

# Mathematics (SL) 11

**Time: 8 x 35 minutes per week**

**Course Description:**

*The Mathematics SL course focuses on introducing important mathematical concepts through the development of mathematical techniques. The intention is to introduce students to these concepts in a comprehensible and coherent way, rather than insisting on mathematical rigour. Students should apply mathematical knowledge they have acquired to solve realistic problems set in an appropriate context. The first year topics are algebra, functions and equations, circular functions and trigonometry, vectors, statistics and probability. Use of a graphical calculator is essential. Every student must produce a mathematical exploration, which is a piece of written work that involves investigating an area of mathematics that should be completed during the two year course.*

**Resources:**

**Paul Fannon, Mathematics Standard Level for the IB Diploma, Cambridge University Press**

**Main Topics Covered:**

**Semester 1**

- Algebra
  - Sequences and series
  - Exponents and logarithms
  - The binomial theorem
- Functions and Equations
  - Concept of functions
  - Graph of functions
  - Transformation of graphs
  - Quadratic function
  - Reciprocal function
  - Exponential function
  - Logarithmic and Exponential function

**Semester 2**

- Circular Functions and Trigonometry
  - The circle
  - Definition of  $\cos \theta$ ,  $\sin \theta$ ,  $\tan \theta$
  - Double angle formulae
  - Circular functions
  - Trigonometric equations
  - Solution of triangles
- Vectors
  - Vectors as displacements in the plane and in three dimensions
  - The scalar product of two vectors
  - Representation of a line
  - Distinguishing between coincident and parallel lines
- Mathematical Exploration

**Assessment**

Internal Assessment for Reports	Weighting
Quarter 1 – CA1 only Quarter 2 – CA3 only  • End of Semester Examinations (SA1 <b>Or</b> SA2) • Continual Assessment ( CA1 + CA2 <b>Or</b> CA3 + CA4) including: <ul style="list-style-type: none"> <li>- Topic tests</li> <li>- Class work</li> <li>- Homework</li> </ul>	Quarter 2 (end of semester 1) – CA1+ CA2 + SA1 Quarter 4 (end of semester 2) – CA3+ CA4 + SA2  70 20 + 10
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