# Mathematics Education

## Mission and Objectives

In a knowledge-based information era driven by technology and creativity, students are expected to possess knowledge and skills that could help them meet the dynamic challenges in the 21st century, and Mathematics constitutes an important share. Mathematics and its applications pervade all aspects of life in the modern world. Many of the developments and decisions made in industry and commerce, the provision of social and community services as well as government policy and planning, etc., rely on the use of Mathematics.

Teachers of Mathematics Education KLA

Mathematics is essential in the school curriculum as it is:

(a) a powerful means for developing various abilities in a technology-oriented and information-rich society;
(b) a powerful means of communication;
(c) a tool for studying other disciplines;
(d) an intellectual endeavour and a mode of thinking; and
(e) a discipline, through which students can develop their ability to appreciate the beauty of nature, manage uncertainties and make sound judgements.

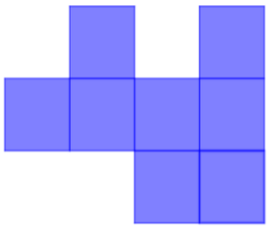
Mathematics Education also plays an active role in STEM education, and supports the learning of other subjects. It contributes significantly to the whole-person development of students in primary and secondary schools, prepares them for multiple pathways to post-secondary education and future careers, and hence plays an important role in the school curriculum.

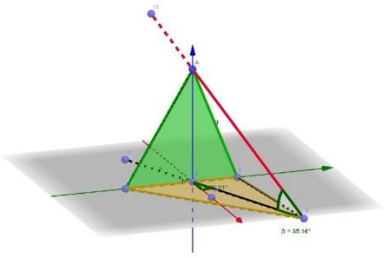
With contributions from researchers and practitioners alike, using Information Technology in Mathematics Education enables us to explore the impact of the computer on the curriculum, the teaching and learning of mathematics, and the professional development of teachers, both pre-service and in-service.

## Learning and Teaching Strategies

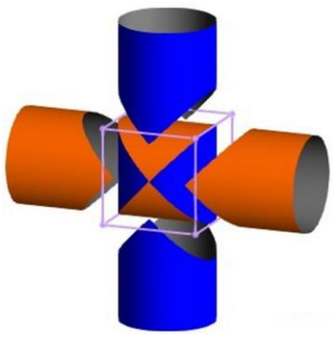
We aim at developing in students the ability to think critically and creatively, to conceptualize, inquire and reason mathematically, and to use mathematics to formulate and solve problems in the daily life as well as in mathematical contexts and other disciplines.

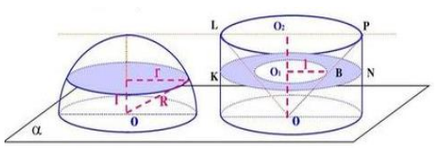
To achieve these aims, eLearning and STEM play an important role in enhancing learning and teaching effectiveness, facilitating self-directed learning and nurturing students' competence in applying information technology (IT) in learning mathematics. Our school's "Bring Your Own Device" (BYOD) policy allows students to bring their own mobile computer devices to schools for learning activities, so that learning is more personalized and mobile. Many up-to-date Mathematics Apps are very useful, enabling us to introduce them to students and encourage them to use and apply them inside or outside the lessons.





As part of our curriculum, we have identified 'reading' as another key area for development, which is included in the school's strategic development plan. Lunch reading time and Reading across the Curriculum (RaC) in the school help promote reading in Mathematics to develop students' understanding of the connections between mathematics and real life as well as other disciplines. In addition, Chinese and Western mathematicians are also introduced in some specific topics and with the aid of some enriching reading materials or videos, students are introduced the history of mathematics and appreciate the beauty of the subject.



We also focus on strengthening the development of generic skills and positive values and attitudes in an integrative manner through various mathematics learning activities. To create an English-rich environment for mathematics learning, a bridging programme for all new S1 students is organized every summer.

To cater for students' individual differences, we conduct after-school enhancement classes for junior secondary students which run throughout the academic year. Small groups are formed so that teachers can master the learning progress of every student. Also, summer mathematics tutorial classes are regularly organized for students who need improvement by reviewing the topics learnt in the last academic year, teaching them new topics to help them prepare for the coming academic year.

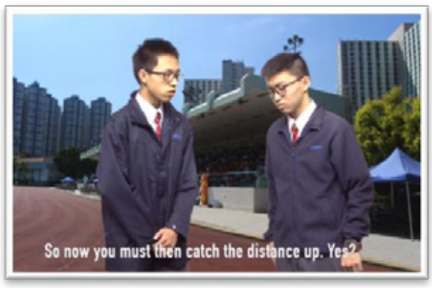
## Life-wide Learning Activities

### LKKC Mathematics Team

The team consists of Mathematics elites in LKKC who are eager to learn and exhibit their talents. They join the Mathematics Team training conducted by our alumni every year. Through the training, they learn different techniques and approaches to tackle various the mathematics problems. They also participate actively in various competitions and challenges to enrich their exposure to mathematics. We are delighted with their efforts and excellent performances in various mathematics contests.

## Mathematics Videos (in liaison with School Campus TV)

Besides using textbooks, we try to introduce some interesting Mathematics to our students through videos. Together with the school Campus TV, we will make more videos so as to arouse students' interest and expose them to Mathematics beyond the textbooks.





## The Mathematics & Computer Club

Mathematics and Computer Club was established with the aim to promote the general interest of students in Mathematics and to improve their analytical and logical mind through a variety of activities related to Mathematics.

The club issues newsletters each year, which Newsletters include interesting and challenging questions and knowledge related to Mathematics. Also, Mathematics Club holds Mathematics-related activities like the Mathematics Olympiad and Mathematics Safari in LKKC after school.

# The Road Ahead

For the past ten years, under the senior secondary curriculum, students have had a deep understanding in Mathematics, the curriculum aims to develop students' proficiency to think critically and creatively, to inquire and reason mathematically, and to use mathematics to formulate and solve problems in mathematical contexts as well as in daily life. In order to achieve this, many different teaching strategies are adopted, especially the use of information technology. We hope our students can:

(a) develop interest in learning Mathematics and sensitivity towards the importance of Mathematics;
(b) show confidence in applying mathematical knowledge in daily life;
(c) be open-minded, willing to listen to others in the discussion of mathematical problems, respect others' opinions, and value and appreciate others' contributions;
(d) be persistent and confident in solving mathematical problems; and
(e) appreciate the precise, aesthetic and cultural aspects of Mathematics and its role in our society.