Curriculum Plan: MYP Mathematics

| | Term 1 | Term 2 | Term 3 |
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| MYP 1 (Year 7) | Unit Title(s): All About Number; Solving the Unknown | Unit Title(s): Shape and Space; Visualizing Algebra | Unit Title(s): Fact or Fiction; What are the chances? |
| | Global Context: Orientation in Time and Space;  Scientific and Technical Innovation | Global Context: Fairness and Development; Orientation in Time and Space. | Global Context: Fairness and Development |
| | Key concept: Logic | Key concept: Form; Relationships | Key concept: Connections; Logic |
| | Topics covered:<br>Fractions<br>Comparing Numbers<br>Ordering Numbers<br>Powers of 10<br>Negative Numbers<br>Prime Numbers<br>Basic Indices<br>Calculate HCF and LCM<br>Square/Cube roots<br>Rounding and Estimation<br>BIDMAS<br>Percentage increase and decrease but also profit and loss<br>Ratio<br><br>Know the meaning of expression, term, formula, equation<br>Recognize and use square numbers/ cube numbers in patterns<br>Continue linear and non-linear number sequences<br>Simplify expressions by collecting like terms<br>Manipulate expressions by multiplying a single term over a bracket (the distributive law)<br>Simplify expressions by expanding, and gathering like terms<br>Substitute integers and fractions into expressions and formulae (positive and negative) | Topics covered:<br>Calculate perimeter and area of 2D shapes (rectangle, square)<br>Identify acute, obtuse, and reflex angles<br>Recognise and solve problems using angles at a point and 180 degrees on a straight line<br>Recognise and use nets of cubes, cuboids, and cylinders<br>Use language of faces, edges and vertices in 3D shapes<br>Know and solve problems using the properties and definitions of triangles<br>Area and perimeter of quadrilaterals, triangles and trapezia<br>Use and apply the formula for area and circumference of a circle<br>Find the surface area and volume of cuboids (including cubes)<br>Calculate the area and perimeter of composite shapes that include basic sections of a circle (quarter/semi circles)<br>Finding unknowns when given area/perimeter/volume using algebra<br><br>Plot coordinates<br>Write the equation of a line parallel to the x-axis or the y-axis<br>Identify and draw the lines y = x and y = -x<br>Find the x and y-intercept of a straight line<br>Solve problems based on a linear graph<br>Solve word problems relating to linear | Topics covered:<br>Construct and interpret comparative bar charts<br>Construct and interpret vertical line charts<br>Interpret pie charts and know their appropriate use<br>Choose appropriate graphs or charts to represent data<br>Interpret and construct frequency tables<br>Find the mode of sets of data<br>Find the median of a set of data<br>Calculate the mean from a frequency table<br>Find the mode from a frequency table<br>Calculate and understand the range as a measure of spread (or consistency)<br>Analyse and compare sets of data, appreciating the limitations of different statistics (mean, median, mode, range)<br><br>Know and use the vocabulary of probability<br>Understand the use of the 0-1 scale to measure probability<br>List all the outcomes for an experiment, including the use of tables<br>Work out theoretical probabilities for events (number of successes/total number of outcomes)<br>Know that the sum of probabilities for all outcomes is 1<br>Apply the fact that the sum of probabilities for all outcomes is 1 |

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| | Solve basic linear equations<br>Solve problems using basic linear graphs in form y=mx+c<br>Form a general rule for linear sequence<br>Solve linear equations involving word problems<br>Solve multi-step equations, including the use of brackets. | graphs<br>Graphing straight lines using a table of values<br>Graph linear equations in the form y=mx+c<br>Identify linear equations from their graphs. | Interpret and find probabilities from tables<br>Find probabilities from real life scenarios |
| MYP 2 (Year 8) | Unit Title(s) All About Number; Solving the Unknown | Unit Title(s) Shape and Space; Visualizing Algebra | Unit Title(s) Fact or Fiction; What are the chances? |
| | Key concept: Logic | Key concept: Form; Relationships | Key concept: Connections; Logic |
| | Global Context: Orientation in Time and Space;  Scientific and Technical Innovation | Global Context: Fairness and Development; Orientation in Time and Space. | Global Context: Fairness and Development |
| | Topics covered:<br>Use standard form to write large numbers/small numbers<br>Laws of indices (excluding negative and fractional)<br>Identify if a fraction is terminating or recurring<br>Ratio (When given whole amount, part etc.)<br>Solve problems involving ratio in a real-life context (such as those involving conversion, comparison, mixing)<br>Solve problems involving percentage change<br>Solve original value problems when working with percentages<br>Solve financial problems including simple interest/compound interest basic<br>Solve problems involving rates of pay and unit pricing<br>Problems involving speed/distance/time<br><br>Simplify expressions by collecting like terms<br>Manipulate expressions by multiplying a single term over a bracket (the distributive law) | Topics covered:<br>Use knowledge of alternate/corresponding/vertically opposite angles to calculate missing angles<br>Use and apply the formula for area and circumference of a circle<br>Know circle definitions and properties, including:  tangent, arc, sector and segment<br>Calculate the area and perimeter of composite shapes that include circles<br>Establish the size of an interior/exterior angle in a regular polygon[(n-2)x180]<br>Calculate the volume of a regular prism<br>Calculate the volume of a cylinder and sphere<br>Solve problems using Pythagoras' theorem in two dimensional figures<br>Calculate the angle of a sector when the arc length and radius are known<br>Problem solving questions involving area and volume<br><br>Know that graphs of functions of the form y = mx + c, x ± y = c and ax ± by = c are linear | Topics covered:<br>Find the mode from a frequency table<br>Find the median from a frequency table<br>Calculate the mean from a frequency table<br>Construct stem and leaf diagram<br>Calculate IQR<br>Construct and interpret histograms for grouped data with equal class intervals<br>Distinguish between continuous and numerical data<br>Distinguish between ordinal and nominal data<br>Distinguish between discrete and continuous data<br>Plot a scatter diagram of bivariate data<br>Interpret a scatter diagram using understanding of correlation (strong negative, strong positive etc)<br>Find the modal class of set of grouped data<br>Find the class containing the median of a set of grouped data<br>Analyse and compare sets of data, appreciating the limitations of different statistics (mean, median, mode, range) |

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| | Simplify expressions by expanding, and gathering like terms<br>Substitute integers and fractions into expressions and formulae (positive and negative)<br>Solve basic linear equations<br>Form a general rule for linear sequence<br>Continue linear and nonlinear number sequences<br>Recognise quadratic sequence<br>Change the subject of a formula<br>Solve linear equations with the unknown on both sides when the equation involves brackets<br>Multiply two linear expressions of the form $(ax \pm b)(cx \pm d)$<br>Expand the expression $(x \pm a)^2$, and simplify<br>Factorise an algebraic expression by taking out common factors (HCF and grouping)<br>Form a general rule for quadratic sequences<br>Solve simultaneous equations and interpret the solution (in the form y=mx+c)<br>Recognise that the point of intersection of two graphs corresponds to the solution of a connected equation | Solve problems based on a linear graph<br>Graph and identify linear equations in the form y=mx+c<br>Find the gradient of a straight line on a unit grid<br>Plot graphs of functions of the form y = mx ± c and ax ± by = c<br>Recognise that the point of intersection of two graphs corresponds to the solution of a connected equation<br>Solve problems involving two simultaneous equations and interpret the solution graphically<br>Solve real life application of linear equations problems | List outcomes of an event systematically<br>Calculate probability of basic/combined events ( AND/OR RULES)<br>Calculate probabilities using a sample spaces (2 way table, tree diagram, systematic listing)<br>Use a tree diagram to solve problems involving independent combined events<br>Find probabilities from real life scenarios |
| MYP 3 (Year 9) | Unit Title(s) All About Number; Solving the Unknown | Unit Title(s) Shape and Space; Visualizing Algebra | Unit Title(s) Fact or Fiction; What are the chances? |
| | Key concept: Logic | Key concept: Form; Relationships | Key concept: Connections; Logic |
| | Global Context: Orientation in Time and Space;  Scientific and Technical Innovation | Global Context: Fairness and Development; Orientation in Time and Space. | Global Context: Fairness and Development |
| | Topics covered:<br>Laws of indices (excluding negative and fractional)<br>Use standard form to write large numbers/small numbers<br>Solve problems involving ratio in a real-life context (such as those involving conversion, | Topics covered:<br>Find the area and circumference of a circle<br>Area and Perimeter of composite shapes including circles<br>Know and solve problems using the properties and definitions of triangles<br>Use knowledge of | Topics covered:<br>Choose appropriate graphs or charts to represent data, and interpret correctly<br>Construct frequency tables<br>Calculate the mean/mode and median from a frequency table<br>Calculate mean, mode, and median from a |

comparison, mixing)
Round numbers to significant figures
Round numbers to decimal places
Identify the minimum and maximum values of an amount that has been rounded (to nearest x, x d.p., x s.f.)
Use inequalities to describe the range of values for a rounded value
Add/subtract/multiply/divide numbers written in standard form
Law of indices (including negative and fractional)
Direct Proportion including graph and table
Classifying according to number systems (N, Z, Q, etc.)
Inverse Proportion including graph and table
Solve problems involving direct and inverse proportions
Solve problems involving mass, density etc. (using triangle)

Simplifying expressions
Solve linear equations with the unknown on both sides when the equation involves brackets
Finding nth term of linear sequence
Continue linear and nonlinear number sequences
Change the subject of a formula
Multiply two linear expressions of the form (ax ± b)(cx ± d)
Factorise an algebraic expression by taking out common factors (HCF and grouping)
Form a general rule for quadratic sequences
Solve simultaneous equations and interpret the solution
Recognise that the point of intersection of two graphs corresponds to the solution of a

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alternate/corresponding/vertically opposite angles to calculate missing angles
Recognise and use nets of cubes, cuboids, and cylinders
Identify congruent triangles
Know and use the criteria for triangles to be congruent (SSS, SAS, ASA, RHS)
Solve problems involving similar triangles (basic enlargements only)
Explore and utilise basic trigonometric ratios
Solve for unknown sides and angles using trigonometric ratios
Problem solving questions involving area and volume
Problems solving using Pythagoras and ratios

Identify midpoint of line formally using the formula
Identify distance of a line formally using the formula
Identify slope of line formally using the formula
Use the form y = mx + c to identify parallel and perpendicular lines
Find the equation of a line through one point with a given gradient
Find the equation of a line through two given points

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set of data
Calculate the IQR
Find the median from a frequency table
Construct stem and leaf diagram
Analyse and compare sets of data, appreciating the limitations of different statistics (mean, median, mode, range)
Interpret a scatter diagram using understanding of correlation
Construct and interpret histograms for grouped data with equal class intervals
Construct a line of best fit on a scatter diagram and use the line of best fit to estimate values
Construct box and whisker plot
Calculating percentiles
Making inferences about populations from data sets

Work out theoretical probabilities for events (number of successes/total number of outcomes)
Apply the fact that the sum of probabilities for all outcomes is 1
Calculate probability of basic combined events ( AND/OR RULES)
Use a tree diagram to solve problems involving independent combined events
Calculate the probabilities of dependent combined events
Use a tree diagram to solve complex problems involving independent combined events
Use a tree diagram to solve complex problems involving dependent combined events
Probability of mutually exclusive and combined events

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| | connected equation<br>Solve a simple linear inequality in one variable with unknowns on one side<br>Solve a complex linear inequality in one variable and sketch solution set on a number line<br>Factorise and solve a quadratic expression of the form $x^2 + bx$ and $x^2 + bx + c$<br>Sketching/Identifying a quadratic equation using roots<br>Using the Quadratic Formula | | Understand that relative frequency tends towards theoretical probability as sample size increases<br>Solving advanced tree diagram questions |
| MYP 4 (Year 10) | Unit Title(s) All About Number; Solving the Unknown | Unit Title(s) Shape and Space; Patterns in the World around us | Unit Title(s) Fact or Fiction; What are the chances? |
| | Key concept: Logic | Key concept: Form; Relationships | Key concept: Connections; Logic |
| | Global Context: Orientation in Time and Space;  Scientific and Technical Innovation | Global Context: Globalization and Sustainability; Orientation in Time and Space. | Global Context: Fairness and Development |
| | Topics covered:<br>Direct Proportion problem solving<br>Set notation and Venn Diagram notation<br>Drawing and interpreting Venn diagrams<br>Using Venn diagrams to solve problems in real-life contexts<br>Precentage profit/loss/error, solving original value questions<br>Inverse Proportion problem solving<br>Simple interest and Compound interest caluclations<br><br>Appreciation and Depreciation of real life events<br>Following Algorithms<br>Solving linear equalities and displaying solution on number line<br>Solving equations involving algebraic fractions<br>Solving Quadratic Equations algebraically and graphically (and using formula) | Topics covered:<br>Angle facts (alternate, corresponding etc)<br>Area and perimeter of basic 2D shapes (including circles using degrees)<br>Congruent and similar triangles<br>Calculate the surface area of cones, spheres, and pyramids (All formulae from booklet)<br>Find the volume of cones, spheres, and pyramids (All formulae from booklet)<br>Area and perimeter of composite shape involving arcs and circles<br>Problem solving using the area of a sector/length of an arc (degrees only)<br>Using the Theorem of Pythagoras<br>Problem solving Trigonometric ratios in right angled triangles (2D only)<br>Solve practical word problems involving right angled triangles, using trigonometric ratios (2D only)<br>Problem solving using trigonometric ratios/pythagoras etc. (2D and 3D shapes) | Topics covered:<br>Constructing and interpreting graphs<br>Types of data<br>Calculating the mean, median and mode, and choosing the best measure of central tendency<br>Measures of spread (range)<br>Stem and leaf plots<br>Calculating the interquartile range<br>Box and Whisker plots<br>Comparing data sets<br>Finding the mean,mode,median from grouped continuous data<br>Calculations with cumulative frequency<br>Interpreting correlation and finding line of best fit algebraically<br><br>Work out theoretical probabilities for events (number of successes/total number of outcomes)<br>Apply the fact that the sum of probabilities |

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| | Solving simultaneous equations algebraically and graphically<br>Solving simultaneous equations, 1 linear, 1 non-linear | Predicting the next term in a number sequence (linear, quadratic, triangular, Fibonacci)<br>Finding and justifying or proving general rules/ formulae for linear sequence<br>Finding and justifying or proving general rules/ formulae for quadratic sequence<br>Finding a constant of proportionality. and setting up equations/rules<br>Graphing direct and inverse relationships<br>Problem solving using direct and inverse relationships<br>Using sequences to solve real life problems | for all outcomes is 1<br>Calculate probability of basic combined events ( AND/OR RULES)<br>Use a tree diagram to solve  problems involving  independent combined  events<br>Interpreting experimental probability<br>Use of sample spaces<br>theoretical probability<br>Calculating probabilities of independent events, mutually exclusive events and combined events<br>Solving problems using tree diagrams and Venn diagrams |
| MYP 5 (Year 11) | Unit Title(s) The Circle, Functions<br><br>Key concept:  Logic; Aesthetics and Connections<br><br>Global Context: Orientation of Time and Space; Scientific and Technical Innovation<br><br>Topics covered:<br>The linear function, f(x) = mx + c, its graph, gradient and y-intercept<br>Parallel and perpendicular lines and the relationships between their gradients<br>Determining the range, given the domain<br>Equation of a line formula<br>Slope of a line formula<br>Distance of a line formula<br>Describing transformed linear, quadratic, exponential, and sine and cosine functions<br>Example: f(x) = a (x – h)2 + k **<br>Graphing different types of functions (linear, quadratic, exponential) and understanding their characteristics<br>Translating, reflecting and dilating functions<br><br>Problem solving involving circumference and area of circles | | |

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| | Angle in a semi-circle theorem<br>Cords of a circle theorem<br>Radius-tangent theorem<br>Tangents from an external point theorem<br>Angle at the centre theorem<br>Angles subtended by the same arc theorem<br>Angle between a tangent and a chord<br>Opposite angles of a cyclic quadrilateral theorem<br>Problem solving using circle theorems | |