NOTTINGHAM BRITISH SCHOOL – CURRICULUM DEVELOPMENT 2019
Year 10 - Maths

	October Assessment	December Assessment	March Assessment	June Assessment	Age Related Expectation **By the end of the year every student will be able to ….**
	Number- 1 **Order of Operations** Use the four rules for calculations with whole numbers, including correct ordering of operations and use of brackets **Directed Numbers** Use directed numbers in practical situations **Multiples, Factors, Primes, Squares and Cubes** Identify and use natural numbers, integers (positive, negative and zero), prime numbers, square numbers, common factors and common multiples and real numbers. Calculate squares, square roots, cubes and cube roots of numbers. **Four Rules for Fractions** Use the language and notation of simple vulgar and decimal fractions and percentages in appropriate contexts. Use the four rules for calculations decimal fractions and vulgar fractions, including correct ordering of operations and use of brackets **Significant Figures and Decimal Places**	**Shape and Space-1** **Symmetry** Recognise rotational and line symmetry in two dimensions and the properties of triangles, quadrilaterals and circles directly related to their symmetries. Recognise symmetry properties of the prism and pyramid **Polygons** Calculate unknown angles using the angle properties of regular polygons **Probability and Statistics- 1** **Averages and Range** Calculate the mean, median and mode for individual and discrete data and distinguish between the purposes for which they are used; calculate the range. **Frequency Tables** Find the mean, median, mode and range for a frequency distribution of discrete data **Number- 2** **Percentages 1** Use the language and notation of simple vulgar and decimal fractions and percentages in appropriate contexts; recognise	**Shape and Space- 2** **Pythagoras Theorem** Apply Pythagoras' theorem to right angled triangles Calculate the length of a straight-line segment from the co-ordinates of its end points. **Geometrical Constructions** Construct simple geometric figures from given data using protractors, pairs of compasses and set squares where appropriate; construct angle bisectors and perpendicular bisectors read and make scale drawings **Loci** Use the following loci and the method of intersecting loci for sets of points in two dimensions: which are at a given distance from a given point which are at a given distance from a given straight line which are equidistant from two given points which are equidistant from two intersecting straight lines **Area and Circumference of a Circle**	**Shape and Space- 3** **Enlargements** Construct given enlargements of simple plane figures; recognise and describe enlargements. **Surface Area and Volume 1** The volume and of a cuboid, prism and cylinder and the surface area of a cuboid and a cylinder **Probability and Statistics- 3** **Probability 1** Calculate the probability of a single event; understand that the probability of an event occurring = 1 – the probability of an event not occurring; understand relative frequency. **Number- 4** **Percentages 2** Express one quantity as a percentage of another Calculate percentage increase or decrease **Algebra- 4** **Matrix Algebra** *Display information in the form of a matrix of any order; calculate the sum and product of two matrices;*	**Demonstrate knowledge and understanding of mathematical techniques Students should be able to recall and apply mathematical knowledge, terminology and definitions to carry out routine procedures or straightforward tasks requiring single or multi-step solutions in mathematical or everyday situations including:** • Organising, processing and presenting information accurately in written, tabular, graphical and diagrammatic forms • Using and interpreting mathematical notation correctly • Performing calculations and procedures by suitable methods, including using a calculator • Understanding systems of measurement in

Make estimates of numbers, quantities and lengths; give approximations to specific numbers of significant figures and decimal places and round off answers to reasonable accuracy in the context of a given question

Algebra- 1

Simplifying Algebraic Expressions
Use letters to express generalised numbers and express basic arithmetic processes algebraically
Manipulate directed numbers; use brackets
Solving Linear Equations
Solve simple linear equations in one unknown
Constructing Formulae
Construct simple expressions and set up simple equations
Substitution into Formulae
Substitute numbers for words and letters in formulae or expressions
Algebra- 1
Gradients and Straight Lines
Demonstrate familiarity with Cartesian co-ordinates in two dimensions, draw graphs from given data.
Construct tables of values for functions of the form ax + b, where and b are integral constants; draw and interpret such graphs; find the gradient of a

equivalence and convert between these forms.
Calculate a given percentage of a quantity
Increase and decrease a quantity by a given percentage.
Ratio
Demonstrate an understanding of the elementary ideas and notation of ratio
Divide a quantity in a given ratio
Use scales in practical situations

Algebra- 2
Indices 1
Use and interpret positive, negative and zero indices.
Solving Linear Inequalities
Solve simple linear inequalities.
Manipulating Algebraic Fractions
Manipulate algebraic fractions.
Solve equations involving algebraic fractions
The General Equation of a Straight Line
Interpret and obtain the equation of a straight-line graph in the form y = mx + c; find the gradient of a straight-line graph; determine the equation of a straight line parallel to a given line.
Calculate the co-ordinates of the mid-point of a straight-line segment from the co-ordinates of its end points.
Representing Linear Inequalities on Graphs
Represent inequalities graphically

Carry out calculations involving the circumference and area of a circle
Solve problems involving the arc length and sector area as fractions of the circumference and area of a circle
Probability and Statistics- 2
Displaying data
Collect, classify and tabulate statistical data; read, interpret and draw simple inferences from tables and statistical diagrams; construct and use bar charts, pie charts, Pictograms and simple frequency distributions
Number- 3
Standard Form
Use the standard form $A \times 10^n$ where n is a positive or negative integer and $1 \leq A < 10$
Algebra- 3
Simultaneous Equations 1
Solve simultaneous linear equations in two unknowns using the elimination method
Factorising 1
Manipulate directed numbers; use brackets and extract common factors
Simplifying simple algebraic fractions
Rearranging Formulae 1
transform simple formulae
Shape and Space- 3
Similar Triangles

calculate the product of a matrix and a scalar quantity; use the algebra of 2 x 2 matrices including the zero and identity 2 x 2 matrices; calculate the determinant and inverse of a non-singular matrix.
Expanding Double Brackets
Expand products of algebraic expressions
Quadratic Graphs
Construct tables of values for functions of the form $\pm ax2 + bx + c$ where a b and c integral constants; draw and interpret such graphs
Estimate gradients of quadratic curves by drawing tangents

Shape and Space-4

Bearings
Interpret and use three figure bearings
Trigonometry 1
apply the sine, cosine and tangent ratios for acute angles to the calculation of a side or angle of a right-angled triangle
Solve simple trigonometrical problems in three dimensions including the angle between a line and a plane.
Angles of Elevation and Depression
Solve trigonometrical problems in two dimensions involving angles of elevation and depression

Probability and Statistics- 4
Scatter Diagrams

everyday use and making use of these
• Estimating, approximating and working to degrees of accuracy appropriate to the context and converting between equivalent numerical forms
• Using geometrical instruments to measure and to draw to an acceptable degree of accuracy
• Recognising and using spatial relationships in two and three dimensions.

Reason, interpret and communicate mathematically when solving problems
Students should be able to analyse a problem, select a suitable strategy and apply appropriate techniques to obtain its solution, including:

• Making logical deductions, making inferences and drawing conclusions from given mathematical data
• Recognising patterns and structures in a variety of situations, and forming generalisations

straight-line graph; solve linear equations by graphical methods. Calculate the gradient of a straight line from the co-ordinates of two points on it **Shape and Space-1** **Angle Properties** Calculate unknown angles using the following geometrical properties: angles at a point; angles on a straight line and between intersecting straight lines; angles formed within parallel lines; angles within triangles and quadrilaterals Use and interpret the geometrical terms: point, line, parallel, right angle, acute, obtuse and reflex angles; use and interpret vocabulary of triangles and quadrilaterals	**Shape and Space- 2** **Perimeter and Area** Carry out calculations involving the perimeter and area of a rectangle and triangle; the area of a parallelogram and a trapezium	Use the relationship between areas of similar triangles, with corresponding results for similar figures **Reflection, Rotations and Translations** Reflect simple plane figures in horizontal or vertical lines; rotate simple plane figures about a point through multiples of 90 degrees; construct given translations of simple plane figures; recognise and describe reflections, rotations and translations	Read, interpret and draw simple inferences from scatter diagrams.	• Presenting arguments and chains of reasoning in a logical and structured way • Interpreting and communicating information accurately and changing from one form of presentation to another • Assessing the validity of an argument and critically evaluating a given way of presenting information • Solving unstructured problems by putting them into a structured form involving a series of processes • Applying combinations of mathematical skills and techniques using connections between different areas of mathematics in problem solving • Interpreting results in the context of a given problem and evaluating the methods used and solutions obtained.