



Progression of skills: Maths – Addition and Subtraction

Curriculum intent:

At Shawclough, our intent for Mathematics is to teach a rich, balanced and progressive curriculum using Maths to reason, problem solve and develop fluent conceptual understanding in each area. Our curriculum allows children to better make sense of the world around them by making connections between Mathematics and everyday life. Our policies, resources and schemes of work support our vision and clearly outline where Maths can be incorporated across different curriculum areas. The structure of the Mathematics curriculum across school shows clear progression in line with age related expectations. Teaching curriculum content in blocks allows children to explore skills and knowledge in depth and gain a secure understanding of particular subject matter. Key knowledge and skills are also revisited regularly allowing repetition to embed learning. A concrete, pictorial, abstract approach provides children with a clear structure in which they can develop their depth of understanding of mathematical concepts. We aim to ensure that Mathematics is a high profile subject which children view positively and with a 'Can do' attitude.

For the youngest children developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationship between and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding- such as using manipulative, including small pebbles and tens frames for organising counting – children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes

Intended Experiences Nursery	Intended experiences Reception	Early Learning Goal Maths -Number
<p>To be interested in and sing number songs</p> <p>To refer to numbers in play e.g. 'I have one, you have two</p> <p>To say one number for each item in order: 1, 2,3,4,5? ·</p> <p>To begin to learn how to touch count and line up objects (one-one)</p> <p>To recite numbers past 5</p> <p>To recognise some numerals in the environment.</p> <p>To begin to recognise of up to 3 objects, without having to count them individually ('subitising')?</p> <p>To begin to experiment with their own symbols and marks as well as numerals</p> <p>To show 'finger numbers' up to 5.</p> <p>To make comparisons between quantities.</p> <p>To match number to quantity</p> <p>To show numbers to 5 using concrete resources and say one number name for each item. To recognise numbers to 5, match numeral and quantity to 5 and quickly say how many there are (up to 3) · To solve some simple problems with numbers to 5. To compare quantities using the vocabulary greater, less, more, fewer and the same</p>	<p>To quickly say how many there are (up to 3) in different arrangements ·</p> <p>To start to show how numbers can be made up e.g. 1 and 3 is 4 and know there is more than one way of doing this</p> <p>To count objects, claps, movements up to 10 ·</p> <p>To match numeral and quantity (within 10).</p> <p>To quickly say how many there are (up to 5), recall number bonds to 5 and start to give some linked subtraction facts ·</p> <p>To begin to recall some double facts e.g. 1 and 1 is</p>	<p>Have a deep understanding of number to 10, including the composition of each number. ·</p> <p>Subitise (recognise quantities without counting) up to 5. ·</p> <p>Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.</p>

--	--	--

NUMBER BONDS					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Represent and use number bonds and related subtraction facts within 20.	Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.				
MENTAL CALCULATION					
<p>Add and subtract one-digit and two-digit numbers to 20, including zero.</p> <p>Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) (appears also in Written Methods).</p>	<p>Add and subtract numbers using concrete objects, pictorial representations, and mentally, including:</p> <ul style="list-style-type: none"> • A two-digit number and ones • A two-digit number and tens 	<p>Add and subtract numbers mentally, including:</p> <ul style="list-style-type: none"> • A three-digit number and ones • A three-digit number and tens • A three-digit number and hundreds. 		<p>Add and subtract numbers mentally with increasingly large numbers.</p>	<p>Perform mental calculations, including with mixed operations and large numbers.</p> <p>Use their knowledge of the order of operations to carry out calculations involving the four operations.</p>

	<ul style="list-style-type: none"> • Two two-digit numbers • Adding three one-digit numbers. <p>Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.</p>				
--	---	--	--	--	--

WRITTEN METHODS

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Read, write and interpret mathematical statements involving addition (+), subtraction (-), and equals (=) signs (appears also in Mental Calculation).		Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.	Add and subtract numbers with up to 4 digits, using the formal written methods of columnar addition and subtraction where appropriate.	Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).	

INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS

	Recognise and use the inverse relationship between addition and subtraction and use this to check calculations	Estimate the answer to a calculation and use inverse operations to check answers.	Estimate and use inverse operations to check answers to a calculation.	Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.	Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.
--	--	---	--	---	---

	and solve missing number problems.				
PROBLEM SOLVING					
Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$	<p>Solve problems with addition and subtraction:</p> <ul style="list-style-type: none"> Using concrete objects and pictorial representations, including those involving numbers, quantities and measures Applying their increasing knowledge of mental and written methods. 	Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
	Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change (copied from Measurement).				Solve problems involving addition, subtraction, multiplication and division.

VISUAL CALCULATION POLICY					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

<p>Addition Vocabulary – 12</p> <p>Addition Calculation – 16</p> <p>A1a: Largest Number 1st – 35</p> <p>A2: Counting On – 36</p> <p>A2a: Counting On – 37</p> <p>MA1: Partitioning – 75</p> <p>MA2: Counting On – 81</p> <p>MA2a: Counting On – 82</p> <p>MA2b: Counting On – 83</p> <p>MA3: Number Bonds – 95</p> <p>MA4: Round and Adjust – 109</p> <p>M1: Groups - 155</p>	<p>Addition Vocabulary – 12</p> <p>A2b: Counting On – 38</p> <p>A3: Forwards Jump – 39</p> <p>A3a: Forwards Jump – 40</p> <p>A3b: Forwards Jump – 41 (Y2/Y3)</p> <p>A4: Partitioning – 45 & 46</p> <p>A4a: Partitioning – 47</p> <p>A4b: Partitioning – 48 (Y2/Y3)</p> <p>A5: Partition Jot – 51</p> <p>A5a: Partition Jot – 52</p> <p>A5b: Partition Jot – 53 (Y2/Y3)</p> <p>A6: Expanded Column – 60</p> <p>A6a: Expanded Column – 61</p> <p>A6b: Expanded Column – 62 (Y2/Y3)</p> <p>A7: Column Addition – 64</p> <p>A7a: Column Addition – 65</p> <p>A7b: Column Addition – 66</p> <p>MA1: Partitioning – 76</p> <p>MA2a: Counting On – 84</p> <p>MA2b: Counting On – 85</p> <p>MA3: Number Bonds – 96</p> <p>MA4: Double and Adjust – 103</p> <p>MA5: Round and Adjust – 110</p> <p>M1: Repeated Addition – 156</p>	<p>Addition Vocabulary – 12</p> <p>A3b: Forwards Jump – 41 (Y2/Y3)</p> <p>A3c: Forwards Jump – 42</p> <p>A4b: Partitioning – 48 (Y2/Y3)</p> <p>A4c: Partitioning – 49</p> <p>A5b: Partition Jot – 53 (Y2/Y3)</p> <p>A6: Expanded Column – 63</p> <p>A7: Column Addition – 67</p> <p>MA1: Partitioning – 77</p> <p>MA2a: Counting On – 86</p> <p>MA2b: Counting On – 87</p> <p>MA3: Number Bonds – 97</p> <p>MA4: Double and Adjust – 104</p> <p>MA5: Round and Adjust – 111</p>	<p>Addition Vocabulary – 12</p> <p>A5d: Partition Jot: 55</p> <p>A7d: Column Addition – 68</p> <p>MA1: Partitioning – 78</p> <p>MA2a: Counting On – 88</p> <p>MA2b: Counting On – 89</p> <p>MA3: Number Bonds – 98</p> <p>MA4: Double and Adjust – 105</p> <p>MA5: Round and Adjust - 112</p>	<p>Addition Vocabulary – 12</p> <p>A3f: Decimal Jump: 43</p> <p>A3g: Decimal Jump: 44</p> <p>A4f: Partitioning: 50</p> <p>A5f: Partition Jot: 56</p> <p>A5g: Partition Jot: 57</p> <p>A5h: Partition Jot: 58</p> <p>A5i: Partition Jot: 59</p> <p>A7e: Column Addition: 69</p> <p>A7f: Column Addition: 70</p> <p>A7g: Column Addition: 71</p> <p>A7h: Column Addition: 72</p> <p>A7i: Column Addition: 73</p> <p>A7j: Column Addition: 74</p> <p>MA1: Partitioning – 79</p> <p>MA2a: Counting On – 90</p> <p>MA2b: Counting On – 91</p> <p>MA3: Number Bonds – 99</p> <p>MA4: Double and Adjust – 106</p> <p>MA5: Round and Adjust - 113</p>	<p>Addition Vocabulary – 12</p> <p>MA1: Partitioning – 80</p> <p>MA2a: Counting On – 92</p> <p>Ma2b: Counting On – 93</p> <p>MA3: Number Bonds – 100</p> <p>MA4: Double and Adjust – 107</p> <p>Ma5: Round and Adjust – 114</p>
--	--	---	---	---	---

	M2: Repeated Addition – 157 M2a: Repeated Addition - 158				
Subtraction Vocabulary – 13 Subtraction Calculation – 17 S1: Objects – 115 S2: What’s the Difference – 116 S3: Counting Back – 117 S4: Counting On - 118	Subtraction Vocabulary – 13 S4a: Counting On – 119 S5: Backwards Boing – 120 S6: Backwards Bounce – 121 S7: Backwards Jump – 122 S8 (Additional): Triple Jump! – 123 S8: Triple Jump! – 124 S9 (Additional): 10’s Jump, 1’s Jump! – 129 S9: 10’s Jump, 1’s Jump! – 130 S10 (Additional); Expanded Column Subtraction – 135 S10: Column Subtraction – 136 S10: Column Subtraction – 137 S10 (Additional:a): Expanded Column – 138 S11 (Additional): Column Subtraction – 141 S11 (Additional:a): Column Subtraction - 142	Subtraction Vocabulary – 13 S8b: Quad Jump! – 125 S8c: Big Jump! – 126 S9b: 10s Jump, 1s Jump! – 131 S9c: 100s, 10s, 1s Jump – 132 S10 (Additional:b): Expanded Column Subtraction – 139 S10: Expanded Column Subtraction – 140 S11 (Additional:b): Column Subtraction – 143 S11: Column Subtraction - 144	Subtraction Vocabulary – 13 S8d: Quad Jump Extreme – 127 S9d: 1000s, 100s, 10s, 1s Jump – 133 S11d: Column Subtraction – 145 S11i: Column Subtraction - 146	Subtraction Vocabulary – 13 S8f: Decimal T-J! – 128 S9f: 1s Jump, Tenths Jump! – 134 S11e: Column Subtraction – 147 S11f: Column Subtraction – 148 S11g: Column Subtraction – 149 S11h: Column Subtraction with Decimals - 150	Subtraction Vocabulary – 13

VOCABULARY

Addition	Addition	Addition	Addition	Addition	Addition
----------	----------	----------	----------	----------	----------

<p>Add, more, and, make, sum, total, altogether, double</p> <p>Near double Half, halve</p> <p>One more, two more ... ten more, how many more to make ...? How many more is ... than ...? How much more is ...?</p> <p>Subtract</p> <p>Take away, how many are left/left over? How many have gone? One less, two less, ten less, how many fewer is ... than ...? How much less is ...? Difference between</p> <p>Equals, is the same as, number bonds/pairs, missing number</p>	<p>Add, more, and, make, sum, total, altogether, double</p> <p>Near double, Half, halve</p> <p>One more, two more ... ten more... one hundred more</p> <p>How many more to make...? How many more is ... than ...? How much more is ...?</p> <p>Subtract</p> <p>Take away, how many are left/left over? How many have gone? One less, two less, ten less ... one hundred less how many fewer is ... than ...? How much less is ...? Difference between, equals, is the same as, number bonds/pairs/facts, tens boundary</p>	<p>Add, more, and, make, sum, total, altogether, double, near double, half, halve</p> <p>One more, two more ... ten more ... one hundred more.</p> <p>How many more to make ...? How many more is ... than ...? How much more is ...?</p> <p>Subtract</p> <p>Take away, how many are left/left over? How many have gone? One less, two less, ten less ... one hundred less how many fewer is ... than ...? How much less is ...? Difference between, equals, is the same as, number bonds/pairs/facts, missing number, tens boundary, hundreds boundary</p>	<p>Add, more, and, make, sum, total, altogether, double, near double, half, halve</p> <p>One more, two more ... ten more ... one hundred more.</p> <p>How many more to make ...? How many more is ... than ...? How much more is ...?</p> <p>Subtract</p> <p>Take away, how many are left/left over? How many have gone? One less, two less, ten less ... one hundred less how many fewer is ... than ...? How much less is ...? Difference between, equals, is the same as, number bonds/pairs/facts, missing number, tens boundary, hundreds boundary, inverse</p>	<p>Add, more, and, make, sum, total, altogether, double, near double, half, halve</p> <p>One more, two more ... ten more ... one hundred more.</p> <p>How many more to make ...? How many more is ... than ...? How much more is ...?</p> <p>Subtract</p> <p>Take away, how many are left/left over? How many have gone? One less, two less, ten less ... one hundred less how many fewer is ... than ...? How much less is ...? Difference between, equals, is the same as, number bonds/pairs/facts, missing number, tens boundary, hundreds boundary, ones boundary, tenths boundary inverse</p>	<p>Add, more, and, make, sum, total, altogether, double, near double, half, halve</p> <p>One more, two more ... ten more ... one hundred more.</p> <p>How many more to make ...? How many more is ... than ...? How much more is ...?</p> <p>Subtract</p> <p>Take away, how many are left/left over? How many have gone? One less, two less, ten less ... one hundred less how many fewer is ... than ...? How much less is ...? Difference between, equals, is the same as, number bonds/pairs/facts tens boundary, hundreds boundary, ones boundary, tenths boundary, inverse</p>
--	---	---	--	---	---