	Mathematics Year 10 Foundation IGCSE **Edexcel 9-1**
Term	**Curriculum outline**
1	• **INTEGERS AND PLACE VALUE**: Understand and use integers; understand place value; use BIDMAS; round numbers to a given power of 10. • **DECIMALS**: Use decimal notation; order decimals; convert decimal to fraction to percentage; round to given number of significant figures or decimal places; find upper and lower bounds; use estimation to evaluate approximations; use scientific calculator to determine numerical calculations. • **SPECIAL NUMBERS AND POWERS**: Understand what odd, even, primes, factors and multiples are; identify prime factors, common factors and common multiples; identify squares, square roots, cubes and cube roots; express integers as a product of powers of prime factors; find HCF and LCM. • **ALGEBRAIC MANIPULATION**: Understand that symbols may be used to represent numbers in equations; understand that algebraic expressions follow the generalised rules of arithmetic; use and understand indices; collect like terms; multiply out single brackets; take out common factors.
2	• **EXPRESSIONS, FORMULAE AND REARRANGING FORMULAE**: Evaluate expressions by substitution; understand that a letter may represent an unknown number or variable; use correct notational conventions for algebraic expressions and formulae; substitute negative and positive integers in expressions and formulae; derive a formula or expression; change subject of formula. • **GRAPHICAL REPRESENTATION OF DATA**: Use different methods of presenting data; use appropriate methods of tabulation to enable the construction of statistical diagrams; interpret statistical diagrams. • **FRACTIONS**: Understand and use equivalent fractions, simplifying fractions by cancelling common factors; understand and use mixed numbers and vulgar fractions; identify common denominators; order fractions and calculate given fraction of a given quantity; express given number as a fraction of another number. • **PERCENTAGES**: Understand that 'percentage' means out of 100; express a given number as a percentage of another number; express a percentage as a fraction and as a decimal; understand the multiplicative nature or percentages as operators; solve simple percentage problems, including percentage increase and decrease; use reverse percentages; use compound interest and depreciation.
3	• **LINEAR EQUATIONS AND INEQUALITIES**: Solve linear equations with integer, with unknowns on one side and both sides; set up a simple linear equation from given data; understand use inequality symbols; understand and use inequalities on a number line; solve simple linear inequalities in one variable and represent the solution set up on a number line. • **SEQUENCES**: Generate terms of a sequence using term-to-term and position-to-term definitions of the sequence; find subsequent terms of an integer sequence and the rule of generating it; use linear expressions to describe the nth term of arithmetic sequences. • **MEASURES, BEARINGS AND SCALE DRAWINGS**: Interpret scales on a range of measuring instruments; use and understand the 12 hour and 24 hour clock; make sensible estimates of a range of measures; understand angle measures including three-figure bearings; distinguish between acute, obtuse, reflex and right angles; measure angles to the nearest degree; measure and draw lines to nearest millimetre; solve problems using scale drawings; convert between different metric units (area and volume). • **SYMMETRY, SHAPES, PARALLEL LINES AND ANGLE FACTS:** Identify any lines of symmetry and order of rotational symmetry for 2D shapes; use angle

properties of intersecting lines, parallel lines and angles on a straight line; understand the sum of exterior and interior angles of a triangle; understand the term 'quadrilateral' and angle sum it, including properties of different types of quadrilateral; give informal reasons when arriving at numerical solutions to geometrical problems; recognise and give names of solids; understand terms such as 'face', 'edge' and 'vertex' in 3D solids.

- **INTERIOR AND EXTERIOR ANGLES OF POLYGONS**: Recognise and give names of polygons; understand the term 'regular polygon' and calculate interior and exterior angles of regular polygons; understand and use the angle sum of polygons.

4	• **COMPOUND MEASURES**: Understand and use the relationship between average speed, distance and time; use compound measure such as speed, density and pressure. • **STATISTICAL MEASURES**: Understand the concept of average; calculate the mean, median, mode and range for a discrete data set; calculate an estimate for the mean for grouped data. • **PERIMETER, AREA AND VOLUME**: Find the perimeter of shapes made from triangles and rectangles; find the area of parallelograms and trapezia; find the surface area of simple shapes using the area formulae for shapes; find the volume of prisms.
5	• **REAL LIFE GRAPHS**: Interpret information presented in a range of linear and nin-linear graphs. • **LINEAR GRAPHS**: Understand and use conventions for rectangular Cartesian coordinates; plot points (x, y) in any of the four quadrants or locate points with given coordinates; determine the coordinates of the midpoint of a line segment, given the coordinates of the two points; draw and interpret straight line conversion graphs; find the gradient of a straight line; recognise y = mx + c are straight line graphs; recognise and generate points and plot graphs of a linear function; identify regions on rectangular Cartesian graphs defined by simple linear inequalities. • **CIRCLES AND CYLINDERS**: Recognise the terms centre, radius, chord, diameter, circumference, tangent, arc, sector and segment of a circle; understand chord and tangent properties of circles; find circumferences and areas of circles using formulae, find perimeter and area of semi circles; find the surface area of a cylinder; find volume of prisms. Including cylinders. • **TRANSFORMATIONS**: Understand what object and image mean in transformation; understand the rotations are specified by a centre of an angle, direction and centre of rotation; understand that reflections are specified by a mirror line; understand that translations are specified by column vectors; understand that enlargements are specified by scale factor and centre of enlargement; identify and give complete descriptions of transformations.
6	• **RATIO AND PROPORTION**: Use ratio notation, including simplifying and links to fractions; divide a quantity in a given ratio; use the process of proportionality to evaluate unknown quantities; solve word problems about ratio and proportion; use and apply number in everyday personal, domestic or community life. • **PYTHAGORAS AND TRIGONOMETRY**: Know, understand and use Pythagoras' theorem in two dimensions; know, understand and use sine, cosine and tangent of acute angles to determine lengths and angles of right-angles triangles; apply trigonometrical methods to solve problems in two dimensions. • **PROBABILITY**: Understand the language of probability; understand and use the probability scale; find probabilities from a Venn diagram; understand the concepts of a sample space and an event, and how the probability of an event happening can be determined from sample space; list all the outcomes for singe events and for two successive events in a systematic way; estimate probabilities from previously collected data; calculate the probability of the complement of an even happening; use the addition rule of probability for mutually exclusive events; understand and use the term 'expected frequency'.

Northease Manor School