Mastering Number – Securing Additive Facts beyond Key Stage 1

Block	Title	Pupils will:	Links to Ready-to-Progress Criteria	Use this with:	Number of sessions
1	Securing understanding of the additive relationship	• Use the language of 'part' and 'whole' when describing the numbers in a part-part-whole diagram • Secure the language related to addition and subtraction equations: *addend; sum; minuend; subtrahend; difference* and relate this to the *whole* and the *parts* • Write the full set of 8 addition and subtraction equations to match a part-part-whole diagram or bar model • Vary the position of the equals symbol, understanding this as a symbol of *equality* • Compare part-part-whole diagrams and bar models, understanding that both of these represent the additive relationship between the whole and the parts • Rearrange equations to find missing sums, addends, differences, subtrahends or minuends	**3AS-3** Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both these relate to the part-part-whole structure. Understand and use the commutative property of addition, and understand the related property for subtraction.	All pupils in Year 3	12
2	Composition and securing additive facts: within 5	• Secure their understanding that addition is commutative • Secure their understanding of the composition of 3, 4 and 5, working systematically to find all the ways that these numbers can be composed	**2NF-1** Secure fluency in addition and subtraction	Pupils who: • are not yet secure in their understanding that addition is commutative so do not	12

		• Explore the relationship between the addends in a set of facts with the same sum, identifying and explaining the '1 more/1 less' pattern • Apply knowledge of the composition of 3, 4 and 5 to identify when a pair of addends has a given sum • Identify missing addends in addition equations • Identify the difference in subtraction equations, relating this to a missing part/missing addend • Practise recalling addition and subtraction facts within 5 to develop automaticity	facts within 10, through continued practice.	use this to recall facts with addends in either order • do not link their understanding of how numbers can be composed with addition **and** subtraction facts • cannot yet automatically recall addition and subtraction facts within 5 • revert to counting strategies when finding a sum or difference when adding or subtracting	
3	Structures within 10	• Explore the addition table of facts within 10 • Practise recalling previously-learnt facts (within 5) • Identify odd and even numbers • Identify that even numbers can be composed of EITHER a pair of even numbers or a pair of odd numbers and reason that the sum of a pair of odd numbers or a pair of even numbers must be even • Connect the composition of even numbers to doubles • Use knowledge of doubles to subtract when the minuend is double the value of the subtrahend • Identify that odd numbers can be composed of one odd part or one even part, and reason that the sum of an odd or even number must be odd • Identify that the numbers 6 to 9 all have 5 as a part, and connect this to addition and subtraction facts	**2NF-1** Secure fluency in addition and subtraction facts within 10, through continued practice.	Pupils who: • are not yet secure in their understanding that 2 odd numbers/ 2 even numbers sum to an even number, and an odd number plus an even number sum to an odd number • cannot yet automatically recall doubles and halves within 10 • do not use knowledge of doubles to subtract when the minuend is double the value of the subtrahend • recall the composition of each of 6, 7, 8, 9 and 10, when 5 is a part, and	10

				connect this to related addition and subtraction facts.	
4	Composition and securing additive facts: 6 to 10	• Explore the addition table of facts within 10 • Secure their understanding of the composition of each of the numbers 6 to 10 • Connect the composition of 6 to 10 with both addition and subtraction facts • Practise recalling sums and differences to develop automaticity within 10 • Apply additive facts within 10 to addition and subtraction calculations to 100, working *within* 10s boundaries • Apply additive facts within 10 to addition and subtraction calculations to 100, working with multiples of 10	**2NF-1** Secure fluency in addition and subtraction facts within 10, through continued practice. **2AS–3** Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract only ones or only tens to/from a two-digit number. **3NF–3** Apply place-value knowledge to known additive [and multiplicative] number facts (scaling facts by 10).	Pupils who: • cannot yet automatically recall all 36 addition facts within 10, and their corresponding subtraction facts • cannot confidently apply known facts within 10 to addition and subtraction calculations within 10s boundaries, e.g. 5 + 3 = 8, so 25 + 3 = 28, or 8 - 3 = 5, so 28 - 3 = 25 • cannot confidently apply known facts within 10 to addition and subtraction calculations within 100 using scaled facts, e.g. 5 + 3 = 8, so 50 + 30 = 80, and 80 - 50 = 30	23

5	Securing additive facts within 10 – strategies	• Apply a range of generalisation to secure additive facts within 10, then within 20, including:
		  ○ adding 1 gives 1 more, subtracting 1 gives 1 less
		  ○ consecutive numbers have a difference of 1
		  ○ adding 2 to an even number gives the next even number
			2NF-1
			
			Secure fluency in addition and subtraction facts within 10, through continued practice.
				Pupils who:
				
				• cannot yet automatically recall all 36 addition facts within 10, and their corresponding subtraction facts
					10

		○ subtracting 2 from an even number gives the previous even number ○ adding 2 to an odd number gives the next odd number ○ subtracting 2 from an odd number gives the previous odd number ○ consecutive even numbers have a difference of 2 ○ consecutive odd numbers have a difference of 2 ○ when zero is an addend, the sum is equal to the other addend ○ when zero is the subtrahend, the difference is equal to the minuend		• are not secure with generalisations about adding 1 or 2 to or from odd/even numbers, and differences of 1 or 2, when working within and beyond 10 • are not secure of the impact of adding or subtracting zero	
6	Doubles and near doubles	• Explore the addition table of facts across 10 • Secure their understanding of the composition of the numbers 11 to 19 as '10 and a bit' and apply this to addition and subtraction calculations • Use the '5 and a bit' structure to calculate doubles to double 10 • Relate doubles to halves • Practise to develop automaticity with doubles facts, and use these to subtract when the minuend is double the value of the subtrahend • Calculate near doubles by doubling the smaller addend and adding 1 • Calculate near doubles by adding the larger addend and subtracting 1 • Transform addition calculations in which the addends are a pair of adjacent odd numbers, or a pair of adjacent even numbers, into a double (e.g. 7 + 5 = 6 + 6)	**3NF-1** Secure fluency in addition and subtraction facts that bridge 10, through continued practice.	All pupils in Year 3.	15

7	Addition across 10	• Practise adding three 1-digit numbers when 2 of the addends sum to 10 • Develop fluency with the strategy of 'making 10' for addition calculations across 10 (adding *through* 10) • Add 5 to each of 6, 7, 8, and 9, by partitioning the larger addend into '5 and a bit' and 'making 10' with 5 + 5. • Consider different addition strategies for the same calculations, e.g. 7 + 5 = 7 + 3 + 2 (addition *through* 10) or 7 + 5 = 6 + 6 (transforming a pair of adjacent odd numbers into a double)	**3NF-1** Secure fluency in addition and subtraction facts that bridge 10, through continued practice.	All pupils in Year 3.	12
8	Subtraction across 10	• Identify the subtraction facts which relate to addition facts across 10 • Subtract by identifying missing addends • Develop fluency with the strategy of 'subtracting *through* 10' by partitioning the *subtrahend* into two parts and bridging back through 10 • Develop fluency with the strategy of 'subtracting *from* 10' by partitioning the *minuend* into 10 and a bit and subtracting from 10 • Check subtraction calculations by applying understanding of the additive relationship (checking that the sum of the subtrahend and difference is equal to the minuend) • Compare different subtraction strategies and consider which may be more efficient given the numbers in a calculation • Use knowledge of doubles to subtract when the minuend is double the value of the subtrahend	**3NF-1** Secure fluency in addition and subtraction facts that bridge 10, through continued practice.	All pupils in Year 3.	15