St. Margaret's C.E. Junior School
Maths Progression Overview including RTP criteria

	Year 3	Year 4	Year 5	Year 6
Place Value	• Recognise the place value of each digit in a three-digit number (hundreds, tens, ones) • Compare and order numbers up to 1,000	• Recognise the place value of each digit in a four-digit number • Order and compare numbers beyond 1000 • Round any number to the nearest 10, 100 or 1000	• Read, write, order and compare numbers up to 1 000 000 and determine the value of each digit • Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000	• 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 • Solve number and practical problems that involve all of the above
RTP criteria	• 3NPV-2 Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and nonstandard partitioning.	• 4NPV-1 Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100 • 4NPV-2 Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non-standard partitioning. • 4NPV-3 Reason about the location of any four-digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each. • 4NPV-4 Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts.		• 6NPV-1 Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000). • 6NPV-2 Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning. • 6NPV-3 Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts. • 6NPV-4 Divide powers of 10, from 1

				hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts.
Counting	• Count from 0 in multiples of 4, 8, 50 and 100 • Find 10 or 100 more or less than a given number	• Count in multiples of 6, 7, 9, 25 and 1000 • Find 1000 more or less than a given number	• 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	• Use negative numbers in context, and calculate intervals across zero
RTP criteria	• 3NPV-3 Reason about the location of any three-digit number in the linear number system, including identifying the previous and next multiple of 100 and 10	• 4NPV-1 Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100		
Identifying, Reading & Representing Number	• Identify, represent and estimate numbers using different representations • Read and write numbers up to 1000 in numerals and in words • *Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks* (copied from Measurement)	• Identify, represent and estimate numbers using different representations • 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	• Read Roman numerals to 1000 (M) and recognise years written in Roman numerals • Recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})	
RTP criteria	• 3NPV-3 Reason about the location of any three-digit number in the linear number system, including identifying the previous and next multiple of 100 and 10 • 3NPV-4 Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts.			

Addition & Subtraction (calculations)	• Add multiples of 10, 100 and 1,000 to a number (up to 9,999) • Add & subtract numbers **mentally** including a 3 digit number & ones/tens/100s • Add numbers up to 3 digits using **formal method** of column addition	• Add & subtract multiples of 10, 100 and 1,000 to a number (up to 9,999) • Add & subtract numbers up to 4 digits using **formal method** of column addition • Add & subtract with decimals (up to tenths and hundredths)	• Add & subtract numbers **mentally** with increasingly large numbers • Add & subtract whole numbers with more than 4 digits, including using **formal written methods**	•Perform mental calculations, including with mixed operations and large numbers
RTP criteria	• 3NF-1 Secure fluency in addition and subtraction facts that bridge 10, through continued practice. • 3AS-1 Calculate complements to 100 • 3AS-2 Add and subtract up to three-digit numbers using columnar methods.			
Addition & Subtraction (problem solving)	• Estimate the answer to a calculation and use inverse operations to check answers • Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	• Estimate and use inverse operations to check answers to a calculation • Solve addition and subtraction two-step problems in context, deciding which operations and methods to use and why	• Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy • Solve addition & subtraction multi-step problems in contexts, deciding which operations and methods to use and why	• Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • Solve problems involving addition, subtraction, multiplication and division
RTP criteria	• 3AS-3 Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part–part–whole structure. Understand and use the commutative property of addition, and understand the related property for subtraction.			• 6AS/MD-1 Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number). • 6AS/MD-2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.

Multiplication & Division (calculations)	• Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables • Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental methods • Progress to formal written methods calculations as above	• Recall multiplication and division facts for multiplication tables up to 12 × 12 • Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers • Recognise and use factor pairs and commutativity in mental calculations • Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000 (Y5) • Multiply two-digit and three-digit numbers by a one-digit number using formal written layout	• Identify multiples and factors, including finding all factor pairs of a number, and common factors of two 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 • Multiply and divide numbers mentally drawing upon known facts • Multiply and divide whole numbers and those involving decimals 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 two-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 common factors, common multiples and prime numbers • Perform mental calculations, including with mixed operations and large numbers
RTP criteria	• 3NF-2 Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number. • 3NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10). • 3MD-1 Apply known multiplication and division facts to solve contextual problems with different structures, including quotative and partitive division.	• 4NPV-1 Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100 • 4NF-1 Recall multiplication and division facts up to 12 × 12 and recognise products in multiplication tables as multiples of the corresponding number • 4NF-2 Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, and interpret remainders appropriately according to the context. • 4NF-3 Apply place-value knowledge to known additive and multiplicative	• 5NF-1 Secure fluency in multiplication table facts, and corresponding division facts, through continued practice. • 5NF-2 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth). • 5MD-1 Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size. • 5MD-2 Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given	• 6NPV-4 Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts.

		number facts (scaling facts by 100). • 4MD-1 Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size. • 4MD-2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication. • 4MD-3 Understand and apply the distributive property of multiplication.	number as a product of 2 or 3 factors. • 5MD-3 Multiply any whole number with up to 4 digits by any one-digit number using a formal written method. • 5MD-4 Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context.	
Multiplication & Division (problem solving)	• Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.	• Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects	• Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes • Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign • Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	• Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • Divide numbers up to 4 digits by a two-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 two-digit number using the formal written method of short division where appropriate, interpreting remainders according to context • Use their knowledge of the order of operations to carry out calculations involving the four operations • Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • Solve problems involving addition, subtraction, multiplication and division • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy

RTP criteria	• 3MD-1 Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division.			• 6AS/MD-2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.
Fractions	• 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 • Compare and order unit fractions, and fractions with the same denominators • Recognise and show, using diagrams, equivalent fractions with small denominators • Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators • Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators • Add and subtract fractions with the same denominator within one whole e.g. 5/7 + 1/7 = 6/7 • Solve problems using all fraction knowledge	• Count up and down in hundredths; • Recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten • Recognise and show, using diagrams, families of common equivalent fractions • Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number • Add and subtract fractions with the same denominator • Solve simple measure and money problems involving fractions and decimals to two decimal places	• Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number • Compare and order fractions whose denominators are all multiples of the same number • Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • 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 • Solve problems which require knowing percentage and decimal equivalents of ½ , ¼ , 1/5 , 2/5 , 4/5 and those fractions with a denominator of a multiple of 10 or 25	• Use common factors to simplify fractions • Use common multiples to express fractions in the same denomination • Compare and order fractions, 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 its simplest form • Divide proper fractions by whole numbers • Solve problems which require answers to be rounded to specified degrees of accuracy • Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts
RTP criteria	• 3NF-3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10). • 3F-1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts. • 3F-3 Reason about the location of any fraction within 1 in the linear number system.	• 4F-1 Reason about the location of mixed numbers in the linear number system. • 4F-2 Convert mixed numbers to improper fractions and vice versa. • 4F-3 Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers.	• 5NPV-4 Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts. • 5F-1 Find non-unit fractions of quantities. • 5F-2 Find equivalent fractions and understand that they have the same value and the same position in the linear number system. • 5F-3 Recall decimal fraction equivalents for ¼, ½, 1/5 and 1/10	• 6F-1 Recognise when fractions can be simplified, and use common factors to simplify fractions. • 6F-2 Express fractions in a common denomination and use this to compare fractions that are similar in value. • 6F-3 Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a

	• 3F-4 Add and subtract fractions with the same denominator, within 1		and for multiples of these proper fractions.	comparison strategy.
Decimals		• Recognise and write decimal equivalents of any number of tenths or hundredths • Recognise and write decimal equivalents to ¼, ½ and ¾ • Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths • Round decimals with one decimal place to the nearest whole number • 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 and write decimal numbers as fractions • 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 • Read, write, order and compare numbers with up to three decimal places • Solve problems involving number up to three decimal places • Solve problems which require knowing percentage and decimal equivalents of ½ , ¼ , 1/5 , 2/5 , 4/5 and those fractions with a denominator of a multiple of 10 or 25	• Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction • Identify the value of each digit in numbers given to three decimal places • Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places • Multiply one-digit number with up to two decimal places by whole numbers • Use written division methods in cases where the answer has up to two decimal places
RTP criteria			• 5NPV-1 Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1. Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01. Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01 • 5NPV-2 Recognise the place value of each digit in numbers with up to 2 decimal places, and compose and decompose numbers with up to 2 decimal places using standard and non-standard partitioning. • 5NPV-3 Reason about the location of any number with up to 2 decimals places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each.	

Percentages			• Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal	• Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison
Ratio & Proportion				• 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
RTP criteria				• 6AS/MD-1 Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number). • 6AS/MD-3 Solve problems involving ratio relationships.
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
RTP criteria				• 6AS/MD-4 Solve problems with 2 unknowns.
Measurement	• Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) • Measure the perimeter of simple 2-D shapes • Add and subtract amounts of money to give change, using both £	• Convert between different units of measure • Estimate, compare and calculate different measures, including money in pounds and pence • Measure and calculate the perimeter of a rectilinear figure (including squares)	• Convert between different units of metric measure • Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • Estimate volume and capacity	• Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate • Use, read, write and convert between standard units, converting

| | | in centimetres and metres
• Find the area of rectilinear shapes by counting squares | • Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres
• Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes
• Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling | 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
• Convert between miles and kilometres
• 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 cubic centimetres (cm3) and cubic metres (m3), and extending to other units |
| **RTP criteria** | • 3NPV-1 Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three-digit multiples of 10
• 3AS-1 Calculate complements to 100
• 3AS-3 Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part–part–whole structure. Understand and use the commutative property of addition, and understand the related property for subtraction. | | • 5NPV-5 Convert between units of measure, including using common decimals and fractions. | • 6NPV-4 Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts. |

Time	• Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks • 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, a.m./p.m., 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	• Convert between different units of measure (e.g. Hours to minutes) • Read, write and convert time between analogue and digital 12- and 24-hour clocks • Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days	• Solve problems involving converting between units of time	
Shape & Geometry	• Identify horizontal and vertical lines and pairs of perpendicular and parallel lines • Draw 2-D shapes • 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 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 or less than right angle	• Compare and classify geometric shapes, including quadrilaterals and triangles, based on properties and sizes • Identify lines of symmetry in 2-D shapes presented in different orientations • Complete a simple symmetric figure with respect to a specific line of symmetry • 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 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	• 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 • Identify 3-D shapes, including cubes and other cuboids, from 2-D representations • 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 360°); at a point on a straight line and ½ a turn (total 180°) • Identify other multiples of 90° • 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	• Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius • Draw 2-D shapes using given dimensions and angles • Compare and classify geometric shapes based on their properties and sizes • Recognise, describe and build simple 3-D shapes, including making nets • 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 • 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

RTP criteria	• 3G-1 Recognise right angles as a property of shape or a description of a turn, and identify right angles in 2D shapes presented in different orientations. • 3G-2 Draw polygons by joining marked points, and identify parallel and perpendicular sides.	• 4G-1 Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant. • 4G-2 Identify regular polygons, including equilateral triangles and squares, as those in which the side lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons. • 4G-3 Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.	• 5G-1 Compare angles, estimate and measure angles in degrees (°) and draw angles of a given size. • 5G-2 Compare areas and calculate the area of rectangles (including squares) using standard units.	• 6G-1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.
Statistics	• Interpret and present data using bar charts, pictograms and tables • Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables	• 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	• Complete, read and interpret information in tables, including timetables • Solve comparison, sum and difference problems using information presented in a line graph	• Interpret and construct pie charts and line graphs • Calculate and interpret the mean as an average • Use pie charts and line graphs to solve problems
Mathematical Vocabulary	• Read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling	• Read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling	• Read, spell and pronounce mathematical vocabulary correctly	• Read, spell and pronounce mathematical vocabulary correctly • Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius