Science Skills Progression
Working scientifically

	Research	Ideas over time	Observations over time	Pattern seeking	Identifying and classifying	Fair tests	Comparative tests
YR	Looking at objects and pictures and discussing what they can see. Talk about the lives of the people around them and their roles in society Asks questions about aspects of their familiar world and understand some important processes and changes in the natural world around them, including the seasons and changing states of matter	Know some similarities and differences between things in the past and now, drawing on their experiences and what has been read in class Understand the past through settings, characters and events encountered in books read in class and storytelling Use their previous experiences to develop understanding of things that might happen	General sensory observations of animals, plants and vehicles. Use a range of equipment to help aid their observations, e.g. tweezers, magnifiers, endoscopes, torches Begin to talk about or draw their observations Simple descriptions of the world around them. Use rulers, tape measures, weighing scales (digital), measuring spoons, pipettes and other measuring tools to record a variety of objects. Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps	Draw attention to things in different areas that stimulate interest, such as a patterned surface. Identify simple characteristics and talk about or draw them. Simple comparative vocabulary – bigger, smaller. Know some similarities and differences between different religious and cultural communities in this country, drawing on their experiences and what has been read in class Explain some similarities and differences between life in this country and life in other countries, drawing on knowledge from stories, non-fiction texts and – when appropriate – maps	Use observable characteristics (colour, size, shape, texture etc.) to sort and group familiar objects. Draw or talk about their classifications and groupings. Explore 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	Repeat an activity and see if the results are the same. Be exposed to a range of difference experiments, which are managed as fair tests. Be able to talk about or draw these fair tests.	Be exposed to a range of difference experiments, which are managed as comparative tests. Be able to talk about or draw these comparative tests.
Y1	Use the internet to access search engines and find out information using simple questions. Use books to search for information to answer questions.	Use secondary sources to find information about something from the past (around 100 years ago) and information about the same thing this year. Discuss the findings and compare the similarities and differences with support	Measure time using seconds and minutes. Be able to measure temperature at two different times. Use subtraction to work out the difference and how it has changed. Be able to use magnifying glasses, thermometers and scales with support.	Be able to find patterns in their measurements and observations with support. Begin to understand cause and effect relationships between things. Be able to discuss with support what should be measured and observed.	Find similarities and differences between a range of topic based things. Be able to talk about the similarities and differences with others and support from an adult.	Understand that to do experiments they need to focus on one particular thing. Be able to measure using simple units with support. Be able to put the data collected from the measurements into a pictogram, table or tally chart.	Be able to explain what the method is and use bossy/imperative verbs to give verbal instructions. Be able to conduct an experiment twice to see if the outcome is the same and discuss once completed.
Y2	Use internet to find out information to answer simple questions. Use the glossary in books to find the key word to find answers to questions	Use secondary sources to find information about something from the past (around 100 years ago) and information about the same thing this year. Discuss the findings and compare the ideas with support	Measure time using seconds, minutes and days. Be able to measure temperature at two different times. Be able to work out the difference between and understand how it has changed. Be able to use magnifying glasses, light sensors, thermometers and scales independently.	Be able to find patterns in their measurements and observations. Begin to understand cause and effect relationships between things and be able to discuss with support. Be able to discuss with support what should be measured and observed.	Find similarities and differences between a range of topic based things and then explain thoughts about each. Be able to talk about the similarities and differences with others and with some support	Understand that to do experiments they need to focus on one particular thing and all others need to be kept the same. Be able to measure using simple units independently. Be able to put the data collected from the measurements into a tally chart, table or bar chart	Be able to explain the method and write using bossy/imperative verbs. Be able to conduct an experiment twice to see if the outcome is the same and discuss once completed.
Y3	Use search engines on iPads and computers to ask questions about learning. Use biographies of scientists to find out key information.	Use secondary sources to find information about something from the past and information about the same thing this year. Be able to discuss findings using scientific language with support. Be able to identify strengths and weaknesses of scientists' ideas.	Measure time using seconds, minutes and days. Be able to measure temperature at three or more different times. Calculate the difference to see how it has changed and identify how. Be able to use stopwatches, timers, magnifying glasses, thermometers, microscopes, measuring tapes, scales and sensors accurately with support	Be able to find patterns in their measurements and observations. Begin to understand cause and effect relationships between things and be able to discuss using scientific language with support. Be able to suggest what should be measured and observed during an experiment. Be able to use a data logger with support	Find similarities and differences between a range of things, discuss with peers and sort using a Venn with support. Be able to design an experiment that uses their identification and classification with support.	Understand variables and distinguish between dependent and independent variables. Be able to measure using simple units. Be able to use the data collected to create a bar chart and table with support. Be able to draw conclusions from the data and explain what this shows about the variables with support.	Be able to explain and write the method using imperatives and adverbials for accuracy. Be able to conduct an experiment twice to see if the outcome is the same and discuss once completed. Use this to help suggest improvements for future experiments
Y4	Use search engines on iPads and computers to ask questions about learning. Access YouTube and BBC clips to find out answers to questions. Use biographies of scientists to find out key information. Be able to evaluate the quality of a source of information with support	Use secondary sources to find information about something from the past and information about the same thing this year. Be able to discuss findings using scientific language. Be able to identify strengths and weaknesses of scientists' ideas with support.	Measure time using seconds, minutes and days. Be able to measure temperature at three or more different times. Calculate the difference to see how it has changed and identify how. Be able to use stopwatches, timers, magnifying glasses, thermometers, microscopes, measuring tapes, scales and sensors accurately with support.	Be able to find patterns in their measurements and observations. Begin to understand cause and effect relationships between things and be able to discuss using scientific language with support. Be able to suggest what should be measured and observed during an experiment. Be able to use a data logger.	Find similarities and differences between a range of things, discuss with peers and sort using a Venn. Be able to design an experiment that uses their identification and classification with some support. With support, use reasoning skills to help explanations	Understand and be able to distinguish between dependent, independent and controlled variables. Be able to measure using simple units. Be able to use the data collected to create a bar chart and table. Be able to draw conclusions from the data and explain what this shows about the variables.	Be able to explain and write the method using imperatives and adverbials for accuracy. Be able to conduct an experiment twice to see if the outcome is the same and discuss once completed. Use this to help suggest improvements for future experiments.

Y5	Use search engines on a range of technology. Identify reliability of sources. Access YouTube and BBC clips to find out answers to questions. Use biographies of scientists to find out key information. Use newspapers to find out key information. Be able to evaluate the quality of a source of information	Use secondary sources to find information about something from the past and information about the same thing this year. Be able to discuss findings using scientific language. Be able to identify strengths and weaknesses of scientists' ideas. Be able to understand the importance of the scientists' ideas with support.	Measure time using seconds, minutes and days and be able to convert between them. Be able to measure temperature at three or more different times. Calculate the difference to see how it has changed and identify how. Be able to use stopwatches, timers, magnifying glasses, thermometers, microscopes, measuring tapes, scales and sensors accurately independently	Be able to find patterns in their measurements and observations. Begin to understand cause and effect relationships between things and be able to discuss using scientific language. Be able to suggest what should be measured and observed during an experiment. Be able to use a data logger	Find similarities and differences between a range of things, discuss with peers and sort using a Carroll diagram. Be able to design an experiment that uses their identification and classification independently. With some support, use reasoning skills to help explanations	Be able to explain why a variable is dependent, independent or controlled. Be able to measure using simple units. Be able to use the data collected to create a scatter graph, bar graph or line graph with support. Be able to choose scales for axis with support. Be able to draw conclusions from the data and explain what this shows about the variables.	Be able to explain and write the method using imperatives and adverbials for accuracy. Be able to conduct an experiment twice to see if the outcome is the same and discuss once completed. Use this to help suggest improvements for future experiments.
Y6	Use search engines on a range of technology. Identify reliability of sources. Access YouTube and BBC clips to find out answers to questions. Use biographies of scientists to find out key information. Use newspapers and magazines to find out key information. Be able to evaluate the quality of a source of information.	Use secondary sources to find information about something from the past and information about the same thing this year. Be able to discuss findings using scientific language. Be able to identify strengths and weaknesses of scientists' ideas. Be able to understand the importance of the scientists' ideas	Measure time using seconds, minutes and days and be able to convert between them. Be able to measure temperature at three or more different times. Calculate the difference to see how it has changed and identify how. Be able to use stopwatches, timers, magnifying glasses, thermometers, microscopes, measuring tapes, scales and sensors accurately independently	Be able to find patterns in their measurements and observations. Begin to understand cause and effect relationships between things and be able to discuss using scientific language. Be able to suggest what should be measured and observed during an experiment. Be able to use a data logger.	Find similarities and differences between a range of things, discuss with peers and sort using a Carroll diagram with children creating the title for each column/row. Be able to design an experiment that uses their identification and classification independently. Use reasoning skills to explain and justify choices regarding identification and classification	Be able to suggest what the dependent, independent and controlled variables should be for an experiment and explain why. Be able to measure using simple units. Be able to use the data collected to create a scatter graph, bar graph or line graph and choose scales for axis. Be able to draw conclusions from the data and explain what this shows about the variables.	Be able to explain and write the method using imperatives and adverbials for accuracy. Be able to conduct an experiment twice to see if the outcome is the same and discuss once completed. Use this to help suggest improvements for future experiments.