GROUP 5- MATHEMATIC SL

NATURE OF THE SUBJECT

This course caters for students who already possess knowledge of basic mathematical concepts, and who are equipped with the skills needed to apply simple mathematical techniques correctly. The majority of these students will expect to need a sound mathematical background as they prepare for future studies in subjects such as chemistry, economics, psychology and business administration.

Source : IBO, OCC - Mathematics SL guide

AIMS

The aims of all mathematics courses in group 5 are to enable students to:

1. enjoy mathematics, and develop an appreciation of the elegance and power of mathematics
2. develop an understanding of the principles and nature of mathematics
3. communicate clearly and confidently in a variety of contexts
4. develop logical, critical and creative thinking, and patience and persistence in problem-solving
5. employ and refine their powers of abstraction and generalization
6. apply and transfer skills to alternative situations, to other areas of knowledge and to future developments
7. appreciate how developments in technology and mathematics have influenced each other
8. appreciate the moral, social and ethical implications arising from the work of mathematicians and the applications of mathematics
9. appreciate the international dimension in mathematics through an awareness of the universality of mathematics and its multicultural and historical perspectives
10. appreciate the contribution of mathematics to other disciplines, and as a particular “area of knowledge” in the TOK course.

Source : IBO, OCC - Mathematics SL guide

SYLLABUS OUTLINE (The syllabus is subject to changes according to the needs and preferences of the class)

Year 1
Topics Algebra; Functions and equations; Circular functions and trigonometry; Vectors; Statistics and probability (basic concepts of Statistics are essential to the Exploration; the topic will be completed in Year 2)
Year 2
Topics Vectors; Statistics and probability; Calculus
SKILLS to be assessed in the 2 years of the Diploma Problem-solving is central to learning mathematics and involves the acquisition of mathematical skills and

concepts in a wide range of situations, including non-routine, open-ended and real-world problems. Having followed a DP mathematics HL course, students will be expected to demonstrate the following.

1. Knowledge and understanding: recall, select and use their knowledge of mathematical facts, concepts and techniques in a variety of familiar and unfamiliar contexts.
2. Problem-solving: recall, select and use their knowledge of mathematical skills, results and models in both real and abstract contexts to solve problems.
3. Communication and interpretation: transform common realistic contexts into mathematics; comment on the context; sketch or draw mathematical diagrams, graphs or constructions both on paper and using technology; record methods, solutions and conclusions using standardized notation.
4. Technology: use technology, accurately, appropriately and efficiently both to explore new ideas and to solve problems.
5. Reasoning: construct mathematical arguments through use of precise statements, logical deduction and inference, and by the manipulation of mathematical expressions.
6. Inquiry approaches: investigate unfamiliar situations, both abstract and real-world, involving organizing and analysing information, making conjectures, drawing conclusions and testing their validity.

Source : IBO, OCC - Mathematics SL guide

ASSESSMENT – OUTLINE

Assessment component	Weighing
External assessment **Paper 1** (1 hr 30 min) No calculator allowed; 90 marks Section A: compulsory short response questions based on the whole syllabus Section B: compulsory extended response questions based on the whole syllabus **Paper 2** (1 hr 30 min) Graphic display calculator required; 90 marks Section A: compulsory short response questions based on the core syllabus Section B: compulsory extended response questions based on the core syllabus	40% 40%
Internal assessment Internal assessment in mathematics SL is an individual exploration. This is a piece of written work that involves investigating an area of mathematics. It is marked according to five assessment criteria. Source : IBO, OCC - Mathematics SL guide	20%