



Algebra with Reasoning

VOCABULARY					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
				Formula	Formula, formulae Equation Rule Expression Linear number sequence Substitute Variables Symbol Known values Enumerate
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
EQUATIONS					
<i>solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$ (copied from Addition and Subtraction)</i>	<i>recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems. (copied from Addition and Subtraction)</i>	<i>solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. (copied from Addition and Subtraction)</i>		<i>use the properties of rectangles to deduce related facts and find missing lengths and angles (copied from Geometry: Properties of Shapes)</i>	<i>express missing number problems algebraically</i>
		<i>solve problems, including missing number problems, involving multiplication and division, including integer scaling (copied from Multiplication and Division)</i>			
	<i>recall and use addition and subtraction facts to 20</i>				<i>find pairs of numbers that satisfy number sentences</i>

Algebra with Reasoning

	<i>fluently, and derive and use related facts up to 100</i> (copied from Addition and Subtraction)				involving two unknowns
<i>represent and use number bonds and related subtraction facts within 20</i> (copied from Addition and Subtraction)					enumerate all possibilities of combinations of two variables

Algebra with Reasoning

<p>Connected Calculations</p> <p>11 = 3 + 8 12 = 4 + 8 13 = <input type="text"/> + 8 14 = <input type="text"/> + 8</p> <p>What numbers go in the boxes? Can you continue this sequence of calculations?</p>	<p>Connected Calculations</p> <p>Put the numbers 19, 15 and 4 in the boxes to make the number sentences correct.</p> <p><input type="text"/> = <input type="text"/> - <input type="text"/></p> <p><input type="text"/> = <input type="text"/> + <input type="text"/></p>	<p>Connected Calculations</p> <p>Put the numbers 3, 12, 36 in the boxes to make the number sentences correct.</p> <p><input type="text"/> = <input type="text"/> x <input type="text"/></p> <p><input type="text"/> = <input type="text"/> ÷ <input type="text"/></p>	<p>Connected Calculations</p> <p>Put the numbers 7.2, 8, 0.9 in the boxes to make the number sentences correct.</p> <p><input type="text"/> = <input type="text"/> x <input type="text"/></p> <p><input type="text"/> = <input type="text"/> ÷ <input type="text"/></p>	<p>Connected Calculations</p> <p>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 examples</p>	<p>Connected Calculations</p> <p>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>		
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 simple formulae</p> <p><i>recognise when it is possible to use formulae for area and volume of shapes (copied from Measurement)</i></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</p>	<p>Undoing</p> <p>The perimeter of a rectangular garden is between 40 and 50 metres. What could the dimensions of the garden</p>	<p>Undoing</p> <p>The diagram below represents two rectangular fields that are next to each other.</p> <table border="1"> <tbody> <tr> <td style="width: 50px; height: 40px;">Field A</td> <td style="width: 50px; height: 40px;">Field B</td> </tr> </tbody> </table>	Field A	Field B
Field A	Field B						



Algebra with Reasoning

			answer.	be?	<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"> <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>	y	$3y$	$3y + 1$	25					28
y	$3y$	$3y + 1$												
25														
		28												
SEQUENCES														
<p><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)</p>	<p><i>compare and sequence intervals of time</i> (copied from Measurement)</p> <p><i>order and arrange combinations of mathematical objects in patterns</i> (copied from Geometry: position and direction)</p>				<p>generate and describe linear number sequences</p>									
	<p>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.</p>				<p>Generalising</p> <p>Write a formula for the 10th, 100th and nth terms of the sequences below. 4, 8, 12, 16 0.4, 0.8, 1.2, 1.6,</p>									

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