

### Key Stage 3 - Maths

Year 7

Year 8

Year 7 and 8 curriculum is divided into different topic areas (number, algebra, statistics, ratio, proportion, geometry and measure) which are then divided into units with natural progression from one unit to the next. The curriculum is delivered using a variety of visual representations which include diagrams and the use of mathematical equipment.

Number: Pupils consolidate and extend written and mental methods for calculations. Develop strategies for decimals, fractions, percentages, square and square roots and apply them to practical problems. They will increase their understanding of percentages by find percentage increase or decrease and apply this to practical situations. Pupils extend their understanding of ratio and proportion.

Number: Pupils consolidate number work from year 7 using more practical examples. Also, further develop their understanding of fractions and percentages.

Algebra: Pupils use letter symbols to represent unknown numbers or variables. They simplify expressions by collecting like terms. They are introduced to simple equations, once their understanding is developed they will begin to solve two and three step equations. Pupils will use different formulae in mathematical problems; substitute integers into simple linear expressions and formulae. They will develop their understanding of writing formulae to solve practical problems.

Algebra: Pupils generate terms in sequences using term to term and position to term definitions. They can write the nth term rule for different sequence. Pupils will develop their understanding of equation and generate coordinates from equations to construct straight line graphs. They interpret graphs arising from real life situations, including distance time graphs. They will rearrange formulae to calculate different variables. Later in the year, pupils will be introduced to Pythagoras Theorem and will begin to use trigonometry to solve geometric problems.

Geometry and Measure: Pupils use a compass to construct midpoints and perpendicular bisector of angles and line segment. They will develop their understanding of area by calculating the area and perimeter of different shapes. Pupils learn how to calculate the volume and surface area of cuboid and other prisms. Convert measure for square and cube units.

Geometry and Measure: Pupils will use geometrical reasoning to calculate and prove the degrees in different angles. They will calculate external and interior angles of polygons. Pupils gain experience using a compass to make standard constructions from given measurements for angles and sides. Pupils enlarge and decrease shapes from scale factors. They will identify the properties of a circle and use formulae to find the area and circumference.

Statistics: Pupils understand and use the probability scale from 0 to 1. They find and justify probabilities based on equally likely outcomes in simple contexts. They will construct diagrams to represent different types of data. Develop understanding of averages which will start to include grouped data.

Statistics: During Year 8 they will further develop their understanding of statistics by interpreting and constructing charts for grouped data. They will interpret and construct stem and leaf and box and whisker diagram.