Corporation Road Community Primary School

Year 5/6 Maths LTP

Maths: Year 5/6
Vision: At Corporation Road we want all of our children to be competent mathematicians. We desire our pupils to be able to work confidently with a range of number, representations and calculations. At Corporation Road we focus on quality first teaching which equips our pupils with: a fluency of basic number facts and calculation methods; the ability to apply them to reason and solve problems; and the competence and confidence to use them in other subject areas. Pupils build upon their prior knowledge and make links between different concepts in maths. Assessment is used to inform teachers what children can do and informs the next steps of learning. We want children to understand that getting things wrong is part of the learning process and develop a growth mind-set. When introducing a new concept, teachers use a variety of visual representations to ensure the children have a depth of knowledge. Teachers move from concrete to pictorial to abstract in order to scaffold the learning effectively. We understand that mathematical talk is vital when deepening the learning and encourage this in all lessons. We want our children to work together to solve problems and to verbally reason with their peers. We are passionate about children building their procedural fluency and conceptual understanding in all mathematical concepts.
Learning Sequence Children will be exposed to all mathematical concepts throughout the year. Where concepts are revisited, then the focus is on children becoming fluent in the first instance and when the concept is revisited then the focus will be on deepening the learning to ensure children can reason and problem solve within the concept. At Corporation Road, we believe that children need to be fluent first to ensure they become confident when tackling problems that are more complex later on.
Domains
Number and Place Value Children should be able to work confidently and recognise the place value of numbers up to 10,000,000; representing these numbers in a variety of ways. Children should be able to count in powers of ten from any number and recognise the place value of each digit in larger numbers.
Calculations (Addition, Subtraction, Multiplication and Division) Pupils should be fluent in written methods for all four operations, including long multiplication and division.
Fractions, Decimals and Percentages Children should be able to recognise the place value of fractions, calculate using fractions and use equivalent fractions decimals and percentages confidently.
Geometry and Position Children will be able to confidently work with 2D and 3D shapes and representations of these shapes. They will be able to plot points and shapes using all four quadrants.
Measurement Children will be able to convert between different units of metric measures and convert between some units of metric and imperial measurements. Children will be able to calculate the area and perimeter of common 2D shapes.
Statistics Children will be able to read and interpret a wide range of graphs and charts, including timetables. They will be able to contrast their own using a set of discrete data.

Autumn

Domains Covered	Number of Weeks	Year 5 Objectives	Year 6 Objectives
Number and Place Value	3	• **Read, write, order, compare and know place value of numbers to at least 1 000 000** • Interpret negative numbers in context, count forwards and backwards with + or - whole numbers, including through zero, in steps of powers of 10 for any given number up to 1000 000. • Read Roman Numerals to 1000 (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.** • Use negative numbers in context and calculate intervals across 0. • Generate and describe linear number sequences including across zero.
Addition and Subtraction	2	• **Add and subtract numbers mentally with increasingly large numbers and whole numbers with more than 4 digits, including using formal written methods (column addition and subtraction).**	• **Solve multi-step problems involving addition, subtraction, multiplication and division and use estimation to check answers to calculations and determine, in context, an appropriate degree of accuracy.**

		• Solve problems involving addition, subtraction, multiplication and division and a combination of these, including using knowledge of factors and multiples, squares and cubes, including multistep problems.	• Use their knowledge of the order of operations to carry out calculations involving the four operations. To perform mental calculations, including with mixed operations and large numbers.
Statistics	2	• Complete, read and interpret information in tables, including timetables, and line graphs to solve comparison, sum and difference problems. •	• Interpret and construct pie charts and line graphs and use these to solve problems including converting between miles and kilometres. • Calculate and interpret the mean as an average.
Multiplication and Division	3	• **Multiply / divide numbers mentally using known facts and use formal written methods for 4 digit x 1 or 2 digit, and 4 digit ÷ 1 digit short division (interpreting remainders in context).** • Solve problems involving addition, subtraction, multiplication and division and a combination of these, including using knowledge of factors and multiples, squares and cubes, including multistep problems. • Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.	• **Multiply and divide multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication or long division (interpreting remainders).** • **Solve multi-step problems involving addition, subtraction, multiplication and division and use estimation to check answers to calculations and determine, in context, an appropriate degree of accuracy.** • Can identify multiples and factors, find factor pairs of a number, common factors of two numbers and use prime numbers, prime factors and composite (non-prime) numbers and establish whether a number up to 100 is prime and recall prime numbers up to 19. Recognise and use square numbers and cube numbers, and the notation for squared (2^2) and cubed (2^3).
Measures	2	• Convert between different units of metric measure and understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. • Measure and calculate the perimeter of composite rectilinear shapes (cm/m) and calculate and compare the area of rectangles (including squares, cm^2, m^2) and estimate area of irregular shapes. • Estimate volume (for example, using 1 cm^3 blocks to build cuboids (including cubes) and capacity (for example, using water)).	• Solve problems converting between of units of measure, smaller to larger, and vice versa, using decimal notation up to three decimal places. • Know formulae to find the area or volume of shapes (including area of parallelograms & triangles) and recognise that shapes with the same areas can have different perimeters and vice versa.
Division	2	• **Multiply / divide numbers mentally using known facts and use formal written methods for 4 digit x 1 or 2 digit, and 4 digit ÷ 1 digit short division (interpreting remainders in context).** • Solve problems involving addition, subtraction, multiplication and division and a combination of these, including using knowledge of factors and multiples, squares and cubes, including multistep problems.	• **Multiply and divide multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication or long division (interpreting remainders).**
Geometry	1	• Identify 3-D shapes, including cubes and other cuboids, from 2-D representations (e.g. nets). • Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	• Compare and classify geometric shapes based on increasingly complex properties and use them to draw 2-D shapes using given dimensions and angles: recognise, describe and build simple 3-D shapes, including making nets
Spring			
Place Value	1	• Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.	• Round any whole number to a required degree of accuracy.
Fractions	4	• **Compare and order, add and subtract fractions whose denominators are the same or are all multiples of the same number.** • Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. • Recognise and convert between mixed numbers and improper fractions (for example, $\frac{6}{5} = 1\frac{1}{5}$) and multiply mixed numbers and proper fractions by a whole number (supported by materials and diagrams).	• **Identify and use common factors to simplify fractions; use common multiples to express fractions in the same denomination to compare and order them, including fractions > 1.** • Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. • Multiply simple pairs of proper fractions, writing the answer in simplest form and multiply and divide proper fractions by whole numbers (for example, ½ ÷ 2 = ¼ , ¼ × 2 = ½).

Decimals	1	• Read, write, order and compare numbers with up to three decimal places and solve problems involving up to 3 decimal places (Example, 0.71 = $^{71}/_{100}$ =71%). • Round decimals with two decimal places to the nearest whole number and to one decimal place and use rounding to check answers in the context of a problem.	• Associate a fraction with division and calculate decimal fraction equivalents (for example, 0.375] for a simple fraction [for example, ⅜).
Decimals and Percentages	3	• **Convert between decimal numbers, fractions and percentages and find percentages and fractions of quantities including solving problems.** • Read, write, order and compare numbers with up to three decimal places and solve problems involving up to 3 decimal places (Example, 0.71 = $^{71}/_{100}$ =71%).	• Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places. • Solve problems using equivalences between simple fractions, decimals and percentages, including in different contexts where answers are rounded to specified degrees of accuracy. • **Solve multi-step problems involving the calculation of percentages (for example, of measures, and such as 15% of 360) and the use of percentages for comparison.**
Measures	1	• Use all four operations to solve problems involving measure (for example, length, mass, volume, money, time) using decimal notation, including scaling and conversions, including converting units for calculation.	• Solve problems converting between of units of measure, smaller to larger, and vice versa, using decimal notation up to three decimal places.
Calculations	3	• **Add and subtract numbers mentally with increasingly large numbers and whole numbers with more than 4 digits, including using formal written methods (column addition and subtraction).** • **Multiply / divide numbers mentally using known facts and use formal written methods for 4 digit x 1 or 2 digit, and 4 digit ÷ 1 digit short division (interpreting remainders in context).** • Solve problems involving addition, subtraction, multiplication and division and a combination of these, including using knowledge of factors and multiples, squares and cubes, including multistep problems. • Multiply and divide numbers with up to two decimal places by whole numbers.	• **Multiply and divide multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication or long division (interpreting remainders).** • **Solve multi-step problems involving addition, subtraction, multiplication and division and use estimation to check answers to calculations and determine, in context, an appropriate degree of accuracy.** • Use their knowledge of the order of operations to carry out calculations involving the four operations. To perform mental calculations, including with mixed operations and large numbers. • Use simple formulae and express missing number problems algebraically.
Summer			
Angles	2	• Estimate, compare, measure and draw acute, obtuse and reflex angles. • Use the properties of rectangles and knowledge of angles at a point (360°) or on a straight line (180°) to deduce related facts and find missing lengths and angles.	• Find unknown angles and length using knowledge of angles at a point, on a straight line, or vertically opposite.
Geometry & Position	1	• 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.	• Draw and translate simple shapes on the coordinate plane, reflect them in the axes: use all four quadrants.
Ratio	1	• Use simple ratio to draw shapes.	• Use simple ratio and simple proportion to solve problems.
Circles	1	• Illustrate and name parts of circles, including radius, diameter and circumference	• Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.
Consolidation	7	Investigations, consolidation work in preparation for Transition.	