Ellwood Community Primary School

Believe, Achieve, Belong
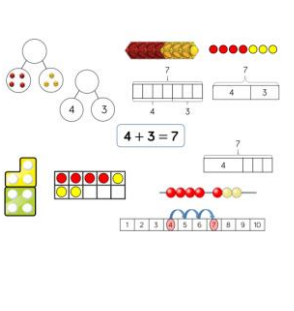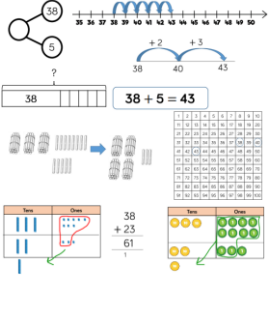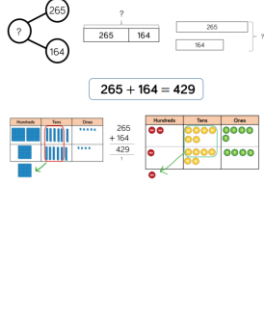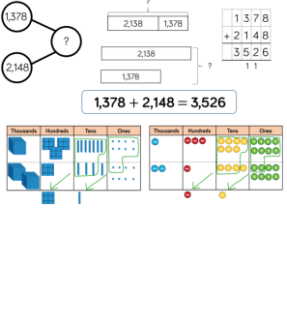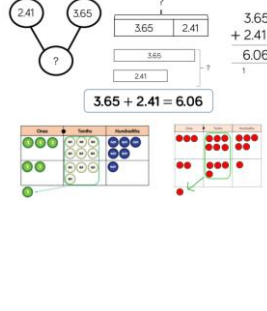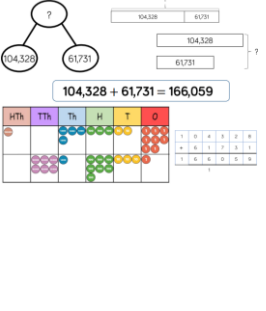

Calculation Policy
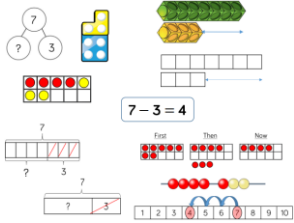
Date reviewed: April 2023

Next renew date: April 2024

Addition

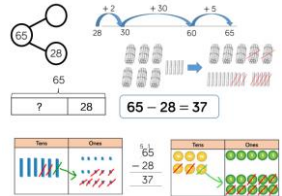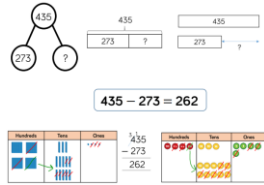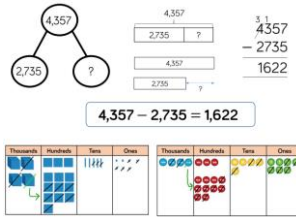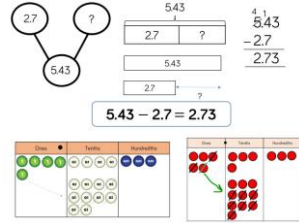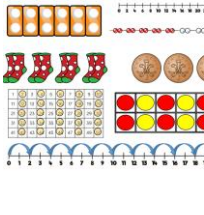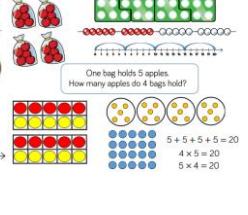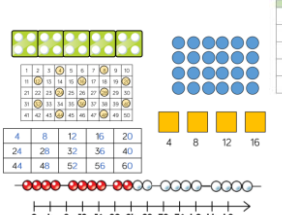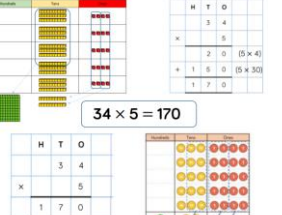|						
Written Methods	Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs		Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction 423 +88 <u>511</u>	Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition where appropriate 2458 +596 <u>3054</u>	Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) 23454 + 596 <u>24050</u>	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
Developing conceptual understanding						
With jottings **... or in your head**	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = _ − 9	Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: * a two-digit number and ones * a two-digit number and tens * two two-digit numbers * adding three one-digit numbers	Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: *a three-digit number and ones *a three-digit number and tens *a three-digit number and hundreds	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	Add and subtract numbers mentally with increasingly large numbers	Perform mental calculations, including with mixed operations and large numbers
Just know it!	Represent & use number bonds and related subtraction facts within 20 Add and subtract one-digit and two-digit numbers to 20, including zero	Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100				

Year	1	2	3	4	5	6
	1 more	10 more Number bonds: 20, 12, 13	Add multiples of 10, 100	Add multiples of 10s, 100s, 1000s	Add multiples of 10s, 100s, 1000s, tenths,	Add multiples of 10s, 100s, 1000s, tenths, hundredths
	Number bonds: 5, 6	Number bonds: 14,15 Add 1 digit to 2 digit by bridging	Add single digit bridging through boundaries	Fluency of 2 digit + 2 digit	Fluency of 2 digit + 2 digit including with decimals	Fluency of 2 digit + 2 digit including with decimals
	Largest number first. Number bonds: 7, 8	Partition second number, add tens then ones	Partition second number to add Pairs of 100	Partition second number to add Decimal pairs of 10 and 1	Partition second number to add	Partition second number to add
	Add 10. Number bonds: 9, 10	Add 10 and multiples. Number bonds: 16 and 17	Use near doubles to add	Use near doubles to add	Use number facts, bridging and place value	Use number facts, bridging and place value
	Ten plus ones. Doubles up to 10.	Doubles up to 20 and multiples of 5 Add near multiples of 10	Add near multiples of 10 and 100 by rounding and adjusting	Adjust both numbers before adding Add near multiples	Adjust numbers to add	Adjust numbers to add
		Number bonds 18, 19 Partition and recombine	Partition and recombine	Partition and recombine	Partition and recombine	Partition and recombine

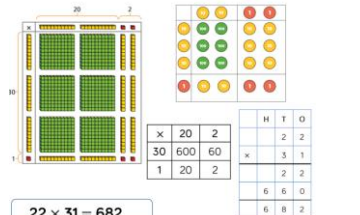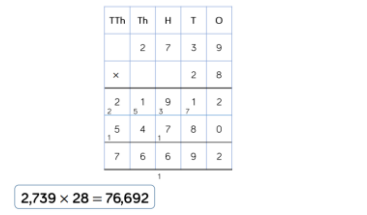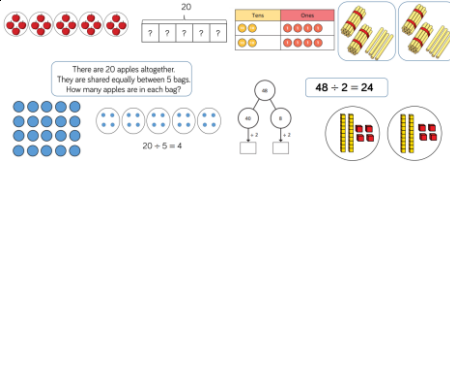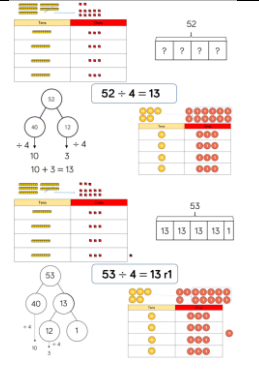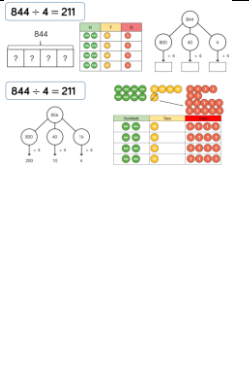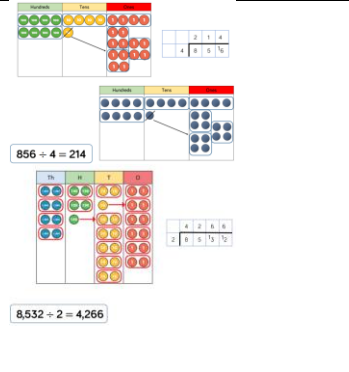# Subtraction

Written Methods	Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs		Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction 2 3 1 344 -187 157	Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition where appropriate 2344 - 187 2157	Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) 52344 - 1187 51157	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
Developing conceptual understanding	$7 - 3 = 4$	$65 - 28 = 37$	$435 - 273 = 262$	$4{,}357 - 2{,}735 = 1{,}622$	$5.43 - 2.7 = 2.73$	
With jottings **… or in your head**	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 =\ \_ - 9$	Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: * a two-digit number and ones * a two-digit number and tens * two two-digit numbers * adding three one-digit numbers	Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: *a three-digit number and ones *a three-digit number and tens *a three-digit number and hundreds	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	Add and subtract numbers mentally with increasingly large numbers	Perform mental calculations, including with mixed operations and large numbers
Just know it!	Represent & use number bonds and related subtraction facts within 20 Add and subtract one-digit and two-digit numbers to 20, including zero	Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100				
Year	**1**	**2**	**3**	**4**	**5**	**6**
	1 less	10 less Number bonds, subtraction: 20, 12, 13	Subtract multiples of 10, 100	Subtract multiples of 10s, 100s, 1000s	Subtract multiples of 10s, 100s, 1000s, tenths,	Subtract multiples of 10s, 100s, 1000s, tenths, hundredths
	Number bonds, subtraction: 5, 6	Number bonds, subtraction: 14,15 Subtract 1 digit from 2 digit by bridging	Subtract single digit by bridging through boundaries	Fluency of 2 digit - 2 digit	Fluency of 2 digit - 2 digit including with decimals	Fluency of 2 digit - 2 digit including with decimals
	Count back Number bonds, subtraction: 7, 8	Partition second number, count back tens in 10s then ones	Partition second number to subtract	Partition second number to subtract Decimal subtraction from 10 or 1	Partition second number to subtract	Partition second number to subtract
	Subtract 10. Number bonds, subtraction: 9, 10	Subtract 10 and multiples of 10. Number bonds, subtraction: 16 and 17	Difference between	Difference between	Difference between	Use number facts, bridging and place value
	Teens subtract 10.	Subtraction near multiples of 10	Subtract near multiples of 10 and 100 by rounding and adjusting	Subtract near multiples by rounding and adjusting	Adjust numbers to subtract	Adjust numbers to subtract
	Difference between.	Number bonds, subtraction: 18, 19 Difference between				Difference between

Multiplication

Written Methods		Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	Write and calculate mathematical statements for ÷ using the x tables they know progressing to formal written methods.	Multiply two-digit and three-digit numbers by a one-digit number using formal written layout 243 x 6 1458 ² ¹	Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers 243 x 36 1458 7290 8748 ¹	Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication 5172 x 38 41376 + 155160 196536 ¹ 5172 x 38 41376 151 + 155160 2 196536 ¹
Developing conceptual understanding			34 × 5 = 170		22 × 31 = 682	2,739 × 28 = 76,692
With jottings **… or in your head**	Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental methods	Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers Recognise and use factor pairs and commutativity in mental calculations	Multiply and divide numbers mentally drawing upon known facts Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers establish whether a number up to 100 is prime	Perform mental calculations, including with mixed operations and large numbers
Just know it!	Count in multiples of twos, fives and tens	Recall and use x and ÷ facts for the 2, 5 and 10 x tables, including recognising odd and even numbers.	Recall and use x and ÷ facts for the 3, 4 and 8 times tables.	Recall x and ÷ facts for x tables up to 12 x 12.	Recall prime numbers up to 19 know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers Recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³)	

Year	**1**	**2**	**3**	**4**	**5**	**6**
	Count in 2s	2 x table	Review 2x, 5x and 10x	4x, 8x tables	4x, 8x tables 100, 1000 times bigger	Multiplication facts up to 12 x 12
	Count in 10s	10 x table	4x table	3x, 6x and 12x tables	3x, 6x and 12x tables 10, 100, 1000 times smaller	Partition to multiply mentally
	Doubles up to 10	Doubles up to 20 and multiples of 5	Double two-digit numbers	Double larger numbers and decimals	Double larger numbers and decimals	Double larger numbers and decimals
	Count in 5s	5 x table	8 x table	9x tables	3x, 9x tables	
	Double multiples of 10	Count in 3s	3 x table	11x, 7 x tables	11x, 7 x tables Partition to multiply mentally	
	Count in 2s, 5s and 10s	2 x, 5 x and 10 x tables	6 x table or review others			

Division

Written Methods		Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	Write and calculate mathematical statements for ÷ using the x tables they know progressing to formal written methods.		Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context $194 \div 6$ $6\overline{)1\ 9\ ^12}$ 3 2 $192 \div 6 = 32$	
Developing conceptual understanding						
With jottings **… or in your head**	Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental methods	Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers Recognise and use factor pairs and commutativity in mental calculations	Multiply and divide numbers mentally drawing upon known facts Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	Perform mental calculations, including with mixed operations and large numbers
Just know it!	Count in multiples of twos, fives and tens	Recall and use x and ÷ facts for the 2, 5 and 10 x tables, including recognising odd and even numbers.	Recall and use x and ÷ facts for the 3, 4 and 8 times tables.	Recall x and ÷ facts for x tables up to 12 x 12.	Recall prime numbers up to 19 know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers	

Year	1	2	3	4	5	6
	Count back in 2s	Division facts (2 x table)	Review division facts (2x, 5x, 10x table)	Division facts (4x, 8x tables) 10 times smaller	Division facts (4x, 8x tables) 100, 1000 times smaller	Division facts (up to 12 x 12)
	Count back in 10s	Division facts (10 x table)	Division facts (4 x table)	Division facts (3x, 6 x, 12x tables)	Division facts (3x, 6 x, 12x tables) Partition to divide mentally	Partition to divide mentally
	Halves up to 10	Halves up to 20	Halve two-digit numbers	Halve larger numbers and decimals	Halve larger numbers and decimals	Halve larger numbers and decimals
	Count back in 5s	Division facts (5 x table)	Division facts (8 x table)	Division facts (3x, 9x tables)	Division facts (3x, 9x tables) 100, 1000 times smaller	
	Halve multiples of 10	Count back in 3s	Division facts (3 x table)	Division facts (11x, 7x tables)	Review division facts (11x, 7x tables) Partition decimals to divide mentally	
	How many 2s? 5s? 10s?	Review division facts (2x, 5x, 10x table)	Division facts (6 x table) or review others	Division facts (6x, 12x tables)	Review division facts (6x, 12x tables) Halve larger numbers and decimals	