



# SHERRIER CE PRIMARY SCIENCE SKILLS PROGRESSION

## Science investigation skills progression

Year	Ideas and Evidence in Science
FS	Can recognise that scientists find out about scientific ideas by asking questions and using their senses to find out.
1	Can recognise that scientists find out about scientific ideas by asking questions and testing them.
2	Can recognise that scientists collect evidence by making observations and measurements in order to answer a question. <b>How many arms does an octopus have? What can you remember?</b>
3	Can recognise why it is important to collect evidence by making observations and measurements to answer a question, and that science has made our lives better.
4	Can recognise that scientific ideas are based on evidence, have made our lives better and that there is some risk in science – <b>How does water flow?</b>
5	Can describe how experimental evidence and creative thinking are combined to provide scientific explanations, that has changed over time. -
6	Can describe how experimental evidence and creative thinking are combined to provide scientific explanations, that change over time and has both positive and negative effects.
Vocabulary/Asking Questions and Enquiry	
FS	Can talk about why things happen and how things work in their familiar world. Can ask questions to find out more about their familiar world. E.g. <b>Are all leaves the same? What happens when I fall asleep? Which animals are nocturnal/diurnal? Where is the warmest place in our classroom? Can I fly like a bird?</b>
1	Can ask simple questions about the world around us and make simple and, with teacher guidance, recognise that they can be answered using different types of enquiry. <b>What is the lifecycle of a ladybird/caterpillar?</b>
2	Can ask simple questions to find out about the world around us and make simple suggestions about the different types of enquiry that could be used to collect evidence and answer a question - <b>What can you remember?</b>
3	Is it safe to eat? Are mushrooms deadly? <b>Why do shadows change – not done it yet.</b>
4	Can turn existing scientific ideas into a question form that can be investigated and begin to plan different types of scientific enquiries, including recognising and controlling variables with teacher guidance. - <b>Why does it flood?</b>
5	Can form scientific questions for enquiry based on scientific ideas/concepts and recognise which can be investigated and those which are theoretical. Plan different types of enquiries to answer questions, including identifying and controlling variables – <b>Why do planets have craters?</b>
6	Can explore scientific ideas/concepts and form clear enquiry questions about scientific phenomena, recognising which can be investigated and those which are theoretical. Select and plan the most appropriate types of enquiry to answer questions, including identifying and controlling variables, where necessary. <b>How does blood flow? What's in blood?</b>
Predicting and Hypothesising	

FS	With teacher guidance can think about what might happen and make a simple prediction, I think that the ice will melt quickest....I think I will not be able to fly .....I think I will be able to rescue ... I think my bean will grow well ...
1	Can make a simple prediction, 'I think...'How wild is the wind?
2	Can make a prediction with a simple reason – all investigations – How does it move?
3	Can make a prediction, giving a reason – all investigations – What are sunglasses for?
4	Can make predictions with a reason and can relate it back to everyday living- Will it erupt?
5	Can hypothesise, considering scientific ideas and use knowledge of a similar everyday experience. - Do all solids dissolve?
6	Can hypothesise, giving a reason which is based on scientific concepts and uses knowledge of prior learning or everyday experiences applied to a new situation.
<b>Planning a fair test</b>	
FS	With teacher guidance can carry out a simple test and begin to recognise unfairness in a test. Eg size of ice cube has to be the same, power of hairdryer needs to be the same
1	Can plan a simple test, guided by the teacher. Can recognise unfairness and what is being changed in a test. Do pine cones know it is raining?
2	Can make a simple plan for a test within a framework provided by the teacher. Can identify what is being changed, measured and a variable that needs to stay the same. What shape is a bubble? How does it feel? What can our hands do? Can you find the treasure
3	Is it safe to eat? Are mushrooms deadly? Do plants have legs? – not done yet.
4	Can create a clear plan for and identify a fair test where only one variable will be changed – Are all liquids runny?
5	Can decide on an appropriate way to collect data to answer a question and with guidance, create a clear plan which identifies the independent, dependent and control variables – How do animals stay warm?
6	Can identify and plan an appropriate approach to answer a scientific question, identifying clear independent, dependent and control variables - Why do birds have different beaks? Can you see through it? What can your heart rate tell you?
<b>Observing and measuring</b>	
FS	I can talk about what I observe using my senses and I can talk about the equipment I have used. Can you be a superhero? Can you be the captain of a boat?
1	Can begin to observe closely using simple equipment provided and measure in non-standard units. For example, compare length, area and volumes visually, mass by feel, temperature by touch, time by clapping or ordering, sound, light force using senses. – What's on your wellies?
2	Can use simple equipment provided to make observations and measurements related to the test. What does friction do? What shape is a bubble?
3	Is it safe to eat? Are mushrooms deadly? What are sunglasses for? Why are trees tall? - not done yet.
4	Can select suitable equipment for a test and make a series of accurate observation and measurements which are adequate – Will it erupt?

5	Can select apparatus for a range of tests and use effectively, making a series of systematic observations, measurements and comparisons. - <b>Which materials conduct heat?</b> - <i>Can recognise patterns and begin to repeat observations and measurements, offering simple explanations for any differences found – <b>How do animals keep warm?</b></i>
6	Can select the appropriate equipment for a range of tests, making systematic observations, measurements (including appropriate units) and comparisons. Can recognise patterns and repeat observations and measurements, offering possible explanations for any differences found.
<b>Investigating</b>	
FS	Can perform simple tests with adult support as a class or small groups. Which food is sweet/sour - <b>Mr Greedy taste test?</b> <b>Which material is best to build a house for the 3 pigs?</b> <b>What does a bean need to grow?</b>
1	Can perform simple tests with support. <b>How wild is the wind?</b>
2	Can perform simple tests. <b>What shape is a bubble?</b> <b>Which stuff is stickier?</b> <b>What can our hands do?</b>
3	<b>Is it safe to eat?</b> <b>What are sunglasses for?</b>
4	Can set up a simple practical enquiry and consider a fair test – <b>Why did Vikings dye their clothes?</b>
5	Can set up practical enquiries and use results to begin to set up comparative and fair tests – <b>What do pulleys do?</b>
6	Can set up practical enquiries and use scientific knowledge to plan and set up fair tests - <b>Why do birds have different beaks?</b> <b>Can you see through it?</b> <b>What can your heart rate tell you?</b>
<b>Preparing and recording results</b>	
FS	I can talk about and record my findings with adult support and draw pictures of my observations.
1	Can describe simple features, observations and measurements and record in a variety of simple ways, e.g. pictures, words, provided tables. <b>Does it snow in Summer?</b>
2	Can describe observations in a variety of ways including tables, drawings, bar charts and through scientific vocabulary with support. <b>How does it move?</b> <b>What can our hands do?</b>
3	<b>What are flowers for?</b> <b>Do plants have legs?</b> - <i>not done yet</i>
4	Can record, measure, include ICT and uses of different charts to record results that have been created from a test.- <b>Did the Romans use toilet roll?</b>
5	Can record observations and measurements systematically. Can begin to choose the best method, e.g. scientific diagrams, classification keys, tables, bar and line graphs, repeated tests and averaging (mean) - <b>How do mealworms reproduce?</b> Can, where appropriate, present data as bar charts and line graphs. Can construct bar and line graphs, selecting scale and labelling axes. Can begin to interpret and systematically explain patterns in data.
6	Can select the appropriate way of presenting results – <b>Why do birds have different beaks?</b> <b>How does blood flow?</b> <b>What can your heart rate tell you?</b> Can interpret and explain patterns in data – <b>How does inheritance work?</b> <b>Can you see through it?</b> <b>Why do birds have different beaks?</b>
<b>Drawing conclusions</b>	
FS	With adult support I can talk about what happened and why it might have happened.
1	Can talk about what happened, communicating their findings in a simple way, e.g. talk, drawing, simple charts. <b>What is on your wellies?</b>

2	Can explain what happened and relate this to their earlier prediction made. What does friction do? What can you remember? What is camouflage for?
3	Are mushrooms deadly? What are sunglasses for? Why do shadows change? What are flowers for? Do plants have legs? Why are trees tall? - not done yet.
4	Can begin to relate conclusions to patterns in data and to prior scientific knowledge and understanding. Can explain conclusions using appropriate scientific language – What is sand?
5	Can draw conclusions which are consistent with evidence and relate these to scientific knowledge and understanding. Can use appropriate scientific language and conventions to communicate quantitative and qualitative data. - Why does a compass always point North?
6	Can draw clear conclusions, which are linked to evidence from data patterns and relate these to topic-specific knowledge. VIPERS link. Can use accurate scientific language to communicate quantitatively/qualitative data and explain causal relationships – What can your heart rate tell you?
<b>Reviewing the test</b>	
FS	With adult support I can identify parts of a test that worked and what did not.
1	1. Can identify which parts of the test have been done well and which need to be improved. Can seeds grow anywhere?
2	Can question how carefully a test has been carried out and what needs improving. What does friction do? How does it feel? Which stuff is stickier?
3	Is it safe to eat? Are mushrooms deadly?
4	Can suggest improvements to a test and give reasons why – What is a catapult?
5	Can evaluate the accuracy of tests and make practical suggestions about how working methods could be improved - Can fruit light a bulb?
6	Can evaluate the effectiveness of their tests, the limitations and suggest how methods could be improved. What can your heart rate tell you? Why do birds have different beaks?

Autumn Term

Spring Term

Summer Term

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>Ask simple questions and recognise that they can be answered in different ways</p> <p>Use simple equipment to observe closely</p> <p>Perform simple tests</p> <p>Identify and classify</p> <p>Use his/her observations and ideas to suggest answers to questions</p> <p>Gather and record data to help in answering questions</p>	<p>Ask simple questions and recognise that they can be answered in different ways including use of scientific language from the national curriculum</p> <p>Use simple equipment to observe closely including changes over time</p> <p>Perform simple comparative tests</p> <p>Identify, group and classify</p> <p>Use his/her observations and ideas to suggest answers to questions noticing similarities, differences and patterns</p> <p>Gather and record data to help in answering questions including from secondary sources of information</p>	<p>Ask relevant questions and use different types of scientific enquiries to answer them</p> <p>Set up simple practical enquiries, comparative and fair tests</p> <p>Make systematic and careful observations using equipment where appropriate</p> <p>Gather, record, classify and present data in a variety of ways</p> <p>Record findings using simple scientific language presented in different ways</p> <p>Report on findings from enquiries, including oral and written explanations displays or presentations of results and conclusions</p> <p>Use results to draw simple conclusions, make predictions for new values, suggest improvements and</p>	<p>Ask relevant questions and use an understanding of different types of scientific enquiries to best answer them</p> <p>Set up simple practical enquiries, comparative and fair tests</p> <p>Make systematic and careful observations and where appropriate, take accurate measurements using standard units, using a range of equipment including thermometers and data loggers</p> <p>Gather, record, classify and present data in a variety of ways to help in answering questions</p> <p>Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>Report on findings from enquiries, including oral and written explanations</p>	<p>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>Use test results to make predictions to set up further comparative and fair tests</p> <p>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as</p>	<p>Plan different types of scientific enquiries to answer their own or others' questions, including recognising and controlling variables where necessary</p> <p>Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>Use test results to make predictions to set up further comparative and fair tests</p> <p>Use test results to make predictions to set up further comparative and fair tests</p> <p>Report and present findings from</p>

			<p>raise further questions</p> <p>Identify differences, similarities or changes related to simple scientific ideas and processes</p> <p>Use straightforward scientific evidence to answer questions or to support his/her findings</p>	<p>displays or presentations of results and conclusions</p> <p>Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>Identify differences, similarities or changes related to simple scientific ideas and processes</p> <p>Use straightforward scientific evidence to answer questions or to support his/her findings</p>	<p>displays and other presentations</p> <p>Identify scientific evidence that has been used to support or refute ideas or arguments</p>	<p>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</p> <p>Identify scientific evidence that has been used to support or refute ideas or arguments</p>
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