientific evidence to answer questions or to support their findings • Use results to devise simple conclusions, make predictions for new values, suggest improvements and raise further questions	Scientific vocabulary: research relevant questions, scientific enquiry, comparative and fair test, systematic, careful observation, accurate measurements equipment thermometer, data gather, record, classify, present record drawings, labelled diagrams, keys, bar charts, tables, conclusion, predictions, differences, similarities, changes, evidence, improve, guides, keys, construct, interpret, secondary sources. Scientist study: Thomas Edison, Alexander Graham Bell

Subject Skills Ladder	Science	CAT: STEM

Year 5	**<u>Working scientifically (Sc1)</u>** **Use all 5 lines of enquiry during year:** ➢ Observation over time ➢ Pattern seeking ➢ Identifying, classifying and grouping, ➢ Comparative and fair testing ➢ Research using secondary sources • Formulate different types of scientific enquiries to answer questions • With prompting, recognise and control variables where necessary • Develop use of appropriate equipment to take readings • Take precise measurements using standard units • Implement and process repeat readings • Record data using labelled diagrams, keys, tables and charts • Use line graphs to record data • Report and present findings from enquiries, including conclusions and, with prompting, suggest causal relationships • With support, present findings from enquiries orally and in writing • Suggest further comparative or fair tests	Scientific vocabulary: plan, variables, measurements, accuracy, precision, repeat readings record data scientific diagrams, labels, classification keys, tables, predictions, hypothesis, comparative, fair test, conclusions, explanations, oral and written display and presentation evidence support, refute ideas or arguments, identify, classify and describe, patterns, systematic, quantitative measurements. Scientist study: Eva Crane, Leonardo DaVinci, David Attenborough
Year 6	**<u>Working scientifically (Sc1)</u>** **Use all 5 lines of enquiry during year:** ➢ Observation over time ➢ Pattern seeking ➢ Identifying, classifying and grouping, ➢ Comparative and fair testing ➢ Research using secondary sources • Plan and implement different types of scientific enquiries to answer questions • Recognise and employ variables where necessary • Use a range of scientific equipment to take measurements • Take measurements with increasing accuracy and precision • Take repeat readings when appropriate to validate results.	Scientific vocabulary: plan, variables, measurements, accuracy, precision, repeat readings record data scientific diagrams, labels, classification keys, tables, predictions, hypothesis, comparative, fair test, conclusions, explanations, oral and written display and presentation evidence support, refute ideas or arguments, identify, classify and describe, patterns, systematic, quantitative measurements.

Subject Skills Ladder	Science	CAT: STEM

	• Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar charts and line graphs • Report and present findings from enquiries, including conclusions. • Identify scientific evidence that has been used to support or disprove ideas or arguments • Use test results to make predictions to set up further comparative and fair tests	Scientist study: Stephen Hawking, Libbie Hyman, Steve Jobs, Mary Leakey, Alexander Fleming