



Suzhou Singapore International School
MYP Scope and Sequence

Mathematics

2009 – 2010 v1.0 – January 2010

Last Updated:

12th January 2010



SSIS Grade 6 Mathematics Scope and Sequence (2009-2010)



Overview

→ Averaging 19 weeks per semester (38 weeks per year)

→ End of semester varies dependent upon Chinese New Year – Units may need to be moved accordingly

month week	Aug	September					October				November				December			January		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
SEMESTER 1	Number (Whole Numbers) 3 weeks		Number (Number Properties) 3 weeks			Geometry and Trigonometry (Shapes and Solids) 3 weeks				Number (Fractions) 2 weeks		Number (Decimals) 2 weeks		Number (Percentages) Semester Review 2 weeks		Semester 1 Exam	Mensuration (Measurement – Length, Area and Mass) 3 weeks			

month week	February			March			April					May			June				
	1	2	3	4	5	6	7	8	9	10	11	1	13	14	15	16	17	18	19
SEMESTER 2	Mensuration (Measurement – Area and Volume) 3 weeks			Algebra (Algebra) 3 weeks			Geometry & Trigonometry (Transformation & Location) 3 weeks			Statistics (Data Collection and Representation) 3 weeks			Semester Review			Semester 2 Exam	Statistics & Probability (Chance) 3 weeks		

Grade 6 Mathematics Scope and Sequence 2009-2010

Weeks	Topic	SSIS OILs	IB Framework	Specifics	Text	Extended / Specifics	Assessment
1 -3	Numbers (Whole Numbers)		<p>ATL- How numbers have evolved historically, & number systems in different cultures; Use of student whiteboards for processing Operations.</p> <p>Env – Estimation of household water use (Environment week: Wk15-17)</p> <p>HI- Roman System & the need for Zero; Egyptian Number System; Mayan System</p> <p>IB learner profile- inquirer, knowledgeable, thinkers, communicators, risk-takers</p>	<ul style="list-style-type: none"> Develop an understanding of different number systems (i.e. Egyptian number system, Roman numerals and Mayan system). Recognise, use and write in words and numbers beyond 1 million. Recognise the different place values of numbers over 1 million. Use symbols (e.g. =, ≈, >, <, ≥ or ≤) to compare numbers. Perform arithmetic operations (i.e. addition, subtraction, multiplication and division) on whole numbers. Solve word problems with arithmetic operations. Perform rounding, estimation and approximation. Recognise the existence of negative numbers. 	Ch 1		<p>1. Topic Test 1- Number (A,B)</p> <p>2. Project - Roman/Egyptian /Mayan Display of Numbers (Criterion C)</p>
4-6	Number (Number Properties)		<p>HI- History of Eratosthenes and Sieve of Eratosthenes</p>	<ul style="list-style-type: none"> Apply the order of operations using BEDMAS (Brackets, Exponents, Division, Multiplication, Addition, Subtraction). Understand prime numbers. Identify factors, common factors, prime factors, highest common factor and lowest common multiple. Use powers or index notations. Write numbers up to 1 000 000 in expanded form 	Ch 2		Topic Test 1- Number (A,B)

			<p>IB learner profile- inquirer, knowledgeable, thinkers, risk- takers</p>	<p>using powers of 10.</p> <ul style="list-style-type: none"> • Apply square root to square numbers and use symbol $\sqrt{\quad}$. • Identify triangular and cubic numbers. 			
7 - 9	<p>Geometry and Trigonometry (Shapes and Solids)</p>		<p>ATL- Construction of triangles and angles using compass and ruler</p> <p>Env- Collection of shapes and solids that are commonly seen in our surroundings, e.g. in Islamic art, on curtain, on tiles, etc</p> <p>HI- Making of solids from the nets</p> <p>IB learner profile- inquirer, knowledgeable, thinkers, communicators, risk-takers</p>	<ul style="list-style-type: none"> • Use the terms lines, points, rays, line segments, intersections and parallel correctly. • Classify angles into revolution, straight angle, right angle, acute angle, obtuse angle and reflex angle. • Use three-point notation to name the angles. • Measure angles using protractor. • Understand that angle sum in a triangle is 180°. • Understand that angle sum in a quadrilateral is 360°. • Determine unknown angles in triangles and quadrilaterals. • Recognise properties of different triangles and construct them. • Recognise different quadrilaterals and their properties. • Bisect angles using compass. • Construct 60°, 90°, 30°, 15°, 45° and 22.5°. • Construct different triangles given the three sides. • Classify solids in terms of their geometric properties (i.e. faces, edges, vertices and cross-sections). • Draw solids. • Identify and name properties of polyhedra (e.g. tetrahedron, pentagonal prism, hexagonal prism). • Construct complex solids from nets. • (Optional) Draw oblique and isometric projections of cubes using paper or drawing software. 	Ch 3		<p>Project – Design for a Front Gate using Shapes. (Criteria A, B and C)</p>
10 - 11	<p>Number (Fractions)</p>		<p>IB learner profile- inquirer, thinkers, knowledgeable, risk-takers</p>	<ul style="list-style-type: none"> • Understand equivalent or equal fractions. • Simply a fraction to the lowest term. • Compare the size of fractions. • Arrange fractions in ascending or descending order. • Add and subtract fractions with different denominators, including improper fractions and whole numbers. • Multiply fractions including whole numbers and mixed numbers. 	Ch 4		<p>Topic Test – Test on fraction (Criteria A and B)</p>

				<ul style="list-style-type: none"> Use fractions in problem solving. 			
12 - 13	Number (Decimals)			<ul style="list-style-type: none"> Identify the different place values of decimals Round off decimals to 3 places Compare different decimals Convert decimals to fractions and vice-versa Perform addition and subtraction between decimals Multiply decimal numbers by power of 10 and by decimal numbers to 2 places. Divide decimals by a whole number or by power of 10 Identify the difference between terminating decimals and recurring decimals Use notation for recurring decimals such as $0.\dot{3}$ or $0.\bar{3}$. <p>Use decimals in problem solving.</p>	Ch 5		
14 - 15	Number (Percentages)		IB learner profile- inquirer, thinkers, knowledgeable, risk-takers	<ul style="list-style-type: none"> Understand the meaning of percent as “out of a hundred” Convert percentages to fractions and decimals or vice-versa Express a quantity as a percentage of another Find the percentage of a quantity Solve problem involving percentages <p>Apply percentages in practical problems, such as discount. Tax and simple interest are optional.</p>	Ch 6		Topic Test – Criteria A and B
15	Review for Semester 1 Exams						
16	Semester 1 Exams			Numbers Skills (Percentages, Fractions, Decimals, Whole numbers, Number Properties), Shapes & Solids, Measurement.			Exam – (A , B)
17 - 19	Mensuration (Measurement -		IB learner profile-	<ul style="list-style-type: none"> Identify different units of length, including metric units and imperial units. 			1.Topic Test –

	Length and Mass))		inquirer, knowledgeable, thinkers, communicators, risk-takers, reflective	<ul style="list-style-type: none"> • Read from the scale of some measuring instruments. • Convert between different units of length, i.e. mm, cm, m and km. • Understand perimeter as the boundary of a closed figure. • Obtain perimeter of a polygon by adding the lengths of the sides. • Obtain circumference of a circle. • Use scale in ratio form to calculate either original size or drawing size. • Convert between different units of mass, i.e. mg, g, kg and t. • Choose the appropriate units and tools to measure the mass of a variety of objects. • Apply the knowledge of perimeter and mass to practical problem-solving situations. 	Ch 7		Criteria A and B 2. Project – Pi-day celebration - measuring circumference and diameter of 10 circular objects. (Criteria B,C and D)
20 - 22	Mensuration (Measurement – Area and Volume)		<p>Env- Estimate the usable area of the tree trunk</p> <p>HI- Estimate the surface area occupied by student’s hand using grid paper</p> <p>IB learner profile- inquirer, knowledgeable, thinkers, risk-takers</p>	<ul style="list-style-type: none"> • Understand area as the surface occupied by 2-dimensional shapes. • Convert between different units of areas, i.e. mm², cm², m², hectare and km². • Calculate the area of a rectangle, a square and a triangle (including obtuse-angled triangle). • Calculate the area of irregular shapes by using an overlay grid or separating them into simple parts. • Demonstrate understanding of the relationship between perimeter and area through practical problem-solving situations. • Convert between different units of volume and capacity, i.e. mm³, cm³, m³, mL, L, kL and ML. • Choose the appropriate units to measure the volume of a variety of objects. • Calculate volume of rectangular prism (cuboids or cubes). • Calculate volume of a prism using the formula: Base area × height. • Apply the knowledge of volume to practical problem-solving situations. 	Ch 8		Topic Test – Criteria A and B
23 - 25	Algebra (Algebra)			<ul style="list-style-type: none"> • Describe in words the rule for geometric and numerical patterns • Solve an algebraic equation using inverse 	Ch 11		

				<p>operations</p> <ul style="list-style-type: none"> • Set up useful formulae to solve practical situations 			
26 - 28	Geometry & Trigonometry (Transformation & Location)		HI- Use Autograph on transformations	<ul style="list-style-type: none"> • Mark and label a point on a Cartesian or Number Plane • Understand line of symmetry and rotational symmetry • Reflect an object given a mirror line or line of symmetry • Rotate an object given centre of rotation, direction and angle of rotation • Translate an object given vector • Obtain the translation vector given an object and its image • Enlarge or reduce an object given a scale factor • Obtain the scale factor given an object and its enlarged/reduced image • Determine compass bearings and true bearings based on the understanding of angles 	Ch 12		
29 - 31	Statistics (Data Collection and Representation)			<ul style="list-style-type: none"> • Understand the purpose of taking a sample from a population. • Explain the difference between a random sample and a biased sample. • Plan a range of ways to collect data, e.g. surveys, interviews. • Understand categorical data and numerical data. • Organise categorical data using tally-frequency table or dot plot. • Graph categorical data using column graphs or pie graphs with Excel spreadsheet. • Organise numerical data using stem-and-leaf plot or tally-frequency table. • Graph numerical data using column graphs with Excel spreadsheet. • Find mean, median and mode from given data. • Interpret information from data, graphs and tables. 	Ch 9		
32-34	Review for Semester 2 Exams						
35	Semester 2 Exams			Percentages, Measurement (Area & Volume), Algebra, Transformation			Exam – (A ,B)
After Exam (36-38)	Statistics & Probability (Chance)		HF- Examine the fairness of a dice game on the difference	<ul style="list-style-type: none"> • Understand the meaning of outcome, event and probability • Assign numbers and percentage to chance • Define the probability of an event 			

			between two numbers	<ul style="list-style-type: none"> • Assign probabilities for given situations, e.g. Five discs are placed in a bag, two are blue and three are black. What is the probability of drawing a blue disc? • Draw a tree diagram to find all the possible outcomes • Make own probability generators • Find expectation of an event occurring by multiplying the probability of the event by the number of observations 	Ch 13		
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Textbook : Mathematics for Year 7 (Haese & Harris Publication, fifth edition)

2009-2010 SSIS Grade 7 Mathematics Course Overview

- SSIS averages 19 weeks per semester (38 weeks per year)
- End of semester varies dependent upon Chinese New Year – Units may need to be moved accordingly

Month Week	Aug	September				October				November				December			January			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Semester 1	Numbers (Whole Number Skills)			Number (Directed Numbers)		Geometry/ Trigonometry (Objects and Drawings: Lines, shapes and solids)				Algebra (Patterns, Models, and expressions)		Number (Fractions)			Semester Review Semester 1 Exams			Number (Decimals and Percentages)		
	3 weeks			2 weeks		4 weeks				2 weeks		3 weeks			2 weeks			3 weeks		

Month Week	February			March				April				May				June			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Semester 2	Probability & Statistics (Data and Chance)			Geometry & Trigonometry (Measurement)				Algebra (Using Equations)		Number (Ratio, Rates and Proportion)				Semester Review Semester 2 Exams			Algebra (Graphing and Linear graphs)		
	3 weeks			4 weeks				3 weeks		3 weeks				2 weeks			3 weeks		

Year 7 suggested Mathematics Scope and Sequence 2009-2010

Wks	Topic	Specifics	Text	Extension	Assessment
1-3	Whole Numbers	<ul style="list-style-type: none"> • Find sums, differences, products and quotients of natural numbers (inc. in mixed operations) • Use divisibility rules effectively, and understand how composite rules work • Distinguish between prime and composite numbers • Use ideas of prime factors to find HCF, LCM • Use index notation • Distinguish between powers and roots • Perform arithmetic operations in the correct order. 	Ch 2 Ex 2C, 2D	<ul style="list-style-type: none"> • Investigate other number base systems • Challenge sets 1,2 • Shinglee 1 	Project: Binary and Hex– (Criteria A, C, D)
4-5	Directed Numbers	<ul style="list-style-type: none"> • Manipulate directed numbers in a number line • Perform the 4 rules with positive and negative numbers 	Ch 3	<ul style="list-style-type: none"> • Challenge sets 3,4 • Shinglee 1 	Test (Criteria A and B)
6-9 (6-10)	Geometry	<ul style="list-style-type: none"> • Measure angles accurately • Accurately recall/use appropriate angle terminology: (Acute, Obtuse, Reflex, Right, Interior, Exterior, Complementary, Supplementary) • Accurately recall/use appropriate angle relationships: (Vertically opposite, Corresponding, Allied) • Accurately recall/use important triangle facts: (angle sum, definitions of scalene, isosceles, equilateral) • Angle/side/symmetry properties of: Parallelogram, rhombus, rectangle, square, kite trapezium (inc. isosceles trapezium) • Recognise and name polygons (regular or otherwise) • Recall/use angle sums of n-gons and interior/exterior angles of regular n-gons • Name various solids • Use/recall key terms (face, edge, vertex) • Draw nets of solids • Draw isometric projections of simple solids 	Ch 1 & 11	<p>*Mini – investigation on line symmetry in polygons</p> <p>Challenge sets 5,6,7</p>	<p>Topic Test – (Criteria A, B)</p> <p>Investigation – (Criteria A, C, D)</p>

Wks	Topic	Specifics	Text	Extension	Assessment
11-12 (11-13)	Algebra Patterns and Models	<ul style="list-style-type: none"> • Develop the connection between diagrams, tables, graphs to look for patterns. • Describe patterns using words, symbols or concise algebraic expressions. • To see algebra as the language of mathematics. • Manipulate algebraic terms and expression. • Substitute numbers into algebraic expressions and evaluate them • Simplify algebraic expressions • Expand brackets • Use simple factorization techniques • Describe simple patters using mathematical notation • Solve simple linear equations • Use algebra to solve problems 	Ch 4	Challenge sets 8,9	<p>Topic Test (Criteria A, B)</p> <p>Investigations – Squares #1 and #2 (Criteria B and C)</p>
13-15	Fractions	<ul style="list-style-type: none"> • Simplify a fraction, handle equivalent fractions • Compare, add, subtract, multiply and divide fractions • Handle improper fractions and mixed numbers • Convert fractions to decimals (and vice versa) • Convert fractions to percentages (and vice versa) • Handle arithmetic of proper algebraic fractions • 	Ch 5	Challenge sets 10,11,12	Topic Test – (Criteria A, B)
16-19	Decimals and Percentages	<ul style="list-style-type: none"> • Multiply and divide by powers of 10. • Recurring decimals. • Convert fractions, decimals and percentages. • Express one quantity as a percentage of another. • Find percentages of quantities. • Given a percentage of a quantity, find another percentage of the same quantity. • Percentage increase and decrease. • Find percentage change or error. • Find profit, loss, discounts • Calculate simple interest. 	Ch 6	<p>Challenge sets 13,14</p> <p>Shinglee 1</p>	Vocabulary sheet

Wks	Topic	Specifics	Text	Extension	Assessment
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20-22	Data and Chance	<ul style="list-style-type: none"> Distinguish between qualitative and quantitative data, and between discrete and continuous data Construct and interpret basic statistical diagrams (Bar charts, Pie charts, Line graphs, Pictographs) Conduct a survey Define Probability Compare experimental to theoretical probability List sample spaces. 	Ch 12	Challenge sets 15,16	Reading Age Investigation
23-26	Measurement	<ul style="list-style-type: none"> Know and use the appropriate units for the metric systems. Convert between units and their sub-units Convert between SI and non SI units when given converting factors Name important parts of a circle Calculate the circumference and area of a circle, given the diameter Find areas and perimeters of compound shapes Identify and work with solid shapes related to circles (cylinder, sphere, cone) 	Ch 8	Challenge sets 11,18,19 Shinglee 1	Investigation – Capacity of the school pool.
27-29	Equations	<ul style="list-style-type: none"> Solve simple linear equations using : trial and error, working backwards and balancing equations Use algebra to solve problems 	Ch 10	Challenge sets 20,21 Shinglee 1	
30-31	REVIEW	<ul style="list-style-type: none"> 	Review sets		Exam – (A and B)
32-33	Ratio, Proportion and Rates	<ul style="list-style-type: none"> Define terms Express and find ratios including equal ratios Use equal ratios to solve problems Apply ratios to dividing quantities, scale and slopes. Express at convert rates Use rates to solve problems 	Ch 12	Challenge sets 22,23	Test -Diagnostic
34-35	Coordinates and linear graphs	<ul style="list-style-type: none"> Locate points on maps, graphs and the Cartesian plane. Move between linear equations, linear graphs and their tables of values. Explain the difference between discrete and continuous data and the implications for graphing. Find the equations of a line, also horizontal and vertical lines. 	Ch 7	Challenge sets 24,25 Shinglee 1	

SSIS Scope and Sequence

Grade 8 MYP Mathematics

Overview

→ Averaging 19 weeks per semester (38 weeks per year)

→ End of semester varies dependent upon Chinese New Year – Units may need to be moved accordingly

Month	Aug	September				October				November				December			January		
Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Semester 1	Numbers (Number Skills) 2 weeks	Algebra (Index Laws) 2 weeks		Numbers (Percentage & Business Applications) 2 weeks		Algebra (Review & Expansion) 2 weeks		Geometry & Trigonometry (Coordinate Geometry) 3 weeks			Algebra (Linear Equations) 3 weeks			Semester Review	Semester 1 Exams	Algebra (Factorisation & Quadratics) 3 weeks			

Month	February			March				April				May				June			
Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Semester 2	Geometry & Trigonometry (Surds & Pythagoras' Rule) 2 weeks		Probability & Statistics (Statistics) 3 weeks			Probability & Statistics (Probability) 3 weeks			Geometry & Trigonometry (Polygons & Measurement Review) 2 weeks		Geometry & Trigonometry (Polygons, Congruence & Deductive Geometry) 3 weeks			Semester Review	Semester 2 Exams	Geometry & Trigonometry (Transformations, Similarity & Trigonometry) 3 weeks			

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Weeks	Topic	SSIS OILs	IB Framework	Specifics	Assessment
1 -2	Numbers (Number Skills)		<p>Environment SLE- Explain the value of technology, and how it benefits our understanding of environments.</p> <p>ATL- Information Literacy</p> <p>SLE- Use a variety of media and technologies to research, select, interpret and communicate information/data.</p>	<ul style="list-style-type: none"> • Understand the relationships and differences between number sets • Apply divisibility tests • Operate with integers, fractions and decimals • Follow correct order of operations • Understand and use percentages • Convert between fractions, decimals and percentages • Understand and use ratios • Use index notation to write numbers as products of prime factors • Convert between decimal form and standard form • Approximate to a number of significant figures <p>Extended</p> <ul style="list-style-type: none"> • None <p>Text</p> <ul style="list-style-type: none"> • Ch 1 • (A-H, M-N) • *Ch 2 	<p>1. Topic Test 1-Number/Algebra (A,B)</p> <p>2. Investigation-“How Big is the Solar System?”-Standard Form (B,C,D)</p>
3-4	Algebra (Index Laws)		<p>Environment SLE- Explain the value of technology, and how it benefits our understanding of environments.</p> <p>ATL- Information Literacy</p> <p>SLE- Use a variety of media and technologies to research, select, interpret and communicate information/data.</p>	<ul style="list-style-type: none"> • Simplify algebraic products using index notation • Use and apply the index laws <p>Extended</p> <ul style="list-style-type: none"> • None <p>Text</p> <ul style="list-style-type: none"> • Ch 1 • (I-L) • *Ch 7 	<p>Topic Test 1-Number/Algebra (A,B)</p>
5 - 6	Numbers (Percentage & Business Applications)		<p>Human Ingenuity</p> <p>SLE- evaluate a variety of systems, solutions and products that can be used in various situations</p>	<ul style="list-style-type: none"> • Express one quantity as a percentage of another • Find the total amount OR another percentage given a percentage (the unitary method) • Find a percentage of the quantity • Calculate profit, loss and discount 	<p>Investigation-“Investments” Inv. 2, 3 (A) (Pg 138-140) Inv. 4 (B, C)</p>

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			<p>against criteria developed individually or collaboratively.</p> <p>ATL Thinking</p> <p>SLE- make well-substantiated decisions and relate them to real-world contexts</p>	<ul style="list-style-type: none"> • Find the percentage increase or decrease involved with profit, loss and discount • Perform percentage change calculations using a multiplier • Find the percentage change by considering the multiplier • Use the simple interest formula • Interpret graphs, charts and tables and use percentage calculations to analyse information <p>Extended - Compound Interest</p> <ul style="list-style-type: none"> • Perform compound interest calculations without THEN with the compound interest formula <p>Text</p> <ul style="list-style-type: none"> • Ch 4 • Ch 4 • -G (Ext) • *Ch 4 	(Pg 142-143)
7 - 8	Algebra (Review & Expansion)		<p>Health & Social Education</p> <p>SLE- Identify, analyze and evaluate wide-ranging and long term effects of choices and exhibit accountability for decisions and actions</p> <p>ATL Information Literacy</p> <p>SLE- Select and appropriately use a range of media and technologies to research, select, record, interpret and communicate information /data</p>	<ul style="list-style-type: none"> • Understand the language used in algebra • Convert words to algebraic symbols • Evaluate algebraic expressions by substituting values for the unknowns • Collect like terms in algebraic expressions • Expand brackets using the distributive law $a(b + c)$ • Add and subtract algebraic fractions • Multiply and divide algebraic fractions • Expand and simplify algebraic products of the form $(a + b)(c + d)$ by 1. dist. law THEN 2. FOIL • Expand and simplify perfect squares and difference of 2 squares • Find expressions for the perimeter and area of figures <p>Extended - Surdic Expansions</p> <ul style="list-style-type: none"> • Expand and simplify surdic expressions <p>Text</p> <ul style="list-style-type: none"> • Ch 2 • *Ch 3 • *Ch 5 – • (Pg 115-119) (Ext) • *Ch 23 	'Billboard' Project (B, C)

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9 - 11	Geometry & Trigonometry (Coordinate Geometry)	<p>ATL- Use of Autograph</p> <p>ENV- Linear Modeling used to estimate time between geyser eruptions</p> <p>IB learner profile- inquirer, thinkers, risk-takers, reflective</p>	<ul style="list-style-type: none"> • Plot and describe points in the 4 quadrants • Graph a linear relationship from a table of values • Understand the meaning of gradient • Find the gradient of a line passing through 2 given points • Understand the meaning of y-intercept and the equation of a line: $y = mx + c$ • Find m and c given an equation • Find an equation given the graph • Determine the equations of vertical and horizontal lines • Sketch graphs given using <i>gradient-intercept</i> • Sketch graphs given using <i>axes intercepts</i> • Understand the meaning of a linear relationship and determine independent and dependent variables in a relationship • Apply linear graphs to problem solving (<i>B. pp.272-6</i>) • Interpret travel graphs <p>Extended</p> <ul style="list-style-type: none"> • None <p>Text</p> <ul style="list-style-type: none"> • Ch 6 • A-B, E-F*, C-D, G-J <p>• *note-suggested order different to textbook</p> <ul style="list-style-type: none"> • *Ch 8 • *Ch 11 	‘Cost of Taxi Rides’ Project (B, D)
12 - 14	Algebra (Linear Equations)	<p>Health & Social Education</p> <p>SLE- Identify, analyze and evaluate wide-ranging and long term effects of choices and exhibit accountability for decisions and actions</p> <p>ATL Information Literacy</p> <p>SLE-</p>	<ul style="list-style-type: none"> • Solve simple linear equations by inspection, then by isolating the unknown (balancing an equation) • Solve linear equations with a repeated unknown • Solve simultaneous equations • Solve linear equations with 2 or more fractions • Translate information into an algebraic expression • Translate a written problem into an equation • Use equations to solve problems • Find an unknown from a formula <p>Extended - Inequalities (1 week)</p> <ul style="list-style-type: none"> • Use the inequality signs to write linear inequalities • Use a number line to show solutions to linear inequalities 	‘Cost of Taxi Rides’ Project (B, D)

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			Select and appropriately use a range of media and technologies to research, select, record, interpret and communicate information /data	<ul style="list-style-type: none"> Solve linear inequalities Text <ul style="list-style-type: none"> Ch 7 Ch 7 –(Pg 251-258) (Ext) Shinglee (Ext) *Ch 10 *Ch 12 *Ch 12 – E,F (Ext) *Ch 13 	
15	Review for Semester 1 Exams				
16	Semester 1 Exams			Numbers Skills, Percentage & Business Applications, Index Laws, Expansion, Linear Equations, Coordinate Geometry	Exam – (A , B)
18 - 20	Algebra (Factorisation & Quadratics)		<p>Health & Social Education</p> <p>SLE- Identify, analyze and evaluate wide-ranging and long term effects of choices and exhibit accountability for decisions and actions</p> <p>ATL Information Literacy</p> <p>SLE- Select and appropriately use a range of media and technologies to research, select, record, interpret and communicate information /data</p>	<ul style="list-style-type: none"> Identify the HCF of algebraic expressions Factorise expressions by removing the HCF Factorise the difference of 2 squares Factorise perfect squares Factorise expressions with four terms by pairing them and removing common factors Factorise quadratic trinomials of the form $x^2 + bx + c$ Factorise miscellaneous algebraic expressions Simplify algebraic fractions by factorizing and canceling common factors Apply the Null Factor law to solve quadratic equations Solve problems using quadratic equations <p>Extended - Quadratic Graphs (1 week)</p> <ul style="list-style-type: none"> Introduction to quadratic graphs Text <ul style="list-style-type: none"> Ch 10 	Investigation – Quadratic Equations & their Graphs (A, B, C, D)

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				<ul style="list-style-type: none"> • Math Quest 9 – • Ch 10 (Pg 317) (Ext) • *Ch 16 • *Ch 21 • C (Ext) 	
21 - 22	Geometry & Trigonometry (Surds & Pythagoras' Rule)		<p>IB learner profile- inquirer, knowledgeable, thinkers, risk-takers</p>	<ul style="list-style-type: none"> • Evaluate and/or approximate square roots • Operate with surds • Solve equations of the form $x^2 = k$ • State Pythagoras' Rule • Find sides of triangles using Pythagoras' Rule • Use the converse of Pythagoras' Rule to check for right angled triangles • Test for, and use, Pythagorean triples • Solve problems using Pythagoras' Rule <p>Extended - Three- Dimensional Problems</p> <ul style="list-style-type: none"> • Use Pythagoras' Rule to solve 3D geometric problems <p>Text</p> <ul style="list-style-type: none"> • Ch 3 • G (Ext) <ul style="list-style-type: none"> • *Ch 11 • G (Ext) 	Topic Test (A, B)
23 - 25	Probability & Statistics (Statistics)		<p>IB learner profile- communicator, reflective</p>	<ul style="list-style-type: none"> • Distinguish between data types • Recognise bias in a sample • Distinguish between the dependent and independent variable in a data set • Compare and interpret qualitative data • Organise and display discrete data by creating a frequency table and column graph • Recognise outliers • Group data in an ordered stem-and-leaf plot • Find the mean, median and mode of a dataset • Find the mean, median and mode from a table, column graph or stem-and-leaf plot • Find the range and IQR of a dataset • Find the five number summary and draw a box-and-whisker plot • Compare and report on discrete data <p>Extended</p> <ul style="list-style-type: none"> • None <p>Text</p>	Investigation – 'Analysing & Comparing Different Languages' (C,D)

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				<ul style="list-style-type: none"> • Ch 9 • *Ch 17 • *Ch 19 	
26 - 28	Probability & Statistics (Probability)			<ul style="list-style-type: none"> • Describe probabilities in qualitative terms, from impossible to certain • Interpret numerical values (from 0 to 1) of probabilities • Interpret tabled data from a survey • Determine experimental probabilities • Carry out chance investigations • Define a sample space • Illustrate a sample space on a tree diagram or a 2D grid • Determine theoretical probabilities • Understand $P(E)$ and $P'(E)$ • Use a 2D grid or tree diagram to determine probabilities • Multiply probabilities to determine likelihood of two events occurring • Find probabilities from sampling with AND without replacement • Use probabilities to find expected outcomes • Interpret probability simulations from technology <p>Extended</p> <ul style="list-style-type: none"> • None <p>Text</p> <ul style="list-style-type: none"> • Ch 11 • *Ch 14 • *Ch 20 	
29 - 30	Geometry & Trigonometry (Polygons & Measurement Review)			<ul style="list-style-type: none"> • Recall and use the –angle terms & theorems and triangle terms & theorems • Find the interior and exterior angles of quadrilaterals & other polygons • Construct a triangle given sides and/or angles • Applying area, perimeter, and circumference formulas to find area of regions involving a combination of shapes • Applying the sum of angles of a polygon – • Applying the relationship between interior and exterior angles of a polygon • Applying the relationship between the area and sides 	

Grade 8 MYP Mathematics

				<p style="text-align: center;">of polygons</p> <p>Extended</p> <ul style="list-style-type: none"> • None <p>Text</p> <ul style="list-style-type: none"> • Ch 8 • A – D • *Ch 6 • *Ch 9 • *Ch 18 	
31 - 33	Geometry & Trigonometry (Polygons, Congruence & Deductive Geometry)		<p>ATL- Use of appropriate technology</p> <p>HSE- Trends in daily life</p>	<ul style="list-style-type: none"> • Identify, prove and state cases of triangle congruence • Use the properties of special quadrilaterals in problem solving <p>Extended - Deductive Geometry</p> <ul style="list-style-type: none"> • Use triangle congruence in deductive proof • Use the properties of isosceles triangles in deductive proof <p>Text</p> <ul style="list-style-type: none"> • Ch 8 • E – H • G (Ext) • *Ch 6 • E (Ext) • *Ch 15 • *Ch 18 • E,F (Ext) 	
34	Review for Semester 2 Exams				
35	Semester 2 Exams			Factorisation, Quadratics, Linear Equations, Surds & Pythagoras' Rule, Statistics & Probability, Percentage & Business Applications, Measurements	Exam – (A ,B)
After Exam (36-38)	Geometry & Trigonometry (Transformations, Similarity & Trigonometry)		<p>ATL- Use of appropriate technology</p> <p>HSE- Trends in daily life</p>	<ul style="list-style-type: none"> • Define & recognize the following transformations-translation, reflection, rotation, enlargement • Determine the translation vector in a translation • Draw the image of a figure under a translation, reflection, rotation, or enlargement • Determine the centre and angle of rotation • Find the centre of rotational symmetry • Find the axis (axes) of symmetry of a figure 	

Grade 8 MYP Mathematics

				<p>where possible</p> <ul style="list-style-type: none"> • Find the scale factor and centre of enlargement • Recognise shapes which will tessellate • Identify similar triangles and use them to find lengths and to solve problems • Use scale diagrams • Determine the opposite side, adjacent side and hypotenuse in a right angled triangle • Find $\sin \theta$, $\cos \theta$ and $\tan \theta$ from a unit circle diagram • Use your calculator to find $\sin \theta$, $\cos \theta$ and $\tan \theta$ • Define the three trigonometric ratios in any right angled triangle • Use the three trigonometric ratios in any right angled triangle to find the length of an unknown side and/or the measure of an unknown angle • Choose and apply trigonometric ratios to solve problems <p>Extended</p> <ul style="list-style-type: none"> • None <p>Text</p> <ul style="list-style-type: none"> • Ch 12 • *Ch 15 • *Ch 22 • *Ch 24 	
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Textbook : Mathematics for Year 9 (Haese & Harris Publication, fifth edition)

* Mathematics for Year 9 (Haese & Harris Publication, sixth edition)

SSIS Scope and Sequence

Grade 9 MYP Mathematics

Overview

→ Averaging 19 weeks per semester (38 weeks per year)

→ End of semester varies dependent upon Chinese New Year – Units may need to be moved accordingly

month week	Aug		September				October				November				December			January		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Sem. 1	Algebra Ch. 2					Camp	Expansion and Factorising Ch. 4			Quadratic Functions Ch. 10			Review	Assessments	Indices Ch. 11		Financial Math Ch. 12			

month week	February			March				April				May				June			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Sem. 2	Measurement Ch. 3	Pythagoras Theorem Ch. 5		Co-ordinate Geometry Ch. 6			Geometry Ch. 7			Trigonometry Ch. 9			Review	Exams	Statistics and Probability Ch. 10 and 1				

Grade 9 MYP Mathematics

Unit of Work	SSIS OILs	IB Framework	Unit Skills, Content or Knowledge	Common Assessments
Algebra Ch. 2	2, 6, 7	MYP AoI Human Ingenuity	Unit Question: How do patterns and functions help us describe data and physical phenomena and solve a variety of problems? <ul style="list-style-type: none"> • Understand and use equations and formulae • Understand and use functional relationships 	Pizza Pricing (B, C, D) Test (A)
Expansion and Factorisation Ch. 4	2, 7	MYP AoI Human Ingenuity	Unit Question: How are quantitative relationships represented by numbers? <ul style="list-style-type: none"> • Be able to factorise and expand algebraic expressions 	Investigation (B, C, D)
Quadratic Functions Ch. 10	2, 6, 7	MYP AoI Human Ingenuity	Unit Question: How do patterns and functions help us describe data and physical phenomena and solve a variety of problems? <ul style="list-style-type: none"> • Use the quadratic formula 	Quiz * (Fall Exam, A)
Indices Ch. 11	2, 6, 7	MYP AoI Community and Service	Unit Question: How are quantitative relationships represented by numbers? <ul style="list-style-type: none"> - Use the index laws - Graphically display functions 	
Financial Mathematics Ch. 12	3, 4, 6, 7	MYP AoI Community and Service	Unit Question: How do patterns and functions help us describe data and physical phenomena and solve a variety of problems? <ul style="list-style-type: none"> - Use linear and exponential functions for real world financial models 	Investigation (B, C, D)
Measurement Ch. 2	4	MYP AoI Human Ingenuity	Unit Question: How do geometric relationships and measurements help us to solve problems and make sense of our world?	

Grade 9 MYP Mathematics

			<ul style="list-style-type: none"> Understand and use formula for area, perimeter, surface area, and volume for real life examples 	
Pythagoras Theorem Ch. 5	1, 3, 6	MYP AoI Human Ingenuity	Unit Question: How do geometric relationships and measurements help us to solve problems and make sense of our world? <ul style="list-style-type: none"> Use Pythagoras' Theorem in both 2D and 3D applications 	Measurement and Pythagoras Test (A)
Co-ordinate Geometry Ch. 6	1, 6	MYP AoI Human Ingenuity	Unit Question: How do geometric relationships and measurements help us to solve problems and make sense of our world? <ul style="list-style-type: none"> Be able to calculate distance, midpoint and slope Graphically display linear functions Understand and appreciate simple examples of linear growth 	Quiz (see Trig Investigation)
Geometry Ch. 7	1, 7	MYP AoI Approaches to Learning	Unit Question: How do geometric relationships and measurements help us to solve problems and make sense of our world? -Understand and use the angle and circle theorems for computing angles	Quiz (see Trig Investigation)
Trigonometry Ch. 9	1, 2, 4, 6, 7	MYP AoI Human Ingenuity	Unit Question: How do geometric relationships and measurements help us to solve problems and make sense of our world? <ul style="list-style-type: none"> Solve trigonometric equations Understand the use of 3 figure bearings Plot and recognise graphs of the 3 trig ratios 	Investigation (B, C, D)
Probability and Statistics Ch. 10 and 1	5, 6, 7	MYP AoI Approaches to Learning	Unit Question: How can collecting, organizing and displaying data help us analyze information and make reasonable predictions and informed decisions? <ul style="list-style-type: none"> Construct and use all frequency tables and curves Construct histograms Calculate all measures of dispersion Calculate all measures of central tendency Estimate and calculate the probabilities of events with 	

Grade 9 MYP Mathematics

			and without replacement	
			<ul style="list-style-type: none">• Appreciate and understand the language of conditional probability	

SSIS Scope and Sequence

Grade 10 MYP Mathematics

Overview

→ Averaging 19 weeks per semester (38 weeks per year)

→ End of semester varies dependent upon Chinese New Year – Units may need to be moved accordingly

month week	Aug	September				October				November				December			January		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Sem. 1	Sets, Venn Diagrams Statistics Probability Chapters 1, 10, 13					Pythagoras Ch. 2				Co-ordinate & Transformational Geometry Chapters 5, 7				Review	Assessment	Right Angle Trigonometry Ch. 12		Non-Right Angle Trigonometry Ch. 12	

month week	February			March			April			May			June						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Sem. 2	Surd Ch. 3	Algebra Ch. 4 & 6		Factorization and Quadratics Ch. 8 & 11			Further Algebra and Formulae Ch. 14 & 15			Relations, Functions and Sequences Ch. 17			Quadratic and Exponential Functions Ch. 19 and 20		Review	Exams	Matrices Ch. 24		

Grade 10 MYP Mathematics

Unit of Work	SSIS OILs	IB Framework	Unit Skills, Content or Knowledge	Common Assessments
Sets, Venn Diagrams Statistics Probability Chapters 1, 10, 13	3, 5, 6, 7	MYP AOI - ATL	<p>Unit Question: How can collecting, organizing and displaying data help us analyze information and make reasonable predictions and informed decisions?</p> <ul style="list-style-type: none"> • Understand the notation and symbols of Set Theory • Construct Venn diagrams • Use Venn Diagrams in algebraic problem solving • Construct and use all frequency tables and curves • Construct histograms • Calculate all measures of dispersion • Calculate all measures of central tendency • Estimate and calculate the probabilities of events with and without replacement • Appreciate and understand the language of conditional probability 	Test (A) Investigation (B, C, D)
Pythagoras Ch. 2	3, 4	MYP AOI – Human Ingenuity	<p>Unit Question: How do geometric relationships and measurements help us to solve problems and make sense of our world?</p> <ul style="list-style-type: none"> • Use Pythagoras' Theorem in both 2D and 3D applications 	Quiz *Fall Exam (A)
Co-ordinate & Transformation Geometry Chapters 5, 7	1, 4, 6, 7	MYP AOI – Human Ingenuity	<p>Unit Question: How do geometric relationships and measurements help us to solve problems and make sense of our world?</p> <ul style="list-style-type: none"> • Be able to calculate distance, midpoint and slope • Graphically display linear functions • Understand and appreciate simple examples of linear growth • Stretch and shear shapes • Subject shapes to compound transformations • Handle the representation and arithmetic of vectors 	Investigation (B, C, D)

Grade 10 MYP Mathematics

Right Angle Trigonometry Ch. 12	1, 4	MYP AOI – Human Ingenuity	Unit Question: How do geometric relationships and measurements help us to solve problems and make sense of our world? <ul style="list-style-type: none"> • Solve trigonometric equations • Understand the use of 3 figure bearings • Plot and recognise graphs of the 3 trig ratios 	Quiz *Fall Exam (A)
Non-Right Angle Trigonometry Ch. 12	1, 4, 7	MYP AOI – Human Ingenuity	Unit Question: How do geometric relationships and measurements help us to solve problems and make sense of our world? <ul style="list-style-type: none"> • Solve problems in non-right angled triangles 	Quiz *Fall Exam (A)
Surds Ch. 3	3	MYP AOI – Human Ingenuity	Unit Question: How are quantitative relationships represented by numbers? <ul style="list-style-type: none"> • Use all four operations with surds • Simplify surds 	Quiz *Fall Exam (A)
Algebra Ch. 4 & 6	2, 6, 7	MYP AOI – Human Ingenuity	Unit Question: How do patterns and functions help us describe data and physical phenomena and solve a variety of problems? <ul style="list-style-type: none"> • Understand and use equations and formulae • Understand and use functional relationships • Understand the basic ideas of speed, velocity and acceleration • Understand and use a graphical treatment of kinematics 	Investigation (B, C, D)
Factorization and Quadratics Ch. 8 & 11	2, 7	MYP AOI – Human Ingenuity	Unit Question: How are quantitative relationships represented by numbers? <ul style="list-style-type: none"> • Be able to factorise and expand algebraic expressions 	Quiz *Final Exam (A)

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			<ul style="list-style-type: none"> Use the quadratic formula 	
Further Algebra and Formulae Ch. 14 & 15	2, 6	MYP AOI – Human Ingenuity	Unit Question: How do patterns and functions help us describe data and physical phenomena and solve a variety of problems? <ul style="list-style-type: none"> Perform all four operations with algebraic fractions Construct and use formulae 	Test (A)
Relations, Functions and Sequences Ch. 17	2, 3, 7	MYP AOI – Human Ingenuity	Unit Question: How do patterns and functions help us describe data and physical phenomena and solve a variety of problems? <ul style="list-style-type: none"> Understand the notion and notation of a mathematical function Use simultaneous equations to solve problems Work with arithmetic and geometric sequences to determine terms 	Quiz *Final Exam (A)
Quadratic and Exponential Functions Ch. 19 and 20	2, 6, 7	MYP AOI – Human Ingenuity	Unit Question: How do patterns and functions help us describe data and physical phenomena and solve a variety of problems? <ul style="list-style-type: none"> Graphically display functions Understand and appreciate simple examples of exponential growth and decay 	Investigation (B, C, D)
Matrices Ch. 24	3, 6	MYP AOI – Human Ingenuity	Unit Question: How are quantitative relationships represented by numbers? <ul style="list-style-type: none"> Understand the ideas and uses of Matrices Add, subtract and multiply Matrices 	Quiz *Final Exam (A)