

#	Unit title	Time (HRS.)	Key concept	related concept	global context	Statement of Inquiry	Content based Objectives	ATL skills	Content	Resources
1	<p>Unit 1</p> <p>2D, 3D & Complex shapes Measurement of spaces in different dimensions (9.1)</p>	25 (5 weeks)	Relationships	Measurements Quantity Space	Personal and cultural expression Globalization and sustainability Exploration: conservation, natural resources	Generalizing relationships between measurements enables the construction and analysis of activities for ritual and play	<p>Difference between 2D & 3D shapes</p> <p>Calculating area and perimeters of polygons (including triangles, square, rectangles, pentagon)</p> <p>Calculating area of irregular shapes</p> <ul style="list-style-type: none"> Knowing parts of a circle, such as; chord, diameter, radius, circumference, <p>Calculating area and circumference of a circle</p> <ul style="list-style-type: none"> Finding the surface area and volume of any 3D shape (including pyramids, cones and spheres). Price of glass (C and D) [Students find the surface area of glass needed for a compound shape building existing in real life] 	<p>Thinking (Critical thinking skills)</p> <ul style="list-style-type: none"> Gather and organize relevant information to formulate an argument Evaluate evidence and arguments Propose and evaluate a variety of solutions Identify obstacles and challenges 	<ul style="list-style-type: none"> Finding the perimeter (circumference), area and volume of regular and irregular two-dimensional (2D) and three-dimensional (3D) shapes Compound shapes 	304 - 320
2	<p>Unit 2</p> <p>Coordinate geometry</p> <p>(Unit 2: Textbook reference:3.1)</p>	25 (5 Weeks)	Form	Representation Systems	Orientation in space and time Exploration: constraints and adaptations	It is important to know the limitations (constraints) of different forms of representation of systems in order to make improvements (adaptations)	<ul style="list-style-type: none"> Distances between cities (C and D) [Students find the distance between cities and the city situated in the middle. They are expected to reflect on the accuracy of their results given the curved nature of the Earth] Also check the Bermuda triangle for an activity and the Great Square of Pegasus (is it a square?) Unit test (A) 	<p>Research (Media literacy skills)</p> <ul style="list-style-type: none"> Seek a range of perspectives from multiple and varied sources Compare, contrast and draw connections among (multi)media resources <p>Self-management (Reflection skills)</p> <ul style="list-style-type: none"> Demonstrate flexibility in the selection and use of learning strategies <p>Communication</p> <p>Make inferences & draw conclusions</p>	<ul style="list-style-type: none"> Understanding and using the Cartesian plane and plotting points. Finding distances between points and finding the midpoint 	Page # 64 - 79

3	<p>Unit 3</p> <p>Linear Functions (11.1)</p>	25 (5 weeks)	Relationships	Model Representation	Scientific & Technical Innovations The natural world.	There is a need to relate variables that are around us and represent them in different forms.	<p>A, B, C, D</p> <ul style="list-style-type: none"> Identifying linear equations Different forms of writing a linear equation Be able to write linear eqns in slope y-intercept form and two points slope form Finding a slope from the graph Calculating slope from the table Using two points slope formula Spotting y-intercept on the graph and on the table Developing understanding of the x- intercept How many real solutions a linear function can have and where to locate it on the graph Check your own work Solving linear equations graphically and algebraically Representing a visual pattern as a linear function in a table and a graph (Matlab) Creating a mathematical model to solve real-life problems Determining if a model solution is equivalent to the real-life solution Evaluating and interpreting your solutions in light of the real-life problems 	<p>Communication Give and receive meaningful feedback.</p> <p>Negotiate ideas and knowledge with peers and teachers.</p> <p>Collaborate with peers, experts or others, employing a variety of digital environments and media.</p> <p>Thinking Draw reasonable conclusions and generalizations</p>	<p>Components of linear functions. Key terms ---slope, y-intercept, x-intercept, independent and dependent variables, Zero, real root, or solution Types of equations used to represent linear functions Equations of parallel and perpendicular lines Construction of tables of values Graph straight lines using different forms Write equations from points Use graphs to write an equation Multiple processes for writing equations of lines. Interpreting the meaning of key attributes in problem situations. Analyze data to determine a function model. Analyze strength of the function model in making predictions.</p> <ul style="list-style-type: none"> The linear function $f(x) = mx + b$, its graph, gradient and y-intercept Equations of parallel and perpendicular lines Parallel and perpendicular lines and the relationships between their 	419, 420, 421
4	<p>Unit 4</p> <p>Quadratic relationships (8.2)</p>	25 (5 weeks)	Form	Patterns, Space, Equivalence	Scientific and technical innovation	Representing patterns with equivalent forms can lead to better systems, models and methods	<p>Factorizing quadratic expressions where leading coefficient is equal to 1 ($a=1$)</p> <p>Factorizing quadratic expressions where leading coefficient is greater than 1 ($a > 1$)</p> <p>Factorizing quadratic expressions where leading coefficient is less than 1 ($a < 1$)</p> <p>Difference of two squares</p> <p>Introducing quadratic formula</p>	<p>Investigation/ Research</p> <p>Self-management Reflection - Draw reasonable conclusions and generalizations (Textbook pg#291)</p>	Pgs# 289 - 303	
5	<p>Unit 5</p> <p>Statistics (Central tendency & range for a continuous data)</p> <p>(4.1,4.2) (Representing quantities within data sets)</p>	25 (5 weeks)	Relationships	Representation Quantity	Globalization and sustainability Exploration: decision-making	How quantities are represented can help to establish underlying relationships and trends in a population.	<ul style="list-style-type: none"> Categorizing data Constructing stem-and-leaf diagrams Calculating quartiles, the range and the interquartile range Giving a five-point summary of a set of data Constructing box-and-whisker diagrams Identifying outliers Comparing distributions Finding the mean, median, mode and range from a grouped frequency table Representing grouped data in a cumulative frequency curve Finding the five-point summary from a cumulative frequency curve Constructing a box-and-whisker diagram from a cumulative frequency curve 	<p>Communication: Organize & depict information logically</p> <p>Thinking</p>	<ul style="list-style-type: none"> Calculating the mean, median and mode, and choosing the best measure of central tendency Box-and-whisker plots Representation using box and whisker diagram Cumulative frequency 	84, 87, 91, 94, 100, 104, 105, 106, 111, 112, 113, 115, 116, 121, myimaths.com Textbook : myp 4 & 5 Corbetmaths.com Khan academy Youtube Mathisfun CK-12 foundation Kuta software Kahoots

6	<p align="center">Unit 6</p> <p align="center">Exponential Functions</p>	20 (4 weeks)	Relationships	Patterns Representations	Globalization and Sustainability	<p>Mathematical representations of patterns inform decisions about conservation. (conservation: i.e. growth or decay of animal population)</p>	<p>B. i. Apply mathematical problem-solving techniques to recognize patterns.</p> <p>C. v. Organize information using a logical structure.</p> <p>D. i. Identify relevant elements of authentic real-life situations.</p>	<p>Thinking (Transfer)</p> <p>Self - management (Organization Skills)</p> <p>Thinking (creativity & Innovation)</p>	<p>Analysis of exponential functions and their characteristics.</p> <p>Determine growth and decay of populations, money, and other situations.</p>	519 - 522529, 532
7	<p align="center">Unit 7</p> <p align="center">Line of best fit</p> <p>Generalizing different representations to make predictions</p>	25 (5 weeks)	Relationships	Representation, Generalization	Identities and relationships	<p>Generalizing and representing relationships can help to clarify trends among individuals.</p>	<ul style="list-style-type: none"> • Drawing a scatter diagram for bivariate data • Drawing a line of best fit (regression line) by eye • Understanding and interpreting the correlation between two sets of data • Using technology to obtain the equation of a line of best fit • Selecting samples and making inferences about populations • Understanding the purpose of taking a sample • Using different sampling techniques • Understanding when it is appropriate to generalize from a sample to a population • Understanding the effect of sample size on the reliability of your generalizations 	<p>Research</p> <p>Thinking</p>	<p>Graphical analysis and representation (pie charts, histograms, line graphs, scatter plots, box-andwhisker plots)</p> <p>Population sampling</p>	128, 129, 131, 132 481, 483, 484, 485