

Progression: Fluency, Reasoning and Problem Solving

Pupils are expected to be fluent in key aspects of age related expectations, making connections between learning and with an ability to apply problem solving skills on a daily basis.

Each Year builds upon key problem solving examples from previous year groups, whilst initiating new problem solving strategies and vocabulary.

	Y1	Y2	Y3	Y4	Y5	Y6
Key Vocabulary	<i>Explain Convince Notice Describe Sequence Pattern</i>	<i>Prove Predict Enquire Reason Visualise</i>	<i>Systematic Interpret Identify Conjecture Solution</i>		<i>Specialise Generalise Represent Construct Strategy</i>	<i>Hypothesise Analyse Compare Generate Counter Formulate</i>
Reasoning example activities	<ul style="list-style-type: none"> ▪ What's the same, what is different ▪ What do you notice? ▪ Maths Stories - The Story of 10, 20, 100 ▪ Can you give me an example of..? 	<ul style="list-style-type: none"> ▪ If I know a number fact, What else do I know? ▪ Can you give me an example that fits this statement? And another? And another? ▪ Maths Stories - The Story of 20,35, 50. 75 etc ▪ Which is the odd one out? 	<ul style="list-style-type: none"> ▪ If this is the answer, what is the question? ▪ What is the quickest or easiest way to work out...? 	<ul style="list-style-type: none"> ▪ Always Sometimes Never True ▪ Zoom in - Give me an example to a statement, a more specific example with certain criteria etc 	<ul style="list-style-type: none"> ▪ Peculiar Obvious, General - what is a peculiar, obvious or general answer to a statement ▪ How can we be sure that....? ▪ What is the link between...? 	
Development of Problem Solving Skills	<p>Adopt a sensible approach to a problem</p> <p>Begin to explain a statement in pictures and words</p> <p>Describe the strategies they have used in their work</p>	<p>Put problems into their own words</p> <p>Try different approach to a problem and overcome difficulties as they arise</p> <p>Begin to organise their own work and check for patterns</p> <p>Talk about their findings using the correct mathematical</p>	<p>Make their own suggestions of ways to tackle a range of problems, posing and answering questions</p> <p>Use their own strategies within mathematics and in applying mathematics to practical context</p> <p>Identify patterns as they work and form their own generalizations/rules in words</p> <p>Use related mathematical vocabulary accurately</p> <p>Search for a solution by trying out ideas of their own</p>	<p>Recognize information that is important to solving the problem, determine what is missing and develop lines of enquiry</p> <p>Breakdown an investigation or problem into small steps without prompting</p>	<p>Begin to understand and use algebraic formulae and symbols to represent problems</p> <p>Identify more complex patterns, making generalizations in words and begin to express generalizations using symbolic notation</p> <p>Use examples and</p>	

	<p>Listen to and compare with others work and explanations</p>	<p>vocabulary</p> <p>Understand a general statement by finding examples that match it</p> <p>Make generalisations of results with support and probing questions</p>	<p>Check their methods and justify answers</p> <p>Explain why it is necessary to organize work systematically</p>	<p>Consider efficient methods, relating problems to previous experiences</p> <p>Check as they work, spotting and correcting errors and reviewing methods</p> <p>Organise their work from the outset in symbols, diagrams or words</p> <p>Record systematically draw simple conclusions of their own and give an explanation of their reasoning</p> <p>Explain and justify their methods and solution</p>	<p>counter-examples to justify conclusions</p> <p>Represent information or unknown numbers in a problem, for example in a table, formula or equation, explain solutions in the context of the problem</p> <p>Develop and evaluate lines of enquiry; identify, collect, organise and analyse relevant information; decide how best to represent conclusions and what further questions to ask</p> <p>Explain and justify reasoning and conclusions, using notation, symbols and diagrams</p>
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