



## St. Teresa's Catholic Primary School Maths Skills Progression Class 10



Term	Maths Topics and Learning Objectives			
Autumn	<p><b><u>Number, Place Value and Rounding</u></b></p> <ul style="list-style-type: none"><li>• read, write, order and compare numbers up to 10 000 000 and determine the value of each digit</li><li>• round any whole number to a required degree of accuracy</li><li>• use negative numbers in context, and calculate intervals across zero</li><li>• solve number and practical problems</li></ul>	<p><b><u>Calculations applied to reasoning and problem solving: Addition, Subtraction, Multiplication and Division</u></b></p> <ul style="list-style-type: none"><li>• solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</li><li>• solve problems involving addition, subtraction, multiplication and division</li><li>• use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</li></ul>	<p><b><u>Fractions, Decimals and Percentages</u></b></p> <ul style="list-style-type: none"><li>• compare and order fractions, including fractions <math>&gt; 1</math></li><li>• add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions</li><li>• multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, <math>4 \frac{1}{2} \times 2 \frac{1}{2} = 8 \frac{1}{2}</math>]</li><li>• divide proper fractions by whole numbers [for example, <math>3 \frac{1}{2} \div 2 = 6 \frac{1}{4}</math>]</li><li>• associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, <math>\frac{3}{8}</math>]</li><li>• 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</li><li>• multiply one-digit numbers with up to two decimal places by whole numbers</li><li>• use written division methods in cases where the answer has up to two decimal places</li><li>• solve problems which require answers to be rounded to specified degrees of accuracy</li><li>• recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</li></ul>	<p><b><u>Geometry – Properties of Shapes</u></b></p> <ul style="list-style-type: none"><li>• draw 2-D shapes using given dimensions and angles</li><li>• recognise, describe and build simple 3-D shapes, including making nets</li><li>• compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons</li><li>• recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</li></ul>

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

- round any number to the nearest 10, 100 and 1000
- add and subtract mentally including: a three-digit number and ones; a three-digit number and tens; a three-digit number and hundreds
- add and subtract mentally with increasingly large numbers, including mixed operations
- use order of operations to carry out calculations involving the four operations
- add and subtract numbers up to three digits using formal written methods; add and subtract numbers up to four digits using formal written methods; add and subtract numbers with more than four digits using formal written methods
- solve missing number problems using place value, addition and subtraction
- recall multiplication and division facts up to  $12 \times 12$
- perform mental calculations the involve multiplication and division with increasingly larger numbers
- recognise and use factor pairs and commutativity
- multiply and divide by 10, 100 and 1000 including decimal numbers up to 3 places
- use a formal written method for: multiplying two-digit and three-digit numbers by a one-digit number; multiplying numbers up to four digits by a one-digit and a two-digit number; multiplying multi-digit numbers using long multiplication
- use a formal written method for: dividing up to four-digit numbers by a one-digit number and interpret remainders; dividing up to four-digit numbers by a two-digit number and interpret remainders as fractions
- recognise and use factor pairs
- find all factor pairs of a given number, and common factors of two numbers
- recognise prime numbers up to 100 and recall prime numbers up to 19, prime factors and composite numbers
- identify common factors, common multiples and prime numbers
- recognise and use square and cube numbers and their notations
- use common factors to simplify fractions

**Autumn Term 1 KIRF:**

**Derive multiplication and division facts using multiples of 10 and decimal numbers**

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

**Autumn Term 2 KIRF:**

**Recall equivalences between simple fractions (including tenths and hundredths), decimals and percentages.**

**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.**

<b>Spring</b>	<p style="text-align: center;"><u><b>Ratio and Proportion</b></u></p> <ul style="list-style-type: none"> <li>• solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts</li> <li>• solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison</li> <li>• solve problems involving similar shapes where the scale factor is known or can be found</li> <li>• solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</li> </ul>	<p style="text-align: center;"><u><b>Algebra</b></u></p> <ul style="list-style-type: none"> <li>• use simple formulae</li> <li>• generate and describe linear number sequences</li> <li>• express missing number problems algebraically</li> <li>• find pairs of numbers that satisfy an equation with two unknowns</li> <li>• enumerate possibilities of combinations of two variables.</li> </ul>	<p style="text-align: center;"><u><b>Measurement: Converting Units; Perimeter, Area and Volume</b></u></p> <ul style="list-style-type: none"> <li>• solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate</li> <li>• 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</li> <li>• convert between miles and kilometres</li> <li>• recognise that shapes with the same areas can have different perimeters and vice versa</li> <li>• recognise when it is possible to use formulae for area and volume of shapes</li> <li>• calculate the area of parallelograms and triangles</li> <li>• calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>), and extending to other units [for example, mm<sup>3</sup> and km<sup>3</sup>].</li> </ul>
<b>Spring: Basic Skills and Arithmetic Practice</b>	<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"> <li>• tell and write the time from an analogue clock, including Roman numerals, and 12-hour and 24-hour clocks</li> <li>• convert time between analogue and digital clocks</li> <li>• recall vocabulary am and pm</li> <li>• recall number of seconds in a minute, days in a given month, year and leap year</li> <li>• convert basic units of metric measure</li> <li>• RECALL OF PREVIOUSLY TAUGHT BASIC SKILLS AND ARITHMETIC CALCULATIONS INFORMED BY REGULAR AfL</li> </ul> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div data-bbox="250 890 1081 1126" style="border: 1px solid black; padding: 10px; text-align: center;"> <p style="color: red;"><u><b>Spring Term 1 KIRF:</b></u></p> <p style="color: red;"><b>Multiply and divide decimal numbers by 10, 100 and 1000.</b></p> </div> <div data-bbox="1131 898 1962 1134" style="border: 1px solid black; padding: 10px; text-align: center;"> <p style="color: red;"><u><b>Spring Term 2 KIRF:</b></u></p> <p style="color: red;"><b>Identify common factors of a pair of numbers.</b></p> </div> </div> <p style="text-align: center; color: blue; margin-top: 20px;"><u><b>Distributed daily practice of these basic skills and arithmetic skills to be informed by AfL;</b></u></p> <p style="text-align: center; color: blue; margin-top: 10px;"><u><b>the revisiting of stated objectives through recall activities is informed by teacher AfL;</b></u></p> <p style="text-align: center; color: blue; margin-top: 10px;"><u><b>sustained practice of these skills 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.</b></u></p>		

<b>Summer</b>	<p><u>Geometry – Properties of Shapes</u></p> <ul style="list-style-type: none"> <li>illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius</li> </ul>	<p><u>Geometry – Position and Direction</u></p> <ul style="list-style-type: none"> <li>draw and translate simple shapes on the coordinate plane, and reflect them in the axes.</li> <li>describe positions on the full coordinate grid (all four quadrants)</li> </ul>	<p><u>Statistics</u></p> <ul style="list-style-type: none"> <li>interpret and construct pie charts and line graphs and use these to solve problems</li> <li>calculate and interpret the mean as an average.</li> </ul> <p style="text-align: center;"><u>SATs Tests – May</u></p>	<p><u>Investigations: Spirals and Tessellations</u></p>
<b>Summer: Basic Skills and Arithmetic</b>	<ul style="list-style-type: none"> <li>Revisit skills from previous term(s). The distributed practice is informed by ongoing AfL.</li> </ul> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div data-bbox="271 692 1173 927" style="border: 1px solid black; padding: 10px; text-align: center;"> <p><b><u>Summer Term 1 KIRF:</u></b></p> <p><b>Know all previous number bonds including decimals that total 1 or 10 (two decimal places).</b></p> </div> <div data-bbox="1225 692 2054 927" style="border: 1px solid black; padding: 10px; text-align: center;"> <p><b><u>Summer Term 2 KIRF:</u></b></p> <p><b>Double or halve any number with up to 2-decimal places.</b></p> </div> </div> <p style="text-align: center; margin-top: 20px;"><b><u>Distributed daily practice of these basic skills and arithmetic skills to be informed by AfL;</u></b></p> <p style="text-align: center;"><b><u>the revisiting of stated objectives through recall activities is informed by teacher AfL.</u></b></p>			