



## Year 5 Maths Objectives



### Understanding number

1. Reads numbers to at least 1 000 000 and determines the value of each digit.
2. Writes numbers to at least 1 000 000 and determines the value of each digit.
3. Orders numbers to at least 1 000 000 and determines the value of each digit.
4. Compares numbers to at least 1 000 000 and determines.
5. Counts forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.
6. Interprets negative numbers in context.
7. Counts forwards and backwards with positive and negative whole numbers, including through zero.
8. Rounds any number up to 1000 000 to the nearest 10, 100, 1000, 10 000 and 100000.
9. Solves number problems and practical problems that involve all of the above.
10. Read Roman numerals to 1000 (M) and recognises years written in Roman numerals.

### Addition and subtraction

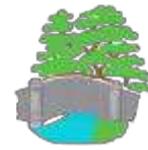
11. Adds whole numbers with more than 4 digits, including using formal written methods.
12. Subtracts whole numbers with more than 4 digits, including using formal written methods.
13. Adds numbers mentally with increasingly large numbers.
14. Subtracts numbers mentally with increasingly large numbers.
15. Uses rounding to check answers to calculations and determines, in the context of a problem, levels of accuracy.
16. Solves addition multi-step problems in contexts, deciding which operations and methods to use and why.
17. Solves subtraction multistep problems in contexts, deciding which operations and methods to use and why.

### Multiplication and Division

18. Identifies multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.
19. Knows and uses the vocabulary of prime numbers, prime factors and composite (nonprime) numbers.
20. Establishes whether a number up to 100 is prime and recall prime numbers up to 19.
21. Multiplies numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers.
22. Multiplies numbers mentally drawing upon known facts.
23. Divides numbers mentally drawing upon known facts.
24. Divides numbers up to 4 digits by a one-digit number using the formal written method of short division and interprets remainders appropriately for the context.
25. Multiplies whole numbers and those involving decimals by 10, 100 and 1000.
26. Divides whole numbers and those involving decimals by 10, 100 and 1000.
27. Recognises and uses square numbers and cube numbers, and the notation for squared (2) and cubed (3).
28. Solves problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.
29. Solves problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.
30. Solves problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.



## Year 5 Maths Objectives



### Fractions and decimals

31. Compares and orders fractions whose denominators are all multiples of the same number.
32. Identifies, names and writes equivalent fractions of a given fraction, represented visually, including tenths and hundredths.
33. Recognises mixed numbers and improper fractions and converts from one form to the other and writes mathematical statements  $> 1$  as a mixed number.
34. Adds fractions with the same denominator and denominators that are multiples of the same number.
35. Subtracts fractions with the same denominator and denominators that are multiples of the same number.
36. Multiplies proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.
37. Reads and writes decimal numbers as fractions.
38. Recognises and uses thousandths and relates them to tenths, hundredths and decimal equivalents.
39. Rounds decimals with two decimal places to the nearest whole number and to one decimal place.
40. Reads, writes, orders and compares numbers with up to three decimal places.
41. Solves problems involving number up to three decimal places.
42. Recognises the per cent symbol (%) and understands that per cent relates to 'number of parts per hundred', and writes percentages as a fraction with denominator 100, and as a decimal.
43. Writes percentages as a fraction with denominator 100, and as a decimal.
44. Solves problems which require knowing percentage and decimal equivalents of  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{5}$ ,  $\frac{2}{5}$ ,  $\frac{4}{5}$  and those fractions with a denominator of a multiple of 10 or 25.

### Measurement

45. Converts between different units of metric measure (eg, kilometre and metre).
46. Converts between different units of metric measure centimetre and metre.
47. Converts between different units of metric measure centimetre and millimetre.
48. Converts between different units of metric measure gram and kilogram.
49. Converts between different units of metric measure litre and millilitre.
50. Understands and uses approximate equivalences between metric units and common imperial units such as inches, pounds and pints.

51. Measures and calculates the perimeter of composite rectilinear shapes in centimetres and metres.
52. Calculates and compares the area of rectangles (including squares), and including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>).
53. Estimates the area of irregular shapes.
54. Estimates volume and capacity.
55. Solves problems involving converting between units of time.
56. Uses all four operations to solve problems involving measure using decimal notation, including scaling.

### Geometry – Properties of shapes

57. Identifies 3-D shapes, including cubes and other cuboids, from 2-D representations.
58. Knows angles are measured in degrees: estimates and compares acute, obtuse and reflex angles.
59. Draws given angles, and measure them in degrees (o).
60. Identifies angles at a point and one whole turn (total 360o).
61. Identifies angles at a point on a straight line and  $\frac{1}{2}$  a turn (total 180o).
62. Identifies other multiples of 90o.
63. Uses the properties of rectangles to deduce related facts and finds missing lengths and angles.
64. Distinguishes between regular and irregular polygons based on reasoning about equal sides and angles.

### Geometry – Properties of shapes

65. Identifies, describes and represents the position of a shape following a reflection or translation using the appropriate language, and knows that the shape has not changed.

### Statistics

66. Solves comparison, sum and difference problems using information presented in a line graph.
67. Completes, reads and interprets information in tables, including timetable.