

What is the DP Mathematics group 5 - Higher level course about?

The course focuses on developing important mathematical concepts in a comprehensible, coherent and rigorous way. This is achieved by means of a carefully balanced approach. Students are encouraged to apply their mathematical knowledge to solve problems set in a variety of meaningful contexts. Development of each topic should feature justification and proof of results. Students embarking on this course should expect to develop insight into mathematical form and structure, and should be intellectually equipped to appreciate the links between concepts in different topic areas. They should also be encouraged to develop the skills needed to continue their mathematical growth in other learning environments.

The internally assessed component, the exploration, offers students the opportunity for developing independence in their mathematical learning. Students are encouraged to take a considered approach to various mathematical activities and to explore different mathematical ideas. The exploration also allows students to work without the time constraints of a written examination and to develop the skills they need for communicating mathematical ideas. This course is a demanding one, requiring students to study a broad range of mathematical topics through a number of different approaches and to varying degrees of depth.

What is the assessment like in Mathematics?

Assessment Component	Weightage
External Assessment	80%
Paper 1 (No calculator allowed) 100 marks/2 hours – Core topics	30%
Paper 2 (Calculator allowed) 100 marks / 2 hours – Core topics	30%
Paper 3 (Calculator allowed) 50 marks. 1 hour – Option topic	20%
Internal Assessment - This component is internally assessed and externally moderated by IB at the end of the course – Mathematics Exploration	20 %

How is the curriculum of Mathematics Higher level structured and what are the learning outcomes?

The syllabus content and expected learning outcomes in Mathematics higher level are -

Curriculum topics (core)	Learning/Outcome
1. Algebra	Students will learn some basic algebraic concepts and applications.
2. Functions and equations	Students will explore the notion of function as a unifying theme in mathematics, and apply functional methods to a variety of mathematical situations.

Curriculum topics (core)	Learning/Outcome
3. Circular functions and trigonometry	Students will explore the circular functions, learn some important trigonometric identities and solve triangles-related problems using trigonometry.
4. Vectors	Students will learn elementary concepts of vectors, using both algebraic and geometric approaches.
5. Statistics and probability	Students will learn basic concepts of statistics and probability. The emphasis is on understanding and interpreting the results obtained. Most of the calculations required will be done on a GDC.
6. Calculus	Students will learn basic concepts and techniques of differential and integral calculus and their applications.
Internal Assessment EXPLORATION	Internal assessment in mathematics SL is an individual exploration. This is a piece of written work that involves investigating an area of mathematics.
Curriculum topics (optional) 7. Statistics & Probability 8. Sets, Relations & Groups 9. Calculus 10. Discrete Mathematics	Any one topic has to be chosen by the student to fulfil the requirements of the HL curriculum

How will this Mathematics course help me later?

The majority of the Mathematics HL students will be expecting to include mathematics as a major component of their university studies, either as a subject in its own right or within courses such as physics, engineering and technology. Others may take this subject because they have a strong interest in mathematics and enjoy meeting its challenges and engaging with its problems