

## **GROUP 5: MATHEMATICS**

### *Mathematics, Algebra 1 & 2, Geometry*

The study of mathematics is a fundamental part of a balanced education. It promotes a powerful universal language, analytical reasoning and problem-solving skills that contribute to the development of logical, abstract and critical thinking. The MYP mathematics and extended mathematics courses promote both inquiry and application, helping students to develop problem-solving techniques that transcend the discipline and are useful in the world outside school.

Mathematics in the MYP is tailored to the needs of students, seeking to intrigue and motivate them to want to learn its principles. Students should see authentic examples of how mathematics is useful and relevant to their lives and be encouraged to apply it to new situations.

The aims of the MYP Mathematics are to enable students to:

- develop their mathematical knowledge and oral, written and practical skills in a way which encourages confidence and provides satisfaction and enjoyment
- apply mathematics in everyday situations and develop an understanding of the part which mathematics plays in the world around them
- develop an understanding of mathematical principles and flexible strategies for problems of which solutions are not obvious
- develop an ability to apply mathematics in other subjects, particularly science and technology
- develop the abilities to reason logically, to classify, to generalize and to prove
- appreciate patterns and relationships in mathematics

### *Main Objectives*

In MYP Mathematics, the four main objectives support the IB Learner Profile, promoting the development of students who are knowledgeable, inquirers, communicators and reflective learners.

#### **A) Knowing and understanding**

In order to reach the aims of mathematics, students should be able to:

- select appropriate mathematics when solving problems
- apply the selected mathematics successfully when solving problems
- solve problems correctly in both familiar and unfamiliar situations in a variety of contexts

#### **B) Investigating patterns**

In order to reach the aims of mathematics, students should be able to:

- select and apply mathematical problem-solving techniques to discover complex patterns
- describe patterns as general rules consistent with findings
- prove, or verify and justify, general rules

### **C) Communicating**

In order to reach the aims of mathematics, students should be able to:

- use appropriate mathematical language (notation, symbols and terminology) in both oral and written explanations
- use appropriate forms of mathematical representation to present information
- move between different forms of mathematical representation
- communicate complete, coherent and concise mathematical lines of reasoning
- organize information using a logical structure

### **D) Applying mathematics in real-life contexts**

In order to reach the aims of mathematics, students should be able to:

- identify relevant elements of authentic real-life situations
- select appropriate mathematical strategies when solving authentic real-life situations
- apply the selected mathematical strategies successfully to reach a solution
- justify the degree of accuracy of a solution
- justify whether a solution makes sense in the context of the authentic real-life situation