# St Stephen Churchtown Academy: **2023-2024**

## Subject: Maths- Progression Skills

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Black- taken from curriculum guidance (National Curriculum links, WRM Schemes of work, Development matters, Master the Curriculum

Blue- how CP in EYFS is building towards curriculum guidance (examples across all CP classrooms)

| Place Value **COUNTING** | | | | | | | |
|---|---|---|---|---|---|---|---|
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Link numerals and amounts<br>Understanding of numbers 1-6<br>Number of the week<br><br>Forward and backwards counting rhymes<br>Routine songs | Count objects, actions and sounds<br>To count beyond 10 | count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number | | count to and across 1000, forwards and backwards, beginning with 0 or 1, or from any given number | count backwards through zero to include negative numbers | interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero | use negative numbers in context, and calculate intervals across zero |
| Recite numbers past 5<br>Say one number for each item, in order<br><br>Number rhymes<br>Weekly number to write using rhymes | Count beyond 10, subitise to 4, maybe 5.<br><br>5 and 10s frames<br>Counting items<br>Book vote | count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens | count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward | count from 0 in multiples of 4, 8, 50 and 100; | count in multiples of 6, 7, 9, 25 and 1 000 | count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 | |

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| Beginning to sort numbers in to 5s (5 frames in self-registration, manipulatives- numecon on pegs) | | | | | | | |
| | Begin to recognise that each counting number is one more than the one before<br><br>Numberlines in all areas | given a number, identify<br>one more and one less | | find 10 or 100 more or<br>less than a given number | find 1 000 more or less than a given number | | |
| | | Place Value | | | **COMPARING NUMBERS** | | |
| Vocab- more and fewer of numbers<br><br>Ordering numbers to 5 | Compare numbers, estimate numbers of amounts and size (biggest/smallest), can recognise when two amounts are the same<br>Separate groups of numbers, understanding that the total is still the same | use the language of: equal to, more than, less than (fewer), most, least | compare and order numbers from 0 up to 100; use <, > and = signs | compare and order numbers up to 1 000 | order and compare numbers beyond 1 000<br><br>*compare numbers with the same number of decimal places up to two decimal places* (copied from Fractions) | read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers) | read, write, order and compare numbers up to 10 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers) |

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| | Items to sort | | | | | | |
| Place Value | | | **IDENTIFYING, REPRESENTING AND ESTIMATING NUMBERS** | | | | |
| Develop recognition of up to 3 objects, without having to count them (subitise)<br><br>5 frames, numecon on pegs, number of the week, number for registration, day/date, numberlines to 10 displayed | Subitise, link the number symbol with its cardinal number value,<br><br>Images and numbers alongside on display- pegs, maths area | identify and represent numbers using objects and pictorial representations including the number line | identify, represent and estimate numbers using different representations, including the number line | identify, represent and estimate numbers using different representations | identify, represent and estimate numbers using different representations | | |

| **Place Value**<br>**READING AND WRITING NUMBERS** (including Roman Numerals) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Experiment with their own symbols and marks as well as numerals<br><br>Reading and writing numbers 1-5<br><br>Number of the week, number formation rhymes<br><br>Numbers on pegs | link the number symbol with its cardinal number value,<br><br>Writing numbers- number formation rhymes | read and write numbers from 1 to 20 in numerals and words. | read and write numbers to at least 100 in numerals and in words | read and write numbers up to 1 000 in numerals and in words<br><br>*tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24hour clocks* (copied from Measurement) | read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value. | read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit (appears also in Comparing Numbers)<br><br>read Roman numerals to 1 000 (M) and recognise years written in Roman numerals. | read, write, order and compare numbers up to 10 000 000 and determine the value of each digit (appears also in Understanding Place Value) |
| Place Value<br>**UNDERSTANDING PLACE VALUE** | | | | | | | |
| | Explore the composition of numbers up to 10,<br>Explore partitioning numbers up to | | recognise the place value of each digit in a two-digit number (tens, ones) | recognise the place value of each digit in a threedigit number (hundreds, tens, ones) | recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) | read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers) | read, write, order and compare numbers up to 10 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers) |

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| | 10 in a range of ways<br><br>10 frames | | | | *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 units, tenths and hundredths* (copied from Fractions) | *recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents* (copied from Fractions) | *identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1 000 where the answers are up to three decimal places* (copied from Fractions) |

| Place Value | | | | | **ROUNDING** | | |
|---|---|---|---|---|---|---|---|
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | | | | | round any number to the nearest 10, 100 or 1 000 | round any number up to 1 000 000 to the nearest 10, 100, 1 000, 10 000 and 100 000 | round any whole number to a required degree of accuracy |
| | | | | | *round decimals with one decimal place to the nearest whole number* (copied from Fractions) | *round decimals with two decimal places to the nearest whole number and to one decimal place* (copied from Fractions) | *solve problems which require answers to be rounded to specified degrees of accuracy* (copied from Fractions) |
| | | | Place Value | | **PROBLEM SOLVING** | | |
| | | | use place value and number facts to solve problems | solve number problems and practical problems involving these ideas. | solve number and practical problems that involve all of the above and with increasingly large positive numbers | solve number problems and practical problems that involve all of the above | solve number and practical problems that involve all of the above |

| | | Addition and Subtraction | | | | NUMBER BONDS | |
|---|---|---|---|---|---|---|---|
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | Understand 1 more and 1 less than, understand the relationship between consecutive numbers, Recall number bonds for numbers 0-5, and some to 10.<br><br>Numberlines<br>Numecon<br>Counting on and back in number rhymes | represent and use number bonds and related subtraction facts within 20 | recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 | | | | |
| | | **Addition and Subtraction** | | | | **MENTAL CALCULATION** | |
| | | add and subtract onedigit and two-digit numbers to 20, including zero | add and subtract numbers using concrete objects, pictorial representations, and mentally, including:<br>* a two-digit number and ones<br>* a two-digit number and tens<br>* two two-digit numbers<br>* adding three one-digit numbers | add and subtract numbers mentally, including:<br>* a three-digit number and ones<br>* a three-digit | | add and subtract numbers mentally with increasingly large numbers | perform mental calculations, including with mixed operations and large numbers |

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| | | | | * number and tens<br>* a three-digit number and hundreds | | | |
| | | read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs<br>(appears also in Written Methods) | show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot | | | | use their knowledge of the order of operations to carry out calculations involving the four operations |

| **Addition and Subtraction** | | | **WRITTEN METHODS** | | | | |
|---|---|---|---|---|---|---|---|
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | | read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Mental Calculation) | | 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) | |
| **Addition and Subtraction** | | | **INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS** | | | | |
| | | | recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. | estimate the answer to a calculation and use inverse operations to check answers | estimate and use inverse operations to check answers to a calculation | use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy | use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. |

| **Addition and Subtraction** | | **PROBLEM SOLVING** | | | | | |
|---|---|---|---|---|---|---|---|
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | | 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:<br>* using concrete objects and pictorial representations, including those involving numbers, quantities and measures<br>* applying their increasing knowledge of mental and written methods | solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction | solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why | solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why | solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why |
| | | | *solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change* (copied from Measurement) | | | | Solve problems involving addition, subtraction, multiplication and division |

| **Multiplication and Division** | | | **MULTIPLICATION & DIVISION FACTS** | | | | |
|---|---|---|---|---|---|---|---|
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | *Recognition of groups of 5 and 10 through tens frame and resources- registration, numecon on pegs* | *count in multiples of twos, fives and tens* (copied from Number and Place Value) | *count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward* (copied from Number and Place Value) | *count from 0 in multiples of 4, 8, 50 and 100* (copied from Number and Place Value) | *count in multiples of 6, 7, 9, 25 and 1 000* (copied from Number and Place Value) | *count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000* (copied from Number and Place Value) | |
| | | | recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers | recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables | recall multiplication and division facts for multiplication tables up to 12 × 12 | | |
| | | **Multiplication and Division** | | | **MENTAL CALCULATION** | | |
| | | | | write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times onedigit numbers, using mental and progressing to formal written | 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 | multiply and divide numbers mentally drawing upon known facts | perform mental calculations, including with mixed operations and large numbers |

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| | | | | methods (appears also in Written Methods) | | | |
| | | | show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot | | recognise and use factor pairs and commutativity in mental calculations (appears also in Properties of Numbers) | multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 | *associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^{3}/_{8}$)* (copied from Fractions) |

| Multiplication and Division | | | WRITTEN CALCULATION | | | | |
|---|---|---|---|---|---|---|---|
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | | | 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 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 (appears also in Mental Methods) | multiply two-digit and three-digit numbers by a onedigit 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 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 one-digit number using the formal written method of short division and interpret remainders appropriately for the context | divide numbers up to 4-digits by a two-digit whole number using the formal written method of short division where appropriate for the context divide |

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| | | | | | | | 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 |
| | | | | | | | *use written division methods in cases where the answer has up to two decimal places* (copied from Fractions (including decimals)) |
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| Multiplication and Division | | PROPERTIES OF NUMBERS: MULTIPLES, FACTORS, PRIMES, SQUARE AND CUBE NUMBERS | | | | | |
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| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | | | | | recognise and use factor pairs and commutativity in mental calculations (repeated) | identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.<br>know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers<br>establish whether a number up to 100 is prime and recall prime numbers up to 19 | identify common factors, common multiples and prime numbers<br>*use common factors to simplify fractions; use common multiples to express fractions in the same denomination*<br>(copied from Fractions) |
| | | | | | | recognise and use square numbers and cube numbers, and the notation for squared ($^2$) and cubed ($^3$) | *calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm$^3$) and cubic metres (m$^3$), and extending to other units such as mm$^3$ and km$^3$*<br>(copied from Measures) |

| **Multiplication and Division** | | **ORDER OF OPERATIONS** | | | |
|---|---|---|---|---|---|
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | | | | | use their knowledge of the order of operations to carry out calculations involving the four operations |
| **Multiplication and Division** | | **INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS** | | | |
| | | *estimate the answer to a calculation and use inverse operations to check answers* (copied from Addition and Subtraction) | *estimate and use inverse operations to check answers to a calculation* (copied from Addition and Subtraction) | | use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy |

| **Multiplication and Division** | **PROBLEM SOLVING** | | | | |
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| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| 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 | solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts | 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 objects | 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 | solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes | solve problems involving addition, subtraction, multiplication and division |
| | | | | solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign | |
| | | | | solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates | *solve problems involving similar shapes where the scale factor is known or can be found* (copied from Ratio and Proportion) |

| Fractions – Including percentages and decimals | | **COUNTING IN FRACTIONAL STEPS** | | | |
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| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | *Pupils should count in fractions up to 10, starting from any number and using the1/2 and 2/4 equivalence on the number line (Non Statutory Guidance)* | count up and down in tenths | count up and down in hundredths | | |
| Fractions – Including percentages and decimals | | **RECOGNISING FRACTIONS** | | | |
| recognise, find and name a half as one of two equal parts of an object, shape or quantity | recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity | recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators | recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten | recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents (appears also in Equivalence) | |
| | | recognise that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10. | | | |
| recognise, find and name a quarter as one of four equal parts of an object, shape or quantity | | recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators | | | |

| Fractions – Including percentages and decimals | | COMPARING FRACTIONS | | | |
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| | | compare and order unit fractions, and fractions with the same denominators | | compare and order fractions whose denominators are all multiples of the same number | compare and order fractions, including fractions >1 |

| Fractions – Including percentages and decimals<br>COMPARING DECIMALS | | | | | |
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| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | | | compare numbers with the same number of decimal places up to two decimal places | read, write, order and compare numbers with up to three decimal places | identify the value of each digit in numbers given to three decimal places |
| **ROUNDING INCLUDING DECIMALS** | | | | | |
| | | | round decimals with one decimal place to the nearest whole number | round decimals with two decimal places to the nearest whole number and to one decimal place | solve problems which require answers to be rounded to specified degrees of accuracy |
| **EQUIVALENCE (INCLUDING FRACTIONS, DECIMALS AND PERCENTAGES)** | | | | | |
| | write simple fractions e.g. $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$. | recognise and show, using diagrams, equivalent fractions with small denominators | recognise and show, using diagrams, families of common equivalent fractions | identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths | use common factors to simplify fractions; use common multiples to express fractions in the same denomination |

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| | | | recognise and write decimal equivalents of any number of tenths or hundredths | read and write decimal numbers as fractions (e.g. 0.71 = 71/100)<br>recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents | associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3/8) |
| | | | recognise and write decimal equivalents to 1/4 ; 1/2 ; 3/4 | recognise the per cent symbol (%) and understand that per cent relates to "number of parts per hundred", and write percentages as a fraction with denominator 100 as a decimal fraction | recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. |

| Fractions – Including percentages and decimals | | **ADDITION AND SUBTRACTION OF FRACTIONS** | | | |
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| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | | add and subtract fractions with the same denominator within one whole (e.g. 5/7 + 1/7 = 6/7) | add and subtract fractions with the same denominator | add and subtract fractions with the same denominator and multiples of the same number<br>recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. 2/5 + 4/5 = 6/5 = 1 1/5) | add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions |

| Fractions – Including percentages and decimals | | **MULTIPLICATION AND DIVISION OF FRACTIONS** | | | |
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| | | | | multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams | multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. 1/4 × 1/2 = 1/8) |
| | | | | | multiply one-digit numbers with up to two decimal places by whole numbers |
| | | | | | divide proper fractions by whole numbers (e.g. 1/3 ÷ 2 = 1/6) |

| Fractions – Including percentages and decimals | | **MULTIPLICATION AND DIVISION OF DECIMALS** | | | |
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| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | | | | | multiply one-digit numbers with up to two decimal places by whole numbers |
| | | | 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 | | multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places |
| | | | | | identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places |
| | | | | | associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^{3}/_{8}$) |

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| | | | | | use written division methods in cases where the answer has up to two decimal places |
| Fractions – Including percentages and decimals | | **PROBLEM SOLVING** | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | | solve problems that involve all of the above | solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number | solve problems involving numbers up to three decimal places | |
| | | | solve simple measure and money problems involving fractions and decimals to two decimal places. | solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those with a denominator of a multiple of 10 or 25. | |

| Statements only appear in Year 6 but should be connected to previous learning, particularly fractions and multiplication and division Ratio and Proportion | | | | | |
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| | | | | | Year 6 |
| | | | | | solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts |
| | | | | | solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison |
| | | | | | solve problems involving similar shapes where the scale factor is known or can be found |
| | | | | | solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. |

| Algebra | | **EQUATIONS** | | | | | |
|---|---|---|---|---|---|---|---|
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | | *solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and* ***missing number problems*** *such as* *7 = □ - 9* (copied from Addition and Subtraction) | *recognise and use the inverse relationship between addition and subtraction and use this to check calculations and* ***missing number*** *problems.* (copied from Addition and Subtraction) | solve problems, *including* ***missing number*** *problems, using number facts, place value, and more complex addition and subtraction.* (copied from Addition and Subtraction)<br>*solve problems, including* ***missing number*** *problems, involving multiplication and division, including integer scaling* (copied from Multiplication and Division) | | *use the properties of rectangles to deduce related facts and find* ***missing lengths and angles*** (copied from Geometry: Properties of Shapes) | express missing number problems algebraically |
| | | | *recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100* (copied from Addition and Subtraction) | | | | find pairs of numbers that satisfy number sentences involving two unknowns |
| | | *represent and use number bonds and related subtraction facts within 20* (copied from Addition and Subtraction) | | | | | enumerate all possibilities of combin ations of two variables |

| Algebra | | | | | **FORMULAE** | | |
|---|---|---|---|---|---|---|---|
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | | | | | *Perimeter can be expressed algebraically as 2(a + b) where a and b are the dimensions in the same unit. (Copied from NSG measurement)* | | use simple formulae<br>*recognise when it is possible to use **formulae** for area and volume of shapes* (copied from Measurement) |
| Algebra | | | | | | **SEQUENCES** | |
| | | *sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening* (copied from Measurement) | *compare and sequence intervals of time* (copied from Measurement)<br>*order and arrange combinations of mathematical objects in patterns* (copied from Geometry: position and direction) | | | | generate and describe linear number sequences |

| **Measurement** | **COMPARING AND ESTIMATING** | | | | | | |
|---|---|---|---|---|---|---|---|
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Describe a sequence of events, including first, then.<br><br>Make comparisons between objects relating to size, length, weight and capacity<br><br>Height chart, vocabulary- tall and short, heavier, lighter, full, empty, half full,<br><br>nearly full, nearly empty<br><br>Today/yesterday, days of the week | Compare length, weight and capacity<br><br>Explore differences in size, length, weight and capacity<br><br>Find the longer/shorter, heavier or lighter, more or less. | compare, describe and solve practical problems for:<br>* lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half] * mass/weight [e.g. heavy/light, heavier than, lighter than]<br>* capacity and volume [e.g. full/empty, more than, less than, half, half full, quarter]<br>* time [e.g. quicker, slower, earlier, later] | compare and order lengths, mass, volume/capacity and record the results using >, < and = | | estimate, compare and calculate different measures, including money in pounds and pence (also included in Measuring) | calculate and compare the area of squares and rectangles including using standard units, square centimetres ($cm^2$) and square metres ($m^2$) and estimate the area of irregular shapes (also included in measuring)<br><br>estimate volume (e.g. using 1 $cm^3$ blocks to build cubes and cuboids) and capacity (e.g. using water) | calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed ($cm^3$) and cubic metres ($m^3$), and extending to other units such as $mm^3$ and $km^3$. |

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| song, timeline of photos, routines, | | | | | | | |
| | | sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] | compare and sequence intervals of time | compare durations of events, for example to calculate the time taken by particular events or tasks | | | |
| | | | | estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears | | | |

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| | | | | also in Telling the Time) | | | |

| **Measurement** | **MEASURING and CALCULATING** | | | | | | |
|---|---|---|---|---|---|---|---|
| **Nursery** | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | Clocks in display areas, | measure and begin to record the following: * **lengths and heights** * **mass/weight** * **capacity and volume** * **time** (hours, minutes, seconds**)** | choose and use appropriate standard units to estimate and measure **length/height** in any direction (m/cm); **mass** (kg/g); **temperature** (°C); **capacity** (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels | measure, compare, add and subtract: **lengths** (m/cm/mm); **mass** (kg/g); **volume/capacity** (l/ml) | estimate, compare and calculate **different measures,** including **money in pounds and pence** (appears also in Comparing) | use all four operations to solve problems involving measure (e.g. **length, mass, volume, money**) using decimal notation including scaling. | solve problems involving the calculation and conversion of **units of measure**, using decimal notation up to three decimal places where appropriate (appears also in Converting) |
| | | | | measure the **perimeter** of simple 2-D shapes | measure and calculate the **perimeter** of a rectilinear figure (including squares) in centimetres and metres | measure and calculate the **perimeter** of composite rectilinear shapes in centimetres and metres | recognise that shapes with the same areas can have different **perimeters** and vice versa |

| **Measurement** | | **MEASURING and CALCULATING** | | | | | |
|---|---|---|---|---|---|---|---|
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | Snack time-coins. | recognise and know the value of different denominations of **coins and notes** | recognise and use symbols for pounds **(£) and pence (p)**; combine amounts to make a particular value | add and subtract amounts of **money** to give change, using both £ and p in practical contexts | | | |
| | | | find different combinations of coins that equal the same amounts of money | | | | |
| | | | **solve simple problems** in a practical context involving addition and subtraction of money of the same unit, including giving change | | | | |
| | | | | | find the area of rectilinear shapes by counting squares | calculate and compare the area of squares and rectangles including using standard units, square centimetres ($cm^2$) and square metres ($m^2$) and estimate the area of irregular shapes | calculate the area of parallelograms and triangles |
| | | | | | | | calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres ($cm^3$) and cubic metres ($m^3$), and extending to other units [e.g. $mm^3$ and $km^3$] |

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| | | | | | | *recognise and use square numbers and cube numbers, and the notation for squared ( $^2$ ) and cubed ( $^3$ )* (copied from Multiplication and Division) | mm and km ].<br>recognise when it is possible to use formulae for area and volume of shapes |

| **Measurement** | | **TELLING THE TIME** | | | | | |
|---|---|---|---|---|---|---|---|
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| days of the week/months of the year songs, daily timetable display, vocabulary- nearly finished/finished | | tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. | tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times. | tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks | read, write and convert time between analogue and digital 12 and 24-hour clocks (appears also in Converting) | | |
| | | recognise and use language relating to dates, including days of the week, weeks, months and years<br><br>, | know the number of minutes in an hour and the number of hours in a day. (appears also in Converting) | estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears also in Comparing and Estimating) | | | |

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| | | | | | solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days (appears also in Converting) | solve problems involving converting between units of time | |

| **Measurement** | | **CONVERTING** | | | |
|---|---|---|---|---|---|
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | know the number of minutes in an hour and the number of hours in a day.<br>(appears also in Telling the Time) | know the number of seconds in a minute and the number of days in each month, year and leap year | convert between different units of measure (e.g. kilometre to metre; hour to minute) | convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) | use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places |
| | | | read, write and convert time between analogue and digital 12 and 24-hour clocks<br>(appears also in Converting) | solve problems involving converting between units of time | solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate<br>(appears also in Measuring and Calculating) |
| | | | solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days<br>(appears also in Telling the Time) | understand and use equivalences between metric units and common imperial units such as inches, pounds and pints | convert between miles and kilometres |

| | | Geometry (Property of Shape | | | **IDENTIFYING SHAPES AND THIER PROPERTIES** | | |
|---|---|---|---|---|---|---|---|
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| 2d Shape of the week, shadows across all EYFS/areas | Select, rotate and manipulate shapes in order to develop spatial reasoning skills, Compose and decompose shapes so that understanding that shapes can be within shapes (like numbers) Talk about and compare 2d and 3d shape, Partition and combine shapes to make new shapes | recognise and name common 2-D and 3-D shapes, including:<br>* 2-D shapes [e.g. rectangles (including squares), circles and triangles]<br>* 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres].<br>, | identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line | | identify lines of symmetry in 2-D shapes presented in different orientations | identify 3-D shapes, including cubes and other cuboids, from 2-D representations | recognise, describe and build simple 3-D shapes, including making nets (appears also in Drawing and Constructing) |
| | | | identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces | | | | illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius |
| | | | identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] | | | | |
| Geometry (Property of Shape | | | | **DRAWING AND CONSTRUCTING** | | | |
| Select shapes for building<br><br>Blocks in building area, range of building | Show awareness of shape similarities and differences | | | draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D | complete a simple symmetric figure with respect to a specific line of symmetry | draw given angles, and measure them in degrees<br>°<br>( ) | draw 2-D shapes using given dimensions and angles |

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| equipment-wooden blocks | between objects | | | shapes in different orientations and describe them | | | |
| | | | | | | | recognise, describe and build simple 3-D shapes, including making nets (appears also in Identifying Shapes and Their Properties) |

| Geometry (Property of Shape | | COMPARING AND CLASSIFYING | | | | | |
|---|---|---|---|---|---|---|---|
| Nursery | Receptiom | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Sorting of small animals/vehicles in to groups of colour/size/shape | | | compare and sort common 2-D and 3-D shapes and everyday objects | | compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes | use the properties of rectangles to deduce related facts and find missing lengths and angles | compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons |
| | | | | | | distinguish between regular and irregular polygons based on reasoning about equal sides and angles | |
| | | ANGLES | | | | | |
| | | | | recognise angles as a property of shape or a description of a turn | | know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles | |
| | | | | identify right angles, recognise that two right angles make a halfturn, three make three | identify acute and obtuse angles and compare and order angles up to two right angles by size | identify:<br>* angles at a point and one o hole turn (total 360 ) * angles at a point on a straight o ine and ½ a turn (total 180 ) | recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles |

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| | | | | quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle | | * other multiples of 90° | |
| | | | | identify horizontal and vertical lines and pairs of perpendicular and parallel lines | | | |

| Geometry: Position and Direction | | | | **POSITION, DIRECTION AND MOVEMENT** | | | |
|---|---|---|---|---|---|---|---|
| Nursery | Reception | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| Positional language- on and under, in and out, in front of and behind through stories and songs,<br><br>Understand position through vocabulary, Describe a familiar route, | | describe position, direction and movement, including half, quarter and three-quarter turns. | use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise) | | describe positions on a 2-D grid as coordinates in the first quadrant | identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed | describe positions on the full coordinate grid (all four quadrants) |
| | | | | | describe movements between positions as translations of a given unit to the left/right and up/down | | draw and translate simple shapes on the coordinate plane, and reflect them in the axes. |
| | | | | | plot specified points and draw sides to complete a given polygon | | |
| Geometry: Position and Direction | | | | **PATTERN** | | | |
| AB patterns through paint and patterns, ABC colour patterns, | Spot patterns in the environment<br>Continue, copy and create repeating patterns.<br>Explore and add to linear patterns | | order and arrange combinations of mathematical objects in patterns and sequences | | | | |

| Statistics | **INTERPRETING, CONSTRUCTING AND PRESENTING DATA** | | | | |
|---|---|---|---|---|---|
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| | interpret and construct simple pictograms, tally charts, block diagrams and simple tables | interpret and present data using bar charts, pictograms and tables | interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs | complete, read and interpret information in tables, including timetables | interpret and construct pie charts and line graphs and use these to solve problems |
| | ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity | | | | |
| | ask and answer questions about totalling and comparing categorical data | | | | |
| Statistics | | **SOLVING PROBLEMS** | | | |
| | | solve one-step and twostep questions [e.g. 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables. | solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. | solve comparison, sum and difference problems using information presented in a line graph | calculate and interpret the mean as an average |