Time frame	Unit title	Key and Related Concepts	Global context and exploration	Statement of inquiry	Objective/ Objective strands	ATL skills	Content
15 hours	Welcome (Introductory unit- can be embedded into first unit).	Logic Justification change	Identities and relationships (Competition, cooperation and collaboration)	Logic and change serve as a method of justification during competition, cooperation and collaboration.	A (i,ii,iii) B (i,ii) C (i.ii,iii,iv,v) D (i,ii,iii,iv,v)	Self-management: Organization skills - Bring necessary equipment and supplies to class Affective Skills - Demonstrate persistence and perseverance	Knowing and understanding criteria for success- Develop understanding of the mathematics programme and its objectives. Start knowing and understanding the mathematical practices. Develop and apply communication skills such as accountable talk. Baseline test- Solve problems using previous knowledge. Apply previous knowledge to new situations. Problem solving techniques- Collaborative investigation on problem solving process and techniques particular to the year. Create resources to use as reference materials through the year.
20 Hours	Read between the numbers. Unit 1	Perspective Simplification Representation	Scientific and technical innovation (The precision of systems)	Using the precision of systems, perspective is utilized through representation and simplification.	A (i.ii.iii) B (i,ii,iii) C (i,ii,iii,iv,v) D (i,iii,IV,V)	Communication: Communication Skills Use a variety of media to communicate with a range of audiences. Take effective notes in class Make inferences and Draw Conclusions. Self-Management: Organization Skills Select and use technology effectively and productively	Rational Numbers applies properties of operations as strategies to add and subtract rational numbers; explains subtraction as adding the additive inverse; shows p + q as the number located a distance | q| from p in a positive or negative direction applies properties of operations as strategies to multiply or divide rational numbers; explains that division by zero is undefined; shows that -(q/p) = (-p)/q = p/(-q); converts a rational number to a decimal using long division and knows that the rational number terminates in 0 or eventually repeats solves real-world problems involving the four operations with rational numbers
20 Hours	Ratios and Relationships. Unit 2	Relationships, Measurement, Equivalence	Globalization and sustainability: Availability of resources and societies throughout history	The availability of resources and societies throughout history determine the measurement equivalence to facilitate relationships.	A (i,ii,iii) B (ii) C (i,ii,iii) D (iii, V)	Communication: Communication Skills Understand and use mathematical notation Self-management: Affective Skills Practice "failing well" Thinking: Creative Thinking Skills Use brainstorming and visual diagrams to generate new ideas and inquiries.	Ratios and rates computes unit rates associated with two fractions identifies the constant of proportionality (unit rate) in tables, diagrams, and/or graphs models a proportional relationship using an equation when given a table or graph including the origin explains what any point (x, y) on the graph of a proportional relationship means in terms of the situation, and identifies the unit rate when given the point (1, r), where r is the unit rate uses proportional relationships to solve multistep ratio and percent problems in context

25 Hours	The data all around us. Unit 3	Logic, Patterns, Generalization	Fairness and development (Economic markets, demand and supply)	Logic is the generalization of patterns using data to make decisions that affect ergonomic markets, demand and supply.	A (i,ii,iii), B (i,ii,iii), C (i,ii,iii,IV,V), D (i,ii,IV,V)	Communication: Communication Skills Understand and use mathematical notation Take effective notes in class Self-management: Organization Skills Use appropriate strategies for organizing complex information	Data Analysis and Expressions Analysis of data- uses statistical data to draw inferences about a population based on representative samples uses measures of central tendency and/or variability to draw comparisons about two different populations identifies the probability of a chance event as equally likely or unlikely (0.5); represents the probability as a fraction, decimal, or percent uses the results of an experiment to make approximations of probability for an event; predicts the approximate relative frequency given the probability designs a simulation to generate frequencies for compound events; uses observed frequencies to create a uniform probability model to determine theoretical probabilities of events Extension- compares and justifies the experimental and theoretical probability in a given situation; compares different simulations of compound events to see which best predicts the probability Expressions- applies properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients shows that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related Extension- analyzes for errors in the use of properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients creates equivalent expressions given in a problem context and explains the key terms and factors of the problem for each expression
20 Hours	Modeling Equality. Unit 4	Relationships, Equivalence, Systems, Models	Scientific and technical innovation: Digital life and the virtual environment	Equivalence between systems and models affects relationships in the digital life and the virtual environment	A (i,ii,iii) B (i,ii,iii) C (i,ii.iii.IV.V) D(i,ii,iii,IV,V)	Research: Information literacy Collect, record and verify data Collect and analyze data to identify solutions and make informed decisions Thinking: Critical Thinking Skills Practice observing carefully in order to recognize problems. Thinking: Creative Thinking Skills Apply existing knowledge to generate new ideas, products or processes.	Equations and Inequalities solves multistep and real-world problems posed with rational numbers, using tools strategically; applies properties of operations, conversions between forms, as appropriate, and assesses the reasonableness of answers given a model, solves real-world or mathematical problems involving equations and inequalities in the form $px + q = r$, $p(x + q) = r$ and $px + q < r$, $px + q > r$, with integer coefficients and p as a benchmark fraction; interprets inequality solutions in the context of the problem Extension- given a real-world problem, creates and solves a model using rational numbers, using tools strategically; analyzes errors in a problem with a real-world context creates a model and solves real-world or mathematical problems using equations and inequalities with rational coefficients and explains what the solution means

20 Hours	The Art of Geometry. Unit 5	Form, Pattern, Space	Personal and cultural expression (Variety in geometric form allows for personal and cultural expression in artistry and creation)	Variety in geometric form utilizes patterns & space to allow for personal and cultural expression in artistry and creation.	A (i,ii,iii) B (i,ii,iii) C (i,ii,iii,IV,V) D (i,ii,iii,IV,V)	Communication: Communication Skills Understand and use mathematical notation Thinking Self-management: Reflection Skills Identify strengths and weaknesses of personal learning strategies (self-assessment) Research: Information literacy Collect, record and verify data	Geometry computes actual lengths and areas from a scale drawing and reproduces a scale drawing using a different scale constructs geometric shapes given a combination of angle and side conditions; notices when conditions determine a unique triangle, more than one triangle, or no triangle identifies the two-dimensional figure that results from a vertical or horizontal cut of a three-dimensional figure uses the formulas and solves problems for the area and circumference of a circle given radius or diameter, or vice versa, given a graphic representation in a real-world context uses facts about angle relationships to write and solve multistep equations for an unknown angle in a figure solves real-world problems involving area of two-dimensional figures composed of triangles, quadrilaterals, and polygons; solves real-world volume and surface area problems for cubes and right prisms Extension- analyzes and justifies the conditions for a unique triangle, more than one triangle, or no triangle uses the relationship between circumference and area of a circle to solve multistep real-world problems justifies why the experimental probability approaches the theoretical probability as the relative frequency of an event increases
20 Hours	Be ready. Unit 6	Logic, Systems, Change	Orientation in Space and Time(Peoples, boundaries, exchange and interaction)	Peoples, boundaries, exchange and interaction drive change in systems through logic.	A (i,ii,iii) B (i,ii,iii) C (i,ii,iii,IV,V) D (i,ii,iii,IV,V)	Research: Information literacy Collect, record and verify data Process data and report results.	Algebra readiness applies multiple properties of operations to identify and generate equivalent expressions applies the properties of operations to identify and generate multiple equivalent expressions solves an equation or inequality as a process of answering a question and justifies the answer: which values from a specified set, if any, make the equation or inequality true justifies that a variable can represent an unknown number or, depending on the purpose at hand, any number in a specified set solves and justifies two-step real-world and mathematical problems