Addition Calculation Policy
Reception

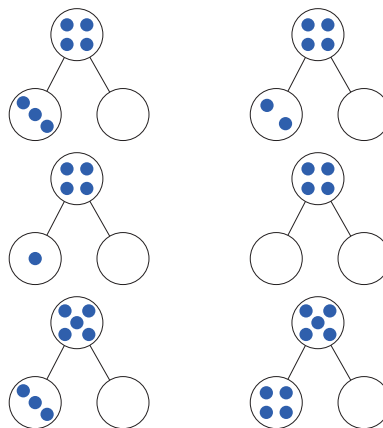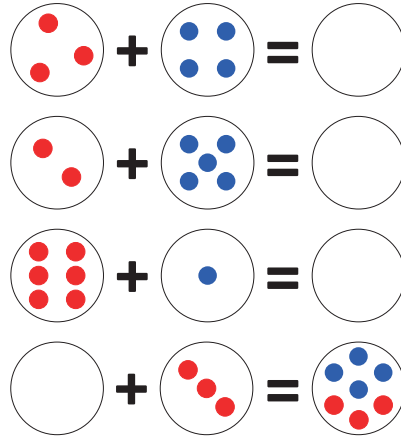| Year	Topic/Strand	Representation	Key Idea
Reception	Perceptual Subitising		A key development underpinning the ability to add is subitising. Perceptual subitising is when pupils can recognise the quantity of items in groups up to 5 without counting each item.
Reception	Part – Part – Whole		This is a mathematical structure that underpins all addition situations. Numbers can be understood in terms of their parts; understanding that the parts are part of a larger collection.

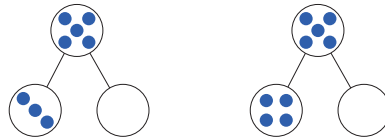| Year	Topic/Strand	Representation	Key Idea
Reception	Conceptual Subitising		Pupils are able to recognise a quantity by combining groups that have not needed to be counted. Pupils may see 5 items as 3 items and 2 items.
Reception	Composition of 5		Pupils are able to demonstrate all possible whole number compositions of 5, including recognising and showing 5 on a five frame and using a number bond diagram.

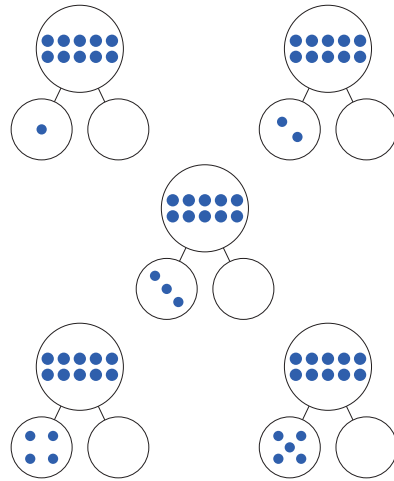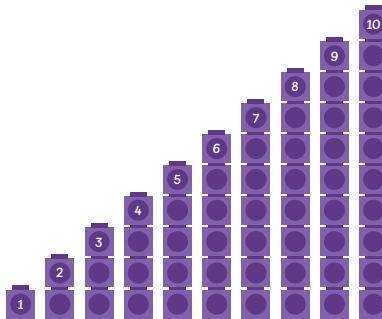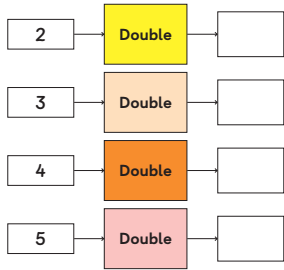| Year	Topic/Strand	Representation	Key Idea
Reception	Composition of 10		Pupils are able to demonstrate all possible whole number compositions of 10, including recognising and showing 10 on a ten frame and using a number bond diagram.
Reception	Adding 1, 1 More	1 more than 3 is [ ]. 1 less than 4 is [ ]. 1 more than 5 is [ ]. 1 less than 7 is [ ]. 1 more than 9 is [ ]. 1 less than 10 is [ ].	Pupils relate adding 1 to 1 more than the starting number.

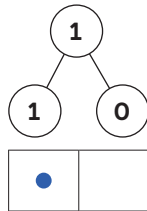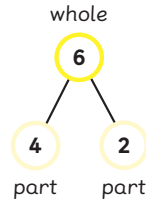| Year	Topic/Strand	Representation	Key Idea
Reception	Doubles		Pupils understand doubles up to 5 + 5. This forms the basis of generalising about near doubles. Pupils should also develop an awareness that the sum of any whole number that is doubled will be an even number.
Reception	Adding Zero		Pupils understand zero can be added to any number but the number will remain unchanged.

Addition Calculation Policy
Year 1

MATHS NO PROBLEM!

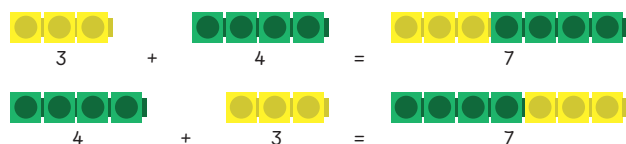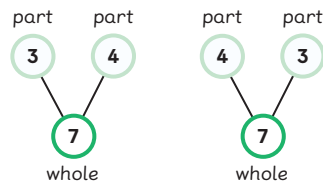| Year	Topic/Strand	Representation	Key Idea
Year 1	Part – Part – Whole	whole — 6 / 4 part / 2 part	This is a mathematical structure that underpins all addition situations. Numbers can be understood in terms of their parts; understanding that the parts are part of a larger collection. Pupils develop an understanding of the parts and the whole within an equation.
Year 1	Number Bonds to 10	(addition table and number bonds diagrams)	Pupils develop automatic recall of number bonds to 10. This can be shown using a ten frame, a number bond diagram and written as an equation. This understanding can be related to adding tens, hundreds and so on when used with a sound understanding of place value.

+	0	1	2	3	4	5	6	7	8	9	10
0	0 + 0	0 + 1	0 + 2	0 + 3	0 + 4	0 + 5	0 + 6	0 + 7	0 + 8	0 + 9	0 + 10
1	1 + 0	1 + 1	1 + 2	1 + 3	1 + 4	1 + 5	1 + 6	1 + 7	1 + 8	1 + 9	
2	2 + 0	2 + 1	2 + 2	2 + 3	2 + 4	2 + 5	2 + 6	2 + 7	2 + 8		
3	3 + 0	3 + 1	3 + 2	3 + 3	3 + 4	3 + 5	3 + 6	3 + 7			
4	4 + 0	4 + 1	4 + 2	4 + 3	4 + 4	4 + 5	4 + 6				
5	5 + 0	5 + 1	5 + 2	5 + 3	5 + 4	5 + 5					
6	6 + 0	6 + 1	6 + 2	6 + 3	6 + 4						
7	7 + 0	7 + 1	7 + 2	7 + 3							
8	8 + 0	8 + 1	8 + 2								
9	9 + 0	9 + 1									
10	10 + 0										

3 plus 4 equals 7.
4 plus 3 equals 7.

part 3 part 4 — whole 7

part 4 part 3 — whole 7

3 + 4 = 7

4 + 3 = 7

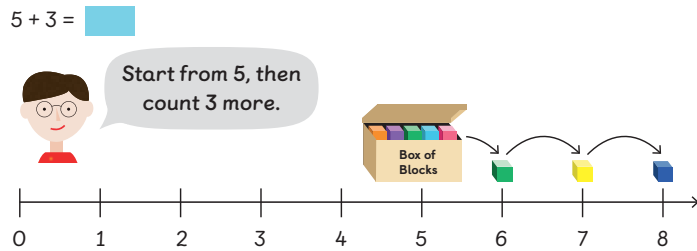| Year	Topic/Strand	Representation	Key Idea
Year 1	Using a Number Track		Pupils are first introduced to a linear number system through the number track. This is a precursor to the number line. Pupils may benefit from placing items on the number track as they count and add, before moving on to use the more abstract number line.
Year 1	Counting on Using a Number Line		Pupils move from a number track to a number line, starting from zero and having marked increments of 1. The use of the number line is further developed when counting starts from a given number, relying on pupils' ability to locate and count on from a given number.
Year 1	Adding by Making 10		Pupils use their part–whole understanding to rename a number into its component parts in order to make 10 within an equation. Pupils also look for combinations of numbers that make 10 in addition examples that have 3 numbers with a sum greater than 10.
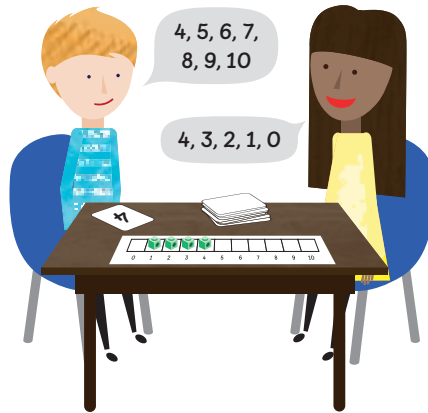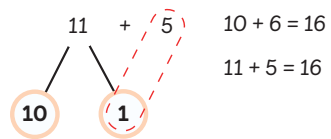
Year	Topic/Strand	Representation	Key Idea
Year 1	**Addition Word Problems**	**Emma has two balls.** **Sam has four balls.** **How many balls in total?** ☐ ☐ ☐ ☐ + ☐ = ☐	Pupils apply their knowledge of addition within the context of word problems. The problems may involve different situations, contexts or strategies.

Addition Calculation Policy
Year 2

MATHS NO PROBLEM!

Year	Topic/Strand	Representation	Key Idea
Year 2	Part – Part – Whole	84 = 70 + 14 **84** = **70** + **14**	This is a mathematical structure that underpins all addition situations. Numbers can be understood in terms of their parts; understanding that the parts are part of a larger collection. Pupils develop an understanding of the parts and the whole within an equation.
Year 2	Counting on Using a Number Line	+ 10 + 10 50 60 70 80 90 100 60 + 20 = 80	The use of the number line is further developed when counting starts from a given number, relying on pupils' ability to locate and count from a given number, including starting from a 2-digit number. Initially a 1-digit number is added to a 2-digit number, then this progresses to a number line shown with intervals of 10 when adding 2-digit numbers that do not have any ones.
Year 2	Base 10 Blocks	10 ones = 1 ten 10 tens = 1 hundred	The use of base 10 blocks provides a representation of the place value, primarily of 2-digit numbers. This representation is related to the formal written method but also encourages pupils to use their understanding of adding the same noun to add 2-digit numbers. For example, 20 + 30 can be understood as 2 tens + 3 tens. The sum of these numbers is 50 or 5 tens. An understanding of place value will support addition as well as subtraction, multiplication and division.

Year	Topic/Strand	Representation	Key Idea
Year 2	Formal Written Method		This is a procedural method that relies on a pupil's conceptual understanding of addition. This begins without renaming and progresses to the renaming of 10 ones into 1 ten. Pupils understand that at this stage, they start with the addition of the ones before they add the tens. This method is supported with base 10 block representation. The formal written method is always accompanied by a written equation to ensure that the relationship between the representations is made.
Year 2	Adding Fractions		Pupils use their understanding of adding the same noun when adding fractions through a written sentence. Fractions with the same denominator are added using a '[ ] and [ ] make [ ]' structure.

Representation (Formal Written Method):

$43 + 8 =$

Start by adding the ones.

	tens	ones
	4	3
+		8
	1	1

3 ones + 8 ones = 11 ones
11 ones = 1 ten and 1 one

Rename 10 ones as 1 ten.

	tens	ones
	4	3
+		8
	1	1
+	4	0
	5	1

Then add the tens.

4 tens + 1 ten = 5 tens
40 + 10 = 50

43 + 8 = 51

There are 51 bottles of water in total.

Representation (Adding Fractions):

$\frac{1}{3}$ $\frac{2}{3}$

$\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$ → 1

$\frac{1}{3}$ and $\frac{2}{3}$ make 1 whole.

Addition Calculation Policy
Year 3

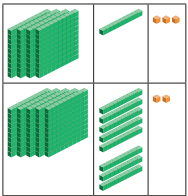| Year	Topic/Strand	Representation	Key Idea
Year 3	Part – Part – Whole	$9 + 8 = 17$ $17 - 9 = 8$ $8 + 9 = 17$ $17 - 8 = 9$ *17 is the whole. 8 and 9 are the parts.*	This is a mathematical structure that underpins all addition situations. Numbers can be understood in terms of their parts; understanding that the parts are part of a larger collection. Pupils develop an understanding of the parts and the whole within an equation.
Year 3	Counting on Using a Number Line	$287 + 500 = 787$	The use of the number line is further developed when counting starts from a given number, relying on pupils' ability to locate and count from a given number, including starting from a 3-digit number. Initially a 1-digit number is added to a 3-digit number, then this progresses to a number line shown with intervals of 1, then 10 and eventually to 100.
Year 3	Base 10 Blocks	$287 + 500 = 787$ *787 fans watched the game in total.* $200 + 500 = 700$ $87 + 700 = 787$	The use of base 10 blocks provides a representation of the place value of 3-digit numbers. This representation is related to the formal written method but also encourages pupils to use their understanding of adding the same noun to add 3-digit numbers. For example, 200 + 500 can be understood as 2 hundreds + 5 hundreds. The sum of these numbers is 700 or 7 hundreds. Progression is made by adding ones, then tens and finally hundreds before the addition of all 3 is undertaken. An understanding of place value will support addition as well as subtraction, multiplication and division.

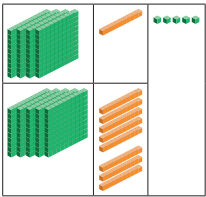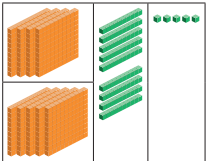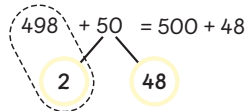| Year	Topic/Strand	Representation	Key Idea
Year 3	Formal Written Method	413 + 582 = � Step 1 Add the ones. 3 ones + 2 ones = 5 ones h t o 4 1 3 + 5 8 2 _____ 5 Step 2 Add the tens. 1 ten + 8 tens = 9 tens h t o 4 1 3 + 5 8 2 _____ 9 5 Step 3 Add the hundreds. 4 hundreds + 5 hundreds = 9 hundreds h t o 4 1 3 + 5 8 2 _____ 9 9 5 413 + 582 = 995	This procedural method progresses from the renaming of 10 ones into 1 ten to include the renaming of 10 tens to 1 hundred. The procedure remains unchanged from Year 2. Pupils understand that at this stage, they start with the addition of the ones, then the tens, then finally the hundreds. This method is supported with base 10 block representation. The formal written method is always accompanied by a written equation to ensure that the relationship between the representations is made.
Year 3	Adding by Making 100	$498 + 50 = $ ▯ $498 + 50 = 500 + 48$ $\quad\quad\diagup\quad\diagdown$ $\quad 2 \quad\quad 48$	Pupils are given the opportunity to further develop their number sense by using a 'make 100' strategy with numbers that are 'near hundreds'. They use their part–whole understanding to rename a given number to make 100. For example, $498 + 50$ can be renamed as $498 + 2 + 48$. Pupils add 2 to 498 to make 500, then add the remaining 48.

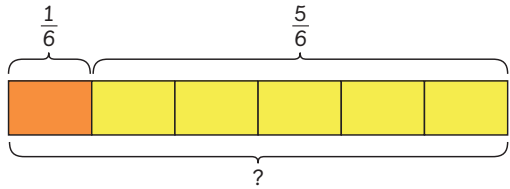| Year	Topic/Strand	Representation	Key Idea
Year 3	Estimating	I had 593 points. 593 is about 600. (Lulu) I had 695 points. 695 is about 700. (Sam) I had 498 points. 498 is about 500. (Hannah) $600 + 50 = 650$ $700 + 70 = 770$ $500 + 50 = 550$	Pupils use their number sense to recognise numbers close to a hundred and how estimation can help accuracy in completing a precise calculation.
Year 3	Adding Fractions	$\frac{1}{6}$ $\frac{5}{6}$? 1 sixth and 5 sixths make 6 sixths. $\frac{1}{6} + \frac{5}{6} = \frac{6}{6}$ $= 1$	Pupils use their understanding of adding the same noun when adding fractions with the same denominator. The adding of fractions uses equations and is supported through pictorial representation.

Addition Calculation Policy
Year 4

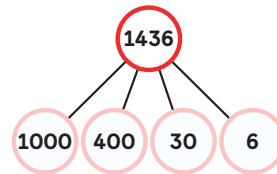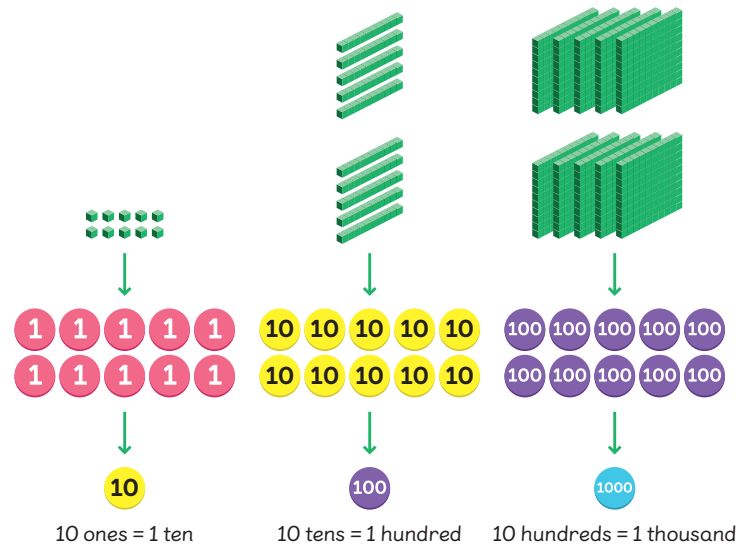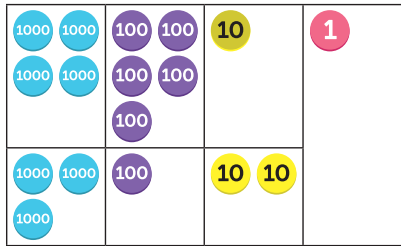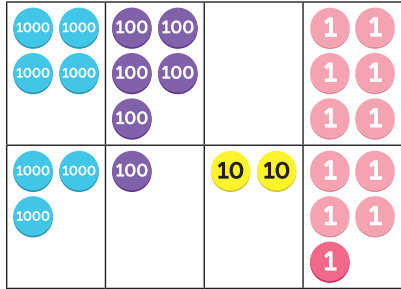| Year	Topic/Strand	Representation	Key Idea
Year 4	Part – Part – Whole	*A number can be expressed as a sum of the values of its digits.* 1436 = 1000 + 400 + 30 + 6 **1436** 1000 400 30 6	This is a mathematical structure that underpins all addition situations. Numbers can be understood in terms of their parts; understanding that the parts are part of a larger collection. The bar model is used as a representation of a problem that can be related to a part–whole addition situation. Pupils develop an understanding of the parts and the whole within an equation.
Year 4	Base 10 Blocks	1 1 1 1 1 1 1 1 1 1 **10** 10 ones = 1 ten 10 10 10 10 10 10 10 10 10 10 **100** 10 tens = 1 hundred 100 100 100 100 100 100 100 100 100 100 **1000** 10 hundreds = 1 thousand	The use of base 10 blocks provides a representation of the place value of 3-digit numbers. This representation is related to the formal written method but also encourages pupils to use their understanding of adding the same noun. In Year 4, a transition between base 10 blocks and place–value counters takes place.

Year	Topic/Strand	Representation	Key Idea
Year 4	**Place–Value Counters**	$4506 + 3125 = $ Step 1 Add the ones. 6 ones and 5 ones = 11 ones *Rename the ones.* 11 ones = 1 ten and 1 one $$\begin{array}{r} 4\ 5\ \overset{1}{0}\ 6 \\ +\ 3\ 1\ 2\ 5 \\ \hline 1 \end{array}$$	Place–value counters are used to represent addition situations. This transition relies on pupils understanding the value of each counter without being able to count its physical attributes. Pupils will have the opportunity to rename 10 counters of the same value to 1 counter with a value 10 times greater and vice versa. The idea of composing and decomposing at a rate of 10 should be well understood at this stage.

Year	Topic/Strand	Representation	Key Idea
Year 4	Formal Written Method	4188 + 3245 = ▢ 4 1 8 8 + 3 2 4 5 ─────── 1 3 Add the ones. 1 2 0 Add the tens. 3 0 0 Add the hundreds. + 7 0 0 0 Add the thousands. ─────── 7 4 3 3 2 6 1 2 + 4 2 6 4 ─────── 6 8 7 6	Pupils will have the opportunity to use a long and short version of this procedural method. In the long representation, the sum of adding each place is shown in its entirety before being added to find the final sum. In the short representation, the sum of each place is shown as part of the total sum and as a small number added to an existing place when a ten of one place is made. The procedure remains unchanged from Year 2.
Year 4	Estimating the Sum	Start by estimating. 4188 ≈ 4200 3245 ≈ 3200 4200 + 3200 = 7400 The answer will be about 7400.	Estimation is introduced as an approach to start a calculation. Estimation is a skill that helps develop number sense. Pupils are expected to be able to decide if an answer is reasonable. Beginning a calculation with estimation is developed during the addition chapter.
Year 4	Making 10 and Making 100	make 10 4072 + 8 = ▢ 4072 + 8 = 4070 + 10 4072 + 8 = 4080 make 100 97 + 5213 = ▢ 97 + 5213 = 100 + 5210 = 5310	A mental method that involves renaming numbers to make 10 or 100 before finding the sum. Pupils develop their number sense by recognising numbers close to a ten or close to a hundred and renaming a number in the equation to bring a number to the nearest 10 or nearest 100 without having to compensate the sum.

Maths — No Problem! Addition Calculation Policy | Year 4

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Year	Topic/Strand	Representation	Key Idea
Year 4	Adding Using Compensation	**1** Lulu used this method to find the sum of 3067 and 9. $3067 + 10 = 3077$ $3067 + 9 = 3076$ *1 less* *I know adding 9 is 1 less than adding 10.* **2** Ravi used this method to find the sum of 98 and 5262. $100 + 5262 = 5362$ $98 + 5262 = 5360$ *2 less* *I know adding 98 is 2 less than adding 100.*	A mental method that uses a similar equation in which a number in the original calculation is shown to the nearest 10 or 100 before carrying out the calculation. This calculation is used to help find the sum of the original equation.
Year 4	Adding Fractions	$$\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$$	Pupils use their understanding of adding the same noun when adding fractions with the same denominator. The adding of fractions uses equations and is supported through pictorial representation. Pupils use their understanding of equivalence to ensure denominators are the same before carrying out the addition.

Addition Calculation Policy
Year 5

Year	Topic/Strand	Representation	Key Idea
Year 5	Counting on Using Place–Value Counters	32 541 + 24 000 = ▭ Count on 4000 in 1000s. 32 541, 33 541, 34 541, 35 541, 36 541	Pupils use place–value counters to support counting on in thousands to find the sum.
Year 5	Counting on Using Number Lines	Count on 24 000 from 32 541. + 1000 + 1000 + 1000 + 1000 32 541 33 541 34 541 35 541 36 541 24 000 = 20 000 4000 32 541 + 4000 = 36 541 + 10 000 + 10 000 36 541 46 541 56 541 36 541 + 20 000 = 56 541 32 541 + 24 000 = 56 541	Pupils count in thousands and ten thousands, using a number line to show this counting on method.

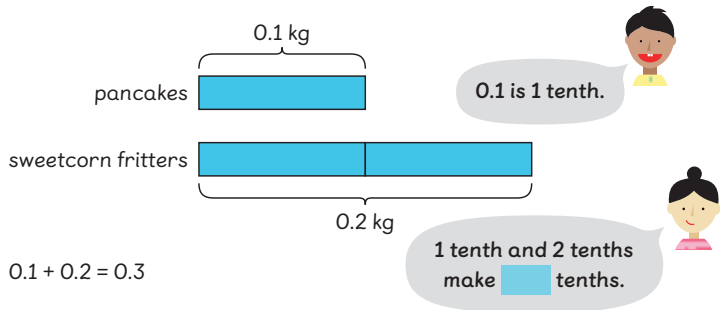| Year	Topic/Strand	Representation	Key Idea
Year 5	**Formal Written Method**	5 thousands + 7 thousands = 12 thousands 12 thousands = 1 ten thousand + 2 thousands $15\,000 + 17\,000 = 32\,000$	Place–value counters are used to represent the formal written method. The procedure remains unchanged from Year 2.
Year 5	**Adding Fractions**	Add $\frac{1}{2}$, $\frac{1}{6}$ and $\frac{3}{12}$. $\frac{1}{2}$　$\frac{1}{6}$　$\frac{3}{12}$ $\frac{1}{2} + \frac{1}{6} + \frac{3}{12} = \frac{6}{12} + \frac{2}{12} + \frac{3}{12}$ $= \frac{11}{12}$	Pupils use their understanding of adding the same noun when adding fractions with the same denominator. The adding of fractions uses equations and is supported through pictorial representation. Pupils use their understanding of equivalence to ensure denominators are the same before carrying out the addition.

Year	Topic/Strand	Representation	Key Idea
Year 5	Adding Decimals	0.1 kg pancakes sweetcorn fritters 0.2 kg 0.1 + 0.2 = 0.3 0.1 is 1 tenth. 1 tenth and 2 tenths make ☐ tenths.	Pupils use their understanding of adding the same nouns when adding tenths. Tenths are represented using bar models, written words and equations.
Year 5	Adding Decimals Using the Formal Written Method	$$\begin{array}{r} £\overset{1}{1}.80 \\ +£0.70 \\ \hline £2.50 \end{array}$$	The procedure for adding decimals using a formal written method is the same as when adding whole numbers, but attention needs to be given to the decimal point. The decimal point does not represent a place but separates the whole from the fractional part of a number. Careful alignment is needed when adding decimal numbers using a formal written method.

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Addition Calculation Policy
Year 6

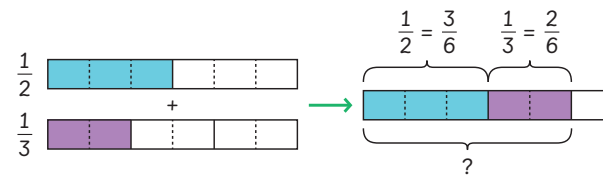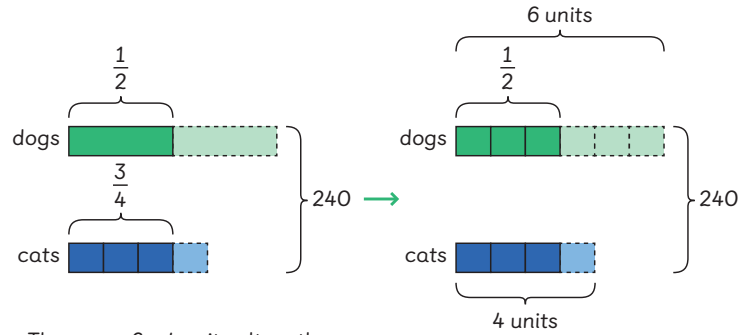| Year	Topic/Strand	Representation	Key Idea
Year 6	Addition within Order of Operations	First, carry out all the operations in ( ). Next, perform all the multiplication and division. Then, calculate all the addition and subtraction. Calculate. (a) $(1 + 3) \times 5 - 7 =$ ▮ (b) $1 + (3 \times 5) - 7 =$ ▮ (c) $(1 + 3) \times (7 - 5) =$ ▮	Pupils utilise the previous addition skills within mixed operation equations. Addition is carried out after multiplication and division. If only addition and subtraction are present in an equation, pupils work from left to right.
Year 6	Adding Fractions	 $\frac{1}{2} + \frac{1}{3} = \frac{5}{6}$	Pupils use their understanding of adding the same noun when adding fractions with the same and different denominators. Pupils use their understanding of equivalence to ensure the nouns and the denominators are the same before the calculation is completed.
Year 6	Adding Decimals	$$£\overset{1}{}3\,.\,9\,0$$ $$+\ £\ 2\,.\,5\,0$$ $$\overline{£\ 6\,.\,4\,0}$$	Pupils use their understanding of adding the same nouns when adding decimal numbers. They use place–value knowledge and composing and decomposing at a rate of 10 when adding decimals. The procedure remains the same as adding whole numbers.

Year	Topic/Strand	Representation	Key Idea
Year 6	**Bar Models**	There are 6 + 4 units altogether. 10 units = 240 1 unit = 24	Pupils are expected to utilise previously learned addition skills within increasingly complex situations. The procedure of addition is often at a level previously learned in isolation but the skill being developed is identifying when to use addition within a problem.