



St. Teresa's Catholic Primary School Maths Skills Progression Class 9



Term	Maths Topics and Learning Objectives		
Autumn	<p style="text-align: center; color: blue;"><u>Number, Place Value and Rounding</u></p> <ul style="list-style-type: none"> • Read Roman numerals to 1,000 (M) and recognise years written in Roman numerals. • Determine the value of each digit in numbers up to 1,000,000. • 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. • Read, write, order and compare numbers to at least 1,000,000 (<i>read, write, order and compare numbers up to 10,000,000.</i>) • Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000 (<i>round any number to any given amount.</i>) • Determine the value of each digit in numbers up to 10,000,000. 	<p style="text-align: center; color: blue;"><u>Calculations applied to reasoning and problem solving: Addition, Subtraction, Multiplication and Division</u></p> <ul style="list-style-type: none"> • Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. • Solve problems involving multiplication and division including using knowledge of factors and multiples, squares and cubes. • Divide numbers up to 4 digits by a 1-digit (<i>2-digit numbers</i>) number using the formal written method of short division <i>and interpret remainders appropriately for the context.</i> • Solve problems involving multiplication and division including scaling by simple fractions and problems involving simple rates. • Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign. • Use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers in reasoning. • Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. • Use knowledge of the order of operations to carry out calculations involving the four operations. 	<p style="text-align: center; color: blue;"><u>Fractions, Decimals and Percentages</u></p> <ul style="list-style-type: none"> • Recognise mixed numbers and improper fractions and convert from one form to the other. • Compare and order fractions whose denominators are multiples of the same number. • Solve problems involving numbers up to 3 decimal places. • Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator or a multiple of 10 or 25. • Write mathematical statements >1 as a mixed number. • Write percentages as a fraction with denominator hundred, and as a decimal. • Round decimals with 2 decimal places to the nearest whole number and 1 decimal place. • Read, write, order and compare numbers with up to 3 decimal places. • Read and write decimal numbers as fractions. • Recognise the percent symbol and understand that percent relates to 'number parts per hundred'. • Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. • Recognise and can use thousandths and relate them to tenths, hundredths and decimal equivalents. • Use common factors to simplify fractions and use common multiples to express fractions in the same denomination.

BASIC SKILLS, RECORDED IN BASIC SKILLS EXERCISE BOOKS AND REHEARSED ORALLY AS APPROPRIATE:

- Mentally recall skills of doubling and halving
- Mentally add and subtract 10, 100 and 1000 to a given number
- Add and subtract numbers mentally with increasingly large numbers
- Add and subtract whole numbers using a formal written method
- Add and subtract numbers up to and including 3 decimal places using a formal written method
- Recognise and use square and cube numbers
- Multiply and divide whole numbers by 10, 100 and 1000 (including conversion of measure)
- Multiply and divide decimal numbers by 10, 100 and 1000 (including conversion of measure)
- Multiply numbers up to 4 digits by a 1-digit or 2-digit number using a formal written method, including long multiplication for 2-digit numbers
- Divide numbers up to 4 digits by a 1-digit number using the formal written method of short division
- Identify multiples and factors, including finding all factor pairs or a number and common factor pairs of two numbers
- Establish whether a number up to 100 is prime and recall prime numbers up to 19
- Find fractions of amounts and quantities
- Add and subtract fractions with the same denominator and denominators that are multiples of the same number, using the concept of equivalent fractions
- Multiply proper fractions and by whole numbers
- Divide proper fractions by whole numbers

Autumn Term 1 KIRFs:

Year 6: Derive multiplication and division facts using multiples of 10 and decimal numbers

e.g. $50 \times 7 = 350$; $8 \times 0.7 = 5.6$

Year 5: Consolidate multiplication and division facts for all times tables up to 12×12 .

Autumn Term 2 KIRFs:

Year 6: Recall equivalences between simple fractions (including tenths and hundredths), decimals and percentages.

Year 5: Recall decimal and percentage equivalents of the fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, tenths and fifths.

Distributed daily practice of these basic skills and arithmetic skills to be informed by AfL; the revisiting of stated objectives through recall activities is informed by teacher AfL.

Geometry – Properties of Shapes

- Draw given angles and measure them in degrees.
- Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.
- Identify 3D shapes (*recognise and build simple 3D shapes, including making nets*), including cubes and other cuboids, from 2D representations.
- *Draw 2D shapes given dimensions and angles.*
- Use the properties of rectangles to deduce related facts and find missing lengths and angles.
- *Illustrate and name parts of circles, including radius, diameter and circumference.*
- *Know the diameter is twice the radius.*
- Estimate and compare acute, obtuse and reflex angles.
- Identify angles at a point and one whole turn.
- Identify other multiples of 90° .
- Identify angles at a point on a straight line and $\frac{1}{2}$ a turn.
- *Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.*
- *Find unknown angles in any triangles, quadrilaterals and regular polygons.*
- *Know angles are measured in degrees.*

Measures: Converting Units; Perimeter and Area; Volume

- Use all four operations to solve problems involving money using decimal notation, including scaling.
- Estimate volume and capacity (*calculate and compare volume of cubes and cuboids, using standard units*).
- 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 in cm and m (*recognise that shapes with the same areas can have different perimeters and vice versa*).
- Calculate and compare the area of rectangles (including squares), and including using standard units (cm^2 and cm^3) to estimate the area of irregular shapes.
- Convert between different units of metric measure (*converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation of up to 3 decimal places*).
- *Solve problems involving converting between units of time (solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate.)*
- *Convert between miles and kilometres.*
- *Calculate the area of parallelograms and triangles.*

Revision of Fractions, Decimals and Percentages (Based upon AFL)

BASIC SKILLS, RECORDED IN BASIC SKILLS EXERCISE BOOKS AND REHEARSED ORALLY AS APPROPRIATE:

- Multiply 1-digit numbers with up to 2 decimal places by whole numbers
- Divide numbers with up to 2 decimal places by a single digit number
- Calculate percentages of amounts and quantities
- Add and subtract improper fractions and mixed numbers
- Multiply proper fractions by mixed numbers
- Multiply mixed numbers by a single integer
- Tell and write the time from an analogue clock, including Roman numerals, and 12-hour and 24-hour clocks
- Convert time between analogue and digital clocks
- Recall vocabulary am and pm
- Recall number of seconds in a minute, days in a given month, year and leap year
- Convert basic units of metric measure
- RECALL OF PREVIOUSLY TAUGHT BASIC SKILLS AND ARITHMETIC CALCULATIONS INFORMED BY REGULAR AfL.

Spring Term 1 KIRFs:

Year 6: Multiply and divide decimal numbers by 10, 100 and 1000.

Year 5: Multiply and divide whole numbers by 10, 100 and 1000.

Spring Term 2 KIRFs:

Year 6: Identify common factors of a pair of numbers.

Year 5: Recognise square and cube numbers within 100.

Distributed daily practice of these basic skills and arithmetic skills to be informed by AfL; the revisiting of stated objectives through recall activities is informed by teacher AfL; sustained practice of these skill from both Spring and Autumn term applied to SATs style arithmetic papers to support and develop experience with answering a range of questions in a given time frame.

Summer	<p style="text-align: center;"><u>Statistics</u></p> <ul style="list-style-type: none"> Solve comparison, sum and difference problems using information presented in a line graph. Complete, read and interpret information in tables, including timetables. <i>Interpret and construct pie charts and line graphs and use these to solve problems.</i> <i>Calculate and interpret the mean as an average.</i> 	<p style="text-align: center;"><u>Geometry – Position and Direction</u></p> <ul style="list-style-type: none"> 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. <i>Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.</i> <i>Describe positions on the full coordinate grid (all four quadrants)</i> 	<p style="text-align: center;"><u>Consolidation and Revision</u></p>
Summer: Basic Skills and Arithmetic Practice	<p style="text-align: center;"><u>BASIC SKILLS, RECORDED IN BASIC SKILLS EXERCISE BOOKS AND REHEARSED ORALLY AS APPROPRIATE:</u></p> <ul style="list-style-type: none"> Revisit skills from previous term(s). The distributed practice is informed by ongoing AfL. <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div data-bbox="295 619 1162 1102" style="border: 1px solid black; padding: 10px; width: 45%;"> <p style="text-align: center;"><u>Summer Term 1 KIRFs:</u></p> <p style="text-align: center;">Year 6: Know all previous number bonds including decimals that total 1 or 10 (two decimal places).</p> <p style="text-align: center;">Year 5: Convert between different units of metric measure (e.g. km/m; cm/m; cm and mm; g/kg; l/ml).</p> </div> <div data-bbox="1189 619 2098 1102" style="border: 1px solid black; padding: 10px; width: 45%;"> <p style="text-align: center;"><u>Summer Term 1 KIRFs:</u></p> <p style="text-align: center;">Year 6: Double or halve any number with up to 2-decimal places.</p> <p style="text-align: center;">Year 5: Recall prime numbers up to 19.</p> </div> </div> <p style="text-align: center; margin-top: 20px;"><u>Distributed daily practice of these basic skills and arithmetic skills to be informed by AfL; the revisiting of stated objectives through recall activities is informed by teacher AfL.</u></p>		