



Mathematical Applications and Investigations

Mathematical Applications and Investigations is a two year course for those students who wish to continue mathematical study but are unable to meet the achievement standards for Grade 10 and the IB courses offered do not meet their requirements. The course will provide opportunities for students to continue to broaden their mathematical understanding and knowledge and use these skills to solve problems, as these concepts are required for personal decision making, and participation in civic and cultural affairs. It will foster enjoyment and an appreciation of the power and usefulness of mathematics in their everyday lives.

The course will focus on Number, Geometry, Measurement, Patterns, Statistics, Probability and Discrete Mathematics and will be taught using a thematic approach. Such topics as Earning money, Banking, Myself, Building Constructions, Tourism, Agriculture, Horticulture, Famous People, Sports can provide meaningful contexts in which students can make connections to these mathematical strands. All students are expected to own a graphing calculator, preferably a TI-83 which will be used extensively throughout the course.

Subject Areas

1. **Introduction to the graphic display calculator** – numerical, graphical and listing facilities of the graphics display calculator
2. **Number and algebra** – number sets, patterns, approximations, scientific notation, measurement, sequences, series, linear equations
3. **Financial mathematics** – financial transactions, simple interest, compound interest, investments, depreciation, loans
4. **Statistics** – analysis and interpretation of numerical data in terms of sample and population, measures of spread, graphs, cumulative frequency, line of best fit
5. **Geometry and Trigonometry** – geometry, measurement, trigonometry, 3D geometry
6. **Outdoor mathematics** – map reading, navigation, Pythagoras, trigonometry
7. **Design, Art and Mathematics**
8. **Networks and Problem solving**

Assessment Outline

1. Internal	Portfolio	Students will select two pieces of work from the three completed during the two year period for their Portfolio. These pieces of work will be independently studied investigations, which will be of interest to individual students.	20%
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The purpose of the Portfolio is to provide students with opportunities to increase their understanding of mathematical concepts and processes. The teacher internally assesses the Portfolio.

2. Examination	Paper 1	1 hr 30min – 15 compulsory short response questions based on the whole syllabus	40%
	Paper 2	1 hr 30min – 5 compulsory extended response questions based on the whole syllabus	40%