

‘Let all that you do be done in love’
1 Corinthians 16:14

**Love Hope Perseverance Thankfulness Forgiveness Trust**

**ALL SAINTS UPTON NATIONAL CURRICULUM**

**MATHEMATICS PROGRESSION AND COVERAGE DOCUMENT**

**UPDATED JUNE 2023**

**At All Saints Upton we follow the White Rose maths scheme, which takes a small steps approach to mastery teaching. All children access this maths curriculum. We develop fluency, reasoning and problem solving skills through daily practice. We support fluency and automaticity through Times Tables Rock Stars and Fluent in 5; an additional daily fluency session.**

**This document shows where each area of the National Curriculum is first taught in our scheme. It is then re-visited and embedded many times each year as children progress through the school. The EYFS Early Learning Goals are at the start of this document. We also use the Mastering Number program in EYFS to embed number knowledge.**

**Early Years Foundation Stage Early Learning Goals for maths**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Number** | * deep understanding of number to 10, including the composition of each number
 | * Subitise up to 5
 | * Automatically recall number bonds up to 5 including subtraction facts
 | * Automatically recall some number bonds to 10, including double facts.
 |
| **Numerical Patterns** | * Verbally count beyond 20, recognising the pattern of the counting system
 | * Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity
 | * Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally
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| --- | --- | --- | --- | --- | --- | --- |
|  | **YEAR 1** | **YEAR 2** | **YEAR 3** | **YEAR 4** | **YEAR 5** | **YEAR 6** |
| **Place value: Counting** | * Count to and across 100, forwards and backwards beginning with 0 or 1 or from any given number
* Count numbers to 100 in numerals; count in multiples of 2s, 5s and 10s
 | * Count in steps of 2, 3 and 5 from 0 and in tens from any number forwards and backwards
 | * Count from 0 in multiples of 4,8,50 and 100
* Find 10 or 100 more or less than a given number
 | * Count in multiples of 6,7,9,25 and 1000
* Count backwards through zero to include negative numbers
 | * Count forwards or backwards in steps of powers of 10 for any given number up to one million
* Count with positive and negative whole numbers through zero
 |  |
| **Place value: Represent** | * Identify and represent numbers using objects and pictures
* Read and write numbers to 100 in numerals
* Read and write numbers from 1-20 in words
 | * Read/write numbers to at least 100 in numerals and words
* Identify, represent and estimate numbers using different representations including the number line
 | * Identify, represent and estimate numbers using different representations
* Read and write numbers to 1000 in numerals and words
 | * Identify, represent and estimate numbers using different representations
* Read Roman Numerals to 100 and know that the system has changed to include 0 and place value
 | * Read, write, order and compare numbers to at least 1 million and determine the value of each digit
* Read Roman numerals to 1000 (M) and recognise years written in Roman Numerals
 | * Read, write, order and compare numbers up to 10 million and determine the value of each digit
 |
| **PV: Use and compare** | * Given a number, identify one more or one less
 | * Recognise PV of each digit in a two-digit number
* Compare and order numbers from 0 up to 100, use < > and = signs
 | * Recognise PV of each digit in a 3-digit number
* Compare and order numbers up to 1000
 | * Find 1000 more or less than a given number
* Recognise PV of each digit in a 4-digit number
* Order and compare numbers beyond 1000
 | * Read, write, order and compare numbers to at least 1 million and determine the value of each digit
 | * Read, write, order and compare numbers up to 10 million and determine the value of each digit
 |
|  | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| **PV: Problem solving and rounding** |  | * Use place value and number facts to solve problems
 | * Solve number problems and practical problems involving these ideas
 | * Round any number to the nearest 10, 100 or 1000
* Solve number and practical problems that involve all of the above and increasingly large numbers
 | * Interpret negative numbers in context
* Round any number up to 1 million to the nearest 10, 100, 1000, 10 000 and 100 000
 | * Round any whole number to a required degree of accuracy
* Use negative numbers in context and calculate intervals across zero
* Solve problems that involve all of the above
 |
| **Add and subtract:** **Recall, represent, use** | * Read, write and interpret mathematical statements involving + - and = signs
* Represent and use number bonds and related subtraction facts within 20
 | * Recall and use + and – facts to 20 fluently and derive and use related facts up to 100
* Show that addition of 2 numbers can be done in any order (commutative) and subtraction cannot.
* Recognise and use the inverse and use to check calculations and solve missing number problems
 | * Estimate the answer to a calculation and use the inverse to check answers
 | * Estimate and use inverse operations to check answers in a calculation
 | * Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
 |  |
|  | **Y1** | **Y2** | **Y3** | **Y4** | **Y5** | **Y6** |
| **Add and subtract: Calculations** | * Add and subtract 1 and 2 digit numbers to 20 including zero
 | * Add and subtract numbers using concrete, pictorial and mentally including 2 digit and ones, 2 digit and tens, two 2 digits, three 1 digit numbers
 | * Add and subtract mentally- 3-digit number and ones, 3-digit number and tens, 3-digit number and hundreds
* Add and subtract numbers with up to 3 digits using formal 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
* Add and subtract numbers mentally with increasingly large numbers
 | * Perform mental calculations, including with mixed operations and large numbers
* Use knowledge of order of operations to carry out calculations involving the four operations
 |
| **Add and subtract: Solve problems** | * Solve one step addition and subtraction problems, using concrete and pictorial representations and missing number problems such as 7 =? – 9
 | * Solve problems with addition and subtraction
* Use concrete and pictorial representations of numbers, quantities and measures
* Apply knowledge of mental and written methods
 | * Solve problems involving missing number problems, using number facts, place value and more complex addition and subtraction
 | * Solve addition and subtraction 2 step problems in context, deciding which operation to use and why
 | * Solve addition and subtraction multi step problems in context, deciding which operation to use and why
* Solve problems involving all 4 rules and a combination of these including understanding the meaning of the = sign
 | * Solve addition and subtraction multi step problems in context, deciding which operations and methods to use and why
 |
|  |  **Y1** | **Y2** | **Y3** | **Y4** | **Y5** | **Y6** |
| **Multiply and divide: recall, represent, use** |  | * Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables including recognising odd and even numbers
* Show that multiplication is commutative and division is not
 | * Recall and use multiplication and division facts for the 3, 4 and 8 x tables
 | * Recall multiplication and division facts up to 12 x 12
* Use place value, known and derived facts to multiply and divide mentally including x by 0 and 1, dividing by 1, x 3 numbers together
* Recognise and use factor pairs and commutativity in mental calculations
 | * Identify multiples and factors, find all factor pairs of a number and common factors.
* Know and use vocab of prime numbers, prime factors and composite numbers. Know prime numbers up to 19 and establish numbers up to 100 as prime
* Recognise and use square and cube numbers and their notation
 | * Identify common factors, common multiples and prime numbers
* Use estimation to check answers to calculations and determine an appropriate degree of accuracy
 |
| **Multiply and divide: Calculations** |  | * Calculate mathematical statements for multiplication and division within the multiplication tables and write them using x, - and =
 | Write and calculate mathematical statements for multiplication and division using the tables that they know including 2-digit x 1 digit using mental and progressing to formal written methods | * Multiply 2 digits and 3 digit numbers by a one-digit number using a formal written layout
 | * Multiply numbers up to 4 digits by a 1 or 2-digit number including long multiplication
* Multiply and divide numbers mentally using known facts
* Divide numbers up to 4 digits by 1 digit using short division and interpret remainders
* Multiply and divide whole numbers y 10, 100 and 1000
 | * Multiply up to 4 digits by 2 using formal and long multiplication
* Divide up to 4 digits by 2 using short and long division. Interpret remainders as whole or fractions or round as appropriate
* Perform mental calculations with mixed operations and larger numbers
 |
|  | **Y1** | **Y2** | **Y3** | **Y4** | **Y5** | **Y6** |
| **Multiply and divide: solve problems** | * Solve one step problems involving multiplication and division by calculating the answer using concrete objects, pictorial representations and arrays
 | * Solve problems (in context) involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts
 | * Solve problems including missing numbers, involving multiplication and division including scaling and correspondence problems in which n objects are connected to m.
 | * Solve problems involving multiplying and adding, inc using distributive law to multiply 2 digits by 1
* Integer scaling problems and correspondence problems where n are connected to m
 | * Solve problems of multiplication and division including knowledge of factors, multiples, squares and cubes
* Solve problems including scaling by simple fractions and involving simple rates
 | * Solve problems including addition, subtraction, multiplication and division
 |
| **Multiply and divide: combined operations** |  |  |  |  | * Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the = sign
 | * Use their knowledge of the order of operations to carry out calculations involving the four operations
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| **Fractions: Recognise and write** | * Recognise, find and name a half as one of two equal parts of an object, shape or quantity
* Recognise, find and name a quarter (4 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
 | * Count up and down in tenths, know that tenths arise from dividing into 10 equal parts. Divide 1 digit no’s or quantities by 10
* Recognise, find and write fractions of a set of objects, use and recognise fractions as numbers
 | * Count up and down in hundredths
* Recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten
 | * Identify, name and write equivalent fractions of a given fraction including tenths and hundredths
* Recognise mixed numbers and improper fractions and convert from one form to the other
* Write statements >1 as a mixed number e.g. $\frac{2}{5 }$ + $\frac{4}{5}=$ $\frac{6}{5}$ = $1\frac{1}{5}$
 |  |
|  | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| **Fractions: Compare** |  | * Recognise the equivalence of two quarters and one half
 | * Recognise and show, using diagrams, equivalent fractions with small denominators
* Compare and order unit fractions, and fractions with the same denominators
 | * Recognise and show, using diagrams, families of common equivalent fractions
 | * Compare and order fractions whose denominators are all multiples of the same number
 | * Use common factors to simplify fractions and use multiples to express fractions in the same denomination
* Compare and order fractions including fractions > 1
 |
| **Fractions: Calculations** |  | * Write simple fractions, for example $\frac{1}{2}$ of 6 = 3
 | * Add and subtract fractions with the same denominator within one whole ( for example $\frac{5}{7}$ + $\frac{1}{7}$ = $\frac{6}{7}$
 | * Add and subtract fractions with the same denominator
 | * Add and subtract fractions with the same denominator and denominators that are multiples of the same number
* Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams
 | * Add and subtract fractions with different denominators and mixed numbers using equivalent fractions
* Multiply simple pairs of proper fractions, writing answer in its simplest form
* Divide proper fractions by whole numbers
 |
| **Fractions: Solve problems** |  |  | * Solve problems that involve all of the above
 | * Solve problems involving fractions to calculate and divide quantities
 |  |  |
|  | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| **Decimals: Recognise and write** |  |  |  | * Recognise and write decimal equivalents of any number of tenths or hundredths
* Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2} $and $\frac{3}{4}$
 | * Read and write decimal numbers for fractions
* Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
 | * Identify the value of each digit in numbers given to 3 decimal places
 |
| **Decimals: Compare** |  |  |  | * Round decimals with 1 decimal place to the nearest whole number
* Compare numbers with the same number of decimal places up to 2dp
 | * Round decimals with 2dp to the nearest whole number and to one decimal place
* Read, write, order and compare numbers with up to 3 decimal places
 |  |
| **Decimals: Calculations and problems** |  |  |  | * Find the effect of dividing a 1 or 2-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths
 | * Solve problems involving number up to 3dp
 | * Multiply and divide by 10, 100, 1000 with answers up to 3dp
* Multiply 1 digit numbers with up to 2dp by whole numbers
* Use written division methods with answer up to 2dp
* Solve problems with rounding accurately
 |
|  | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| **Fractions, decimals and percentages** |  |  |  | * Solve simple measure and money problems involving fractions and decimals to two decimal places
 | * Recognise % symbol and understand it relates to ‘number of parts per hundred and write percentages as a fraction with denominator 100, and as a decimal
* Solve problems which require knowing % and decimal equivalents of $\frac{1}{2 }$,

 $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$ and $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25 | * Associate a fraction with division and calculate decimal fraction equivalents e.g. 0.375 for a simple fraction e.g. $\frac{3}{8}$
* Recall and use equivalences between fractions, decimals and percentages in different contexts
 |
| **Ratio and proportion** |  |  |  |  |  | * Solve problems involving relative size of quantities where values can be found by mult and div facts
* Problems involve calculating % and use of % for comparison
* Solve problems involving shapes where the scale factor is known
* Solve unequal sharing, grouping using fractions, multiples
 |
|  | **Y1** | Y2 | Y3 | Y4 | Y5 | Y6 |
| **Algebra** | * Missing number problems
* Solve one step problems using concrete objects and pictorial representations
 | * Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems
 | Solve problems involving missing number problemsNB- Algebraic thinking, without using the notation |  |  | * Use simple formulae
* Generate and describe linear number sequences
* Express missing number problems
* Find pairs of numbers that satisfy an equation
* Enumerate possibilities of combinations of two variables
 |
| **Measurement: Using measures** | * Compare, describe and solve practical problems for length and height, mass and weight, capacity and volume, time
* Measure and begin to record the following- length and height, mass/weight, capacity and volume, time (hours, minutes, seconds
 | * Choose and use appropriate standard units to measure length/ height ( m/cm) , mass ( kg/g), temperature ( $°$ C), capacity ( l,ml) to the nearest appropriate unit using equipment
* Compare and order lengths, mass, volume/capacity and record results using < > and =
 | * Measure, compare, add and subtract lengths (m/cm/mm), mass (kg/g), volume/capacity (l/ml)
 | * Convert between different units of measure (e.g. km to m, hour to minute)
* Estimate, compare and calculate different measures
 | * Convert between different units of metric measure (e.g. km and m; cm and m; cm and mm; g and kg; l and ml)
* Understand and use approximate equivalences between metric units and Common imperial units such as inches, lbs and pints
* Use all 4 operations to solve problems involving measure, including scaling
 | * Solve problems involving calculation and conversion of units using up to 3dp
* Use, read, write and convert between standard units converting from a smaller to larger unit and vice versa
* Convert between miles and kilometres
 |
|  | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| **Measurement: Money** | * Recognise and know the value of different denominations of coins and notes
 | * Recognise and use symbols for pounds and pence; combine amounts to make a particular value
* Find combinations of coins that equal the same amount
* Solve simple problems involving addition and subtraction of money of the same unit, including giving change
 | * Add and subtract amounts of money to give change using both £ and p in practical contexts
 | * Estimate, compare and calculate different measures, including money in pounds and pence
 | * Use all four operations to solve problems involving measure (for example, money)
 |  |
| **Measurement: Time** | * Sequence events in chronological order e.g. next, first, yesterday
* Recognise and use language relating to dates including days of the week, weeks, months and years
* Tell the time to the hour and half past and draw the hands on a clock face to show these times
 | * Compare and sequence intervals of time
* Tell and write the time to 5 minutes including quarter past/ to the hour and draw the hands on a clock face to show these times
* Know the number of minutes in an hour and the number of hours in a day
 | * Tell and write time from analogue and digital clocks Inc. Roman numerals and 12 and 24 hour
* Estimate and read time to the nearest minute; record and compare times in terms of seconds, minutes and hours
* Know sec in a min and days in each month, year and leap year
* Compare duration of events
 | * Read, write and convert time between analogue and digital 12 and 24-hour clocks
* Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days
 | * Solve problems involving converting between units of time
 | * Use, read, write and convert between standard units, converting measurements of time from a smaller unit of measure to a larger unit and vice versa
 |
|  | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| **Measurement: Perimeter, area and volume** |  |  | * Measure the perimeter of simple 2-D shapes
 | * Measure and calculate the perimeter of a rectilinear figure (including squares) in cm and m
* Find the area of rectilinear shapes by counting squares
 | * Measure and calculate the perimeter of composite rectilinear shapes in cm and m and calculate and compare the area of rectangles (including squares), use cm2 and m2 and estimate the area of irregular shapes
* Estimate volume and capacity
 | * Recognise that shapes with the same area can have different perimeters and vice versa
* Recognise when it is possible to use formulae
* Calculate area of parallelograms and triangles
* Calculate, estimate and compare volume of cubes and cuboids using standard units
 |
| **Geometry: 2-D shapes** | * Recognise and name common 2-D shapes- rectangles (including squares), circles and triangles
 | * Identify and describe the properties of 2-D shapes including number of sides and line symmetry in a vertical line
* Identify 2-D shapes on the surface of 3-D shapes
* Compare and sort common 2-D shapes and everyday objects
 | * Draw 2-D shapes
 | * Compare and classify geometric shapes including quadrilaterals and triangles, based on their properties and sizes
* Identify lines of symmetry in 2-D shapes presented in different orientations
 | * Distinguish between regular and irregular polygons based on reasoning about equal sides and angles
* Use the properties of rectangles to deduce related facts and find missing lengths and angles
 | * Draw 2-D shapes using dimensions and angles
* Compare and classify geometric shapes based on properties/ sizes
* Illustrate name parts of a circle Inc. radius, diameter and circumference
* Know diameter is twice radius
 |
|  | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| **Geometry 3-D shapes** | * Recognise and name common 3-D shapes , for example: cuboids (including cubes), pyramids and spheres
 | * Recognise and name common 3-D shapes
* Compare and sort common 3-D shapes and everyday objects
 | * Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them
 |  | * Identify 3-D shapes, including cubes and other cuboids from 2-D representations
 | * Recognise, describe and build simple 3-D shapes, including making nets
 |
| **Geometry: Angles and lines** |  |  | * Recognise angles as a property of shape or a turn
* Identify right angles, recognise two right angles make a half turn and four a complete turn; identify whether angles are greater or less than a right angle
* Identify horizontal and vertical lines and pairs of perpendicular and parallel lines
 | * Identify acute and obtuse agles and compare and order angles up to two right angles by size
* Identify lines of symmetry in 2-D shapes presented in different orientations
* Complete a simple symmetric figure with respect to a specific line of symmetry
 | * Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
* Draw given angles, and measure them in degrees
* Identify- angles at a point and one whole turn ( total 360 degrees), angles at a point on a straight line and ½ a turn ( total 180 degrees) and other multiples of 90 degrees
 | * Find unknown angles in any triangles, quadrilaterals and regular polygons
* Recognise angles where they meet at a point, are on a straight line, or are vertically opposite and find missing angles
 |
|  | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| **Geometry: Position and direction** | * Describe position, direction and movement including whole, half, quarter and three-quarter turns
 | * Order and arrange in patterns and sequences
* Describe position, direction and movement, including 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
* Describe movements between positions as translations to the left/right and up/down
* Plot specified points and draw sides to complete a given polygon
 | * 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 4 quadrants)
* Draw and translate simple shapes on the coordinate plane, and reflect them in the axes
 |
| **Statistics: Present and interpret** |  | * 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
 |
| **Statistics: Solve problems** |  | * Ask and answer simple questions by counting and sorting; and about totalling and comparing categorical data.
 | * Solve 1 and 2 step questions 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
 |