

**SRPA Mathematician**

There are 3 areas underpinning the mathematics curriculum.

**Fluency**

Pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately. This is facilitated through varied and frequent practice with increasingly complex problems.

**Mathematical reasoning**

Pupils learn to follow a line of enquiry and develop an argument, justification or proof using mathematical vocabulary.

**Problem solving**

Pupils apply their knowledge to a variety of increasingly routine and non-routine problems. They break the problems into a series of simple steps and work systematically to find solutions.

 **NUMBER SENSE**

YEAR 5 PUPIL PASSPORT

I can .read, write, order and compare numbers to at least

1,000,000 and determine the value of each digit

…………………………………….………………………………………

 I can count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000………………

 I can interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0…………………………………………….…

 I can round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 ………………………….

 I can solve number and practical problems that involve all of the above and with increasingly large positive numbers

……………………………………………….…………………………...

 I can read Roman numerals to 1,000 (M) and recognise years written in Roman numerals……………..…………….

  **ADDITION AND SUBTRACTION**

YEAR 5 PUPIL PASSPORT

 I can add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)……………………….……………… 

 I can add and subtract numbers mentally with increasingly large numbers………………….…………………………………….

 I can use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

……………………………………………………………………….……

 **MULTIPLICATION AND DIVISION**

YEAR 5 PUPIL PASSPORT

 I can identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers

……………………………………………………………………….……

 I know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers………..……

 I can establish whether a number up to 100 is prime and recall prime numbers up to 19………………………………...

 I can 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…………………..……

 I can multiply and divide numbers mentally, drawing upon known facts…………………………………………………..………

 I can 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………………..…

 I can multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000……………….

 I can recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³)

…………………………………………………………………………....

 I can solve problems involving multiplication and division, including using knowledge of factors and multiples, squares and cubes……………………………………………………………..……..

 I can solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign

………………………………………………………………………….…

 I can solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates………………………………………………..………….

 **FRACTIONS**

YEAR 5 PUPIL PASSPORT

 I can compare and order fractions whose denominators are all multiples of the same number…………………………….

 I can identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths………………………………………………………….…

 I can recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 = 1 1/5]……………………………………………………….… 

 I can add and subtract fractions with the same denominator, and denominators that are multiples of the same number……………………………………….……………………….…

 I can multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams…….…

 I can read and write decimal numbers as fractions [for example, 0.71 = 71/100]………………………………………….

 I can recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents……………..

 I can round decimals with 2 decimal places to the nearest whole number and to 1 decimal place……………..……….

 I can read, write, order and compare numbers with up to 3 decimal places………………………………………………….…….

 I can solve problems involving number up to 3 decimal places…………………………………………………………………….

 I can recognise the per cent symbol (%) and understand that per cent relates to ‘number of parts per 100’, and write percentages as a fraction with denominator 100, and as a decimal fraction solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25…………………………………………………………...……………

**MEASUREMENT**

YEAR 5 PUPIL PASSPORT

 I can convert between different units of metric measure [for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre]…… 

 I can understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints……………………………………………………………….

 I can measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres………………

 I can calculate and compare the area of rectangles (including squares), including using standard units, square centimetres (cm²) and square metres (m²), and estimate the area of irregular shapes………………………………………….…….

 I can estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water]……………………………………………………….… 

 I can 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……………………………..………

**GEOMETRY**

YEAR 5 PUPIL PASSPORT

**Shapes**

 I can identify 3-D shapes, including cubes and other cuboids, from 2-D representations ………………………….

 I know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles……………….…

 I can draw given angles, and measure them in degrees (°)

…………………………………………………………………………….

 I can identify:

- angles at a point and 1 whole turn (total 360°)

- angles at a point on a straight line and half a turn

(total 180°)

- other multiples of 90°

…………………………………………………………………….………

 I can use the properties of rectangles to deduce related facts and find missing lengths and angles……………….....…

 I can distinguish between regular and irregular polygons based on reasoning about equal sides and angles

…………………………………………………………………………….

**STATISTICS**

YEAR 5 PUPIL PASSPORT

 I can solve comparison, sum and difference problems using information presented in a line graph………………………

 I can complete, read and interpret information in tables, including timetables………………………………………………..

**ALGEBRA**

YEAR 5 PUPIL PASSPORT

 I can solve addition and subtraction problems involving missing numbers…………………………………………………...

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