

SSENYONGA DERRICK , Course Overview , Grade 6 (MYP 1 Mathematics)

Grade 6

	Unit 1 - Numbers and number systems: Civilizations and human interactions.	Unit 2 - Percentages: Inequality and difference	Unit 3 - Algebraic expressions and equations: Patterns in nature.	Unit 4 - Geometric constructions: Artistry and creativity	Unit 5 - Fractions: Human connections	Unit 6 - Data management: Trends in communities	Unit 7 - Perimeter, area and volume: Environmental impacts
Theme/ Topic	<p>Introducing numbers and number systems</p> <ul style="list-style-type: none"> Representing quantities The importance of a number system. Other forms used to represent quantities (Base 10 and Base 60) Power / Indices Roots Classifying numbers Factors Multiples Prime numbers The sieve of Eratosthenes Factors and Divisibility Divisibility Rules Greatest / Highest Common Factor Euclid's method Lowest Common Multiple CF/LCM Application Calculating with numbers Addition Multiplication Performing many calculations Order of operations (BODMAS) 	<p>Introducing percentages</p> <ul style="list-style-type: none"> Percentages Uses of percentages Visual representation of percentages Equivalent forms Percentages and fractions Percentages and decimals Repeating/ Recurring decimals Application of percentages Percentage change 	<p>Introducing patterns in nature</p> <ul style="list-style-type: none"> Sequences Patterns Representing patterns with expressions Patterns as functions Equations 	<p>Introducing geometric constructions</p> <ul style="list-style-type: none"> Lines, line segments and lines Parallel segments Angles Classifying angles Angle relationships – Intersecting lines Supplementary angles Complementary angles Parallel lines and transversal Triangles Classifying triangles Interior angles of a triangle 	<p>Introducing fractions</p> <ul style="list-style-type: none"> Representing and comparing fractions Operation with fractions Multiplying Dividing Adding and Subtracting Multiple operations(BODMAS) 	<p>Introducing data management</p> <ul style="list-style-type: none"> Data Types of data Using graphs to represent data Types of graphs Frequency tables Bar Graphs Line Graphs Circle Graphs (Pie Chart) Using the different graphs When to use the different graphs Analysing different graphs Making comparisons and showing trends Misleading graphs Interpreting scale 	<p>Introducing perimeter, area and volume</p> <ul style="list-style-type: none"> Two – dimensional shapes – Venn diagrams Area of 2D shapes Area of a triangle Generalizing relationships: Perimeter and area Perimeter and area of a rectangle. Perimeter and area of compound shapes Moving from 2 dimensions to 3 dimensions Defining volume Volume of a rectangular prism Surface area – Nets
Statement of Inquiry	Different systems and forms of representation develop as civilizations evolve and humans interact.	Inequality and difference become clearer through the use of equivalent forms of quantities.	A logical process helps to model and generalize patterns in the natural world	Artistic and creative representation of geometric shapes enhance the understanding of various forms of integrated and complex shapes.	Using logic to simplify and manipulate quantities can help us explore human connections within families, communities and cultures.	Being able to represent relationships effectively can help justify characteristics and trends uncovered in communities.	Generalizing the relationship between measurements can influence decisions that impact the environment
Key concepts	Form	Form	Logic	Form	Logic	Relationships	Relationships
Related concepts	Representation and System	Equivalence and Quantity	Generalisation, models and patterns	Representation	Quantity and Simplification	Representation ,Justification and Validity	Generalization and Space
Global Context	Orientation in Space and time	Fairness and development	Scientific and technical innovation	Personal and cultural expression	Identities and relationships	Identities and relationships	Globalization and sustainability
ATL Skill	<p>Collaboration Skills :</p> <p>Listen actively to other perspectives and ideas</p> <p>Information literacy skills</p> <p>Present information in a variety of formats and platforms</p>	<p>Collaboration Skills:</p> <p>Practise empathy</p> <p>Organisation skills:</p> <p>Plan short and long-term assignments; meet deadlines.</p>	<p>Reflection skills:</p> <p>Consider content</p> <p>What did I learn about today?</p> <p>What don't I yet understand?</p> <p>What questions do I have now?</p> <p>Creative - thinking skills:</p> <p>Practise visible thinking strategies and techniques.</p>	-	<p>Critical thinking Skills:</p> <p>Draw reasonable conclusions and generalizations.</p> <p>Communication Skills:</p> <p>Give and receive meaningful feedback.</p>	<p>Media literacy skills:</p> <p>Communicate information and ideas effectively to multiple audiences using a variety of media and formats.</p> <p>Critical thinking:</p> <p>Identify trends and forecast possibilities.</p>	<p>Creative Thinking Skills:</p> <p>Design improvements to existing machines, media and technology.</p> <p>Reflection Skills:</p> <p>Consider ethical, cultural and environmental implications.</p>

Subject group Objective	<p>Criterion A: Knowing and Understanding</p> <p>i. select appropriate mathematics when solving problems in both familiar and unfamiliar situations</p> <p>ii. apply the selected mathematics successfully when solving problems</p> <p>iii. solve problems correctly in a variety of contexts.</p> <p>Criterion C : Communicating</p> <p>i. use appropriate mathematical language (notation, symbols and terminology) in both oral and written statements</p> <p>ii. use appropriate forms of mathematical representation to present information</p> <p>iii. (not demonstrated at this level)</p> <p>iv. communicate coherent mathematical lines of reasoning</p> <p>v. organize information using a logical structure</p>	<p>Criterion A: Knowing and Understanding</p> <p>i. select appropriate mathematics when solving problems in both familiar and unfamiliar situations</p> <p>ii. apply the selected mathematics successfully when solving problems</p> <p>iii. solve problems correctly in a variety of contexts.</p> <p>Criterion C : Communicating</p> <p>i. use appropriate mathematical language (notation, symbols and terminology) in both oral and written statements</p> <p>ii. use appropriate forms of mathematical representation to present information</p> <p>iii. (not demonstrated at this level)</p> <p>iv. communicate coherent mathematical lines of reasoning</p> <p>v. organize information using a logical structure</p> <p>Criterion D: Applying mathematics in real-life context</p> <p>i. identify relevant elements of authentic real-life situations</p> <p>ii. select appropriate mathematical strategies when solving authentic real-life situations</p>	<p>Criterion A: Knowing and Understanding</p> <p>i. select appropriate mathematics when solving problems in both familiar and unfamiliar situations</p> <p>ii. apply the selected mathematics successfully when solving problems</p> <p>iii. solve problems correctly in a variety of contexts.</p> <p>Criterion B: Investigating patterns</p> <p>i. apply mathematical problem-solving techniques to recognize patterns</p> <p>ii. describe patterns as relationships or general rules consistent with findings</p> <p>iii. verify whether the pattern works for other examples.</p> <p>Criterion C : Communicating</p> <p>i. use appropriate mathematical language (notation, symbols and terminology) in both oral and written statements</p> <p>ii. use appropriate forms of mathematical representation to present information</p> <p>iii. (not demonstrated at this level)</p>	<p>Criterion A: Knowing and Understanding</p> <p>i. select appropriate mathematics when solving problems in both familiar and unfamiliar situations</p> <p>ii. apply the selected mathematics successfully when solving problems</p> <p>iii. solve problems correctly in a variety of contexts.</p> <p>Criterion C : Communicating</p> <p>i. use appropriate mathematical language (notation, symbols and terminology) in both oral and written statements</p> <p>ii. use appropriate forms of mathematical representation to present information</p> <p>iii. 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SSENYONGA DERRICK , Course Overview , Grade 7 (MYP 2 Maths) 2023-24

Grade 7

Name	Unti 1 : Ratios and proportions	Unit 2: Probability	Unit 3: Integers	Unit 4: Algebraic expressions and equations	Unit 6 :2D and 3D geometry	Unit 6: Rates	Unit 7: Univariate data
Theme/ Topic	Introducing ratio and proportion Ratio Simplifying ratios Equivalent ratios Representing the ratio Proportions Solving proportions Recognizing and using proportional reasoning.	Introducing Probability Events and outcomes Representing the sample space Tree diagrams Tables Representing probability numerically Calculating probability Complementary events Types of probabilities Experimental Probability	Introducing integers Integers Absolute value The Coordinate grid Plotting coordinate points Operations with integers Multiplication and division Exponents Addition and Subtraction Order of operations (BODMAS)	Introducing algebraic expressions and equations - Algebraic expressions – Describing expressions Terminology Simplifying expressions Like terms Writing expressions Translating into algebra Equations and inequalities	Introducing 2D and 3D geometry 2D figures Trapezoid Regular polygons Area of regular polygons Circles Circumference of a circle Area of a circle 3D figures Surface area of a regular	Rate Converting measurements, currencies Unit rates Problem solving with rates Exploring rate of change.	Introducing univariate Representing data Stem and leaf plots Back to back stem and leaf plots Analysing data Measures of central tendency – Mean, median and Mode. The effect of outliers
Statement of Inquiry	Using logical process to simplify quantities and establish equivalence can help analyse competition and cooperation.	A logical system of representation can help explore and analyse games that humans play.	Being able to represent different forms of quantities has helped humans explore and describe our planet.	Producing equivalent forms through simplification can help to clarify, solve and create puzzles and tricks	Generalizing relationships between measurements can help explore the formation of human and natural landscapes.	Establishing relationships of equivalence between measurements illustrates the interconnectedness of human-made systems.	Different forms of representation can help justify conclusions regarding access to equal opportunities.
Key concepts	Logic	Logic	Form	Form	Relationships	Relationships	Form
Related concepts	Equivalence, Quantity and Simplification	Representation, Systems and Justification	Quantity and Representation	Simplification and Equivalence	Generalization, Space	Equivalence,	Representation, justification, Validity
Global Context	Identities and Relationships – Competition and cooperation	Personal and Cultural Expressions - Entrepreneurship, practice and competency	Orientation in space and time – Human explorations	cientific and technical innovation – Puzzles and tricks	Orientation in space and time: Human and natural landscape	Globalization and sustainability: Interconnectedness of human-made systems	Fairness and development: Accessing equal opportunities

ATL Skill	Self-management Skills: Organization skills: Create plans to prepare for summative assessment. Affective Skills: Practise positive thinking	Thinking Skills: Critical-thinking skills Evaluate and manage risk. Communication skills: Communication skills Organize and depict information logically.	Thinking Skills: Transfer skills Make connections between subject groups and disciplines. Self-management skills: Reflection skills Consider personal learning	Communication Skills: Communication Skills: Make inferences and draw conclusions. Thinking Skills: Creative-thinking skills Apply existing knowledge to	Thinking Skills: Transfer skills: Apply skills and knowledge in unfamiliar situations. Communication Skills: Communication Skills: Make effective summary notes	Thinking Skills: Creative thinking skills Make guesses, asks 'what if' questions and generates testable hypotheses. Critical thinking skills Critical thinking skills Draw reasonable conclusions and	Self-management: Reflection skills Consider personal learning strategies What can I do to become a more efficient and effective learner? How can I become more flexible in
Subject group Objective	A: Knowing and understanding 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. B: Investigating patterns i. select and apply mathematical problem-solving techniques to discover complex patterns ii. describe patterns as relationships and/or general rules consistent with findings iii. verify and justify relationships and/or general rules. Criterion C : Communicating i. use appropriate mathematical language (notation, symbols and terminology) in both oral and written statements ii. use appropriate forms of mathematical representation to present information. iii. move between different forms of mathematical representation iv. communicate coherent mathematical lines of reasoning	A: Knowing and understanding 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. B: Investigating patterns i. select and apply mathematical problem-solving techniques to discover complex patterns ii. describe patterns as relationships and/or general rules consistent with findings iii. verify and justify relationships and/or general rules. 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SSENYONGA DERRICK, Course Overview , Grade 8 (MYP 3 Maths) 2023-24

	Unit 1 : Number	Unit 2 : Triangles	Unit 3 : Linear relationships	Unit 4 : 3D shapes	Unit 5: Uni and Bi variate data	Unit 6 : Geometric Transformations	Unit 7 : Linear systems
Grade 8 Theme/ Topic	Rational and irrational numbers Representing rational numbers Exponents Zero and negative powers Multiplying powers Dividing exponents Scientific notation Addition/subtraction with scientific notation Multiplication/division with scientific notation	Introducing triangles Pythagoras' theorem Applying the Pythagorean theorem Similar and congruent triangles Proving triangle similarity Applications of similar triangles Trigonometric ratios	Representing linear relationships in different ways Determining the characteristics of a linear relationship (gradient, y intercept) Graphing linear relationships using a variety of methods Understanding the relationship between parallel and perpendicular lines	Calculating the surface area and volume of 3-dimensional shapes involving cylinders, cones, pyramids and spheres Applying mathematical strategies to solve problems involving 3D shapes	Representing data using stem-and-leaf plots and box-and-whisker plots Calculating measures of central tendency and measures of dispersion Choosing the best method to represent data Analysing data and drawing conclusions	Transforming a figure by rotation, reflection, translation and dilation Analyzing the defining features necessary to produce different types of tessellations Applying mathematical strategies to solve problems involving geometric transformations, similarity and congruency Creating a tessellation	Solving complex multi-step algebraic equations Representing and classifying systems of linear equations Solving a system of linear equations using graphing, substitution and elimination Applying mathematical strategies to solve problems using a system of linear
Statement of Inquiry	Representing and simplifying quantities in different forms can help explore remarkable discoveries and developments.	Generalizing relationships between measurements can help analyze and generate products, processes and solutions	Representing patterns of change as relationships can help determine the impact of human decision-making on the environment.	Framing the Geometrical dimensions can help develop principles, processes, and solutions of space.	Making wise choices result from understanding patterns in quantities and their relationships with other quantities.	An understanding of patterns created by forms in space can enhance creativity and help express beliefs and values.	Representing relationships with models can promote and support social entrepreneurship.
Key concepts	Form	Relationships	Relationships	Relationships	Relationships	Form	Relationships
Related concepts	Quantity, representation, simplification	Space	Change, Models, Representation	Space	Patterns, Quantity	Patterns, Space, Justification	Representation, Models
Global Context	Orientation in space and time: Discoveries and developments	Scientific and technical innovation: Principles, processes, and solutions	Fairness and development: Social entrepreneurship	Scientific and technical innovation: Products, processes and solutions	Scientific and technical innovation: Products, processes and solutions	Personal and cultural expression: Expressing beliefs and values	Fairness and development: Social entrepreneurship

ATL Skill	<p>Research: Information literacy skills Use memory techniques to develop long-term memory</p> <p>Self-management: Affective skills Practice positive thinking</p>	<p>Thinking: Critical-thinking skills Test generalizations and conclusions</p> <p>Communication: Communication skills Give and receive meaningful feedback</p>	Change, Models, Representation	<p>Thinking: Creative thinking skills Make guesses, ask “what if” questions and generate testable hypotheses</p> <p>Thinking: Transfer skills Combine knowledge, understanding and skills to create products or solutions</p>	<p>Information literacy skills Process data and report results</p> <p>Research: Media literacy skills Locate, organize, analyze, evaluate, synthesize and ethically use information from a variety of sources and media (including digital social media and online networks)</p>	<p>Self-management: Reflection skills Consider personal learning strategies</p> <p>What can I do to become a more efficient and effective learner?</p> <p>How can I become more flexible in my choice of learning strategies?</p> <p>What factors are important for helping me learn well?</p> <p>Communication: Communication skills</p> <p>Use and interpret a range of discipline-specific terms and symbols</p>	<p>Communication: Communication skills Negotiate ideas and knowledge with peers and teachers</p> <p>Social: Collaboration skills Help others to succeed</p>
Subject group Objective	<p>Summative Assessment</p> <p>Criteria A & C task will be designed assessing the understanding of several concepts learnt in this unit.</p> <p>A: Knowing and understanding</p> <p>select appropriate mathematics when solving problems in both familiar and unfamiliar situations</p> <p>apply the selected mathematics successfully when solving problems</p> <p>solve problems correctly in a variety of contexts.</p> <p>C: Communicating</p> <p>use appropriate mathematical language (notation, symbols, and terminology) in both oral and written explanations</p> <p>use appropriate forms of mathematical</p>	<p><u>Summative Assessment: Designing a Zip Line</u></p> <p>In this assessment students are asked to find the length of a hypothetical zip line from one building to another in the school. In order to do this, they need to create a clinometer out of a protractor, which can be used to measure the angle between eye level and the top of a building. Those measurements can then be used to find the height of the building through the use of trigonometric ratios. This assessment only works in the specific place-based context where there are two buildings (with one being relatively taller than the other) available and in relatively close proximity to each other. Using a clinometer and measuring tape/trundle wheels, students will be able to make the needed measurements of the building heights and the distance between them.</p> <p>Students need to be taught how to create and use a clinometer ahead of time.</p> <p>C: Communicating</p>	<p>Summative Assessment : Straight Lines Investigation</p> <p>Parallel and perpendicular lines have algebraic rules within the structures of their equations, both in the standard form and gradient-intercept form. This investigation asks students to model straight lines on the cartesian plane and then explore the patterns within coefficients of the variables for the two forms of the equations.</p> <p>B: Investigating patterns</p> <p>select and apply mathematical problem- solving techniques to discover complex patterns</p> <p>describe patterns as relationships and/or general rules consistent with findings</p> <p>verify and justify relationships and/or general rules.</p> <p>C: Communicating</p>	<p>Summative Assessment : Choosing the Best Heater</p> <p>In this assessment, students are given several diagrams of a bedroom with labeled dimensions of the room and the furniture. Students are then tasked with choosing the best possible heater for the room based on several conditions, such as cost, fit, and space that the heater can heat. The different pieces of furniture of the room are of different shapes so students need to know how to calculate the areas and volume for each of them.</p> <p>C: Communicating</p> <p>use appropriate mathematical language (notation, symbols, and terminology) in both oral and written explanations</p> <p>use appropriate forms of</p>	<p>A: Knowing and understanding</p> <p>select appropriate mathematics when solving problems in both familiar and unfamiliar situations</p> <p>apply the selected mathematics successfully when solving problems</p> <p>solve problems correctly in a variety of contexts.</p> <p>B: Investigating patterns</p> <p>select and apply mathematical problem- solving techniques to discover complex patterns</p> <p>describe patterns as relationships and/or general rules consistent with findings</p> <p>verify and justify relationships and/or general rules.</p> <p>C: Communicating</p> <p>use appropriate mathematical</p>	<p>A: Knowing and understanding</p> <p>select appropriate mathematics when solving problems in both familiar and unfamiliar situations</p> <p>apply the selected mathematics successfully when solving problems</p> <p>solve problems correctly in a variety of contexts.</p> <p>B: Investigating patterns</p> <p>select and apply mathematical problem- solving techniques to discover complex patterns</p> <p>describe patterns as relationships and/or general rules consistent with findings</p> <p>verify and justify relationships and/or general rules.</p> <p>C: Communicating</p> <p>use appropriate mathematical language (notation, symbols, and</p>	<p>A: Knowing and understanding</p> <p>select appropriate mathematics when solving problems in both familiar and unfamiliar situations</p> <p>apply the selected mathematics successfully when solving problems</p> <p>solve problems correctly in a variety of contexts.</p> <p>B: Investigating patterns</p> <p>select and apply mathematical problem- solving techniques to discover complex patterns</p> <p>describe patterns as relationships and/or general rules consistent with findings</p> <p>verify and justify relationships and/or general rules.</p> <p>C: Communicating</p> <p>use appropriate mathematical</p>

SSENYONGA DERRICK , Course Overview , Grade 9 (MYP 4 Maths) 2023-24

Units	Unit 1 (6 Weeks) Are we related?	Unit 2 (3 Weeks) More than likely, less than certain	Unit 3 (4 Weeks) Urbanization (IDU Math and InS)	Unit 4 (6 weeks) Shapes - Unit 4	Unit 5 (5 weeks) Triangulation	Unit 6 (7 weeks) History repeats itself		
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Theme/Topics	<p>Reinforcing of linear equalities. Introduce Mapping and domain and range as a concept, in linear relationships. (understanding one-one mapping as linear equalities)</p> <p>Solving linear inequality and representing the solution set on the number line.</p> <p>Interval notation representing number sets on a number line.</p> <p>Chosen/open interval notation & inequalities</p> <p>Solving compound linear inequalities and writing their</p>	<p>Probability:</p> <p>Calculating probabilities of independent events, mutually exclusive events and combined events (Simple problems),</p> <p>Solving problems using tree diagrams (with and without replacement) and Venn diagrams, two-way tables and lattice diagrams.</p>	<p>Statistics:</p> <p>Sampling techniques-Definition & Identification of Five Types of sampling techniques- Simple random sampling, Stratified random sampling, Convenience Sampling, Quota Sampling ; Discussion of advantages and disadvantages of each type of sampling</p> <p>Note: Selecting samples and making inferences about populations.</p> <p>Response rates of a survey- Definition & Interpretation, Applications in real life situations. Discussions with the help of some surveys, Students can create their own surveys and calculate their survey rates.</p> <p>Types of data: Representation of data in different forms:</p> <p>Pie Chart, Bar Graph, Stem and Leaf (Double stem and leaf),</p> <p>Scatter Plot etc.</p>	<p>Scientific Notation and significant figures</p> <p>Using different forms of rounding; decimal</p> <p>Evaluating numbers with integer/fraction and negative exponents (Revisiting and more complex problems with laws of exponents</p> <p>Surds, roots and approximation(implicitly) radicals, including simplifying)- Word problems using scientific notation</p> <p>Rational numbers-convert between rational form and decimal form Example: Represent 0.3333... as fraction. Irrational numbers.</p> <p>Symbols/notation for Rational/irrational numbers, Real numbers, natural numbers, whole numbers</p> <p>Using different forms of rounding-</p>	<p>Sum of interior angles in a polygon, sum of all exterior angles(quick review)</p> <p>Solving problems involving triangles by using: Pythagoras' theorem and its converse problems solving</p> <p>Proving triangles similar and congruent triangles, real-life problems,</p> <p>Using scale diagrams to find the area and volume.</p> <p>Relating angles and sides of right-angled triangles using sine, cosine, and tangent(introduction) in 2-D figures and multiple triangles. Bearings.</p> <p>Trigonometric problem solving, Height, and distance problems.</p>	<p>Understanding the difference between a relation and a function</p> <p>Understanding mapping diagrams</p> <p>Knowing how to find ordered pairs in a relation</p> <p>Understanding domain and range</p> <p>Manipulating functions using the correct notation</p> <p>Factorizing quadratic expressions, where the coefficient of x^2 is 1, including the difference of two squares</p> <p>Factorizing quadratic expressions where the coefficient of x^2 is not 1</p> <p>Finding the axis of symmetry and vertex of a quadratic function</p> <p>Expressing a quadratic function in three different forms: standard, factorized and vertex</p>		
Statement of Intent	Using logic to make and validate generalizations enhances the development of models	Principles and discoveries often arise when patterns in the natural world are described as relationships.	Data handling is the key to understanding the relationships in studies of urbanization and making predictions and decisions for sustainable practices to have purposeful global interactions.	Representing transformed objects and studying their form helps us enjoy their creativity in space.	Knowledge of relationships can be used to calculate what cannot be measured.	Modelling with the help of different forms of representation can be used to understand the world around us.		
Key Concept	Logic	Relationships	Global Interactions	Form	Relationships	Form		
Related Concept	Patterns, Validity	Patterns, Representation	sustainability, relationships	Space Representation	Approximation Patterns	Model Representation		
Global Context	<p>Scientific and Technical Innovation</p> <p>Exploration:</p> <p>Students will explore how humans use their understanding of scientific principles</p>	<p>Identities and Relationships</p> <p>Exploration:</p> <p>Physical, psychological and social development; transitions; health and well-being; lifestyle choices.</p>	<p>Globalisation and sustainability</p> <p>Exploration:</p> <p>Urban planning, strategy and infrastructure.</p>	<p>Personal and Cultural expression</p> <p>Exploration:</p> <p>Artistry, Craft, Creation, Beauty</p>	<p>Orientation in Space and Time</p> <p>Exploration:</p> <p>Evolution, constraints and adaptation</p>	<p>Scientific and Technical Innovation</p> <p>Exploration:</p> <p>Exploring systems and methods to</p>		
AK Strand	<p>Economics for Development</p> <p>Understand the connections between economic activity and quality of life.</p>	<p>Cultures</p> <p>Give examples of ways that cultural exchange has enhanced civilizations</p>	<p>Governance and Civil Societies</p> <p>Be able to analyse needs and take effective action to raise awareness or solve a problem in their community</p>	<p>Pluralism</p> <p>Collaborate with varied groups of people, working collectively to reach a goal or solve a problem.</p>	<p>Cultures</p> <p>Develop a sense of the evolutionary nature of culture, the contributions of the past to the present and the responsibilities of the present to the future.</p>	<p>Cultures</p> <p>Give examples of ways that cultural exchange has enhanced civilizations</p>		
ATL Skills	Thinking Skills	Reflection skills:	Research (Information skills)	Thinking (Creative thinking skills)	Thinking Skills	Communication		

MYP Subject Objectives	B(i), (ii), (iii), C(i), (ii), (iii), (iv), (v), A(i), (ii), (iii)	C(i), (ii), (iii), (iv), (v) D(i), (ii), (iii), (iv), (v)	IDU: A - Evaluation B - Synthesizing C - Reflecting	A(i), (ii), (iii) C(i), (ii), (iii), (iv), (v) D(i), (ii), (iii), (iv), (v)	A(i), (ii), (iii) B(i), (ii), (iii) C(i), (ii), (iii), (iv), (v)	A(i), (ii), (iii) C(i), (ii), (iii), (iv), (v) D(i), (ii), (iii), (iv), (v)		
SSENYONGA DERRICK , Course Overview , Grade 10 (MYP 5 Maths) 2023-24								
Units	Functions(6 weeks)	2D to 3D and 2D in 3D (6 WEEKS)	What Comes Next? (4 weeks)	Statistics and Probability (3 weeks)	Transformations (3 weeks)			
Content	"Domain and range. Introduction to relation and function. Determining the range, given the domain of various functions (polynomial, root, modulus, exponential, rational and trigonometric) .Graphing quadratic function and understanding its characteristics. Application of quadratic functions in optimization problems. Revisit Solving compound linear Inequality, Graphing Linear Inequalities in 2D."	<ul style="list-style-type: none"> • Trigonometric Ratio in right angled triangles (Re-cap) • Bearings (Re-Cap) • Application of trigonometry in height and distance problem including some problems on 3D. <p>---Circle theorems</p> <ul style="list-style-type: none"> • Similarity and congruency • LSA and TSA and Volume of regular polyhedral, compound shapes. • Connecting similarity and congruency relating to Area and volumes of shapes. * Algorithms 	<ul style="list-style-type: none"> • Number Sequences: • Linear, Quadratic, Special sequences e.g triangular, Fibonacci etc. • Recursive and explicit formulae. • Predicting the next term in a number sequence (linear, quadratic, triangular, Fibonacci) • Developing, and justifying or proving, general rules/ formulae for sequences 	Graphical representations (including: bivariate graphs, scatter graphs, box plots, cumulative frequency graphs Line of Best Fit using Technology only Data processing: Quartiles and Percentiles Measures of dispersion: Interquartile range Correlation, qualitative handling	<ul style="list-style-type: none"> • Isometric transformation, enlargements and tessellations; centre of enlargements, rotation, Movement on a plane • Rotation about the given point Enrichment: Vector form of representing translation 			
Statement of Inquiry	Relationships can be modeled to make a generalization and predictions	Relationships between various forms can be used to calculate what we cannot measure.	Discovering a pattern will help in generalizing a valid relationship to predict change and solve problems.	Different forms of representation help to establish underlying relationships and trends to support decision making.	Generalizing and applying relationships between different forms in space can help us measure and define 'where', 'when' and 'how'.			
Key Concept	Relationships	Form	Relationships	Relationship	Form			
Related Concept	Generalization and Representation	Justification and Measurement	Generalisation, Pattern, Validity	Representation justification	Justification and Measurement			
Global Context	Scientific and technical innovation: Adaptation, ingenuity and progress	Orientation in Space and Time	Scientific and technical innovation: Mathematical puzzles, principles and discoveries.	Identities and relationships: Students will explore identity; beliefs and values.	Orientation in Space and Time : Scale, duration frequency and variability.			

AK Strand	Ethics: Understand the value and significance of living a moral life and act in accordance with their ethical beliefs, making and formed and responsible choices.	Economics for Development • Understand the connections between economic activity and quality of life	Ethics: Understand the value and significance of living a moral life and act in accordance with their ethical beliefs, making informed and making responsible choices.	Culture: Understand the concepts of 'culture' and 'identity' as a combination of tangible and intangible factors. (students will explore the tangible factors e.g. Architecture/Art that uses geometrical figures and tessellations etc representing their identity and culture in its traditions)	Pluralism: Collaborate with varied groups of people, walking collectively to reach a goal or solve a problem.			
ATL Skills	1. Thinking: Draw reasonable conclusions and generalizations 2. Communication: Understand and use mathematical notation	Thinking: Critical Practice observing carefully in order to recognize problems. Draw reasonable conclusions and generalization. Transfer Skills Apply skills and knowledge in unfamiliar situations.	Critical Thinking: Identify trends and forecast possibilities. Draw reasonable conclusions and generalization. Transfer Skills Apply skills and knowledge in unfamiliar situations. Inquire in different context to gain a different perspective.	Communication: Understanding and use of mathematical notations Research (Information literacy skills)	Self-management (Organization skills), Critical Thinking: Identify multiple transformations			
MYP Subject Objectives	A(i), (ii), (iii) C(i), (ii), (iii)	A (i), (ii), (iii), D (i), (ii), (iii), (iv), (v) C (i), (ii), (iii), (iv), (v)	B(i), (ii), (iii) C(i), (ii), (iii), (iv), (v)	A(i), (ii), (iii), C(i), (ii), (iii), (iv),(v) D(i), (ii), (iii), (iv), (v)	B(i), (ii), (iii) C(i), (ii), (iii), (iv), (v)			

SSENYONGA DERRICK , Course Overview , Grade 10 Ext. (MYP 5 Ext. Maths) 2023-24

	Unit 1 - Functions (6 Weeks)	Unit 2 -Linear Programming Problems (3 Weeks)	Unit 3-2D to 3D and 2D in 3D (5 Weeks)	Unit 4 -Those special functions (3 Weeks)	Unit 5 -What comes next? (3 weeks)	Unit 6-Statistics and Probability (3 weeks)	Unit 7 - Networking (2 weeks)
Theme/Topics	<ul style="list-style-type: none"> Determining the range, given the domain of various functions (polynomial, root, modulus, exponential, rational and trigonometric). Graphing quadratic function and understanding its characteristics. Rational Functions Graphing Trigonometric functions Representation and shape of more complex functions (exponential, logarithmic, etc) Isometric Transformations Translating, reflecting & dilating functions of quadratic functions Identical representation of 	<ul style="list-style-type: none"> Modelling the real-life situation using linear inequalities. Revisit Solving compound linear Inequality, Graphing Linear Inequalities in 2D. Solving (compound) linear inequalities. Solving and graphing linear inequalities. Linear Programming and its application in real life. setting up equations and graphing direct and inverse relationships. 	<ul style="list-style-type: none"> Circle Theorems • Trigonometric Ratios(Revisit) Bearings Angles; (Revisit) conversion Radian to Degree to Radian(pi equivalent to 180 degrees) Application of trigonometry in height and distance problem including some problems on 3D, Similarity and congruency Pythagoras Theorem & its converse Justifying and proving using theorems of similarity and congruency(just as a reference) Area of non-right-angle triangle, Sine cosine rule including applications (link to trigonometric functions) LSA and TSA and Volume of regular polyhedral, compound shapes. Area and volumes of similar shapes. Rational numbers-convert between rational form and decimal form(this area and the below are as reference only) Example: Represent 0.3333... as fraction. Irrational numbers. - Symbols/notation for Rational/irrational numbers. 	<ul style="list-style-type: none"> Fractional exponents: Using the rules of indices to simplify numerical expressions involving radicals and exponents Logarithms, including laws of logarithms and the use of technology to find values ; Solving equations and simultaneous equations involving logarithms. 	<ul style="list-style-type: none"> Number Sequences: <ul style="list-style-type: none"> Linear, Quadratic, Special sequences e.g triangular, Fibonacci etc. Arithmetic and Geometric sequence, Recursive and explicit formulae. Predicting the next term in a number sequence (linear,) Developing, and justifying or proving, general rules/ formulae for sequences Enrichment: quadratic, triangular, Fibonacci sequences 	<ul style="list-style-type: none"> Statistics: Data manipulation and misinterpretation(Revisit) Graphical representations (including bivariate graphs, scatter graphs, revisiting box and whisker plot, cumulative frequency graphs)(Revisit) Drawing the line of best fit, (Revisit) Standard deviation Making inferences about data given the mean and standard deviation, effect of Revisiting : Calculating probabilities of combined events, solving problems using tree diagrams and Venn diagrams, Sets, including notation and operations up to three sets Addition and multiplication rule - Calculating conditional probability 	<ul style="list-style-type: none"> Algorithms Network- Edges and arcs, nodes/ vertices, paths Calculating network pathways Weighted network

Statement of Inquiry	Relationships can be modeled to make a generalization and predictions	Relationships can be modeled to understand equality and inequality	Relationships between various forms can be used to calculate what we cannot measure.	Equivalence of different forms of representations leads to better understanding of underlying situations.	Discovering a pattern will help in generalizing a relationship to predict change	Different forms of representation help to establish underlying relationships and trends to support decision making.	Appropriate representation will help in applying a logic to make a wise decisions. Critical Thinking: Consider ideas from multiple perspectives	
Key Concept	Relationships	Relationships	Form	Form	Relationships	Representation	Logic	
Related Concept	Generalisation Representation	Model & Representation	Justification, Approximation	Representations, equivalence	Generalization, change, pattern	Representation, Justification	Representation	
Global Context	Scientific and technical innovation - Adaptation, ingenuity and progress	Scientific and technical innovation: Adaptation, ingenuity, and progress	Orientation in Space and Time	Scientific and technical innovation	Scientific and technical innovation: Adaptation, ingenuity and progress	Identities and relationships: Students will explore identity; beliefs and values;	Scientific and technical innovation; Students will explore the natural world and its laws;	
AK Strand	Ethics: Understand the value and significance of living a moral life and act in accordance with their ethical beliefs, making and formed and responsible choices	Ethics: Understand the value and significance of living a moral life and act in accordance with their ethical beliefs, making and formed and responsible choices.	Cultures: Understand how cultural groups interact with, influence and impact each other in different times and places and the effects of these interactions.	Governance and civil societies	Economics for Development• Understand the connections between economic activity and quality of life.	Ethics: Understand the value and significance of living a moral life and act in accordance with their ethical beliefs, making informed and responsible choices.	Pluralism : Collaborate with varied groups of people, working collectively to reach a goal or solve a problem.	
ATL Skills	<ul style="list-style-type: none"> • Creative: Consider multiple alternatives, including those that might be unlikely or impossible, • Thinking: Draw reasonable conclusions and generalizations • Communication: Understand and use mathematical notation 	<ul style="list-style-type: none"> • Creative: Consider multiple alternatives, including those that might be unlikely or impossible, • Thinking: Draw reasonable conclusions and generalizations • Communication: Understand and use mathematical notation 	<p>Thinking: Critical Practice observing carefully in order to recognize problems. Draw reasonable conclusions and generalization.</p> <p>Transfer Skills Apply skills and knowledge in unfamiliar situations. Inquire in different contexts to gain a different perspective.</p>	<p>Thinking: Critical Practice observing carefully in order to recognize problems. Draw reasonable conclusions and generalization</p>	Critical Thinking: Identify trends and forecast possibilities.	Communication: Understanding and use mathematical notations Research (Information literacy skills)	Critical Thinking: Consider ideas from multiple perspectives	
Subject Group Objective(s)	<p>Criterion A: Knowing and Understandingi. select appropriate mathematics when solving problems in both familiar and unfamiliar situations</p> <p>ii. apply the selected mathematics successfully when solving problems</p> <p>iii. solve problems correctly in a variety of contexts.</p> <p>ii. apply the selected mathematics successfully when solving problems</p> <p>iii. solve problems correctly in a variety of contexts.</p>	<p>Criterion A: Knowing and Understandingi. select appropriate mathematics when solving problems in both familiar and unfamiliar situations</p> <p>ii. apply the selected mathematics successfully when solving problems</p> <p>iii. solve problems correctly in a variety of contexts.</p> <p>Criterion C: Communicatingi. use appropriate mathematical language (notation, symbols and terminology) in both oral and written explanations</p> <p>ii. use appropriate forms of mathematical representation to present information</p> <p>iii. move between different forms of mathematical representation</p> <p>iv. communicate complete, coherent and concise mathematical lines of reasoning</p> <p>v. organize information using a logical structure.</p> <p>Criterion D: Applying Mathematics in Real-Life Contextsi. identify relevant elements of authentic real-life situations</p> <p>ii. select appropriate mathematical strategies when solving authentic real-life situations</p>	<p>Criterion A: Knowing and Understandingi. select appropriate mathematics when solving problems in both familiar and unfamiliar situations</p> <p>ii. apply the selected mathematics successfully when solving problems</p> <p>iii. solve problems correctly in a variety of contexts.</p> <p>Criterion C: Communicatingi. use appropriate mathematical language (notation, symbols and terminology) in both oral and written explanations</p> <p>ii. use appropriate forms of mathematical representation to present information</p> <p>iii. move between different forms of mathematical representation</p> <p>iv. communicate complete, coherent and concise mathematical lines of reasoning</p> <p>v. organize information using a logical structure.</p> <p>Criterion D: Applying Mathematics in Real-Life Contextsi. identify relevant elements of authentic real-life situations</p> <p>ii. select appropriate mathematical strategies when solving authentic real-life situations</p>	<p>Criterion A: Knowing and Understandingi. select appropriate mathematics when solving problems in both familiar and unfamiliar situations</p> <p>ii. apply the selected mathematics successfully when solving problems</p> <p>iii. solve problems correctly in a variety of contexts.</p> <p>Criterion B: Investigating Patternsi. select and apply mathematical problem-solving techniques to discover complex patterns</p> <p>ii. describe patterns as general rules consistent with findings</p> <p>iii. prove, or verify and justify, general rules.</p> <p>Criterion C: Communicatingi. use appropriate mathematical language (notation, symbols and terminology) in both oral and written explanations</p> <p>ii. use appropriate forms of mathematical representation to present information</p> <p>iii. move between different forms of mathematical representation</p> <p>iv. communicate complete, coherent and concise mathematical lines of reasoning</p> <p>v. organize information using a logical structure.</p>	<p>Criterion B: Investigating Patternsi. select and apply mathematical problem-solving techniques to discover complex patterns</p> <p>ii. describe patterns as general rules consistent with findings</p> <p>iii. prove, or verify and justify, general rules.</p> <p>Criterion C: Communicatingi. use appropriate mathematical language (notation, symbols and terminology) in both oral and written explanations</p> <p>ii. use appropriate forms of mathematical representation to present information</p> <p>iii. move between different forms of mathematical representation</p> <p>iv. communicate complete, coherent and concise mathematical lines of reasoning</p> <p>v. organize information using a logical structure.</p>	<p>Criterion A: Knowing and Understandingi. select appropriate mathematics when solving problems in both familiar and unfamiliar situations</p> <p>ii. apply the selected mathematics successfully when solving problems</p> <p>iii. solve problems correctly in a variety of contexts.</p> <p>Criterion C: Communicatingi. use appropriate mathematical language (notation, symbols and terminology) in both oral and written explanations</p> <p>ii. use appropriate forms of mathematical representation to present information</p> <p>iii. move between different forms of mathematical representation</p> <p>iv. communicate complete, coherent and concise mathematical lines of reasoning</p> <p>v. organize information using a logical structure.</p> <p>Criterion D: Applying Mathematics in Real-Life Contextsi. identify relevant elements of authentic real-life</p>	<p>Criterion A: Knowing and Understandingi. select appropriate mathematics when solving problems in both familiar and unfamiliar situations</p> <p>ii. apply the selected mathematics successfully when solving problems</p> <p>iii. solve problems correctly in a variety of contexts.</p> <p>Criterion C: Communicatingi. use appropriate mathematical language (notation, symbols and terminology) in both oral and written explanations</p> <p>ii. use appropriate forms of mathematical representation to present information</p> <p>iii. move between different forms of mathematical representation</p> <p>iv. communicate complete, coherent and concise mathematical lines of reasoning</p> <p>v. organize information using a logical structure.</p>	



