

'Loving to Learn, Learning to Love'

Calculation Progression

EYFS Key Representations



Addition

Curriculum Expectation

Number

•Finds the total number of items in two groups by counting all of them.

 $\boldsymbol{\cdot}$ Says the number that is one more than a given number.

•Finds one more or one less from a group of up to five objects, then ten objects.

• In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting.

•Records, using marks that they can interpret and explain.

•Begins to identify own mathematical problems based on own interests and fascinations.

Early Learning Goal

Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer.



Subtraction

Curriculum Expectation

Number

•Uses the language of 'more' and 'fewer' to compare two sets of objects

•Finds one more or one less from a group of up to five objects, then ten objects.

• In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting.

•Records, using marks that they can interpret and explain.

•Begins to identify own mathematical problems based on own interests and fascinations.

Early Learning Goal

Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer.



Multiplication

Curriculum Expectation Early Learning Goal They solve problems, including doubling, halving and sharing.



Division

Curriculum Expectation Early Learning Goal They solve problems, including doubling, halving and sharing.



Year 1 to Year 6 Calculations

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Addition Pitch	read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs represent and use number bonds and related subtraction facts within 20 add and subtract one-digit and two-digit numbers to 20, including zero solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = -9.	Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures Applying their increasing knowledge of mental and written methods Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: * a two-digit number and ones * a two-digit numbers * adding three one-digit numbers * adding three one-digit numbers show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	Add and subtract numbers mentally, including: - a three-digit number and ones - a three-digit number and tens - a three-digit number and hundreds 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) Add and subtract numbers mentally with increasingly large numbers	Continue to embed year 5 addition and subtraction







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Subtraction	Pitch	read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs represent and use number bonds and related subtraction facts within 20 add and subtract one-digit and two-digit numbers to 20, including zero solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = -9.	Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures Applying their increasing knowledge of mental and written methods Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones a two-digit numbers adding three one-digit numbers Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing	Add and subtract numbers mentally, including: - a three-digit number and ones - a three-digit number and tens - a three-digit number and hundreds 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) Add and subtract numbers mentally with increasingly large numbers	Continue to embed year 5 addition and subtraction
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Multiplication	Pitch	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	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (*), division (÷) and equals (=) signs Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	Recal division multip Write mathe multip the m they l digit numbe progr methe	and use on facts on facts of and cal ematical offication ultiplica know, in humbers ers, usin essing t ods	e multip for th tables lculate and di tion ta cluding times ng ment o form	plication in a state in a state vision ibles the for tw one-d tal and al writ	on and and 8 for using hat vo- igit ten	recall multiplication and division facts for multiplication tables up to 12 × 12 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 two-digit and three	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 Multiply and divide numbers mentally drawing upon known facts 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	Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context Divide numbers up to 4 digits by a two-digit number using the
									muitipiy two-digit and three- digit numbers by a one-digit number using formal written layout	Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	a two-aigit number using the formal written method of short division where appropriate, interpreting remainders according to the context





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	Pitch	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	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (*), division (÷) and equals (=) signs Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables 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 and progressing to formal written methods	recall multiplication and division facts for multiplication tables up to 12 × 12 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 two-digit and three- digit numbers by a one-digit number using formal written layout	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 Multiply and divide numbers mentally drawing upon known facts 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 Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context
Division	Method	Halving $10 \div 2 = 5$ Sharing $6 \div 2 =$ Grouping $6 \div 2$ Units of the second sec	Sharing Objects $15 \div 3 = 5$ Grouping Objects $8 \div 2 =$ Bar Model $15 \div 3 =$ 15 O O D Inverse Use of times table knowledge and the inverse. Eg. 5 x 4 = 20 so 20 ÷ 4 = 5 $20 \div 5 = 4$	Sharing (Bar Model) $18 \div 3 =$	Sharing (Bar Model) $49 \div 7 =$ 49 0 0 0 0 0 0 0 0	Expanded Method - Clear Multiple 5 0 3 7 3 5 2 1 - 3 5 0 0 (500 x 7) - 2 1 - 2 1 (3 x 7) - 2 1 - 2 1 (3 x 7) 0 Expanded Method - Unclear Multiple 7 7 5 5 3 8 7 5 - 3 5 0 0 (700 x 5) - 3 5 0 (70 x 5) - 2 5 (5 x 5) 0 - 2 5 (5 x 5) - 2 5 (5 x 5)	Bus Stop 5 4 ÷ 6 = 1 8 1 8 1 3 5 ²4 1 1 1 2 5 6 84 Bus Stop converting Remainder to fractions 1 2 5 3 1 7 1 0 5 3 1 7 7 3 37 ?2 11 1



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