

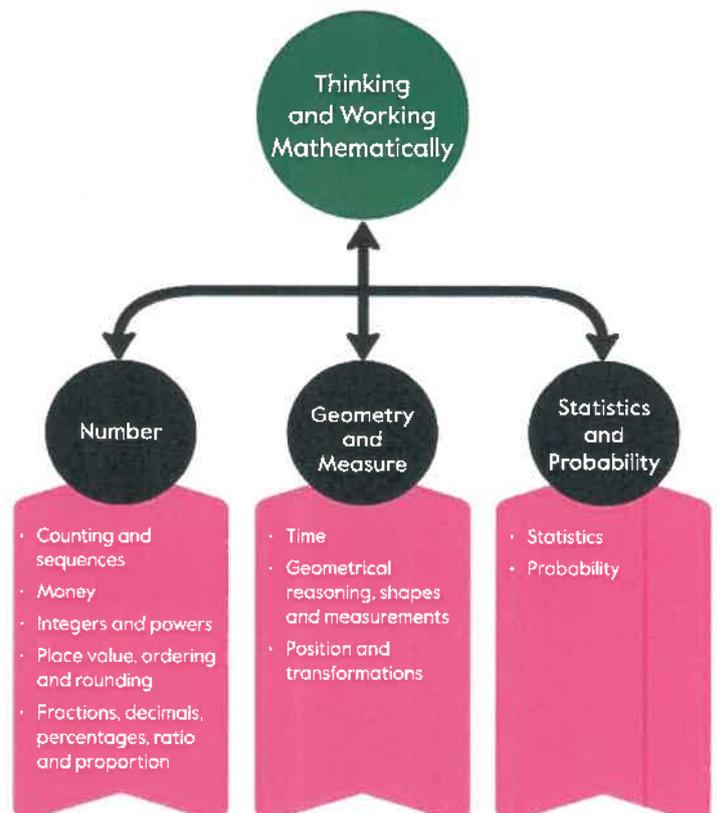
Mathematics

Cambridge Lower Secondary Mathematics (0862) encourages lifelong enthusiasm for analytical and rational thinking. Learners develop a holistic understanding of the subject, focusing on principles, patterns, systems, functions and relationships. They will become mathematically competent and fluent in computation that they can apply to everyday situations.

What will students learn?

Students will learn to recognise the interconnections of mathematical concepts and:

- engage in creative mathematical thinking to generate elegant solutions
- improve numerical fluency and knowledge of key mathematical concepts to make sense of numbers, patterns, shapes, measurements and data
- develop mathematical skills, strategies and a way of thinking that will help them to describe the world around them and play an active role in modern society
- communicate solutions and ideas logically in spoken and written language using appropriate mathematical symbols, diagrams and representations
- understand that technology provides a powerful way of communicating mathematics, one which is particularly important in an increasingly technological and digital world.



The curriculum and progression

Divided into three stages, this curriculum covers knowledge, skills and understanding in four main areas called 'strands' that can be taught separately or together. We have embedded Thinking and Working Mathematically within and across the curriculum strands.

As with all our lower secondary subjects, we have included a set of learning objectives that provide a structure for teaching and learning mathematics, and a reference for you to check learners' attainment and skills against. The learning objectives ensure progression in learning from Stages 7 to 9 and onwards into Cambridge Upper Secondary. The table below shows some examples of how knowledge, understanding and skills progress across the stages.

Support for teachers

We provide a wide range of support to help deliver Cambridge Lower Secondary Mathematics, including activities that you can adapt to suit your context:

| | |
|---|---|
| Curriculum framework | ✓ |
| Teacher guide | ✓ |
| Schemes of work | ✓ |
| Online training | ✓ |
| Face-to-face training | ✓ |
| Textbooks and resources from publishers | ✓ |
| Cambridge Lower Secondary Progression Tests and analysis tool | ✓ |
| Community online forum | ✓ |

Learning objective examples

| Strand | Stage 7 | Stage 8 | Stage 9 |
|-----------------------------------|--|--|---|
| Number | Understand the relationship between squares and corresponding square roots, and cubes and corresponding cube roots. | Recognise squares of negative and positive numbers, and corresponding square roots. | Use knowledge of square and cube roots to estimate surds. |
| Algebra | Understand and describe n th term rules algebraically (in the form $n \pm a$, $a \times n$ where a is a whole number). | Understand and describe n th term rules algebraically (in the form $n \pm a$, $a \times n$, or $an \pm b$, where a and b are positive or negative integers or fractions). | Understand and describe n th term rules algebraically (in the form $an \pm b$, where a and b are positive or negative integers or fractions, and in the form, $\frac{n}{a}$, n^2 , n^3 or $n^2 \pm a$, where a is a whole number). |
| Geometry and Measure | Derive and use a formula for the volume of a cube or cuboid. Use the formula to calculate the volume of compound shapes made from cuboids, in cubic metres (m^3), cubic centimetres (cm^3) and cubic millimetres (mm^3). | Use knowledge of area and volume to derive the formula for the volume of a triangular prism. Use the formula to calculate the volume of triangular prisms. | Use knowledge of area and volume to derive the formula for the volume of prisms and cylinders. Use the formula to calculate the volume of prisms and cylinders. |
| Statistics and Probability | Understand and explain that probabilities range from 0 to 1, and can be represented as proper fractions, decimals and percentages. | Understand that complementary events are two events that have a total probability of 1. | Understand that the probability of multiple mutually exclusive events can be found by summation and all mutually exclusive events have a total probability of 1. |