YEAR 5 MATHS

1 Number and Place Value

- Read, write, order and compare numbers to at least 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
- Solve number problems and practical problems involving rounding and working with large numbers
- 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 through zero
- Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.

2 Addition and Subtraction (including Statistics)

- Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
- Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)
- Add and subtract numbers mentally with increasingly large numbers
- Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
- Statistics: Complete , read and interpret information in tables, including timetables

3 Multiplication and Division

- 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
- Multiply and divide numbers mentally drawing upon known facts
- Multiply and divide whole numbers and those involving decimals by 10, 100
- Solve problems involving
  addition, subtraction, multiplication and division
- Know and use the vocabulary of
  prime numbers, prime factors
  and composite (non-prime) numbers
- Multiply numbers up to 4 digits by a one- or two-digit number
- Recognise and use square numbers and the notation for squared (2)
- Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign
- Establish whether a number up to 100 is prime and recall prime numbers up to 19
- 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
- Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000
- Solve problems involving multiplication and division including using knowledge of factors and multiples, squares and cubes
- Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates
- Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)

4 Fractions

- Compare and order fractions whose denominators are all multiples of the same number
- Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. 2/5 + 4/5 = 6/5 = 11/5)
- Add and subtract fractions with the same denominator
- Round decimals with one decimal place to nearest whole 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 multiples of the same number
- Read and write decimal numbers as fractions (e.g. 0.71 = 71/100)
- 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

- 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 hundred, and as a decimal fraction
- Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams
- 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 1/2, 1/4, 1/5, 2/5, 4/5 and those with a denominator of a multiple of 10 or 25.

5 Measurement

- Convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)
- 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
- Solve problems involving converting between units of time
- Use all four operations to solve problems involving measure (eg length, mass, volume, money) using decimal notation including scaling
- Understand and use equivalences between metric units and common imperial units such as inches, pounds and pints
- Estimate volume (e.g. using 1 cm3 blocks to build cubes and cuboids) and capacity (e.g. using water)

6 Geometry

- Identify 3-D shapes, including cubes and other cuboids, from 2-D representations (Properties of shape)
- Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles (Properties of shape)
- Identify angles at a point and one whole turn, total 360° (Properties of shape)
- Draw given angles, and measure them in degrees (°) (propeties of shape)
- Identify angles at a point on a straight line and ½ a turn (total 180°) (propeties of shape)
- Use the properties of rectangles to deduce related facts and find missing lengths and angles (propeties of shape)
- Distinguish between regular and irregular polygons based on reasoning about equal sides and angles (propeties of shape)
- 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 (position and direction)