

Mathematic Education Key Learning Area

Curriculum Framework of National Security Education (2025)

Introduction

This Curriculum Framework¹ illustrates, through learning and teaching activities, how learning in Mathematics Education KLA can be connected to related learning elements of national security education. To cater to students' abilities and learning needs, this Curriculum Framework is divided into four key learning stages, allowing students to learn progressively and facilitating schools in planning the learning content of national security education. Schools should integrate national security education into the curriculum planning and learning and teaching of this Key Learning Area through “organic integration”, “natural connection”, “diversified strategies”, “mutual coordination”, “learning within and beyond the classroom” and “whole-school participation”. In addition, schools should also refer to the *Curriculum Framework of National Security Education in Hong Kong (2025)* and other relevant curriculum documents to implement national security education more effectively.

1. Overall Teaching Foci

1.1 The learning content of the Mathematics Education KLA can be basically divided into three strands, namely “Number and Algebra”, “Measures, Shape and Space” and “Data Handling”, and is further divided into five strands in the primary level, namely “Number”, “Algebra”, “Measures”, “Shape and Space” and “Data Handling”. To align with the aims of the curriculum, Mathematics develops in students the relevant knowledge, skills, and attitudes in terms of inquiry and reasoning, solving problems

¹ The content of this framework is set out in the form of examples. Schools should adopt or adapt the relevant suggestions based on students' learning needs and abilities.

of mathematical and daily-life contexts, use of mathematical language, cultural elements related to mathematics, etc., in the learning and teaching of each strand.

- 1.2 As the learning content of the Mathematics Education KLA is generally highly abstract and symbolic, especially in the secondary curricula, the learning content must be combined with real-life contexts to effectively link with the learning elements and major fields of national security in the Curriculum Framework of National Security Education in Hong Kong (2025). In the learning and teaching of Mathematics, teaching strategies such as introducing learning content through real-life contexts and applying mathematics in real life to promote students' understanding are used at different key stages. When using the above strategies, mathematics teachers can invoke contexts related to major fields of national security to naturally connect relevant learning. For example, when introducing statistical topics, situations and statistical graphs related to electricity consumption can be adopted for connecting to resource security. The above mode of learning and teaching is also applicable to interdisciplinary learning activities, mathematical modelling activities and STEAM learning activities in which Mathematics collaborates with other subjects. Mathematics teachers can provide students with learning activities that include national security education elements within and beyond the classroom in different context through co-ordination with other subjects.
- 1.3 By sharing stories and achievements of ancient mathematicians in our country in the teaching of appropriate topics in different strands (such as pi and binomial expansion), mathematics teachers can help them establish their national identity and raise their awareness of safeguarding cultural security of our nation.
- 1.4 The tables in the second part of this Framework provide examples at each key stage, illustrating how learning elements of national security could be naturally integrated into the learning and teaching of Mathematics. Teachers may make reference to the strategies illustrated by the examples, or use other appropriate methods to integrate national security education elements into Mathematics. The tables also include examples of introducing ancient Chinese mathematics or technology in teaching. These

examples are about leveraging the achievements of ancient Chinese mathematicians and technological developments to help develop students' sense of national identity and raise their awareness of safeguarding national security.

2. Learning Foci

Mathematic Education Key Learning Area [Key Stage 1 (Lower Primary)]		Curriculum Framework of National Security Education in Hong Kong (2025)
Learning Units (Examples)	Learning and Teaching Activities (Examples)	Related Learning Elements / Major Fields of National Security (Examples)
<ul style="list-style-type: none"> Time (II) / Time-recording and timing devices 	<ul style="list-style-type: none"> Through the theme of timing devices, students will recognise some ancient Chinese timing devices and methods and the historical development of our country's timing technology, as well as appreciate our excellent ancient culture, thereby cherishing our cultural heritage and raising awareness of safeguarding cultural security 	<ul style="list-style-type: none"> 1.3 Have a preliminary understanding of the profound and long-standing history of Chinese culture; and learn that it is the responsibility of all citizens to cherish and inherit Chinese culture, building cultural confidence 1.7 Learn about some major fields of national security covered by a holistic approach to national security Related major field of national security: Cultural Security

Mathematic Education Key Learning Area [Key Stage 2 (Upper Primary)]		Curriculum Framework of National Security Education in Hong Kong (2025)
Learning Units (Examples)	Learning and Teaching Activities (Examples)	Related Learning Elements / Major Fields of National Security (Examples)
<ul style="list-style-type: none"> • Multi-digit numbers 	<ul style="list-style-type: none"> • Through recording the population and electricity consumption data of the Mainland and Hong Kong in recent years in multi-digit numbers and calculating the electricity consumption per capita, students will reflect on the consumption of natural resources used for power generation, thereby learning to cherish resources, reduce waste and gain a higher awareness of safeguarding resource security 	<ul style="list-style-type: none"> • 2.7 Have a further understanding of the different major fields of national security covered in the holistic approach to national security; and learn that national security covers a wide range of fields • 2.20 Care for oneself, family, society, our country and nature; and contribute to safeguarding national security • Related major field of national security: Resource Security

Mathematic Education Key Learning Area [Key Stage 3 (Junior Secondary)]		Curriculum Framework of National Security Education in Hong Kong (2025)
Learning Units (Examples)	Learning and Teaching Activities (Examples)	Related Learning Elements / Major Fields of National Security (Examples)
<ul style="list-style-type: none"> • Arc lengths and areas of sectors 	<ul style="list-style-type: none"> • Through learning activities about the ancient Chinese mathematician Liu Hui’s Circle Dissection Algorithm, students will understand the leading achievements of ancient Chinese mathematics, thereby enhancing students’ national identity and raising their awareness of safeguarding cultural security 	<ul style="list-style-type: none"> • 3.2 Learn about the inheritance and development of our country’s excellent traditional culture across various dimensions (e.g. tangible, institutional and spiritual), thereby strengthening cultural confidence • Related major field of national security: Cultural Security

Mathematic Education Key Learning Area [Key Stage 3 (Junior Secondary)]		Curriculum Framework of National Security Education in Hong Kong (2025)
Learning Units (Examples)	Learning and Teaching Activities (Examples)	Related Learning Elements / Major Fields of National Security (Examples)
<ul style="list-style-type: none"> Presentation of data 	<ul style="list-style-type: none"> Through the creation of statistical charts based on official data on the total amount of municipal solid waste disposal and Hong Kong’s population, students will learn how to interpret statistical charts representing two different sets of data in daily life. Through the themes of the statistical charts, students can reflect on the relationship between solid waste and safeguarding ecological security 	<ul style="list-style-type: none"> 3.6 Have a further understanding of the importance of national security in ensuring people’s security, major national interests and sustainable development Related major field of national security: Ecological Security

Mathematic Education Key Learning Area [Key Stage 4 (Senior Secondary)]		Curriculum Framework of National Security Education in Hong Kong (2025)
Learning Units (Examples)	Learning and Teaching Activities (Examples)	Related Learning Elements / Major Fields of National Security (Examples)
<ul style="list-style-type: none"> • Compulsory part: Inequalities and linear programming 	<ul style="list-style-type: none"> • Through learning activities that use linear programming to describe the constraints in allocating resources (such as food supply) and find the optimal solutions, students will understand the important role of mathematics in improving the overall efficiency of society and raise their awareness of safeguarding food security and resource security 	<ul style="list-style-type: none"> • 4.8 Further understand the challenges and opportunities faced by our country in the process of development, thereby strengthening the sense of vigilance against potential danger in times of peace • Related major fields of national security: Food Security, Resource Security

Mathematic Education Key Learning Area [Key Stage 4 (Senior Secondary)]		Curriculum Framework of National Security Education in Hong Kong (2025)
Learning Units (Examples)	Learning and Teaching Activities (Examples)	Related Learning Elements / Major Fields of National Security (Examples)
<ul style="list-style-type: none"> Extended part: Binomial expansion 	<ul style="list-style-type: none"> Through learning activities related to the Yang Hui's Triangle (楊輝三角) and Jia Xian's Triangle (賈憲三角) and their connection to the development of binomial expansions, students will understand the mathematical achievements of ancient China, thereby enhancing their national identity and awareness of safeguarding cultural security 	<ul style="list-style-type: none"> 4.3 Learn and recognise that safeguarding cultural security is a fundamental basis for maintaining national and ethnic unity, and national stability; and that equality and mutual learning among the cultures of different nations should be promoted Related major field of national security: Cultural Security

3. Explanation of Learning and Teaching Activities

✧ Classroom learning

- Teachers should choose appropriate scenarios based on students' needs and abilities to naturally connect learning elements of national security education. Through selecting real-life contexts relevant to our country in mathematical modelling activities, teachers may discuss relevant topics with students based on the findings
- Based on the real-life context adopted in learning and teaching, different learning elements in the Curriculum Framework of National Security Education in Hong Kong can be connected in the lessons

✧ Cross-curricular collaboration

- Since real-life scenarios often involve learning content from other subjects (for example, discussions on the use of national natural resources may be relevant to other subjects), cross-disciplinary collaboration between Mathematics and other subjects can be considered when designing related learning activities for the enrichment of student learning

✧ Reading

- Teachers can provide students with passages about the stories and achievements of ancient Chinese mathematicians to enhance their sense of national identity. When designing assignments that are to be completed after reading the passages, teachers can integrate content related to cultural security, such as relevant reflection questions, into the assignments to strengthen the connection to national security education

Disclaimer:

- *In case of any discrepancy in the meaning of wording between the English text and the Chinese text, the Chinese text shall prevail.*