

Curriculum Map GIS 2018-19	Qualifications: MYP & GCSE Higher												
Mathematics	Subject Lead: Gabriel Kyne												
Key Concepts: Form, Relationships, Logic	Global Context (Main): Scientific and technical innovation (S&TI)												
Related Concepts: Change, Equivalence, Generalization, Justification, Measurement, Model, Pattern, Quantity, Representation, Simplification, Space, System	ATL: Thinking skills, Social skills, Communication skills, Self-management skills, Research Skills.												
<p>Aims</p> <p>The aims of MYP mathematics are to encourage and enable students to:</p> <ul style="list-style-type: none"> • enjoy mathematics, develop curiosity and begin to appreciate its elegance and power • develop an understanding of the principles and nature of mathematics • communicate clearly and confidently in a variety of contexts • develop logical, critical and creative thinking • develop confidence, perseverance, and independence in mathematical thinking and problem-solving • develop powers of generalization and abstraction • apply and transfer skills to a wide range of real-life situations, other areas of knowledge and future developments • appreciate how developments in technology and mathematics have influenced each other • appreciate the moral, social and ethical implications arising from the work of mathematicians and the applications of mathematics • appreciate the international dimension in mathematics through an awareness of the universality of mathematics and its multicultural and historical perspectives • appreciate the contribution of mathematics to other areas of knowledge • develop the knowledge, skills and attitudes necessary to pursue further studies in mathematics • develop the ability to reflect critically upon their own work and the work of others. <p>Assessment</p> <p>Assessment for mathematics courses in all years programme is criterion-related, based on four equally weighted assessment criteria:</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 15%;">Criterion A</td> <td style="width: 55%;">Knowing and understanding</td> <td style="width: 30%;">Maximum 8</td> </tr> <tr> <td>Criterion B</td> <td>Investigating patterns</td> <td>Maximum 8</td> </tr> <tr> <td>Criterion C</td> <td>Communicating</td> <td>Maximum 8</td> </tr> <tr> <td>Criterion D</td> <td>Applying mathematics in real-life contexts</td> <td>Maximum 8</td> </tr> </table>	Criterion A	Knowing and understanding	Maximum 8	Criterion B	Investigating patterns	Maximum 8	Criterion C	Communicating	Maximum 8	Criterion D	Applying mathematics in real-life contexts	Maximum 8	<p>Objectives</p> <p>A. Knowing and understanding</p> <p>Knowledge and understanding are fundamental to studying mathematics and form the base from which to explore concepts and develop skills. This objective assesses the extent to which students can select and apply mathematics to solve problems in both familiar and unfamiliar situations in a variety of contexts. In order to reach the aims of mathematics, students should be able to:</p> <ol style="list-style-type: none"> i. select appropriate mathematics when solving problems in both familiar and unfamiliar situations ii. apply the selected mathematics successfully when solving problems iii. solve problems correctly in a variety of contexts. <p>B. Investigating patterns</p> <p>Investigating patterns allows students to experience the excitement and satisfaction of mathematical discovery. Working through investigations encourages students to become risk-takers, inquirers and critical thinkers. The ability to inquire is invaluable in the MYP and contributes to lifelong learning. In order to reach the aims of mathematics, students should be able to:</p> <ol style="list-style-type: none"> i. select and apply mathematical problem-solving techniques to discover complex patterns ii. describe patterns as general rules consistent with findings iii. prove, or verify and justify, general rules. <p>C. Communicating</p> <p>Mathematics provides a powerful and universal language. Students are expected to use appropriate mathematical language and different forms of representation when communicating mathematical ideas, reasoning and findings, both orally and in writing. In order to reach the aims of mathematics, students should be able to:</p> <ol style="list-style-type: none"> i. use appropriate mathematical language (notation, symbols and terminology) in both oral and written explanations ii. use appropriate forms of mathematical representation to present information iii. move between different forms of mathematical representation iv. communicate complete, coherent and concise mathematical lines of reasoning v. organize information using a logical structure. <p>D. Applying mathematics in real-life contexts</p> <p>MYP mathematics encourages students to see mathematics as a tool for solving problems in an authentic real-life context. Students are expected to transfer theoretical mathematical knowledge into real-world situations and apply appropriate problem-solving strategies, draw valid conclusions and reflect upon their results. In order to reach the aims of mathematics, students should be able to:</p> <ol style="list-style-type: none"> i. identify relevant elements of authentic real-life situations ii. select appropriate mathematical strategies when solving authentic real-life situations iii. apply the selected mathematical strategies successfully to reach a solution iv. justify the degree of accuracy of a solution v. justify whether a solution makes sense in the context of the authentic real-life situation.
Criterion A	Knowing and understanding	Maximum 8											
Criterion B	Investigating patterns	Maximum 8											
Criterion C	Communicating	Maximum 8											
Criterion D	Applying mathematics in real-life contexts	Maximum 8											

Units	MYP1	MYP2	MYP3	MYP4	MYP5
Unit 1 KC RC GC SOI Criteria ATL Content	Number & patterns Relationships Equivalence Quantity S&TI The relationships between quantities in terms of equivalences A B Critical Thinking, Transfer Number 1 GCSE :AO1/2/3 Level 3	Number and patterns Relationships Equivalence Pattern S&TI Patterns of relationships form equivalences A B Critical Thinking, Transfer Number 2 GCSE :AO1/2/3 Level 4	Applying numbers to the real world Relationships Model Quantity S&TI Modelling relationships between quantities A D Critical Thinking, Transfer Number 3 GCSE :AO1/2/3 Level 5	Applying numbers to the real world Relationships Model Quantity S&TI Modelling relationships between quantities A D Critical Thinking, Transfer Calculating 4 GCSE :AO1/2/3 Level 5 / 6	Modelling the real world Relationships Equivalence Quantity S&TI The relationships between quantities in terms of equivalences A D Critical Thinking, Transfer Shape 5 GCSE :AO1/2/3 Level 6/9
Unit 2 KC RC GC SOI Criteria ATL Content	Comparing and deciding Relationships Justification Quantity S&TI Justifying relationships between quantities B D Critical Thinking, Transfer Calculating 1 GCSE :AO1/2/3 Level 3	Comparing and deciding Form Justification Quantity S&TI Justifying the forms of quantities B D Critical Thinking, Transfer Calculating 2 GCSE :AO1/2/3 Level 4	Comparing and deciding Form Justification Quantity S&TI Justifying the forms of quantities B D Critical Thinking, Transfer Calculating 3 GCSE :AO1/2/3 Level 5	Modeling using graphs Form Model Quantity S&TI Modelling the forms of quantities B D Critical Thinking, Transfer Algebra 5 GCSE :AO1/2/3 Level 5 / 6	Looking for complex patterns Relationships Equivalence Pattern S&TI Looking for patterns of equivalence in relationships B D Critical Thinking, Transfer Algebra 7 GCSE :AO1/2/3 Level 6/9
Unit 3 KC RC GC SOI Criteria ATL Content	Finding Connections Relationships Equivalence Pattern S&TI B C Critical Thinking, Transfer Data 1 GCSE :AO1/2/3 Level 3	Finding Connections Relationships Equivalence Pattern S&TI B C Critical Thinking, Transfer Data 2 GCSE :AO1/2/3 Level 4	Finding Connections Relationships Equivalence Pattern S&TI B C Critical Thinking, Transfer Data 3 GCSE :AO1/2/3 Level 5	Finding Connections Relationships Equivalence Pattern S&TI B C Critical Thinking, Transfer Data 4 GCSE:AO1/2/3 Level 5 / 6	Solving problems Relationships Equivalence Logic S&TI A C D Critical Thinking, Transfer Problem solving GCSE:AO1/2/3 L 6/9
Unit 4 KC RC GC SOI Criteria ATL Content	Modelling the world with rules Logic Model Quantity S&TI Using models to show the logic of quantities A B Critical Thinking, Transfer Algebra 1 GCSE :AO1/2/3 Level 3	Modelling the world with rules Logic Model Quantity S&TI Using models to show the logic of quantities A B Critical Thinking, Transfer Algebra 2 GCSE :AO1/2/3 Level 4	Modelling the world with rules Logic Model Quantity S&TI Using models to show the logic of quantities A B Critical Thinking, Transfer Algebra 3 & 4 GCSE :AO1/2/3 Level 5	Modelling the world with rules Logic Model Quantity S&TI Using models to show the logic of quantities A B Critical Thinking, Transfer Calculating 4 GCSE :AO1/2/3 Level 5 / 6	MYP Project Preparation and Presentation GCSE Revision
Unit 5 KC RC GC SOI Criteria ATL Content	Number in the natural world Form Equivalence Quantity S&TI The form of quantitative equivalences A D Critical Thinking, Transfer Number 1 & Calculating 1 GCSE :AO1/2/3 Level 3	Number in the natural world Form Equivalence Quantity S&TI The form of quantitative equivalences A D Critical Thinking, Transfer Number 2 & Calculating 2 GCSE :AO1/2/3 Level 4	Number in the natural world Form Equivalence Quantity S&TI The form of quantitative equivalences A D Critical Thinking, Transfer Number 3 & Calculating 3 GCSE :AO1/2/3 Level 5	Number in the natural world Form Equivalence Quantity S&TI The form of quantitative equivalences A D Critical Thinking, Transfer Algebra 6 GCSE :AO1/2/3 Level 6 / 7	GCSE Exam
Unit 6 KC RC GC SOI Criteria ATL Content	Form, area and volume Form Equivalence Space S&TI Equivalences in form and 3d space A C Critical Thinking, Transfer Shape 1 GCSE :AO1/2/3 Level 3	Form, area and volume Form Equivalence Space S&TI Equivalences in form and 3d space A C Critical Thinking, Transfer Shape 2 GCSE :AO1/2/3 Level 4	Form, area and volume Form Equivalence Space S&TI Equivalences in form and 3d space A C Critical Thinking, Transfer Shape 3 GCSE :AO1/2/3 Level 5	Form, area and volume Form Equivalence Space S&TI Equivalences in form and 3d space A C Critical Thinking, Transfer Shape 4 GCSE :AO1/2/3 Level 6 / 7	GCSE Exam

