



St. Margaret's C.E. Junior School

Mathematics Curriculum Map

Overview:

St. Margaret's C.E. Junior School follows a "mastery curriculum" for Mathematics which involves whole-class teaching, with all pupils being taught the same concepts at the same time. High expectations are set for all, creating a sense that everyone can enjoy and achieve. This is supported by teachers prompting enquiry and independent reasoning. In addition, small-group support aims to challenge able pupils to learn at greater depth as well as enabling pupils who lack confidence in certain areas to grasp concepts and skills more securely.

Teaching for mastery encompasses:

- Keeping the class working together so that all can access and master a range of mathematical skills
- Becoming fluent with number facts, place value, the four mathematical operations and methods/approaches to solve increasingly complex problems by building skills and making connections and comparisons
- Extending the ability to recall and apply knowledge and skills rapidly and accurately
- Developing **deep** mathematical understanding through reasoning, problem solving and making links
- Extending work on key topics, thereby providing sufficient time to deepen and embed learning
- Developing efficient written and mental methods and perform calculations accurately with increasingly large numbers
- Showing increasing precision in their record keeping and be able to work systematically
- Fluency, reasoning and problem solving will permeate all teaching and learning and will be enhanced each year, building on prior learning

Specific details of the mathematical areas covered in Years 3 to 6 are noted below.

Year 3

Number & Place Value	Addition & Subtraction
<ul style="list-style-type: none">• Understand the place value of digits in a 3-digit number (100s, 10s & 1s)• Read and write numbers to at least 1000 in numerals and words• Compare and order numbers up to 1000• Count from 0 in multiples of 4, 8, 50 and 100• Find 10 or 100 more or less than a given number	<ul style="list-style-type: none">• Add or subtract numbers mentally including 3-digit numbers and 1s, 10s and 100s• Use formal methods of column addition using numbers up to three-digits• Use formal methods of column subtraction using numbers up to three-digits

Multiplication & Division	Fractions & Decimals
<ul style="list-style-type: none">• Recall multiplication and division facts fluently particularly 3, 4 & 8 times• Use and apply multiples in context e.g. in problems• Multiply two-digit numbers by a one-digit number, moving to a formal written layout	<ul style="list-style-type: none">• Add and subtract fractions with the same denominator up to a whole• Find fractions of objects and numbers (e.g. $\frac{1}{4}$ or $\frac{3}{4}$)• Make connections to find equivalent fractions using diagrams• Count up and down in tenths; understand that tenths are made by dividing an object by ten, and dividing 1 digit numbers or quantities by ten• Compare and order unit fractions, and fractions with the same denominators

Measurement & Statistics	Geometry (Shape & Position & Direction)
<ul style="list-style-type: none">• Measure and compare units of measure (e.g. m, kg or litres) by adding or subtracting fluently• Read and write time in a 12 and 24 hour clock to the nearest minute• Estimate, read, record and compare time in secs/mins/hours and use time vocabulary e.g. a.m./p.m., morning/afternoon, noon/midnight• Measure the perimeter of simple 2-D shapes• Interpret and present data using bar charts, pictograms and tables	<ul style="list-style-type: none">• Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them• Recognise angles as a property of shape or a description of a turn• Identify and compare angles to right angles• Identify parallel and perpendicular lines

Reasoning, Problem Solving & Organising Ideas
<ul style="list-style-type: none">• Solve a wider range of problems involving the mathematical concepts noted above• Apply a range of skills in challenging investigations and prove statements right or wrong• Analyse patterns and make connections• Explain methods and ideas using appropriate vocabulary• Organise and record work clearly, logically and systematically

Year 4

Number & Place Value	Addition & Subtraction
<ul style="list-style-type: none">• Understand place value of digits in a 4-digit number (1000s, 100s, 10s & 1s)• Count backwards through zero including negative numbers• Round to the nearest 10, 100 or 1000• Count in multiples of 6, 7, 9, 25 and 1000• Find 1000 more or less than a given number• Read Roman numerals to 100 (I to C)	<ul style="list-style-type: none">• Use formal methods of column addition using numbers up to four-digits• Use formal methods of column subtraction using numbers up to four-digits

Multiplication & Division	Fractions & Decimals
<ul style="list-style-type: none">• Recall multiplication and division facts fluently up to 12x12• Use and apply multiples and factors in context e.g. in problems• Multiply two and three-digit numbers by a one-digit number using a formal written layout	<ul style="list-style-type: none">• Add and subtract fractions with the same denominator• Investigate equivalent fractions• Count up and down in hundredths; understand that hundredths are made by dividing an object by one hundred, and dividing tenths by ten• Recognise and write decimal equivalents of any number of tenths/hundredths• Use place value to compare and order decimal numbers up to 2 decimal places

Measurement & Statistics	Geometry (Shape & Position & Direction)
<ul style="list-style-type: none">• Convert between different units of measure (e.g. km to m)• Read, write and convert analogue and digital time in 12 and 24 hour clock• Measure and calculate perimeter in centimetres and metres• Find the area of rectilinear shapes by counting squares• Estimate, compare and calculate different measures, including money in pounds and pence• Interpret and present discrete and continuous data using charts and graphs	<ul style="list-style-type: none">• Compare and classify shapes based on their properties, including lines of symmetry• Identify lines of symmetry in 2-D shapes presented in different orientations.• Identify acute and obtuse angles and compare and order angles up to two right angles by size• Describe positions on a 2-D grid as coordinates• Plot specified points and draw sides to complete a given polygon

Reasoning, Problem Solving & Organising Ideas
<ul style="list-style-type: none">• Solve a wider range of more complex problems involving the mathematical concepts noted above• Apply a range of skills in challenging investigations and prove statements right or wrong• Analyse patterns and make connections• Explain methods and ideas using appropriate vocabulary• Organise and record work clearly, logically and systematically

Year 5

Number & Place Value	Addition & Subtraction
<ul style="list-style-type: none"> • Read, write and understand the place value of each digit up to 1,000,000 • Interpret negative numbers in context and count forwards and backwards across zero • Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 • Count forwards or backwards in steps of powers of 10 up to 1 000 000 • Read Roman numerals to 1000 (M) and recognise years in Roman numerals 	<ul style="list-style-type: none"> • Use formal methods of column addition using numbers with more than four-digits • Use formal methods of column subtraction using numbers with more than four-digits • Use rounding and the inverse to check answers are accurate

Multiplication & Division	Fractions & Decimals
<ul style="list-style-type: none"> • Recall multiplication and division facts fluently to multiply and divide mentally • Identify and use multiples and factors in context e.g. in problems • Multiply and divide numbers up to 4 digits using a formal written method, including long multiplication for two-digit numbers & short division • Multiply and divide whole numbers and decimals by 10, 100, 1000 • Know and use prime numbers, prime factors and non-prime numbers 	<ul style="list-style-type: none"> • Add and subtract, compare and order fractions incl. denominators that are multiples of the same number (e.g. $\frac{3}{4}$ - $\frac{1}{2}$) • Use place value to read, write, order and compare decimal numbers up to 3 decimal places & convert decimals to fractions (e.g. 0.65 = 65/100) • Recognise and use thousandths and relate them to 1/10ths, 1/100ths and decimal equivalents • Multiply proper fractions and mixed numbers by whole numbers

Measurement & Statistics	Geometry (Shape & Position & Direction)
<ul style="list-style-type: none"> • Convert between different units of metric measure (e.g. km to m) • Measure and calculate perimeter in centimetres and metres • Calculate and compare the area of rectangles and estimate the area of irregular shapes • Estimate volume and capacity & understand and use metric units and common imperial units such as inches, pounds and pints • Solve problems using a line graph & in tables, including timetables. 	<ul style="list-style-type: none"> • Identify 3-D shapes from 2-D representations • Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles and draw given angles, and measure them in degrees • Use the properties of rectangles to find related facts/ missing lengths & angles • Distinguish between regular and irregular polygons • Identify the position of a shape following a reflection or translation

Reasoning, Problem Solving & Organising Ideas
<ul style="list-style-type: none"> • Solve a wider range of more complex problems involving the mathematical concepts noted above • Apply a range of skills in challenging investigations and prove statements right or wrong • Analyse patterns and make connections • Explain methods and ideas using appropriate vocabulary • Organise and record work clearly, logically and systematically

Year 6

<p>Number & Place Value</p> <ul style="list-style-type: none"> • Understand the value of digits to read, write, order and compare numbers up to 10,000,000 • Interpret negative numbers in context and calculate intervals across zero • Round any whole number to a required degree of accuracy 	<p>Addition & Subtraction</p> <ul style="list-style-type: none"> • Choose mental or formal methods of addition or subtraction to solve challenging problems • Use knowledge of the order of operations to carry out calculations involving the four operations
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<p>Multiplication & Division</p> <ul style="list-style-type: none"> • Multiply 4-digit numbers by 2-digit numbers using a formal layout and X decimals by 10...1000 • Divide 4-digits numbers by 2-digits using short division and long division and interpret remainders • Investigate common factors, multiples and prime numbers 	<p>Fractions & Decimals</p> <ul style="list-style-type: none"> • Apply common denominators to add and subtract fractions with different denominators and mixed numbers • Compare and order fractions which are more or less than a whole • Use place value to read, write, order and compare decimal numbers up to 3 decimal places • Multiply and divide simple pairs of proper fractions (e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$) • Use common factors to simplify fractions; use common multiples to express fractions in the same denomination
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<p>Measurement & Statistics</p> <ul style="list-style-type: none"> • Use, read, write and convert between standard units, using decimal notation to up to three decimal places • Convert between miles and kilometres • Recognise that shapes with the same areas can have different perimeters • Use formulae for area and volume of shapes & calculate the area of parallelograms and triangles 	<p>Geometry (Shape & Position & Direction)</p> <ul style="list-style-type: none"> • Draw 2-D shapes using given dimensions and angles • Recognise, describe and build simple 3-D shapes, including making nets • Compare and classify geometric shapes based on their properties and sizes • Illustrate and name parts of circles, including radius, diameter, circumference • Recognise angles and find missing angles • Describe positions on the full coordinate grid (all four quadrants) • Draw and translate simple shapes and reflect them in the axes
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<p>Ratio & Proportion</p> <ul style="list-style-type: none"> • Solve problems involving the sizes of two quantities where missing values can be found by using multiplication and division facts • Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison • Problems involving similar shapes where the scale factor is known or can be found 	<p>Algebra</p> <ul style="list-style-type: none"> • 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.
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Year 6 (p.2)

Reasoning, Problem Solving & Organising Ideas

- Solve a wider range of more complex problems involving the mathematical concepts noted above
- Apply a range of skills in challenging investigations and prove statements right or wrong
- Analyse patterns and make connections
- Explain methods and ideas using appropriate vocabulary
- Organise and record work clearly, logically and systematically