Our Lady's R.C. Primary School

Progression in Primary Science							
Enquiry Skills							
	EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Working Scientifically	To use the following practical scientific methods, processes and skills with adult support.	To use the following practical scientific methods, processes and skills with occasional adult support.	To use the following practical scientific methods, processes and skills with increasing confidence.	To use the following practical scientific methods, processes and skills.	To use the following practical scientific methods, processes and skills with confidence.	To use the following practical scientific methods, processes and skills independently.	To use the following practical scientific methods, processes and skills independently showing an understanding of their benefits.
Observing overtime and measuring.	General sensory observations of animals, plants and natural objects. Simple descriptions of the world around them. Looking at pictures and explaining what they can see.	Begin to observe closely using simple equipment (lenses and egg timers) to gather more detailed information. Use mostly non-standard units of measurement e.g. hands instead of cm/m	Select appropriate simple equipment to assist in make close observations. Observe changes overtime and relationships. Use observations to suggest answers to questions. Understand what they are looking	Begin to make systematic and careful observations taking accurate measurements with a range of equipment where necessary e.g. thermometers and data loggers. Begin to explore naturally occurring relationships and	Make systematic and careful observations taking accurate measurements with a range of equipment where necessary e.g. thermometers and data loggers. Look for naturally occurring relationships and	Make systematic observations and take measurements using a range of scientific equipment with increasing accuracy and precision. Begin to decide what observations to make and how they should do so	Take measurements using a range of scientific equipment with increasing accuracy and precision, gathering repeat readings where appropriate. Decide what observations to make and how

Holly Road, Aspull, Wigan, WN2 1RU
Headteacher: Mr C Horridge
enquiries@admin.aspullourladys.wigan.sch.uk
www.aspullourladys.wigan.sch.uk

		Observe changes overtime and notice patterns and relationships with support. Use observations to suggest answers to basic questions	for and how to measure it using simple equipment. Progress towards using standard units of measurement e.g. °C instead of hot and cold	make decisions regarding what data to collect and how long for. Begin to observe and measure accurately using standard units such as time in minutes and seconds.	decide what data to collect to identify them. Select appropriate equipment to help make accurate observations and decide how long this data collection should last for. Gather information using standard units and begin to see patterns in results.	in order to produce accurate data e.g. select appropriate equipment, duration of the observations and consider repeating results. Interpret data and find patterns with support. Make a set of observations and say what the interval and range are. Begin to take accurate and precise measurements – N, g, kg, mm, cm, mins, seconds, cm²V, km/h, m per sec, m/ sec Graphs – pie, line	they should do so choosing appropriate equipment and explaining how to use it accurately. Interpret data and find patterns independently. Make a set of observations and say what the interval and range are. Accurate and precise measurements – N, g, kg, mm, cm, mins, seconds, cm²V, km/h, m per sec, m/ sec Graphs – pie, line, bar (Year 6)
Researching	Looking at objects and pictures and discussing what they can see.	To begin to use simple secondary sources to find answers.	Use simple secondary sources to find answers.	With support, begin to recognise when and how secondary sources	Independently recognise when and how secondary sources	Begin to recognise which secondary sources will be most useful to	Recognise which secondary sources will be most useful

	Find other examples which may help progress their understanding.	To begin to find information to help me from books and computers with help.	Find information from books and computers with support.	might help to answer questions that cannot be answered through practical investigations.	might help to answer questions that cannot be answered through practical investigations	research their ideas.	to research their ideas.
Investigating using comparative and fair tests	Measure by direct comparison. Non-standard units of measurement. Make simple comparisons e.g. bigger, smaller.	Perform simple tests with support. Begin discussing ideas about how to find things out. Begin to explain what happened in their investigation.	Perform simple tests independently. Discuss ideas about how to find things out. Explain what happened in their investigation.	Set up some simple practical enquiries, comparative and fair tests. Begin to recognise when a simple fair test is necessary and help to decide how to set it up. Start thinking of more than one variable factor within their investigation.	Set up a range of simple practical enquiries, comparative and fair tests. Recognise when a simple fair test is necessary and help to decide how to set it up. Is able to think of more than one variable factor within their investigation.	Begin generating predictions and set up further comparative and fair tests based on previous results. With some support, recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why. Begin to suggest improvements to methods which are supported with reasoning.	Use previous test results to generate new predictions and set up further comparative and fair tests. Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why. Suggest improvements to my method and give reasons. Decide when it is appropriate to do a fair test.

						Begin to decide when it is appropriate to do a fair test.	
Pattern seeking	Show curiosity in and recognition of patterns within their environment. Use their sense when exploring patterns. Begin to consider how patterns change.	Show curiosity in and recognition of patterns within their environment. Use their sense when exploring patterns and record observations using simple methods e.g. drawings. Consider how patterns change and share ideas orally.	Notice a greater variety of patterns within their environment. With help, decide what patterns to observe and measure and suggest how to do so. Record findings in words, pictures, or simple prepared formats such as tables, tally charts and maps. Begin using observations to suggest how and why things are linked.	Begin to explore naturally occurring patterns and consider how these change. Decide what patterns to observe and measure and suggest how to do so. Record findings in words, pictures, or prepared formats such as tables, tally charts and maps. Using observations to suggest how and why things are linked with increasing confidence.	Look for naturally occurring patterns and discuss which questions can be investigated by pattern seeking. Decide on which sets of data to collect, what observations to make and what equipment to use. Make records using tables, bar charts or simple scatter graphs. Begin to communicate ideas and findings using some scientific language.	Begin to recognise when variables cannot be controlled and pattern seeking will be the best way to answer my question. Decide how detailed data needs to be, which equipment will provide the most accurate results and present data in scatter graphs and frequency charts. Use increasingly scientific language to make valid conclusions regarding patterns and consider limitations to their findings.	Recognise when variables cannot be controlled and pattern seeking will be the best way to answer my question. Decide how detailed data needs to be, which equipment will provide the most accurate results and present data in scatter graphs and frequency charts. Use scientific language to make valid conclusions regarding patterns and consider limitations to their findings.

					Make suggestions about how patterns are linked and provide reasoning for these ideas.		Generate further predictions and set up new pattern seeking in light of findings.
Identifying, classifying and grouping	Show curiosity regarding similarities and differences in their environment. Use senses and simple equipment (hoops and boxes) with support to sort and match objects. Sort or group things using personal methods and talk about why they have done so.	Identify and classify with some support. Use basic observations to identify and describe objects, materials and living things. Begin using simple features to compare objects and, with help, decide how to sort/group them.	Identify and classify then talk about choices using simple scientific language. Use observations to identify and describe objects, materials and living things. Use simple features to compare objects and, with help, decide how to sort/group them. Record observations, using words or pictures, in sorting circles or tables.	Begin to identify differences, similarities or changes related to simple scientific ideas and processes. With support, talk about what criteria can be used to sort and classify things. Carry out simple tests to sort and classify according to properties or behaviour. Use simple keys, diagrams and tables to sort and identify objects.	Identify differences, similarities or changes related to simple scientific ideas and processes. Discuss the criteria used for sorting and classifying a range of objects. Conduct tests to sort and classify according to properties or behaviour. Use keys, branching databases and diagrams (Carroll and Venn) to sort	Use all previous skills with increasing levels of confidence. Begin to use and develop keys and other information records to identify, classify and describe living things and materials. Use more than one piece of scientific evidence to identify and classify things including secondary sources.	Use all previous skills confidently. Use and develop keys and other information records to identify, classify and describe living things and materials. Use more than one piece of scientific evidence to identify and classify things including secondary sources. Evaluate the effectiveness of keys/branching databases.

					and identify objects. Communicate the similarities and differences identified using scientific ideas.		
Questioning and enquiry planning	Ask questions about aspects of their familiar world. Generate a variety of ideas for testing (not always realistic/appropriate) Find ways to solve problems or test simple ideas.	Ask simple questions about the world around them based on all five senses. Begin to recognise that questions can be answered in different ways such as observing over time, comparative tests or noticing patterns. Use simple secondary resources to find answers	Ask some relevant questions and use different types of scientific enquiries to answer them. Begin to explore everyday phenomena and the relationships between living things and familiar environments. Begin to raise their own questions about the world around them. With support, decide which type of enquiry will be the most effective	Ask increasingly relevant questions and use different types of scientific enquiries to answer them. With more independence, explore everyday phenomena and the relationships between living things and familiar environments. Raise questions about the world and make some decisions about how best to answer these questions.	Ask relevant questions and use different types of scientific enquiries to answer them. Independently explore everyday phenomena and the relationships between living things and familiar environments. Begin to develop their ideas about functions, relationships and interactions. Raise questions about the world and decided which	Begin to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Raise simple questions about scientific phenomena and analyse functions, relationships and interactions more systematically. Begin to recognise that scientific ideas	Use their scientific experiences to explore ideas and raise further questions. Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Raise questions about scientific phenomena and analyse functions, relationships and interactions more systematically.

			ay answering questions.	Begin to decide when and how to use secondary sources and carry out own research.	method of testing would be the most effective way of answering these questions. Decide when and how to use secondary sources and carry out own research.	change and develop over time. More independently select appropriate testing methods to answer scientific questions. Use a wide range of secondary sources.	Begin to recognise that scientific ideas change and develop over time. Independently select appropriate testing methods to answer scientific questions. Use a wide range of secondary sources.
Recording	Engage in simple, whole class discussions about objects and events. Use basic methods such as pictures and images to record their findings. Create simple representations of events, people and objects.	Gather and record data with some adult support, to help in answering questions. Record and use simple data to communicate their findings. Present results in a basic table which has been provided to them.	Gather and record data to help in answering questions. Record and use simple data to communicate their findings in a range of ways. Present results in a table which has been provided to them.	After gathering and recording data, begin to classify and present these findings in a variety of ways. Begin using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.	After gathering and recording data, classify and present these findings in a variety of ways. Use simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. Report on findings from enquiries,	Begin to record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar and line graphs. With support, report and present findings from enquiries. Decide how to record data from a	Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar and line graphs. Report and present findings from enquiries. Decide how to record data from a choice of familiar

				Begin to report on findings from enquiries, including oral and written explanations or displays. With support, use notes, simple tables and standard units to present and analyse data. Begin using more scientific tables and bar charts	including oral and written explanations or displays. Use notes, simple tables and standard units to present and analyse data. Continue to use increasingly scientific tables and bar charts.	choice of familiar approaches. Choose how best to present data.	approaches so that their findings are accurately presented.
Conclusions	Notice 'which worked best' and offer basic comparative statements. With support, offer simple answers to initial questions. Answer how and why questions about their experiences.	Engage in teacher led discussions about what they have found out and how. Offer simple recounts of what happened during an investigation. Begin talking about whether the	Talk about what they have found out and how. Discuss what happened in their investigation. Consider whether results were surprising.	Begin using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. With support, use simple scientific	Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Use simple scientific evidence	With support, draw conclusions which consider causal relationships and offer explanations as to levels of reliability within results. Begin to identify scientific evidence that has been used	Draw conclusions which consider causal relationships and offer explanations as to levels of reliability within results. Identify scientific evidence that has been used to support or refute

		results surprised them or not. With support, consider what they would change about their investigation.	Talk about what they would change in their investigation.	evidence to answer initial questions. Engage in whole-class discussions regarding patterns and similarities or differences within their findings showing an emerging ability to link cause and effect. Begin to consider how investigations could be improved.	to answer initial questions. Explain what they have found out by linking cause and effect. With some support, look for patterns and similarities or differences within their findings. Consider how investigations could be improved.	to support or refute ideas or arguments. Use evidence and their emerging scientific knowledge to justify their and explain their findings. Present ideas using either oral, written or pictorial (diagrams/models) methods. Begin to use test results to make predictions and set up further tests.	ideas or arguments. Confidently use evidence and their scientific knowledge to justify their and explain their findings. Present ideas using increasingly scientific methods such as written conclusions or models. Use test results to make predictions and set up further tests
Vocabulary to be built upon each year.	Build up vocabulary that reflects the breadth of their experience	Questions, answers, equipment, sort, explore, observe, similar, egg timers, ruler, tape measure, metre	Chart, table, pictogram, tally chart, block diagram/graph, gather, order, notice patterns, stop watch, pipette, syringe,	Scientific enquiry, observations, keys, bar chart, thermometer, data logger, changes over time, Identify, classify,	Increase, decrease, accurate, appearance, disprove Adult should also use: Notice relationships	Opinion, fact, variables, independent variable, dependent variable, controlled variable	Casual relationships, refute, Degree of trust

		stick, beaker, collect, measures, record, group, test, compare, describe, different Adult should also use: differences, similarities, results	results, differences, similarities Adult should also use: gather, evidence, data, Venn diagram, Identify, classify, rank, notice relationships, comparatives	evidence, conclusion, prediction, magnifying glass, microscope, comparative test, fair test, present, data, results, support, systematic, gather, evidence, rank Adult should also use: accurate, disprove		precision, classification keys, scatter graphs, line graphs, notice relationships Adult should also use: Degree of trust, casual relationship, refute	

Mr C R Horridge

Horridge

Headteacher

Holly Road, Aspull, Wigan, WN2 1RU
Headteacher: Mr C Horridge
enquiries@admin.aspullourladys.wigan.sch.uk
www.aspullourladys.wigan.sch.uk