



Year 4 Maths Calculation Policy



Addition



Year 4	 Add numbers with up to 4 digits using a formal written method. Solve simple measure and money problems involving fractions and decimals to 2 decimal places. Add fractions with the same denominator. 		
Progression of skills	Key representations		
Add 1s, 10s and 100s to a 4-digit number Emphasis on mental strategies including number bonds and related facts. Prompt children to notice which digit changes.	The ones/tens/hundreds/thousands column will increase by Thousands Hundreds Tens Ones Thou	What patterns do you notice? 2,350 + 3 = 2,350 + 30 = 2,350 + 300 = 2,350 + 3,000 = 6,040 + 200 = 6,040 + 500 = 6,040 + 900 = 2,211 + = 2,215 2,211 + = 2,511	
Add up to two 4-digit numbers Formal written method with up to 3 exchanges. Encourage children to estimate and use inverse operations to check answers to calculations.	do/do not need to make an exchange.	Th H T O Th H T O Th H T O 4 6 7 3 + 1 5 1 8 6 1 9 1	

Addition



Progression of skills	Key representations	
Add decimal numbers in the context of money	pence + pence = pence pounds + pounds = pounds	£3.25 can be partitioned into £3 + 20p + 5p
Emphasis on partitioning and use of number lines rather than formal written calculations.	45p + 25p = 70p £2 + £3 = £5 £5 + 70p = £5.70	£2.45 £5.45 £5.65 £5.70
Add fractions and mixed numbers with the same denominator beyond 1 whole	When adding fractions with the same den fifths $+$ fifths $=$ fifths $\frac{3}{5} + \frac{4}{5} = \frac{7}{5} = 1\frac{2}{5}$	ominator, I only add the numerator. $\frac{+\frac{3}{5}}{0}$

Subtraction



Year 4	 Subtract numbers with up to 4 digits using a formal written method. Solve simple measure and money problems involving fractions and decimals to 2 decimal places. Subtract fractions with the same denominator. 		
Progression of skills	Key representations		
Subtract 1s, 10s, 100s and 1,000s from a 4-digit number Emphasis on mental strategies including number bonds and related facts. Prompt children to notice which digit changes.	The ones/tens/hundreds/thousands column will decrease by Thousands Hundreds Tens Ones Thousands Hundreds Tens Ones 3,425 - 2 = 3,425 - 200 = 3,425 - 2,000 =	What patterns do you notice? 4,356 - 3 = 4,356 - 30 = 4,356 - 300 = 4,356 - 3,000 = 6,940 - 200 = 6,940 - 300 = 6,940 - 300 = 6,940 - 400 = 4,433 - 4,433 -	
Subtract up to two 4-digit numbers Formal written method with up to 3 exchanges. Encourage children to estimate and use inverse operations to check answers to calculations.	I need to subtract ones/tens/hundreds. I do	t T O	

Subtraction



Progression of skills	Key representations	
Subtract decimal numbers in the context of money Emphasis here is on	I can partition £ into £ and 100p $f f = f$ $100pp =p$	£3.26 can be partitioned into £3 + 20p + 6p
partitioning and use of number lines rather than formal written calculations.	£5 - £3.26 £4 - £3 = £1 100p - 26p = 74p £5 - £3.26 = £1.74	- 6p - 20p - £3 £1.74 £1.80 £2 £5
Subtract fractions and mixed numbers with the same denominator Include subtracting fractions from wholes.	When subtracting fractions with the same de I only subtract the numerator tenths — tenths	nominator, 2 5 6
from wholes.	$\frac{16}{10} - \frac{5}{10}$ $\frac{16}{10} - \frac{9}{10}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$



Year 4	 Recall multiplication facts for multiplication tables up to 12 × 12 Use place value, known and derived facts to multiply mentally, including: multiplying by 0 and 1; multiplying together three numbers. Recognise and use factor pairs and commutativity in mental calculations. Multiply two-digit and three-digit numbers by a one-digit number using formal written layout. Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects. 		
Progression of skills	Key representations		
Times-table facts to 12 × 12 Encourage daily counting in multiples both forwards and back. Encourage children to notice links between related times-tables.	groups of = times is equal to × = 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 71 72 73 74 75 76 77 78 79 80 72 73 74 75 76 77 78 79 80 73 74 75 76 77 78 79 80 74 75 76 77 78 79 80 75 75 75 75 75 75 75		
Multiply by 1 and 0	Any number multiplied by 1 is equal to Any number multiplied by 0 is equal to $1 \times 1 = 1$ $2 \times 1 = 2$ $2 \times 0 = 0$ $3 \times 1 = 3$ $3 \times 0 = 0$ $4 \times 1 = 4$ $4 \times 0 = 0$		



Progression of skills	Key representations		
Multiply 3 numbers Children use their understanding of commutativity to multiply more efficiently.	To work out \times , I can first calculate \times and then multiply the answer by $4 \times 2 \times 3 = 8 \times 3 = 24$ $2 \times 3 \times 4 = 6 \times 4 = 24$ $3 \times 4 \times 2 = 12 \times 2 = 24$		
Factor pairs Children explore equivalent calculations using different factors pairs.	$12 = \times, \text{ so } \times 12 = \times \times$ $8 \times 6 = 8 \times 3 \times 2$ $8 \times 6 = 24 \times 2$ $6 \times 8 = 6 \times 4 \times 2$ $6 \times 8 = 24 \times 2$		
Multiply by 10 and 100 Some children may overgeneralise that multiplying by 10 or 100 always results in adding zeros. This will cause issues later when multiplying decimals.	When I multiply by 10, the digits move place value column to the left is 10 times the size of The Heavisian of the left of		



Progression of skills	Key representations	
Related facts Use knowledge of multiplying by 10 and 100 to scale times-table facts.	× ones is equal to ones so × tens is equal to tens and × hundreds is equal to hundreds.	
	$3 \times 7 = 21$ $7 \times 3 = 21$ $7 \times 30 = 210$ $7 \times 30 = 2,100$	
Mental strategies	tens multiplied by is equal to tens.	
Partition 2 or 3-digit numbers to multiply using informal methods.	ones multiplied by is equal to ones. Tens Ones 26 20 $3 \times 26 = 60 + 18 = 78$ 20 $3 \times 26 = 60 + 18 = 78$ $3 \times 26 = 60 + 18 = 78$ $3 \times 26 = 60 + 18 = 78$ $3 \times 26 = 60 + 18 = 78$ $3 \times 26 = 60 + 18 = 78$ $3 \times 26 = 60 + 18 = 78$ $3 \times 26 = 60 + 18 = 78$ $3 \times 26 = 60 + 18 = 78$ $3 \times 26 = 60 + 18 = 78$	



Progression of skills	Key representations				
Multiply a 2 or 3-digit number by a 1-digit number	To multiply a 2-digit number by, I multiply the ones by and the tens by To multiply a 3-digit number by, I multiply the ones by, the tens by and the hundreds by				
The short multiplication method is introduced for the first time, initially in an expanded form.	T 0 H T 0 3 4 X 5 5 X 5 X 5 X 1 5 X		H T O 3 4 5 1 7 O 1 2		
Scaling	is times the size of				
Children focus on multiplication as scaling (times the size).	7 7 7 7 7 7 7 7 A Computer mouse costs £7 A keyboard costs 6 times as much. A computer mouse costs £7 A yellow ribbon is 7 times as long.				
Correspondence problems	For every, there are possibilities.				
	There are × possibilities altogether.		Deep pan	Italian	Thin
Encourage children to use		Cheese	C DP	СІ	C Th
tables to show all the	A pizza company offers a choice	Mushroom	M DP	МІ	M Th
different possible	of 5 toppings and 3 bases.	Vegetable	V DP	۷I	V Th
combinations.		Chicken	C DP	СІ	C Th
	$5 \times 3 = 15$	Tuna	T DP	TI	T Th

Division



Year 4	 Recall division facts for multiplication tables up to 12 × 12 Use place value, known and derived facts to divide mentally, including: dividing by 1 Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths. 		
Progression of skills	Key representations		
Division facts to 12 × 12 Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.	There are groups of in	has been shared equally into equal groups \div $=$ $ 2 \times 6 = 12 $ $ 12 \div 6 = 2 $	
Divide a number by 1 and itself Children may try to divide a number by zero and it should be highlighted that this is not possible.	When I divide a number by 1, the number remains the same. 5 shared between 1 is 5 There are 5 groups of 1 in 5	When I divide a number by itself, the answer is 1 5 shared between 5 is 1 There is 1 group of 5 in 5	

Division



Progression of skills	Key representations	
Related facts Link to known times-table facts.	÷ is equal to so tens ÷ is equal to tens and hundreds ÷ is equal to hundreds.	
		$21 \div 7 = 3$ $21 \div 3 = 7$ $210 \div 7 = 30$ $210 \div 3 = 70$ $2,100 \div 7 = 300$ $2,100 \div 3 = 700$
Divide a 2 or 3-digit number by a 1-digit number Progress from divisions with no exchange, to divisions with exchange and then	I can partition into tens and ones. $80 \div 4 = 20$ $4 \div 4 = 1$ $80 \div 4 = 21$	I cannot share the hundreds/tens equally, so I need to exchange 1 for 10 $300 \div 3 = 100$ $120 \div 3 = 40$ $15 \div 3 = 5$ $435 \div 3 = 145$
divisions with remainders.	Tens Ones 10 10 10 10 10 10 10 10 10 10 10 10 10 1	Hundreds Tens Ones Ones

Division



Progression of skills	Key representations			
Divide by 10 and 100 Encourage children to	When I divide by 10, the digits move 1 place value column to the right is one-tenth the size of	When I divide by 100, the digits move 2 place value columns to the right is one-hundredth the size of		
notice that dividing by 100 is the same as dividing by 10 twice.	O Tth Hth T O Tth Hth	O Tth Hth T O Tth Hth		
	O Tth Hth T O Tth Hth	O Tth Hth T O Tth Hth		
	$2 \div 10 = 0.2$ $12 \div 10 = 1.2$	$2 \div 100 = 0.02$ $12 \div 100 = 0.12$		