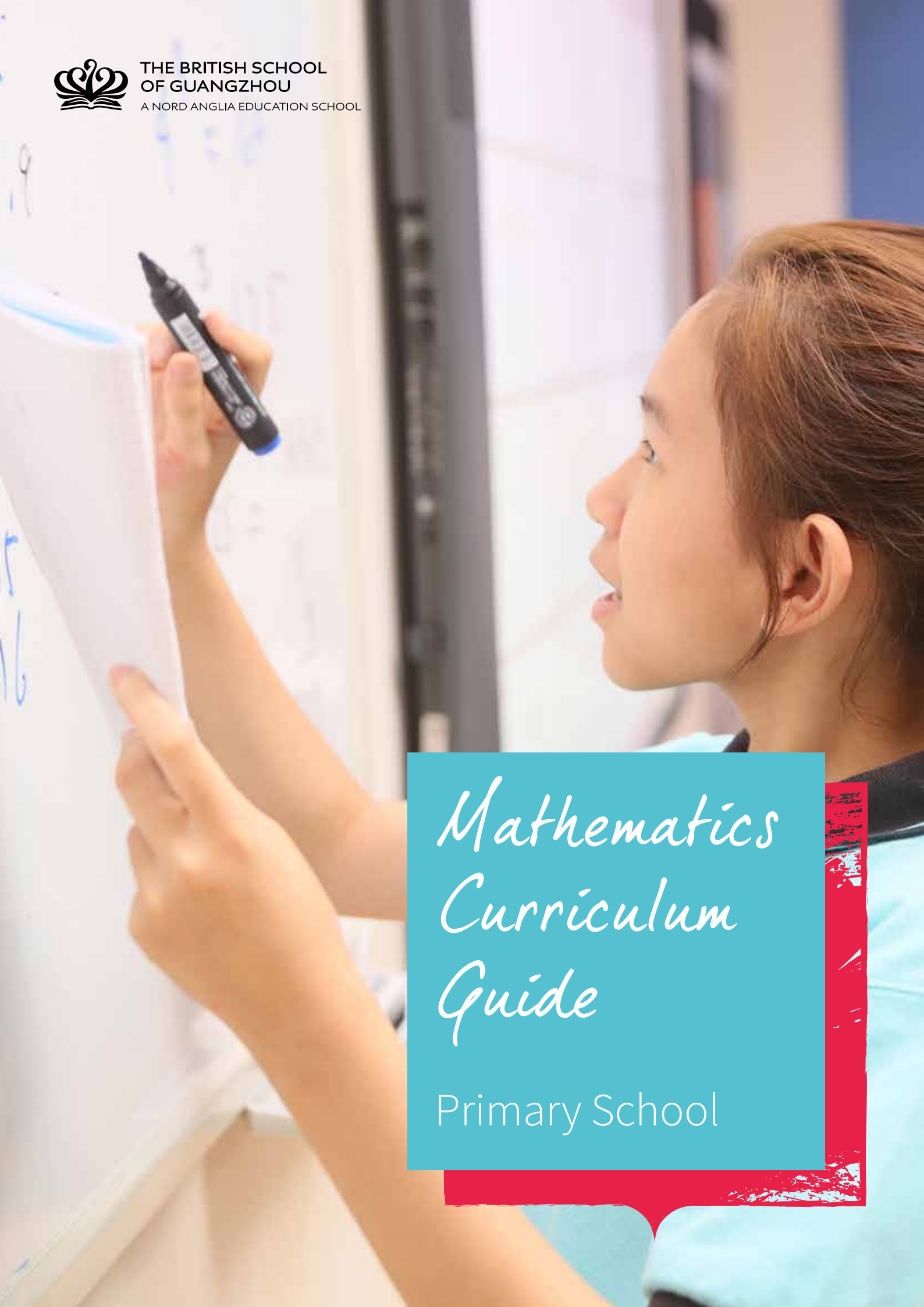


THE BRITISH SCHOOL
OF GUANGZHOU
A NORD ANGLIA EDUCATION SCHOOL

Mathematics Curriculum Guide

Primary School

Year 1

As children begin their compulsory schooling in Year 1, schools will naturally work to build on the learning that takes place in the Reception year. Here are some of the main things your child is likely to be taught during their time in Year 1.

There are plenty of opportunities for maths practise at home, from counting objects to simple games, such as dominoes. You can also begin to explore using money and clocks both in play at home and when out and about.

Parent Tip! Available throughout the booklet in orange

Objectives

Number and Place Value

- Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
- Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens
- Given a number, identify one more and one less
- Read and write numbers from 1 to 20 in numerals and words.

Addition and Subtraction

- Represent and use number bonds and related subtraction facts within 20
- Add and subtract one-digit and two-digit numbers to 20, including zero

Multiplication and Division

- To group sets of objects and share larger groups out; introducing students to the concepts of multiplication and division.

Fractions

- Recognise, find and name a half as one of two equal parts of an object, shape or quantity
- Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.

Measurement

- Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]
- Recognise and use language relating to dates, including days of the week, weeks, months and years
- Tell the time to the hour and half past the hour

Cross-curricular links

Measurement

- Compare, describe, measure and begin to record: lengths and heights [for example, long/short, longer/shorter); tall/short, double/half; mass/weight [for example, heavy/light, heavier than, lighter than]; capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]; time [for example, quicker, slower, earlier, later]

Geometry

- Recognise and name common 2-D and 3-D shapes, including: 2-D shapes [for example, rectangles (including squares), circles and triangles]; 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]
- Describe position, direction and movement, including whole, half, quarter and three-quarter turns.

Year 2

During Key Stage 1, there is a big focus on developing basic number skills. That means securing a good understanding of place value, and recognising number bonds to 20. Practising these skills frequently will help children's mathematical thinking throughout school.

Fun chanting at home is a great way to practise number bonds. When practising number bonds to 20, say aloud a number, then your child can say what number needs to be added to make 20.

Objectives

Number and Place Value

- Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward
- Recognise the place value of each digit in a two-digit number (tens, ones)
- Compare and order numbers from 0 up to 100; use <, > and = signs
- Read and write numbers to at least 100 in numerals and in words

Addition and Subtraction

- Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- Add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
    - two-digit number and ones
    - two-digit number and tens
    - two two-digit numbers
    - adding three one-digit numbers
- Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

Multiplication and Division

- Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
- Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs

Fractions

- Recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity
- Write simple fractions for example, ½ of 6 = 3 and recognise the equivalence of 2/4 and ½

Measurement

- Tell and write the time to five minutes, including quarter past/to the hour
- Know the number of minutes in an hour and number of hours in a day

Cross-curricular links

Measurement

- Compare and order lengths, mass, volume/capacity and record the results using <, > and =

Geometry – Properties of shape

- Identify, describe the properties of, and draw (2-D)/construct (3-D), 2-D and 3-D shapes.

Geometry – Position and Direction

- Order and arrange combinations of mathematical objects in patterns and sequences
- Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise).

Statistics
- Interpret and construct simple pictograms, tally charts, block diagrams, simple tables and use these to answer questions.

Year 3

During the years of lower Key Stage 2 (Year 3 and Year 4), the focus of mathematics is on the mastery of the four operations (addition, subtraction, multiplication and division) so that children can carry out calculations mentally and then move onto using written methods. In Year 3 your child is likely to be introduced to the standard written column methods of addition and subtraction.

A great way to practise mental calculation is to give your child some different digits and then they use these to try and make 100. For example: give them 2, 4, 5, 7, 8 and say, using these digits make two 2-digits numbers that add up to 100.

Objectives

Number and Place Value

- Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number
- Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)
- Compare and order numbers up to 1000
- Read and write numbers up to 1000 in numerals and in words

Addition and Subtraction

- Add and subtract numbers mentally, including:
    - three-digit number and ones
    - three-digit number and tens
    - three-digit number and hundreds
- Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
- Estimate the answer to a calculation and use inverse operations to check answers

Multiplication and Division

- Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods

Fractions

- Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators
- Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10
- Add and subtract fractions with the same denominator within one whole [for example, 75 + 71 = 76]
- Compare and order unit fractions, and fractions with the same denominators

Measurement

- Tell and write the time from an analogue clock, 12-hour and 24-hour clocks
- Know the number of seconds in a minute and the number of days in each month, year and leap year

Cross-curricular links

Measurement

- Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm/mm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels

Geometry – Properties of Shape

- Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them
- Recognise angles as a property of shape or a description of a turn

Statistics

- Interpret and present data using bar charts, pictograms and tables

Year 4

By the end of Year 4, children will be expected to know all of their times tables up to 12 x 12 by heart. This means not only recalling them in order but also being able to answer any times table question at random, and also knowing the related division facts. For example, in knowing that 6 x 8 = 48, children can also know the related facts that 8 x 6 = 48 and that 48 ÷ 6 = 8 and 48 ÷ 8 = 6. This expertise will be particularly useful when solving larger problems and working with fractions.

A great way for the children to practise their times tables is to use TT Rockstars. The children have great fun using this app, while also gaining that essential number knowledge.

Objectives

Number and Place Value

- Count in multiples of 6, 7, 9, 25 and 1000
- Count backwards through zero to include negative numbers
- Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)
- Identify, represent and estimate numbers using different representations
- Round any number to the nearest 10, 100 or 1000

Addition and Subtraction

- Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate

Multiplication and Division

- Recall multiplication and division facts for multiplication tables up to 12 × 12
- Multiply and divide two-digit and three-digit numbers by a one-digit number using formal written layout

Fractions, including decimals

- Recognise and show, using diagrams, families of common equivalent fractions
- Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.
- Add and subtract fractions with the same denominator
- Round decimals with one decimal place to the nearest whole number
- Compare numbers with the same number of decimal places up to two decimal places

Measurement

- Read, write and convert time between analogue and digital 12- and 24-hour clocks

Cross-curricular links

Geometry – Properties of shapes

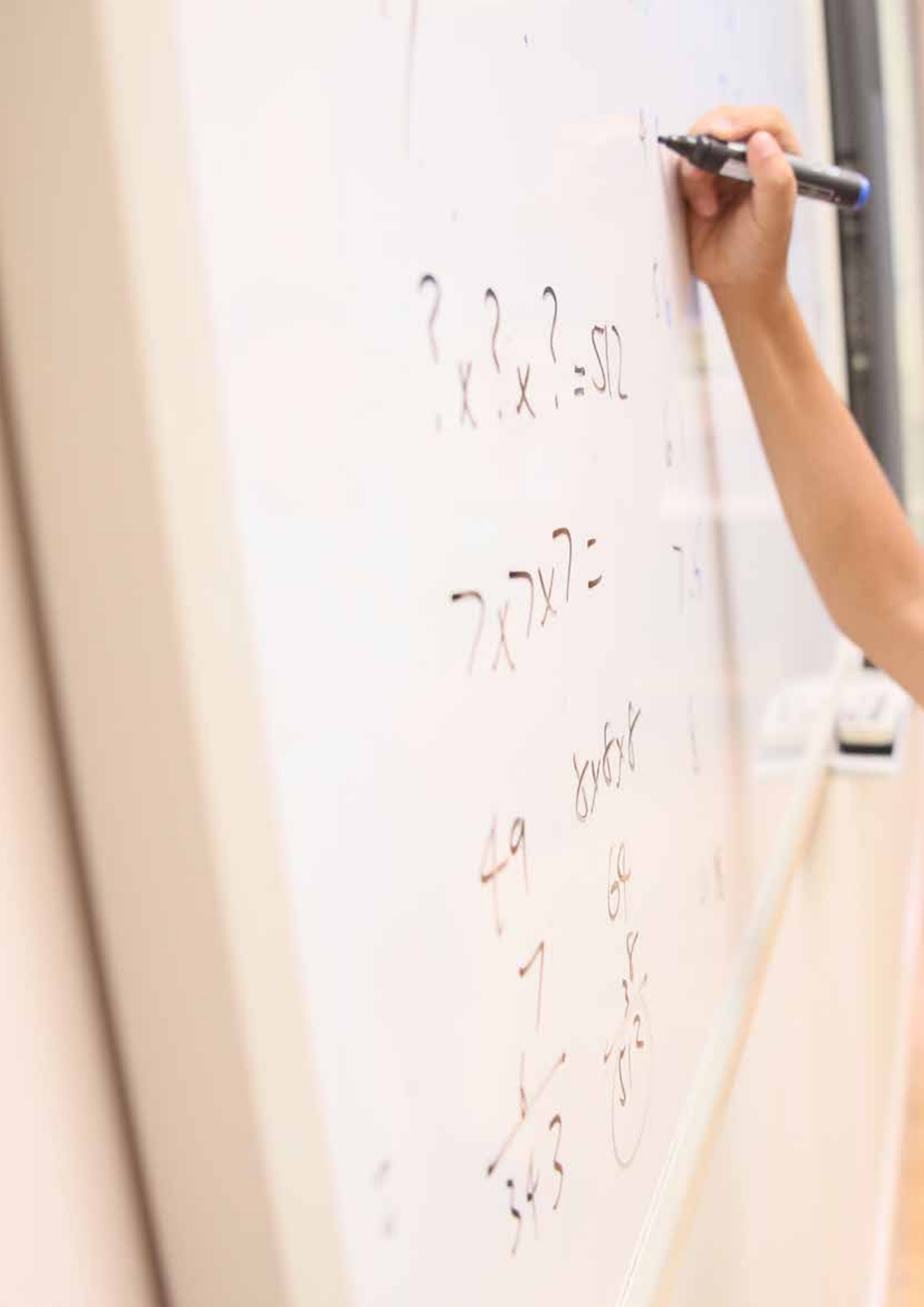
- Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes
- Identify acute and obtuse angles and compare and order angles up to two right angles by size
- Identify lines of symmetry in 2-D shapes presented in different orientations

Geometry – Position and Direction

- Describe positions on a 2-D grid as coordinates in the first quadrant

Statistics

- Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.



Year 5

During the years of upper Key Stage 2 (Year 5 and Year 6), children use their knowledge of number bonds and multiplication tables to tackle more complex problems, including larger multiplication and division, and meeting new material. In Year 5, this includes more work on calculations with fractions and decimals, and using considerably larger numbers than previously. It is also essential for children have number flexibility which means to solve a question using different strategies.

Why not give your child a multiplication question and see how many different ways they can represent or solve it. They might use different mental calculations, written methods, arrays, bar models etc.

Objectives

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 100000

Addition and Subtraction

- Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)
- Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy

Multiplication and Division

- Identify multiples and factors, including finding all factor pairs of a number, and common factors of two 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)

Fractions, including decimals and percentages

- 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
- Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams
- 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
- 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

Statistics

- Solve comparison, sum and difference problems using information presented in a line graph

Cross-curricular links

Measurement
- Measure and calculate the perimeter of composite rectilinear shapes in centimeters and meters
- Calculate and compare the area of rectangles (including squares), and including using standard units, square centimeters (cm2) and square meters (m2) and estimate the area of irregular shapes

Geometry – Properties of Shape

- Measure and draw given angles, in degrees (o)
- Identify angles at a point and one whole turn (total 360o), angles at a point on a straight line, 1/2 a turn (total 180o) and other multiples of 90o.
- Identify 3-D shapes, including cubes and other cuboids, from 2-D representations

Geometry – Position and Direction

- 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 — Complete, read and interpret information in tables, including timetables

Year 6

By the end of Year 6, children are expected to be confident with the use of all four standard methods for written calculations, and to have secured their knowledge of the key number facts for the four operations. Their work will focus more on fractions, ratio, proportion and the introduction of algebra.

Discover more!

Further information is available by scanning the QR code.

Playing traditional games, such as battleships or even draughts and chess, is great for exploring coordinates and movements across the coordinate grid.

Objectives

Number and Place Value

- Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
- Round any whole number to a required degree of accuracy
- Use negative numbers in context, and calculate intervals across zero

Addition, subtraction, multiplication and division

- Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
- Multiply one-digit numbers with up to two decimal places by whole numbers
- Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context
- Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context
- Identify common factors, common multiples and prime numbers
- Use their knowledge of the order of operations to carry out calculations involving the four operations

Fractions, including decimals and percentages

- Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
- Multiply simple pairs of proper fractions, writing the answer in its simplest form
- Divide proper fractions by whole numbers
- Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places

Measurement

- Calculate the area of triangles and parallelograms using their relation to the area of rectangles
- Estimate, calculate, and compare volume of cubes and cuboids using standard units, including cubic centimeters (cm3) and cubic meters (m3), and extending to other units [for example, mm3 and km3].

Ratio and Proportion

- Understand and use ratio to compare quantities, sizes and scale drawings

Algebra

- Use symbols and letters to represent variables and unknowns in mathematical situations that they already understand

Cross-curricular links

Geometry – Properties of shapes

- Draw 2-D shapes using given dimensions and angles
- Recognise, describe and build simple 3-D shapes, including making nets
- Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.
- Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius

Geometry – Position and direction

- Describe positions on the full coordinate grid (all four quadrants)
- Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.

Statistics

- Interpret and construct pie charts and line graphs and use these to solve problems
- Calculate and interpret the mean as an average.