Hartford Manor Primary School

Maths Long term plan

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|  | Autumn term: | Spring term: | Summer term: |
| EYFS |  |  |  |
| Year 1 | **Place Value 0-10*** Sort objects
* Counts objects
* Count and read forward and

 backwards numbers 0 to 10* Count one more one less
* One to one correspondence to

 start to compare groups* Compare numbers
* Order groups of objects
* Ordinal Number
* The number line

**Addition and Subtraction*** Part – Whole Model
* Addition symbol
* Fact Families – Addition facts
* Find number bonds within 10
* Systematic methods for number bonds

 within 10 * Number bonds to 10
* Compare number bonds
* Addition – adding together
* Addition – adding more
* Finding a part
* Subtraction – takeaway, how many left?
* Subtraction – finding a part, breaking

 apart* Fact families- the 8 facts
* Subtraction – Counting back

**Shape** * Recognise and name 3-D shapes
* Sort 3-D shapes
* Recognise and name 2-D shapes
* Sort 2-D shapes
* Patterns with 3-D and 2-D shapes

**Place value (within 20)** * Count forwards and backwards and

write number to 20 in numerals and words* Number from 11 to 20
* Count one more and one less
* Compare numbers
* Order groups of objects
* Order numbers
 | **Addition and Subtraction** * Add by counting on
* Find and make number bonds
* Subtraction – Not crossing 10
* Subtraction – crossing 10
* Related facts
* Compare number sentences

**Place Value (within 50)*** Number to 50
* Tens and Ones
* Represent numbers to 50
* One more one less
* Compare objects within 50
* Compare numbers within 50
* Order numbers within 50
* Count in 2s
* Count in 5s

**Measurement – Length and Height*** Compare lengths and heights
* Measure length

**Measurement – Weight and Volume** * Introduce weight and mass
* Measure mass
* Compare mass
* Introduce capacity and volume
* Measure capacity
* Compare capacity
 | **Multiplication and division.** * Count in 10s
* Make equal groups
* Add equal groups
* Make doubles

**Fractions*** Find a half
* Find a half
* Find a quarter
* Find a quarter

**Geometry*** Describe turns
* Describe positions
* Describe positions

**Place value*** Counting to 100
* Partitioning numbers
* Comparing numbers
* Ordering numbers
* One more, one less

**Money*** Recognising coins
* Recognising notes
* Counting coins

**Time** * Before and after
* Dates
* Time to the hour
* Time to the half hour
* Writing time

Comparing time |
| Year 2 | **Number and Place Value** * count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward
* recognise the place value of each digit in a two-digit number (tens, ones)
* identify, represent and estimate numbers using different representations, including the number line
* compare and order numbers from 0 up to 100; use and = signs
* read and write numbers to at least 100 in numerals and in words
* use place value and number facts to solve problems.

**Addition and Subtraction*** 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 number and tens
* two 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 number problems.

**Money*** recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value
* 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

**Shape*** Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.
* Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces.
* Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid.]

Compare and sort common 2-D and 3-D shapes and everyday objects. | **Multiplication and division*** 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 (×), division (÷) and equals (=) signs.
* Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts.
* Show that the multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.

**Statistics*** Interpret and construct simple pictograms, tally charts, block diagrams and simple tables.
* 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.

**Fractions*** Recognise, find, name and write fractions 12, 13, 14, 24and 34 of a length, shape, set of objects or quantity.
* Write simple fractions for example, 12 of 6 = 3 and recognise the equivalence of 24 and 12

**Measure: Length and Height*** 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

 compare and order lengths, mass, volume/capacity and record the results using >, < and = | **Multiplication and division.** * Count in 10s
* Make equal groups
* Add equal groups
* Make doubles

**Fractions*** Find a half
* Find a half
* Find a quarter
* Find a quarter

**Geometry*** Describe turns
* Describe positions
* Describe positions

**Place value*** Counting to 100
* Partitioning numbers
* Comparing numbers
* Ordering numbers
* One more, one less

**Money*** Recognising coins
* Recognising notes
* Counting coins

**Time** * Before and after
* Dates
* Time to the hour
* Time to the half hour
* Writing time

Comparing time |
| Year 3 | * Recall and use multiplication and division facts for the 3, 4 and 8 x table.
* Read and write numbers to 1000 in numerals and words.
* Recognise the place value of each digit in a three-digit number.
* Partition numbers in different ways.
* Identify, represent and estimate numbers using different representations.
* Compare and order numbers up to 1000.
* Find 1, 10 or 100 more or less than a given number.
* Count from 0 in multiples of 4, 8, 50 and 100.
* Add and subtract numbers mentally, including: a three-digit number and ones; and tens; and hundreds.
* Add and subtract numbers with up to three digits using formal written methods.
* Estimate answers to calculations and use inverse operations to check answers.
* Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction, multiplication and division.
* Calculate mathematical statements for multiplication and division using multiplication tables they know including 2 digit numbers x 1 digit number, using mental and progressing to formal written method and write them using the appropriate operation signs.
* Solve problems involving multiplication and division using materials, arrays, repeated addition and mental methods.

. Assess and review week. | * Recall and use multiplication and division facts for the 3, 4 and 8 x table.
* Solve problems including missing number problems involving multiplication and division, positive integer scaling problems and correspondence problems in which n objects are connected to m objectives.
* Measure, compare add and subtract: lengths (mm, cm, m); mass kg/g); volume/ capacity (l/ml).
* Draw 2-Dshapes and measure the perimeter of simple 2-Dshapes.
* Write and calculate mathematical statements for multiplication and division using multiplication tables they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.
* Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators.
* Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.
* Count up and down in tenths.
* Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10.
* Solve problems that involve all of the above
* Interpret and present data using bar charts, pictograms and tables.
* Solve one-step and two-step questions using information presented in scaled bar charts and pictograms and tables.
* Add and subtract amounts of money to give change using pounds and pence in practical contexts

Assess and review week. | * Recall and use multiplication and division facts for the 3, 4 and 8 x table.
* Recognise and show, using diagrams, equivalent fractions with small denominators.
* Add and subtract fractions with the same denominator within one whole.
* Compare and order unit fractions with the same denominators.
* Solve problems that involve all of the above
* Recognise angles as a property of shape or a description of a turn.
* Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle.
* Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.
* Draw 2D shapes and make 3D shapes using modelling materials
* Recognise 3D shapes in different orientations and describe them
* Estimate and read time with increasing accuracy to the nearest minute.
* Record and compare time in terms of seconds, minutes and hours.
* Use vocabulary such as o’clock, am/pm, morning, afternoon, noon and midnight.
* Know the number of seconds in a minute and the number of days in each month, year and leap year.
* Compare durations of events
* Tell and write the time from an analogue clock, including using Roman numerals and 12-hour and 24-hour clocks.
* Measure, compare add and subtract: lengths (mm, cm, m); mass kg/g); volume/ capacity (l/ml).

Assess and review week. |
| Year 4 | * Count in multiples of 6, 7, 9. 25 and1000.
* Find 1000 more or less than a given number.
* Count backwards through zero to include negative numbers.
* Recognise the place value of each digit in a four digit number (thousands, hundreds, tens and ones)
* Order and compare numbers beyond 1000.
* Identify, represent and estimate numbers using different representations.
* Round any number to the nearest 10,100 or 1000.
* 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.
* Add and subtract numbers with up to 4 digits using the written methods.
* 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.
* Multiply and divide by 10 and 100.
* Recall and use multiplication and division facts for multiplication tables up to 12 x 12.
* Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and1; dividing by 1; multiplying together three numbers.
* Measure and calculate the

perimeter of a rectilinear figure (including squares) in cm and m | * Recall and use multiplication and division facts for multiplication tables up to 12 x 12.
* Recognise and use factor pairs and commutatively in mental calculations.
* Multiply two digit and three digit numbers by a one digit number using written layout.
* Recognise and show, using diagrams, families of common equivalent fractions.
* Solve problems involving fractions to calculate quantities.
* Add and subtract fractions with the same denominator
* Recognise and write decimal equivalents of any number of tenths or hundredths.
* Recognise and write decimal equivalents to ¼, ½, ¾
* Count up and down in hundredths; recognise that

hundredths arise when dividing an object by one hundred and dividing tenths by ten.* Measurement- Area Find the area of rectilinear shapes by counting squares.
* Round decimals with one decimal place to the nearest whole number and compare numbers with the same number of decimal places up to two decimal places.
* Solve simple measure and money problems involving fractions and decimals to two decimal places.
* Read, write & convert time between analogue and digital 12 and 14 hour clocks.

Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to years. | * Estimate, compare and, calculate different measures, including money in pounds and pence and solve simple measure and money

problems .* Identify acute and obtuse

angles and compare and order angles up to two right angles by size.* Compare and classify geometric

shapes, including quadrilaterals and triangles, based on their properties and sizes.* Identify lines of symmetry in 2D shapes presented in different orientations.
* Complete a simple symmetric figure with respect to a specific line of symmetry.
* Describe positions on a 2D

grid as coordinates in the first quadrant.* Describe movements between positions as translations of a given unit to the left/ right and up/ down.
* Plot specified points and draw sides to complete a given polygon.
* Interpret and present discrete and continuous data using appropriate

graphical methods, including bar charts and time graphs.* Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and

other graphs.* Consolidate four number operations and written methods.

Solve problems involving the four number operations. |
| Year 5 | **Number – Place Value*** Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit.
* Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.
* Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers including through zero.
* Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.
* Solve number problems and practical problems that involve all of the above.
* Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.

**Number – addition and subtraction*** 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 operations and methods to use and why.

**Number – multiplication and division** * Multiply and divide numbers mentally drawing upon known facts.
* Multiply and divide whole numbers by 10, 100 and 1000.
* 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 one-digit number using the formal written method of short division and interpret remainders appropriately for the context.
* 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)
* Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.
* Solve problems involving addition and subtraction, multiplication and division and a combination of these, including understanding the use of the equals sign.

 **Statistics*** Solve comparison, sum and difference problems using information presented in a line graph.
* Complete, read and interpret information in tables including timetables.
 | **Number: Fractions*** Compare and order fractions whose denominators are multiples of the same number.
* Identify, name and write equivalent fractions of a given fraction, represented visually including tenths and hundredths.
* Recognise mixed numbers and improper fractions and convert from on form to the other and write mathematical statements >1 as a mixed number.
* 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.
* Read and write decimal numbers as fractions [for example 0.71 = ]
* Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.

**Number: Decimals*** Read, write, order and compare numbers with up to three decimal places.
* Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.
* Round decimals with two decimal places to the nearest whole number and to one decimal place.
* Solve problems involving number up to three decimal places.
* Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.
* Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.

**Number: Percentages*** Recognise the percent symbol (%) and understand that percent 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 percentage and decimal equivalents of common fractions and those fractions with a denominator of a multiple of 10 or 25.
* Time at the beginning or end of the term for consolidation,
* Gap filling, seasonal activities, assessments, etc.
 |  **Geometry- Angles*** 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 360o), angles at a point on a straight line and 1⁄2 a turn (total 180o) other multiples of 90o

 **Geometry- Shapes** * Identify 3D shapes, including cubes and other cuboids, from 2D representations.
* Use the properties of rectangles to deduce related facts and find missing lengths and angles
* Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.

 **Geometry- position and direction** * 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.

 **Measurement- converting units*** Convert between different units of metric measure (for example, 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, pounds an pints.
* Solve problems involving converting between units of time.

 **Number- Prime Numbers** * Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.
* Establish whether a number up to 100 is prime and recall prime numbers up to 19

 **Perimeter and Area** * Measure and calculate the perimeter of composite rectilinear shapes in cm and m.
* Calculate and compare the area of rectangles (including squares), and including using standard units, cm2,m2 estimate the area of irregular

 **Measures Volume** * Estimate volume [for example using 1cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]
* Use all four operations to solve problems involving measure

Time at the beginning or end of the term for consolidation,  gap filling, seasonal activities, assessments, etc. |
| Year 6 | **Number: place value** * Read, write, order and compare numbers up to

 10 000 000 and determine the  value of each digit.* Round any whole number to a required degree of accuracy.
* Use negative numbers in context, and calculate intervals across zero.

**Number: addition subtraction, multiplication and division*** Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why.
* 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.
* Divide numbers up to 4 digits by a 2 digit number using the formal written method of short division, interpreting remainders according to context.
* Perform mental calculations, including with mixed operations and large numbers.
* Identify common factors, common multiples and prime 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.

**Fractions*** Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.
* Compare and order fractions, including fractions > 1
* Generate and describe linear number sequences (with fractions)
* Add and subtract fractions with different denominations and mixed numbers, using the concept of equivalent fractions.
* Multiply simple pairs of proper fractions, writing the answer in its simplest form
* Divide proper fractions by whole numbers [for example
* Associate a fraction with division and calculate decimal fraction equivalents
* Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

**Geometry: Position and Direction*** Describe positions on the full coordinate grid (all four quadrants).
* Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.
 | **Number: Decimals*** Identify the value of each digit in numbers given to 3dp and multiply numbers by 10, 100 and 1000 giving answers up to 3dp
* Multiply one digit numbers with up to 2dp by whole numbers
* Use written division methods in cases where the answer has up to 2dp
* Solve problems which require answers to be rounded to specified degrees of accuracy

**Number: Percentages*** Solve problems involving the calculation of percentages
* Recall and use equivalences between simple FDP including in different contexts

**Measurement*** Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3dp where appropriate
* 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 up to 3dp
* Convert between miles and km
* Recognise that shapes with the same areas can have different perimeters and vice versa
* Recognise when it is possible to use formulae for area and volume of shapes.
* Calculate the area of parallelograms and triangles.
* Calculate, estimate and compare volume of cubes and cuboids using standard units, including cm³, m³ and extending to other units.

**Number: Algebra*** Use simple formulae
* Generate and describe linear number sequences
* Express missing number problems algebraically
* Find pairs of numbers that satisfy an equation with two unknowns
* Enumerate possibilities of combinations of two variables

**Number: Ratio*** 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 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

**Geometry and Statistics*** Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
* Interpret and construct pie charts and line graphs and use these to solve problems
* Calculate the mean as an average
 | **Geometry: Properties of Shapes*** Draw 2D shapes using given dimensions and angles.
* Compare and classify geometric shapes based on their properties and sizes and 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.

**Post SATs project work*** Handling money – the business project
* Planning a trip to London – money, percentages, discounts, working within a budget
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