

## **MATHEMATICS**

## NUMBER AND PLACE VALUE

- read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit
- 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, including through zero
- 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 that involve all of the above
- read Roman numerals to 1000 (M) and recognise years written in Roman numerals

### CALCULATION

- add and subtract whole numbers with more than 4 digits, including using formal written methods (column addition and subtraction)
- add and subtract numbers mentally with increasingly large numbers
- use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
- 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, prime factors and composite (non-prime) numbers
- 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
- multiply and divide numbers mentally drawing upon known facts
- 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
- recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³)
- solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes
- solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign
- solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

### FRACTIONS AND DECIMALS

- compare and order fractions whose denominators are all multiples of the same number
- identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths
- 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,  $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$ ]
- add and subtract fractions with the same denominator and denominators that are multiples of the same number
- multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams
- read and write decimal numbers as fractions [for example, 0.71 =  $\frac{71}{100}$  ]
- 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
- read, write, order and compare numbers with up to three decimal places
- solve problems involving number up to three decimal places



- 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
- solve 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**

- convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)
- understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints
- 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 (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes
- estimate volume [for example, using 1 cm<sup>3</sup> blocks to build cuboids (including cubes)] and capacity [for example, using water]
- solve problems involving converting between units of time and calculating durations of time
  use all four operations to solve problems involving measure [for example, length, mass, volume,
  money] using decimal notation, including scaling

## **GEOMETRY**

- identify 3-D shapes, including cubes and other cuboids, from 2-D representations
- know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
- draw lines accurately to the nearest mm
- draw given angles, and measure them in degrees (°) using a protractor
- identify:
  - angles at a point and one whole turn (total 360°)
  - angles at a point on a straight line and  $\frac{1}{2}$  a turn (total 180°)
  - other multiples of 90°
- use the properties of rectangles to deduce related facts and find missing lengths and angles
- distinguish between regular and irregular polygons based on reasoning about equal sides and angles
- 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

### **STATISTICS**

- solve comparison, sum and difference problems using information presented in a line graph
- complete, read and interpret information in tables, including timetables



## **READING**

## **COMPREHENSION**

Show positive attitudes to reading and understanding of what they read by:

- Frequently choosing to read for enjoyment both fiction and non-fiction
- Recommending books to others based on own reading experiences
- Demonstrating appropriate intonation, tone and volume when reading aloud to make the meaning clear to the audience
- Demonstrating an increasing familiarity with a wide range of books from different genres
- Checking understanding using a range of comprehension strategies, explaining and discussing their understanding of what they have read independently
- Understanding the conventions of different types of writing, using some technical terms when discussing texts
- In using non- fiction, accurately retrieving information using contents pages and indexes, summarising and recording information found
- Recognising themes and making comparisons of characters, settings, themes and other aspects within a text
- Drawing inferences such as inferring characters' feelings, thoughts and motives from their actions and
  justifying inferences with evidence and making predictions based on these that are stated and implied
- Summarising the main ideas drawn from longer texts, identifying key details that support the main idea

## WORD READING

- Fluently and effortlessly read a wide range of age appropriate texts
- Determine the meaning of new words by applying knowledge of the root words, prefixes and suffixes



## WRITING

- Select appropriate grammar and vocabulary, understanding how such choices can change and enhance meaning
- Propose changes to vocabulary, grammar and punctuation to enhance effects and clarify meaning
- Use relative clauses beginning with who, which, where, when, whose, that or with an implied (i.e. omitted) relative pronoun (e.g the boy, who was feeling very ill ..., the boy, feeling very ill...)
- Use modal verbs or adverbs to indicate degrees of possibility (e.g. could, might, should)
- Evidence of the perfect form of verbs to mark relationships of time and cause (e.g. I have/had found a necklace)
- Use precise expanded noun phrases to add interest and detail (e.g. the paisley patterned tie with a Windsor knot...)
- Select the appropriate form and use other similar writing as models when planning
- In narratives, describe settings, characters and atmosphere and integrating dialogue to convey character and advance the action
- Use further organisational and presentational devices to structure text and to guide the reader (e.g. headings, bullet points, underlining)
- Ensure correct subject and verb agreement when using singular and plural, distinguishing between the language of speech and writing and choosing appropriate register
- Viewpoint (opinion, attitude, position) is expressed, but may not be consistently maintained
- Can redraft a section of writing to strengthen impact

## **SENTENCE**

- Use relative clauses beginning with who, which, where, when, whose, that, or an omitted relative pronoun
- Indicate degrees of possibility using adverbs [for example, perhaps, surely] or modal verbs [for example, might, should, will, must]

## **TEXT**

- Use devices to build cohesion within a paragraph [for example, then, after that, this, firstly]
- Link ideas across paragraphs using adverbials of time [for example, later], place [for example, nearby] and number [for example, secondly] or tense choices [for example, he had seen her before]

#### **PUNCTUATION**

- Continue to use apostrophes inverted commas (speech marks), full stops, capital letters, exclamation and questions marks and commas in lists accurately
- Use brackets, dashes or commas to indicate parenthesis
- Use commas to clarify meaning or avoid ambiguity

### **HANDWRITING**

- Use joined, fluent and legible handwriting
- Choose appropriate letter shape and size and know whether or not to join letters

## **TERMINOLOGY FOR PUPILS**

modal verb, relative pronoun, relative clause, subordinate clause parenthesis, bracket, dash, cohesion, ambiguity (plus terminology from previous Year groups)