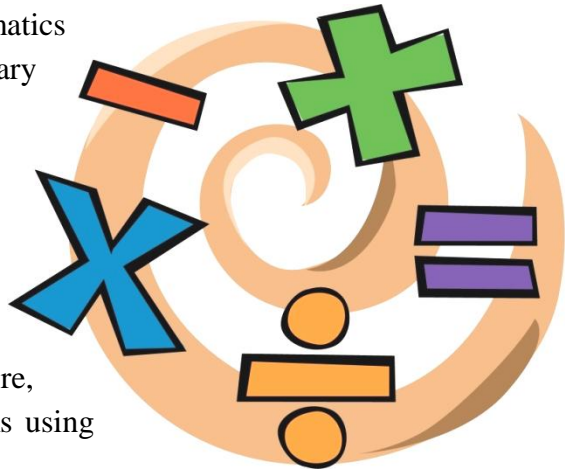


New Senior Secondary Curriculum
Mathematics

1. Introduction

The rationale for studying Mathematics as a core subject at the senior secondary level is presented below:

- ◆ Mathematics is a powerful means in a technology-oriented and information-rich society to help students acquire the ability to communicate, explore, conjecture, reason logically and solve problems using a variety of methods.
- ◆ Mathematics provides a means to acquire, organize and apply information, and plays an important role in communicating ideas through pictorial, graphical, symbolic, descriptive and analytical representations. Hence, mathematics at the senior secondary level helps to lay a strong foundation for students' lifelong learning, and provides a platform for the acquisition of new knowledge in this rapidly changing world.
- ◆ Many of the developments, plans and decisions made in modern society rely, to some extent, on the use of measures, structures, patterns, shapes and the analysis of quantitative information. Therefore, mathematical experiences acquired at the senior secondary level enable students to become mathematically literate citizens who are more able to cope with the demands of the workplace.
- ◆ Mathematics is a tool to help students enhance their understanding of the world. It provides a foundation for the study of other disciplines in the senior secondary and post-secondary education system.
- ◆ Mathematics is an intellectual endeavour through which students can develop their imagination, initiative, creativity and flexibility of mind, as well as their ability to appreciate the beauty of nature. Mathematics is a discipline, which plays a central role in human culture.



2. Overall Aims

The overall curriculum aims of the Mathematics Education Key Learning Area are to develop in students:

- (a) The ability to think critically and creatively, to conceptualize, inquire and reason mathematically, and to use mathematics to formulate and solve problems in daily life as well as in mathematical contexts and other disciplines;
- (b) The ability to communicate with others and express their views clearly and logically in mathematical language;
- (c) The ability to manipulate numbers, symbols and other mathematical objects;
- (d) Number sense, symbol sense, spatial sense, measurement sense and the capacity to appreciate structures and patterns;
- (e) A positive attitude towards mathematics learning and an appreciation of the aesthetic nature and cultural aspects of mathematics.

3. Proposed Schedule of Topics

Compulsory Part

Year	Topics
Form 4 (SS4)	<ul style="list-style-type: none">◆ Real Numbers and Complex Numbers◆ Quadratic Equations in One Unknown◆ Equations of Straight Lines◆ Functions and Graphs (1)◆ Functions and Graphs (2)◆ Exponential and Logarithmic Functions◆ Basic Properties of Circles (1)◆ Basic Properties of Circles (2)◆ Further Applications (1)
Form5 (SS5)	<ul style="list-style-type: none">◆ More about Polynomials◆ More about Equations (1)◆ More about Equations (2)◆ Variations◆ Trigonometry (1)◆ Trigonometry (2)◆ Trigonometry (3)◆ Further Applications (2)
Form 6 (SS6)	<ul style="list-style-type: none">◆ Arithmetic and Geometric Sequences◆ Permutation and Combination◆ More about Probability◆ Measure of Dispersion◆ Uses and Abuses of Statistics◆ Locus◆ Inequalities and Linear Programming◆ Further Applications (3)

Module 1 (Calculus and Statistics)

Year	Topics
Form 4 (SS4)	<ul style="list-style-type: none">◆ Binomial Theorem◆ Exponential and Logarithmic Functions◆ Limits and Derivatives◆ Differentiation◆ Application of Differentiation◆ Indefinite Integrals
Form5 (SS5)	<ul style="list-style-type: none">◆ Definite Integrals◆ Applications of Definite Integrals◆ Further Probability◆ Discrete Random Variables◆ Binomial Distribution◆ Geometric Distribution
Form 6 (SS6)	<ul style="list-style-type: none">◆ Poisson Distribution◆ Normal Distribution◆ Sampling Distribution and Point Estimates◆ Confidence Interval

Module 2 (Algebra and Calculus)

Year	Topics
Form 4 (SS4)	<ul style="list-style-type: none">◆ Foundation Mathematics◆ Mathematics Induction◆ Binomial Theorem◆ More about Trigonometric Functions◆ Limits and Derivation◆ Differentiation (1)◆ Differentiation (2)
Form5 (SS5)	<ul style="list-style-type: none">◆ Application of Differentiation◆ Indefinite Integrals◆ Definite Integrals◆ Application of Definite Integrals
Form 6 (SS6)	<ul style="list-style-type: none">◆ Matrices and Determinants◆ System of Linear Equations◆ Vectors in Two-dimensional Space◆ Vectors in Three-dimensional Space

4. School-based assessment (SBA) schedule

There is no time-line for the implementation of SBA in Mathematics and a review will be conducted in the school year of 2012/13. During the transition years, the curriculum for Mathematics will remain intact and schools will be expected to conduct the SBA activities as integral parts of learning and teaching and internal assessment as recommended in the Curriculum and Assessment Guide.

5. Public Assessment

Compulsory Part

Component		Weighting	Duration
Public examination	Paper 1 Conventional questions	65%	2 hours 15 minutes
	Paper 2 Multiple-choice questions	35%	1 hour 15 minutes

Module 1 (Calculus and Statistics)

Component		Weighting	Duration
Public examination	Conventional questions	100%	2 hours 30 minutes

Module 2 (Algebra and Calculus)

Component		Weighting	Duration
Public examination	Conventional questions	100%	2 hours 30 minutes

6. Useful Links

- ◆ Mathematics Curriculum and Assessment Guide (Secondary 4 - 6) – Appendix 2:
http://www.edb.gov.hk/FileManager/EN/Content_6157/app2.pdf
- ◆ The New Academic Structure for Senior Secondary Education and Higher Education – "334" Web Bulletin:
<http://www.edb.gov.hk/index.aspx?nodeID=4702&langno=1>
- ◆ Introduction to New Senior Secondary Mathematics Secondary Mathematics Curriculum
http://www.edb.gov.hk/FileManager/EN/Content_4687/introduction_e.pdf