# St. Nicholas CE Primary Academy

# *Progression in*

# *Calculation*

| Addition and Subtraction | | | | | | |
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| EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Use the language of more and fewer to compare 2 sets of objects

Find the total number of 2 sets of objects by counting them all

Place numbers in order

Find 1 more or less than a given number up to 20

Use vocabulary involved with addition and subtraction

Record using marks they can explain | Represent and use number bonds and related subtraction facts (within 10)

Add and subtract one digit numbers (to 10), including zero.

Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.

Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations and missing number problems.

Represent and use number bonds and | Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100."
"Show that the addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.

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 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.

Estimate the answer to a calculation and use inverse operations to check answers.

Solve problems, including missing number problems, using number facts, place value, and more complex | Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.

Estimate and use inverse operations to check answers to a calculation.

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.

Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)

Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.

Solve addition and subtraction multi-step problems in contexts deciding which | Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why.

Perform mental calculations, including with mixed operations and large numbers.

Use their knowledge of the order of operations to carry out calculations involving the four operations.

Solve problems involving addition, subtraction, multiplication and division. |

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| | related subtraction facts within 20. Add and subtract one digit and two digit numbers to 20, including zero.<br><br>Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.<br><br>Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7= ? – 9<br><br>Add and subtract one digit and two digit numbers to 20, including zero<br><br>Solve one step problems that | Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.<br><br>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. | addition and subtraction. | | operations and methods to use and why. | Use estimation to check answers to calculations and determine in the context of a problem, an appropriate degree of accuracy. |

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| | involve addition and subtraction, using concrete objects and pictorial representations and missing number problems. | | | | | |

| Multiplication and Division | | | | | | |
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| EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Begin to solve problems involving doubling, halving and sharing

Record using marks they can explain | Count in multiples of twos, fives and tens.
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 times tables, including recognising odd and even numbers.

Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) sign.

Solve problems involving | Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.

Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) signs.

Solve problems involving multiplication and | Recall and use multiplication and division facts for multiplication tables up to 12 x 12.

Count in multiples of 7, 6, 9 and 1000
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.

Solve problems involving multiplying and adding, including using the | Multiply and divide numbers mentally drawing upon known facts.

Multiply and divide whole numbers by 10, 100 and 1000.
Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.

Recognise and use square numbers and cube numbers and the notation for squared (2) and cubed (3) | Multiply multi-digit number up to 4 digits by a 2 digit number using the formal written method of long multiplication.

Divide numbers up to 4 digits by a 2 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. |

| | | multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts.<br><br>Show that the multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. | division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in context.<br><br>Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.<br><br>Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objectives. | 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.<br><br>Recognise and use factor pairs and commutativity in mental calculations.<br><br>Multiply two digit and three digit numbers by a one digit number using formal written layout. | Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.<br><br>Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.<br><br>Establish whether a number up to 100 is prime and recall prime numbers up to 19.<br><br>Multiply numbers up to 4 digits by a one or two digit number using a formal written method, including long multiplication for 2 digit numbers. | Divide numbers up to 4 digits by a 2 digit number using the formal written method of short division, interpreting remainders according to context.<br><br>Perform mental calculations, including with mixed operations and large numbers.<br><br>Identify common factors, common multiples and prime numbers.<br><br>Use their knowledge of the order of operations to carry out calculations involving the four operations. |
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| | | | Write and calculate mathematical statements for multiplication and division using the multiplication tables they know, including for two-digit numbers times one-digit numbers, using mental and 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.<br><br>Solve problems involving addition and subtraction, multiplication and division and a combination of these, including understanding the use of the equals sign. | Solve problems involving addition, subtraction, multiplication and division.<br><br>Use estimation to check answers to calculations and determine in the context of a problem, an appropriate degree of accuracy. |