



# Cambridge Lower Secondary Mathematics Curriculum outline

Cambridge Lower Secondary offers a curriculum that schools can shape around how they want their students to learn. It develops learners who are confident, responsible, reflective, innovative and engaged. Cambridge Lower Secondary builds skills, knowledge and understanding in English, English as a Second Language, mathematics, science and Cambridge Global Perspectives™. It is for learners typically aged 11 to 14.

There is a curriculum framework for each Cambridge Lower Secondary subject. Each framework is organised into three stages corresponding to the first three years of secondary education. They reflect the teaching target for each year group and provide comprehensive learning objectives.

We organise the Cambridge Lower Secondary Mathematics curriculum in six content areas or 'strands'. Each strand is further divided into 'sub-strands'.

## **Number**

- Integers, powers and roots.
- Place value, ordering and rounding.
- Fractions, decimals, percentages, ratio and proportion.
- Calculation.

## **Algebra**

- Expressions, equations and formulae.
- Sequences, functions and graphs.

## **Geometry**

- Shapes and geometric reasoning.
- Position and movement.

## **Measure**

- Length, mass and capacity.
- Times and rates of change.
- Area, perimeter and volume.

## **Handling data**

- Planning and collecting data.
- Processing and presenting data.
- Interpreting and discussing results.
- Probability.

## **Problem solving**

- Using techniques and skills in solving mathematical problems.
- Using understanding and strategies in solving problems.

The first five content areas are underpinned by problem solving, which provides a structure for applying mathematical skills. Mental strategies are also a key part of the Number content.

This curriculum framework focuses on principles, patterns, systems, functions and relationships so that learners can apply their mathematical knowledge and develop a holistic understanding of the subject. The Cambridge Lower Secondary Mathematics curriculum framework provides a solid foundation for further stages of education such as Cambridge IGCSE™.



Examples from the Number strand include:

### Stage 7 Number

#### Integers, powers and roots

- Recognise negative numbers as positions on a number line, and in order, add and subtract positive and negative integers in context.
- Recognise multiples, factors, common factors, primes (all less than 100), making use of simple tests of divisibility; find the lowest common multiple in simple cases; use the 'sieve' for generating primes developed by Eratosthenes.
- Recognise squares of whole numbers to at least  $20 \times 20$  and the corresponding square roots; use the notation  $7^2$  and  $\sqrt{49}$ .

#### Multiplication and division

- Multiply and divide decimals with one and/or two places by single-digit numbers, e.g.  $13.7 \times 8$ ,  $4.35 \div 5$ .
- Know that in any division where the dividend is not a multiple of the divisor there will be a remainder, e.g.  $157 \div 25 = 6$  remainder 7. The remainder can be expressed as a fraction of the divisor, e.g.  $157 \div 25 = 6 \frac{7}{25}$ .
- Know when to round up or down after division when the context requires a whole-number answer.



### Stage 9

#### Strand: Number

##### Integers, powers and roots

- Add, subtract, multiply and divide directed numbers.
- Estimate square roots and cube roots.
- Use positive, negative and zero indices and the index laws for multiplication and division of positive integer powers.

##### Multiplication and division

- Multiply by decimals, understanding where to position the decimal point by considering equivalent calculations; divide by decimals by transforming to division by an integer.
- Recognise the effects of multiplying and dividing by numbers between 0 and 1.

### How can I access the full curriculum framework?

Only schools offering Cambridge Lower Secondary can access the full curriculum framework.

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

**Learn more!** For details of Cambridge Lower Secondary, go to [www.cambridgeinternational.org/lowersecondary](http://www.cambridgeinternational.org/lowersecondary) or contact our Customer Services team at [info@cambridgeinternational.org](mailto:info@cambridgeinternational.org) or call them on +44 1223 553554.



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