St. Margaret's C.E. Junior School
Year 5 Maths Curriculum Overview

AUTUMN

Number: Place value

- Read Roman numerals to 1000 (M) and recognise years written in Roman numerals (NPV 3)
  - Roman numerals to 1,000
- Read and write numbers up to 1 000 000 and determine the value of each digit (NPV 1) (NPV 3)
- 1000's, 100's 10's and 1's. (NPV 2) (R)
  - Numbers to 10,000
  - Numbers to 100,000
  - Numbers to 1,000,000
  - Read and write numbers to 1,000,000
- Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 (NPV 2)
  - Powers of 10
  - 10/100/1,000/10,000/100,000 more or less
  - Partition numbers to 1,000,000
  - Number line to 1,000,000 (NPV 4)
- Compare and order numbers up to 1 000 000 and determine the value of each digit (NPV 3) ***(PS) Logical reasoning**
  - Compare and order numbers to 100,000
  - Compare and order numbers to 1,000,000
- Round to the nearest 10 & 100 (NPV 3 R)
- Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000
  - Round to the nearest 10, 100 or 1,000
  - Round within 100,000
  - Round within 1,000,000
- **Solve number problems and practical problems** that involve all of the above

SPRING

Number: multiplication and division B

- Multiply and divide numbers mentally drawing upon known facts (NF 1) (MD 3) ***(PS) Looking for a pattern/open-ended problem solving**
- 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 (NF 1) (MD 3)
  - Multiply up to a 4-digit number by a 1-digit number
- Multiply 2 digits by 1 digit (MD 3) (R)
- Multiply 3 digits by 1 digit (MD 3) (R)
  - Multiply a 2-digit number by a 2-digit number (area model)
  - Multiply a 2-digit number by a 2-digit number
  - Multiply a 2-digit number by a 3-digit number
  - Multiply a 2-digit number by a 4-digit number
  - Solve problems with multiplication
- 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 (NF 1) (MD 4)
- Divide 2 digits by 1 digit (MD 4) (R)
- Divide 3 digits by 1 digit (MD 4) (R)
  - Short division
  - Divide a 4-digit number by a 1-digit number
  - Divide with remainders
  - Efficient division
  - Solve problems with multiplication and division

***(PS) Drawing a diagram**

SUMMER

Geometry: properties of shapes

- Identify angles at a point and one whole turn (total 360°); at a point on a straight line and ½ a turn (total 180°) (G 1) (R)
  - Understand and use degrees
- Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
  - Classify angles
  - Estimate angles
- Draw given angles, and measure them in degrees (°) (G 1)
  - Measure angles up to 180°
  - Draw lines and angles accurately
  - Calculate angles around a point
  - Calculate angles on a straight line
- Use the properties of rectangles to deduce related facts and find missing lengths and angles
  - Lengths and angles in shapes
- Distinguish between regular and irregular polygons based on reasoning about equal sides and angles
- Triangles (R)
  - Regular and irregular polygons
  - 3-D shapes

Geometry: position & direction

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 (R)

- Read and plot coordinates
- Problem solving with coordinates
- Translation
- Translation with coordinates
- Lines of symmetry
- Reflection in horizontal and vertical lines

AUTUMN	SPRING	SUMMER
Number: addition and subtraction • Add & subtract numbers **mentally** with increasingly large numbers ➢ Mental strategies • Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • Add & subtract two 4-digit numbers one & more than 1 exchange (R) ➢ Add whole numbers with more than four digits ➢ Subtract whole numbers with more than four digits • Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy ➢ Round to check answers • **Solve addition & subtraction multi-step problems** in contexts, deciding which operations and methods to use and why ➢ Inverse operations (addition and subtraction) ➢ Multi-step addition and subtraction problems ➢ Compare calculations ➢ Find missing numbers ***(PS) Working backwards**	**Fractions B** • Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams ➢ Multiply a unit fraction by an integer ➢ Multiply a non-unit fraction by an integer ➢ Multiply a mixed number by an integer ➢ Calculate a fraction of a quantity (F 1) ➢ Fraction of an amount (F 1) ➢ Find the whole ➢ Use fractions as operators ***(PS) Drawing a diagram**	**Decimals** • Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents (MD 1) ➢ Use known facts to add and subtract decimals within 1 ➢ Complements to 1 ➢ Add and subtract decimals across 1 ➢ Add decimals with the same number of decimal places ➢ Subtract decimals with the same number of decimal places ➢ Add decimals with different numbers of decimal places ➢ Subtract decimals with different numbers of decimal places ➢ Efficient strategies for adding and subtracting decimals ➢ Decimal sequences ***(PS) Looking for a pattern** ➢ Multiply by 10, 100 and 1,000 ➢ Divide by 10, 100 and 1,000 ➢ Multiply and divide decimals – missing values • **Solve problems** involving number up to three decimal places **Negative Numbers** • Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero (NPV 3) ➢ Understand negative numbers ➢ Count through zero in 1s ➢ Count through zero in multiples ➢ Compare and order negative numbers ➢ Find the difference
Number: multiplication and division A • Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers (NF 1) (MD 2) ➢ Multiples ➢ Common multiples ➢ Factors ➢ Common factors ***(PS) Trial & improvement/open-ended problem solving** • Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers (MD 2) ➢ Prime numbers	**Decimals & Percentages** • Read and write decimal numbers as fractions (F 3) ➢ Decimals up to 2 decimal places • Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents (NPV 1) ➢ Equivalent fractions and decimals (tenths) ➢ Equivalent fractions and decimals (hundredths) Equivalent fractions and decimals ➢ Thousandths as fractions ➢ Thousandths as decimals ➢ Thousandths on a place value • Read, write, order and compare numbers with up to three	**Measurement: Converting Units** • Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) (NPV 6) • Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints (NPV 6) ➢ Kilograms and kilometres ➢ Millimetres and millilitres ➢ Convert units of length ➢ Convert between metric and imperial units

• Establish whether a number up to 100 is prime and recall prime numbers up to 19 • Recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3}) (MD 2) ➢ Square numbers ➢ Cube numbers • **Solve problems involving multiplication and division** including using their knowledge of factors and multiples, squares and cubes (MD 2) ***(PS) Creating an organised list** • Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 (NPV 1) (NF 2) (MD 1) (R) ➢ Multiply by 10, 100 and 1,000 ➢ Divide by 10, 100 and 1,000 ➢ Multiples of 10, 100 and 1,000 • **Solve problems involving multiplication and division**, including scaling by simple fractions and problems involving simple rates	decimal places (F 2) ➢ Order and compare decimals (same number of decimal places) ➢ Order and compare any decimals with up to 3 decimal places • Round decimals with two decimal places to the nearest whole number and to one decimal place ➢ Round to the nearest whole number ➢ Round to 1 decimal place • 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 ➢ Understand percentages ➢ Percentages as fractions ➢ Percentages as decimals • **Solve problems** involving number up to three decimal places ***(PS) Drawing a table** • **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 (F 3) ➢ Equivalent fractions, decimals and percentages	• **Use all four operations to solve problems involving measure** [for example, length, mass, volume, money] using decimal notation, including scaling ➢ Convert units of time ➢ Calculate with timetables

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Fractions A • Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths (F 2) ➢ Find fractions equivalent to a unit fraction ➢ Find fractions equivalent to a non-unit fraction ➢ Recognise equivalent fractions • Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number ➢ Convert improper fractions to mixed numbers ➢ Convert mixed numbers to improper fractions • Compare and order fractions whose denominators are all multiples of the same number (F 2) (R) ➢ Compare fractions less than 1 ➢ Order fractions less than 1 ➢ Compare and order fractions greater than 1 • Add and subtract fractions with the same denominator and denominators that are multiples of the same number (F 2) ➢ Add and subtract fractions with the same denominator ➢ Add fractions within 1 ➢ Add fractions with total greater than 1 ➢ Add to a mixed number ➢ Add two mixed numbers ➢ Subtract fractions ➢ Subtract from a mixed number ➢ Subtract from a mixed number - breaking the whole ➢ Subtract two mixed numbers	**Measurement: Perimeter and Area** • Measure perimeter, perimeter on a grid, perimeter of rectangles, perimeter of rectilinear shapes (R) • Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres (G2) ➢ Perimeter of rectangles ➢ Perimeter of rectilinear shapes ➢ Perimeter of polygons • Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes (G2) ➢ Area of rectangles ➢ Area of compound shapes ➢ Estimate area	**Measurement: Converting Units** • Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) (NPV 6) • **Solve problems involving converting between units of time** • **Use all four operations to solve problems involving measure** [for example, length, mass, volume, money] using decimal notation, including scaling • Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints ➢ Cubic centimetres ➢ Compare volume ➢ Estimate volume ➢ Estimate capacity
	Statistics: interpreting line graphs • Interpret charts, comparison, sum & difference (R) • Introduce line graphs (NPV 4) (R) ➢ Draw line graphs ➢ Read and interpret line graphs • Complete, read and interpret information in tables, including timetables (NPV 4) ➢ Read and interpret tables ➢ Two-way tables	**Measurement: Volume** • Estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water] ***(PS) Acting it out**

	➢ Read and interpret timetables • **Solve comparison, sum and difference problems** using information presented in a line graph (NPV 4) ***(PS) Drawing a table**	

White Rose Maths Hub & **Power Maths** schemes of learning are used to support medium term planning and as exemplification for maths objectives.
R- RECAP of previous objectives
➢ WRH Small Steps
Small steps can be combined into one lesson.

***(PS) PROBLEM SOLVING opportunities**

DfE- Ready to progress criteria
NF- Number Facts
NPV- Number & Place Value
AS- Addition & Subtraction
MD- Multiplication & Division
F- Fractions
G- Geometry

REMEMBER to complete **pre & post learning assessments**.
Only move on when the majority of pupils are secure in the objective.