

Algebra with Reasoning

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
EQUATIONS					
<p><i>solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$</i> (copied from Addition and Subtraction)</p>	<p><i>recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.</i> (copied from Addition and Subtraction)</p>	<p><i>solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</i> (copied from Addition and Subtraction)</p>	<p><i>solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</i> (copied from Addition and Subtraction Year 3)</p>	<p><i>use the properties of rectangles to deduce related facts and find missing lengths and angles</i> (copied from Geometry: Properties of Shapes)</p>	<p>express missing number problems algebraically</p>
		<p><i>solve problems, including missing number problems, involving multiplication and division, including integer scaling</i> (copied from Multiplication and Division)</p>	<p><i>solve problems, including missing number problems, involving multiplication and division, including integer scaling</i> (copied from Multiplication and Division Year 3)</p>	<p>Solve problems, including missing number problems which have an operation on both sides e.g. $6 \times 4 = ? - 5$</p>	<p>Solve problems, including missing number problems which have an operation on both sides e.g. $6 \times 4 = ? - 5$</p> <p>Use the properties of rectangles to deduce related facts and find missing lengths and angles (copied from Geo Year 5)</p>
	<p><i>recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</i> (copied from Addition and Subtraction)</p>			<p>Solve problems, including missing number problems which have an operation on both sides e.g. $6 \times 4 = ? - 5$</p>	<p>find pairs of numbers that satisfy number sentences involving two unknowns</p>
<p><i>represent and use number bonds and related subtraction facts within 20</i> (copied from + and -)</p>				<p>enumerate all possibilities of combinations of two variables</p>	<p>enumerate all possibilities of combinations of two variables</p>
<p>Connected Calculations $11 = 3 + 8$ $12 = 4 + 8$ $13 = \square + 8$ $14 = \square + 8$</p> <p>What numbers go in the boxes? Can you continue this sequence of calculations?</p>	<p>Connected Calculations Put the numbers 19, 15 and 4 in the boxes to make the number sentences correct.</p> <p>$\square = \square - \square$</p> <p>$\square = \square + \square$</p>	<p>Connected Calculations Put the numbers 3, 12, 36 in the boxes to make the number sentences correct.</p> <p>$\square = \square \times \square$</p> <p>$\square = \square \div \square$</p>	<p>Connected Calculations Put the numbers 7.2, 8, 0.9 in the boxes to make the number sentences correct.</p> <p>$\square = \square \times \square$</p> <p>$\square = \square \div \square$</p>	<p>Connected Calculations The number sentence below represents the angles in degrees of an isosceles \triangle $A + B + C = 180$ degrees A and B are equal and are multiples of 5. Give an example of what the 3 angles could be. Write down 3 more</p>	<p>Connected Calculations p and q each stand for whole numbers. $p + q = 1000$ and p is 150 greater than q. Work out the values of p and q.</p>

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FORMULAE																
			<p><i>Perimeter can be expressed algebraically as $2(a + b)$ where a and b are the dimensions in the same unit. (Copied from NSG measurement)</i></p>	<p>Use the properties of rectangles to deduce related facts and find missing lengths and angles (copied from Geo Year 5)</p>	<p>use simple formulae</p>											
					<p>recognise when it is possible to use formulae for area and volume of shapes (copied from Measurement)</p>											
			<p>Undoing</p> <p>If the longer length of a rectangle is 13cm and the perimeter is 36cm, what is the length of the shorter side? Explain how you got your answer.</p>	<p>Undoing</p> <p>The perimeter of a rectangular garden is between 40 and 50 metres. What could the dimensions of the garden be?</p>	<p>Undoing</p> <p>The diagram below represents two rectangular fields that are next to each other.</p> <table border="1" data-bbox="1883 655 2101 756"> <tr> <td>Field A</td> <td>Field B</td> </tr> </table> <p>Field A is twice as long as field B but their widths are the same and are 7.6 metres. If the perimeter of the small field is 23m what is the perimeter of the entire shape containing both fields?</p> <p>If y stands for a number complete the table below</p> <table border="1" data-bbox="1823 1118 2123 1235"> <tr> <td>y</td> <td>$3y$</td> <td>$3y + 1$</td> </tr> <tr> <td>25</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>28</td> </tr> </table> <p>What is the largest value of y if the greatest number in the table was 163?</p>	Field A	Field B	y	$3y$	$3y + 1$	25					28
Field A	Field B															
y	$3y$	$3y + 1$														
25																
		28														

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SEQUENCES					
<i>sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening</i> (copied from Measurement)	<i>compare and sequence intervals of time</i> (copied from Measurement) <i>order and arrange combinations of mathematical objects in patterns</i> (copied from Geometry: position and direction)	Continue number sequences which include addition and subtraction – link to x tables	Continue number sequences which include addition and subtraction – link to x tables	Continue number sequences which include addition and subtraction – link to x tables	generate and describe linear number sequences
Continue pictoral sequences involving colour, shape, etc.	Continue number sequences which include addition and subtraction – link to x tables	Recognise a rule for simple sequences and begin to find missing terms	Recognise a rule for simple sequences and find missing terms	Recognise a rule for sequences and find missing terms – to include square number sequence	
	True or false? Explain The largest three digit number that can be made from the digits 2, 4 and 6 is 264. Is this true or false? Explain your thinking.				Generalising Write a formula for the 10 th , 100 th and nth terms of the sequences below. 4, 8, 12, 16 0.4, 0.8, 1.2, 1.6,