# Year 5 MATHEMATICS

| *Aspect* | Autumn | Spring | Summer |
|---|---|---|---|
| **Number and Place Value** | • I count forward or backwards in steps of powers of 10 for any given number up to 1,000,000.<br>• I count up and down in thousandths; recognise that thousandths arise from dividing an object into 1000 equal parts and in dividing numbers or quantities by 1000. | • I interpret negative numbers in context, count forward and backwards with positive and negative numbers including through zero.<br>• I read Roman numerals to 1000 and recognise years written in Roman numerals. | • I read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit.<br>• I round any number up to 1,000,000 to the nearest 10, 100, 1000, 10000 or 100000. |
| **Addition and Subtraction** | • I add and subtract numbers mentally with increasingly large numbers.<br>• I add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction). | • I use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. | • I solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. |
| **Multiplication and Division** | • I identify multiples and factors including finding all factor pairs of a number and common factors of two numbers.<br>• I multiply and divide numbers mentally drawing upon known facts.<br>• I know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers and establish whether | • I divide numbers up to 4-digits by a 1-digit number using the formal written method of short division and interpret remainders appropriately for the context.<br>• I multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. | • I recognise and use square numbers and cube numbers, and the notation for square$^2$ and cubed$^3$. |

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| | a number up to 100 is prime and recall prime numbers up to 19.<br>• I multiply numbers up to 4-digits by a 1-digit or 2-digit number using a formal written method, including long multiplication for 2-digit numbers. | | |
| **Fraction** | • I identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.<br>• I read and write decimal numbers as fractions, e.g. 0.71 = 71/100. | • I recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements. | • I compare and order fractions whose denominators are all multiples of the same number.<br>• I round decimals with two decimal places to the nearest whole number and to one decimal place.<br>• I read, write, order and compare numbers with up to three decimal places.<br>• I recognise the percent 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. |
| **Measures** | • I measure and calculate the perimeter of composite rectilinear shapes in cm and m.<br>• I calculate and compare the area of rectangles (including squares, and including using standard units, square | • I calculate and compare the area of rectangles (including squares) including using standard units, square centimetres ($cm^2$) and square metres ($m^2$) and estimate the area of irregular shapes. | • I solve problems involving converting between units of time.<br>• I understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. |

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| | centimetres ($cm^2$) and square metres ($m^2$) and estimate the area of irregular shapes. | • I estimate volume (e.g. using 1 $cm^3$ blocks to build cubes, including cuboids) and capacity (e.g. using water).<br>• I convert between different units of metric measure (e.g. km/m; cm/m; cm/mm; g/kg; l/ml). | |
| **Geometry** | • I know angles are measured in degrees; estimate and compare acute, obtuse and reflex angles.<br>• I identify angles at a point on a straight line and ½ a turn (total 180°); and identify angles at a point and one whole turn (total 360°); I identify other multiples of 90°;<br>• I draw given angles, and measure them in degrees. | • I 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.<br>• I distinguish between regular and irregular polygons based on reasoning about equal sides and angles.<br>• I identify 3D shapes, including cubes and other cuboids, from 2D representations.<br>• I use the properties of rectangles to deduce related facts and find missing lengths and angles. | |
| **Statistics** | • I complete, read and interpret information in: tables, including timetables | • I solve comparison, addition and difference problems using information presented in a line graph. | |

# Working at a HIGHER STANDARD (Greater Depth)

## YEAR 5 MATHEMATICS

| Number and Place Value | 4 Operations (+, -, x, ÷) | Measures | Statistics |
|---|---|---|---|
| • I deal confidently with all numbers up to 1,000,000 and apply this knowledge to scientific, historical and geographical learning.<br>• I am confident when it comes to working across zero for positive and negative numbers to work out time, eg, BC and AD in history. | • I consistently use rounding as a strategy for assessing quickly what the approximate answer should be before calculating. | • I use my knowledge of measurement to create plans of areas around the school, such as classroom, field, outside play area etc.<br>• I use a range of timetables to work out fictional journey times, such as, 'How long would it take me to reach the Amazon rainforest?'. | • I confidently collect my own data on a personal project and present information in formats of my choosing, e.g., charts, graphs or tables. |

- I identify and obtain information to solve mathematical problems.
- I check my results, considering whether they are reasonable and make adaptations if need be.
- I solve problems and investigations from a range of contexts, including using logical thinking.
- I regularly make conjectures and provide examples and counter-examples.
- I show understanding of situations by representing them mathematically using diagrams (pictorial representation) and symbols and words (abstract representation).
- I draw simple conclusions and give justification and proof of reasoning.
- I spot more complex patterns and begin to express generalisations or proof using symbolic notation.