Year 5 Mathematics Curriculum Map For St. Antony's Catholic Primary School

Mastery Principles (Reasoning, Fluency and Problem Solving) to be taught across all areas, every term.

- Teachers reinforce an expectation that all pupils are capable of achieving high standards in mathematics.
- The large majority of pupils progress through the curriculum content at the same pace. Differentiation is achieved by emphasising deep knowledge and through individual support and intervention
- Teaching is supported by resources to foster deep conceptual and procedural knowledge.
- Practice and consolidation play a central role.
- Teachers use precise questioning in class to test conceptual and procedural knowledge and assess pupils regularly to identify those requiring additional support to catch up.

Expectations

- Count forwards and backward with positive and negatives through zero.
- Count forwards and backwards in steps of powers of 10 for any given number up 1000000.
- Compare and order numbers up to 1000000.
- Compare and order numbers with 3 decimal places.
- Read Roman numerals to 1000.
- Use and apply multiplication facts up to 12 x 12
- Identify all multiples and factors including all factor pairs.
- Use known tables to derive other number facts.
- Use the vocabulary of prime, prime factors and composite numbers
- Recall prime numbers up to 20.
- Recognise and use square numbers and cube numbers.
- Recognise place value of any number up to 1000000.
- Round any number up to 1000000 to the nearest 10, 100, 1000, 10000 or 100000.
- Round decimals with 2dp to nearest whole number and 1dp.
- Add and subtract numbers with more than 4-digits using formal written method.
- Use rounding to check answers.
- Multiply 4-digits by 1-digit/2-digit.
- Divide up to 4-digits by 1-digit and 2-digit
- Multiply and divide whole numbers and decimals by 10, 100 and 1000.
- Recognise and use thousandths.
- +/- fractions
- Recognise mixed numbers and improper fractions and convert from one to another.
- Multiply proper fractions and mixed numbers by whole numbers.
- Identify and write equivalent fractions.
- Distinguish between regular and irregular polygons
- Solve time problems using timetables and converting between units of time.

Rapid recall **Children should be able to recall rapidly:**	**Mental strategies** **Children should be able to use the following strategies, as appropriate, for mental calculations**	**Mental calculations**
• Multiplication facts to 10 x 10 • Division facts corresponding to tables up to 10 x 10	• Count up through the next multiple of 10, 100, or 100 • reorder numbers in a calculation • partition into hundreds, tens and units, adding the most significant digit first • use known number facts and place value to add	• Add or subtract any pair of three-digit multiples o 10, e.g. 570+250, 620+380 • Find what must be added to a decimal fraction with units and tenths to made the next higher whole number e.g. 4.3+?=5 • Add or subtract any pair of decimal fractions

	or subtract pairs of three-digit multiples of 10 and two-digit numbers with one decimal place • add or subtract the nearest multiple of 10 or 100 then adjust • identify near doubles • add several numbers • develop further the relationship between addition and subtraction • use factors • partition to carry out multiplication • use doubling and halving • use closely related facts to carry out multiplication and division • use the relationship between multiplication and division • use knowledge of number facts and place value to multiply or divide.	each with units and tenths, or each with tenths or hundredths e.g. 5.7+2.5, 0.63-0.48 • Subtract a four-digit number just less than a multiple of 1000 from a four-digit number just more than a multiple of 1000, e.g. 5001-1997 • Multiply any two- or three-digit number by 10 or 100, e.g. 79 x100, 363 x 100 • Divide a multiple of 100 by 10 or 100 e.g. 4000÷10 3600÷100 • Multiply any two-digit multiple of 10 by a single-digit e.g. 60 x 7, 90 x 6 • Double any whole number from 1 to 100, multiples of 10 to 1000 and find corresponding halves • Find 50%, 25%, 10% of small whole numbers or quantities e.g. 25% of £8.
Autumn (weeks 1-13)	**Spring (weeks 14-26)**	**Summer (weeks 27-39)**
Place Value • estimating • M/HTH/TH/H/T/O • decimal numbers • t/h/th • negative values • rounding up and down by 10, 100 and 1000 **Number Systems** • Roman numerals **Written Methods** • addition using grid/partitioning/column method • subtraction using grid/partitioning/decomposition/column method • multiplication by 10, 100 and 1000 • multiplication by single and double digits using grid/partitioning/vertical column method (ThTHU x U and x TU) • division using chunking/short/long • dividing by 10, 100 and 1000 **Money** • addition and subtraction of decimals and money **Number Sequences** • positive and negative numbers • prime numbers • square numbers • cube numbers • factors **Fractions, Decimals and Percentages**	**Place Value** • M/HTH/TH/H/T/o • decimal numbers • t/h/th • negative values • rounding up and down by 10, 100, 1000, 10000 and 100000 **Number Systems** • Roman numerals • prime/square/cube numbers • sequences/patterns/puzzles/missing digits **Written Methods** • addition • subtraction • division • multiplication • use of money and decimal numbers **Fraction, Decimals and Percentages** • fractions, decimals and percentages of numbers/amounts/shapes **Ratio and Proportion** **Statistics** • reading and interpreting • use and apply • mean, median, mode and range **Geometry** • triangles • lines	**Transition Maths** **Averages** • mean • median • mode • range **Calculator skills** **Probability** • language of probability • recording probability as fractions, decimals and percentages **Introduction to simple algebra** • nth term • linear equations **Tests of divisibility** **Review time** **Using and applying of skills** • maths research • maths projects • maths investigations

• conversion • use and apply • adding and subtracting fractions **Ratio and Proportion** **Geometry** • converting and using measures • volume and capacity • identify properties of 2D and 3D shapes • symmetry • reflection • rotation • nets – rotation and position on grid	• area and perimeter of regular and irregular shapes • identify, classify, define, construct and measure angles • calculate the value of missing angles • rotation and position/turns • coordinates using 1-4 quadrants • analogue and digital time • schedules and timetables	

All Objectives must be stated as **"I CAN"** Statements which are measurable and linked to the **Mathematics Skills, Approaches and Strategies being taught:**

Examples of Objectives: I can **read** and **write** whole numbers to 1,000,000 I can **Identify, read and write decimal** numbers to three decimal places
I can **find the perimete**r of quadrilaterals I can **derive prime factors/factors/multiples** of given numbers
I can **plot co-ordinates** in a four quadrant grid I can **calculate the area of 2D shapes** using standard formulae
I can **solve complex addition problems** using the column method I can **use a protractor** to correctly measure angles
I can use the **grid method/partitioning/the empty number line** to solve addition/subtraction/multiplication problems
I can **use short/long division method** to solve I can **use the chunking method** to solve division problems
I can **use BODMAS** to solve problems I can **order negative and positive** numbers
I can **classify /define the properties** of polygons/simple/complex/2D/3D shapes

<u>Suggested Maths Skills and Operations for formulating objectives when planning</u>:

Read, Write, Identify, Define, Sort, Classify, Order, Find, Derive, Work out, Calculate, Explain, Justify, Add, Multiply, Divide, Use and Apply, Choose and Use, Plot, Draw, Measure, Estimate, Double, Halve, Investigate, Reduce, Increase, Convert, Sequence, Tally, Use relevant maths vocabulary accurately

Solve (simple, complex, one/two/multiple step)Word Problems, Extract Data, Represent Data using a :line graph, block graph, histogram, bar/pie/tally chart, pictogram/pictograph, scatter graph,