Cambridge Assessment International Education

Cambridge Primary Mathematics
Curriculum outline

Cambridge Primary starts learners on an exciting educational journey, setting out what they should be able to do at each stage of their primary education. It develops young learners who are confident, responsible, reflective, innovative and engaged. The programme develops skills and understanding in English, English as a Second Language, mathematics, science and Cambridge Global Perspectives™. It is for learners typically aged 5 to 11.

There is a curriculum framework for each Cambridge Primary subject. Each framework is organised into six stages. They reflect the teaching target for each year group and provide comprehensive learning objectives. We organise the Cambridge Primary Mathematics curriculum in five content areas or 'strands'. Each strand is further subdivided into 'sub-strands'.

Number
- Numbers and the number system.
- Calculation – Mental strategies, Addition and subtraction, Multiplication and division.

Geometry
- Shapes and geometric reasoning.
- Position and movement.

Measure
- Money (until Stage 3).
- Length, mass and capacity.
- Time.
- Area and perimeter (from Stage 4).

Handling data
- Organising, categorising and representing data.
- Probability (from Stage 5).

Problem solving
- Using techniques and skills in solving mathematical problems.
- Using understanding and strategies in solving problems (from Stage 3).

The first four content areas are underpinned by Problem solving, which describes the use of techniques, skills and the application of understanding and strategies in solving problems. Mental strategies are also a key part of the Number content. This curriculum focuses on principles, patterns, systems, functions and relationships so that learners can apply their mathematical knowledge and develop a holistic understanding of the subject. On the following pages, you will find some examples from the Number strand for Stages 1, 3 and 5 of the Cambridge Primary Mathematics programme.

The Cambridge Primary Mathematics curriculum framework provides a solid foundation for the next stages of education, such as Cambridge Lower Secondary.

Stage 1

Strand: Number

Sub-strand: Numbers and the number system

- Recite numbers in order (forwards from 1 to 100, backwards from 20 to 0).
- Read and write numerals from 0 to 20.
- Count objects up to 20, recognising conservation of number.
- Count on in tens from zero or a single-digit number to 100 or just over.
- Count on in twos, beginning to recognise odd/even numbers to 20 as 'every other number'.
- Begin partitioning two-digit numbers into tens and ones and reverse.
- Within the range 0 to 30, say the number that is 1 or 10 more or less than any given number.
- Use more or less to compare two numbers, and give a number which lies between them.
- Order numbers to at least 20, positioning on a number line; use ordinal numbers.
- Use the = sign to represent equality.
- Give a sensible estimate of some objects that can be checked by counting, e.g. to 30.
- Find halves of small numbers and shapes by folding, and recognise which shapes are halved.

Multiplication and division

- Double any single-digit number.
- Find halves of even numbers of objects up to 10.
- Try to share numbers to 10 to find which are even and which are odd.
- Share objects into two equal groups in a context.

Stage 3

Strand: Number

Sub-strand: Numbers and the number system

- Recite numbers 100 to 200 and beyond.
- Read and write numbers to at least 1000.
- Count on and back in ones, tens and hundreds from two- and three-digit numbers.
- Count on and back in steps of 2, 3, 4 and 5 to at least 50.
- Understand what each digit represents in three-digit numbers and partition into hundreds, tens and units.
- Find 1, 10, 100 more/less than two- and three-digit numbers.
- Multiply two-digit numbers by 10 and understand the effect.
- Round two-digit numbers to the nearest 10 and round three-digit numbers to the nearest 100.
- Place a three-digit number on a number line marked off in multiples of 100.
- Place a three-digit number on a number line marked off in multiples of 10.
- Compare three-digit numbers, use < and > signs, and find a number in between.
- Order two- and three-digit numbers.
- Give a sensible estimate of a number as a range (e.g. 30 to 50) by grouping in tens.
- Find half of odd and even numbers to 40, using notation such as $13\frac{1}{2}$.
- Understand and use fraction notation, recognising that fractions are several parts of one whole, e.g. $\frac{1}{3}$ is three quarters and $\frac{2}{3}$ is two thirds.
- Recognise equivalence between $\frac{1}{2}$, $\frac{2}{4}$, $\frac{4}{8}$, $\frac{5}{10}$ using diagrams.
- Recognise simple mixed fractions, e.g. $1\frac{1}{2}$ and $2\frac{1}{4}$.
- Order simple or mixed fractions on a number line, e.g. using the knowledge that $\frac{1}{2}$ comes half way between $\frac{1}{4}$ and $\frac{3}{4}$, and that $1\frac{1}{2}$ comes half way between 1 and 2.
- Begin to relate finding fractions to division.
- Find halves, thirds, quarters and tenths of shapes and numbers (whole number answers).

Multiplication and division

- Understand the relationship between halving and doubling.
- Understand the effect of multiplying two-digit numbers by 10.
- Multiply single-digit numbers and divide two-digit numbers by 2, 3, 4, 5, 6, 9 and 10.
- Multiply teen numbers by 3 and 5.
- Begin to divide two-digit numbers just beyond 10× tables, e.g. 60 ÷ 5, 33 ÷ 3.
- Understand that division can leave a remainder (initially as 'some left over').
- Understand and apply the idea that multiplication is commutative.
- Understand the relationship between multiplication and division and write connected facts.

Stage 5

Strand: Number

Sub-strand: Numbers and the number system

- Count on and back in steps of constant size, extending beyond zero.
- Know what each digit represents in five- and six-digit numbers.
- Partition any number up to one million into thousands, hundreds, tens and units.
- Use decimal notation for tenths and hundredths and understand what each digit represents.
- Multiply and divide any number from 1 to 10 000 by 10 or 100 and understand the effect.
- Round four-digit numbers to the nearest 10, 100 or 1000.
- Round a number with one or two decimal places to the nearest whole number.
- Order and compare numbers up to a million using the > and < signs.
- Order and compare negative and positive numbers on a number line and temperature scale.
- Calculate a rise or fall in temperature.
- Order numbers with one or two decimal places and compare using the > and < signs.
- Recognise and extend number sequences.
- Recognise odd and even numbers and multiples of 5, 10, 25, 50 and 100 up to 1000.
- Make general statements about sums, differences and multiples of odd and even numbers.
- Recognise equivalence between: $^1/_2$, $^1/_4$, and $^1/_8$, $^1/_3$ and $^1/_6$; $^1/_5$ and $^1/_{10}$.
- Recognise equivalence between the decimal and fraction forms of halves, tenths and hundredths and use this to help order fractions, e.g. 0.6 is more than 50 per cent and less than $^7/_{10}$.
- Change an improper fraction to a mixed number, e.g. $^7/_4$ to $1^3/_4$; order mixed numbers and place between whole numbers on a number line.
- Relate finding fractions to division and use to find simple fractions of quantities.
- Understand percentage as the number of parts in every 100 and find simple percentages of quantities.
- Express halves, tenths and hundredths as percentages.
- Use fractions to describe and estimate a simple proportion, e.g. $^1/_5$ of the beads are yellow.
- Use ratio to solve problems, e.g. to adapt a recipe for 6 people to one for 3 or 12 people.

Multiplication and division

- Multiply or divide three-digit numbers by single-digit numbers.
- Multiply two-digit numbers by two-digit numbers.
- Multiply two-digit numbers with one decimal place by single-digit numbers, e.g. 3.6 × 7.
- Divide three-digit numbers by single-digit numbers, including those with a remainder (answers no greater than 30).
- Start expressing remainders as a fraction of the divisor when dividing two-digit numbers by single-digit numbers.
- Decide whether to group (using multiplication facts and multiples of the divisor) or to share (halving and quartering) to solve divisions.
- Decide whether to round an answer up or down after division, depending on the context.
- Begin to use brackets to order operations and understand the relationship between the four operations and how the laws of arithmetic apply to multiplication.

How can I access the full curriculum framework?

Only schools offering Cambridge Primary can access the full curriculum framework.

- If you are a Cambridge Primary school, you can download the full curriculum framework from our password-protected Cambridge Primary support site
- If you are a Cambridge school and would like to offer Cambridge Primary, complete and return our *Additional Qualification Types* form.
- If you are not a Cambridge school and would like to find out more about Cambridge Primary, complete our *Expression of Interest* form at **www.cambridgeinternational.org/join**

Learn more! For details of Cambridge Primary, go to **www.cambridgeinternational.org/primary** or contact our Customer Services team at **info@cambridgeinternational.org** or call them on **+44 1223 553554**.

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