MYP 1 - MATHEMATICS

No.	Unit Title	Topic	Strand	Key Concept	Related Concepts	Global Context	Statement of Inquiry	Criteria	ATL Skills	Content (topics, knowledge, skills)	
1	Civilization and human interactions	Numbers and number systems	Numerical and abstract reasoning	Form	Representation System	Orientation in space and time	Different systems and forms of representation develop as civilizations evolve and humans interact.	A, B, C	Collaboration skills Information literacy skills	1. Representing quantities 2. Classifying numbers: factors, multiples and prime numbers 3. Factors and divisibility 4. Greatest common factors (GCF) 5. Lowest common multiples (LCM) 6. GCF/LCM application 7. Calculating with numbers 8. Exponents 9. Estimation	
2	Patterns in nature	Algebraic expressions and equations	Thinking with models	Logic	Generalization Models Patterns	Scientific and technical innovation	A logical process helps to model and generalize patterns in natural world.	A, B, C	Reflection skills Creative-thinking skills	1. Sequences and patterns 2. Representing patterns with expressions 3. Patterns as functions 4. Equations - solving linear equations 5. Order of operations	
3	Artistry and creativity	Geometric constructions	Spatial reasoning	Form	Measurement	Personal and cultural expression	Artistry and creativity are enhanced through an understanding of how measurement helps to define forms.	A, D	Information literacy skills Transfer skills	1. Point, line, ray, line segment 2. Angle - classify angles by size 3. Supplementary and complementary angles 4. Angle pairs created by parallel lines and a transversal	
4	Human connections	Fractions, Percentages, Proportions	Numerical and abstract reasoning	Logic	Quantity Simplification	Identities and relationship	Using logic to simplify and manupulate quantities can help us explore human connections with families, communities and cultures.	A, B, C	Critical thinking skills Communication skills	1. Fraction as part of a whole 2. Converting mixed number to improper fractions and vice versa 3. Multiply and divide fractions 4. Add and subtract fractions 5. Apply BEDMAS to fraction questions 6. Simple proportions	simple proportions to solve percents
5	Trends in communities	Data management	Reasoning with data	Relationship	Representation Justification	Identities and relationship	Being able to represent relationships effectively can help justify characteristics and trends uncovered in communities.	C, D	Media literacy skills Critical-thinking skills	1. Quantitative and qualitative data 2. Tally and frequency tables 3. Bar graph 4. Line graph 5. Time series 6. Pie chart	

MYP 2 - MATHEMATICS

No.	Unit Title	Topic	Strand	Key Concept	Related Concepts	Global Context	Statement of Inquiry	Criteria	ATL Skills		
1	Competition and cooperation	Ratios, proportions, and rates	Numerical and abstract reasoning	Logic	Equivalence Quantity Simplification	Identities and relationships	Using a logical process to simplify quantities and establish equivalence can help analyse competition and cooperation.	A, D	Organization skills Affective skills	1. Equivalent ratios, simplify ratios 2. Converting ratios, fractions, decimals and percentages 3. Propotional relationship: graphs, equations, and real-life problem 4. Solving a proportion 5. Rates, unit rates 6. Converting between measurements and currencies 7. Constant rate of change	
2	Games and play	Probability	Reasoning with data	Logic	Representation Systems Justification	Personal and cultural expression	A logical system of representation can help explore and analyse games that human play.	A, C	Critical-thinking skills Communication skills	1. Probability of an event 2. Find the probability of an event using lists, tables, and tree diagrams 3. Calculate probability 4. Complementary events 5. Theoretical probability and experimental probability 6. Compound probability?	
3	Human explorations	Integers	Numerical and abstract reasoning	Form	Quantity Representation	Orientation in space and time	Being able to represent different forms of quantities has helped humans explore and describe our planet.	A, C	Transfer skills Reflection skills	1. Negative numbers - Integers 2. Absolute value 3. Integers on a coordinate grid 4. Multiply and divide integers 5. Add and subtract numbers 6. Order of operations including integers	
4	Puzzles and tricks	Algebraic expressions and equations	Thinking with models	Form	Simplification Equivalence	Scientific and technical innovation	Producing equivalent forms through simplification can help to clarify, solve and create puzzles and tricks.	A, B	Communication skills Creative-thinking skills	1. Algebraic expressions 2. Terms - like terms - collecting like terms 3. Distributive property of multiplication and division 4. Solving equations and inequations	
5	Human and natural landscapes	2D and 3D geometry	Spatial reasoning	Relationships	Generalization Measurement	Orientation in space and time	Generalizing relationships between measurements can help explore the formation of human and natural landscapes.	A, D	Transfer skills Communication skills	1. Area of triangles, parallelograms, trapezoids 2. Area of regular polygons 3. Circumference and area of circles 4. Surface area of a 3D shape 5. Volume of prisms	

MYP 3 - MATHEMATICS

No.	Unit Title	Topic	Strand	Key Concept	Related Concepts	Global Context	Statement of Inquiry	Criteria	ATL Skills	Content (topics, knowledge, skills)	

No.	Unit Title	Topic	Strand	Key Concept	Related Concepts	Global Context	Statement of Inquiry	Criteria	ATL Skills	Content (topics, knowledge, skills)		
1	Expressing beliefs and values	Geometric transformations	Spatial reasoning	Form	Patterns Space	Personal and cultural expressions	An understanding of patterns created by forms in space can enhance creativity and help express beliefs and values.	A, B, D	Reflection skills Communication skills	1. Tessellation 2. Transformation 3. Congruence transformation 4. Similarity transformation 5. Translation 6. Reflection 7. Rotation 8. Dilation		
2	Principles, processes and solutions	Triangles	Spatial reasoning	Relationships	Generalization Measurement	Scientific and technical innovation	Generalizing relationships between measurements can help develop principles, processes and solutions.	A, B	Critical-thinking skills Communication skills	1. Pythagoras' theorem 2. Similar triangles and similarity postulate 3. The three trigonometric ratios 4. Applying trigonometry in real-life problems 5. Surds?		
3	Products, processed and solutions	Circles & 3D shapes	Spatial reasoning	Relationships	Generalization Measurement	Scientific and technical innovation	Generalizing relationships between measurements can help analyse and generate products, processes and solutions.	A, C, D	Creative-thinking skills Transfer skills	1. Circle and cylinder 2. Cone 3. Pyramid 4. Sphere	1. Finding angles and lengths using circle theorems 2. Proving results using circle theorems 3. Examining 'If . . . then . . .' statements and testing the truth of their converses 4. Using circle theorems to find lengths of chords 5. Finding lengths using the intersecting chord theorem	
4	Impact of human decision-making	Linear relationship & Bivariate Data	Thinking with models	Relationships	Change Model Representation	Globalization and sustainability	Representing patternss of change as relationships can help determine the impact of human decision-making on the environment.	B, D	Critical-thinking skills Media literacy skills	1. Representing linear relationships 2. Gradient and y-intecept 3. Positive and negative gradients 4. Parallel and perpendicular lines on Cartesian plane 5. Graph a line using gradient and y-intecept 6. Horizontal and vertical lines	bivariate data	
5	A model of equality	Equality model	Thinking with models	Form	Equivalence Model	Identities and relationships	Modelling with equivalent forms of representation can improve decision making.	A, D	Critical-thinking Skills Communication Skills	1. Solving linear equations and systems of linear equations algebraically and graphically 2. Using equivalence transformations to solve linear equations and systems of equations 3. Creating a mathematical model to solve real-life problems 4. Determining if a model solution is equivalent to the real-life solution 5. Evaluating and interpreting your solutions in light of the real-life problems 6. Solving systems of inequalities algebraically and graphically 7. Modelling real-life problems with linear programming		

MYP 4 - MATHEMATICS

No.	Unit Title	Topic	Strand	Key Concept	Related Concepts	Global Context	Statement of Inquiry	Criteria	ATL Skills	Content (topics, knowledge, skills)		
1	Discoveries and development	Numbers	Numerical and abstract reasoning	Form	Quantity Representation Simplification	Orientation in space and time	Representing and simplifying quantities in different forms can help explore remarkable discoveries and developments.	A, C, D	Information literacy skills Affective skills	1. Rational and irrational numbers 2. Converting rational numbers to fractions 3. Laws of exponents 4. Scientific notations 5. Number systems and set notation 6. Radicals	simplifying radicals	
2	Equivalent forms of quadratic equations	Getting more done in less time	Thinking with models	Form	Patterns Space Equivalence	Scientific and technical innovation	Representing patterns with equivalent forms can lead to better systems, models and methods	A, B	Creative-thinking Skills Comminication Skills	1. Factorizing quadratic expressions, where the coefficient of x^2 is 1, including the difference of two squares 2. Factorizing quadratic expressions where the coefficient of x^2 is not 1 3. Finding the axis of symmetry and vertex of a quadratic function 4. Expressing a quadratic function in three different forms: standard, factored and vertex 5. Finding a quadratic function given three distinct points on its graph 6. Finding a function to model a real-life parabola 7. Understanding how many unique points define an object in a given dimension of space 8. Solving quadratic equations algebraically and graphically 9. Solving real-life problems by creating and using quadratic models		

No.	Unit Title	Topic	Strand	Key Concept	Related Concepts	Global Context	Statement of Inquiry	Criteria	ATL Skills	Content (topics, knowledge, skills)		
3	A whole range of things	Representing quantity with data set	Reasoning with data	Relationships	Quatity Representation	Globalization and sustainability	How quantities are represented can help to establish underlying relationships and trends in a population.	A, D	Communication Skills	1. Categorizing data 2. Constructing stem-and-leaf diagrams 3. Calculating quartiles, the range and the interquartile range 4. Giving a five-point summary of a set of data 5. Constructing box-and-whisker diagrams 6. Identifying outliers 7. Comparing distributions 8. Finding the mean, median, mode and range from a grouped frequency table 9. Representing grouped data in a cumulative frequency curve 10. Finding the five-point summary from a cumulative frequency curve 11. Constructing a box-and-whisker diagram from a cumulative frequency curve 12. Constructing and interpreting frequency and relative frequency histograms with equal class widths 13. Constructing and interpreting frequency density histograms with unequal class widths 14. Describing distributions		
4	What are the chances?	Simple probability	Reasoning with data	Logic	Representation System	Identities and relationships	Understanding health and making healthier choices result from using logical representations and systems.	C, D	Communication Skills	1. Representing sample spaces in tables, lists and diagrams 2. Drawing tree diagrams, Venn diagrams and two-way tables 3. Calculating probabilities from Venn diagrams and two-way tables 4. Using tree diagrams to calculate probabilities with and without replacement 5. Understanding informal ideas of randomness 6. Understanding and using formal probability notation 7. Calculating probabilities of independent, mutually exclusive and combined events 8. Proving probability theorems 9. Determining whether or not events are mutually exclusive and/or independent		

MYP 5 - MATHEMATICS

No.	Unit Title	Topic	Strand	Key Concept	Related Concepts	Global Context	Statement of Inquiry	Criteria	ATL Skills	Content (topics, knowledge, skills)		
1	A parable about parabolas	Equivalent forms of quadratic equations	Thinking with models	Form	Patterns Space Equivalence	Scientific and technical innovation	Representing patterns with equivalent forms can lead to better systems, models and methods	B, C, D	Self-management Skills Critical-thinking Skills	1. Factorizing quadratic expressions, where the coefficient of x^2 is 1, including the difference of two squares 2. Factorizing quadratic expressions where the coefficient of x^2 is not 1 3. Finding the axis of symmetry and vertex of a quadratic function 4. Expressing a quadratic function in three different forms: standard, factored and vertex Finding a quadratic function given three distinct points on its graph 5. Finding a function to model a real-life parabola 6. Understanding how many unique points define an object in a given dimension of space 7. Solving quadratic equations algebraically and graphically 8. Solving real-life problems by creating and using quadratic models		
2	A frog into a prince	Functions	Thinking with models	Form	Change Models	Orientation in space and time	Relationships model patterns of change that can help clarify and predict duration, frequency and variability	A, D	Creative-thinking Skills Critical-thinking Skills	1. Understanding how various parameters affect the shape and position of a graph 2. Applying translations, reflections and dilations to graphs 3. Describing the transformation of a function algebraically and graphically 4. Describing combinations of transformations of a function algebraically and graphically 5. Writing the equation of a graph following one or more transformations 6. Recognizing exponential functions 7. Using exponential functions to model real-life problems 8. Identifying and using translations, reflections and dilations with exponential functions	1. Changing the subject of a formula 2. Simplifying rational algebraic expressions 3. Performing mathematical operations on rational algebraic expressions 4. Solving linear and quadratic rational equations algebraically and graphically 5. Using equivalence transformations to solve rational equations 6. Using rational equations to model situations and solve problems	Function Families: Exponential functions and asymptotes
3	Which triangle is just right for you?	From measuring triangles to modelling periodic phenomena	Spatial reasoning	Relationships	Measurement Models	Scientific and technical innovation	Generalizing relationships between measurements can lead to better models and methods	B, C	Critical-thinking skills Communication skills	1. Solving problems in right-angled triangles using trigonometric ratios 2. Knowing the properties of trigonometric ratios 3. Solving problems that include angles of elevation and angles of depression 4. Graphing sine and cosine functions 5. Understanding periodicity 6. Transforming sine and cosine functions using translations, reflections and dilations 7. Recognizing transformations of sine and cosine graphs, and finding equations of graphs 8. Modelling real-life problems using sine and cosine functions		

| 4 | What comes next? | Exploring patterns and generalizing solutions | Thinking with models | Form | Patterns Generalization | Scientific and technical innovation | Using different forms to generalize and justify patterns can help improve products, processes and solutions | A | Critical-thinking Skills | 1. Understanding and using recursive and explicit formulae for sequences
2. Recognizing linear and quadratic sequences
3. Finding a general formula for a linear or quadratic sequence
4. Recognizing patterns in real-life contexts
5. Solving problems involving sequences in real-life contexts
6. Identifying patterns in number problems
7. Solving complicated problems by looking at a more general case
8. Making generalizations from a given pattern
9. Finding and justifying (or proving) general rules/ formulae for sequences
10. Using explicit and recursive formulae to describe arithmetic sequences and geometric sequences
11. Recognizing arithmetic and geometric sequences in context | | |