Stuart Bathurst Catholic High School

Mathematics Department

Long-term sequencing Year 8

The curriculum has been designed to ensure that students develop the skills required to be successful in reaching their goals. We want students to be numerate and understand the Mathematics of the world around them, whilst also having an appreciation and love of Mathematical concepts.
Problem solving is embedded from year 7 all the way through to year 13, with a 5-year SOW in year 7 to 11, based upon students' current level of knowledge and understanding. Teaching is based around a mastery curriculum, with links made between multiple topics. Students are first taught to fully understand the knowledge, and then given time to fully master the skill. Students are then given opportunities to apply their understanding and skills to practical applications. Each stage of students 5-year plan builds upon students' prior knowledge and seeks to develop this further. Our curriculum is designed to be fluid, data-led and student-centric, with it being adapted as and when necessary.

TERM 1:	**TERM 2:**	**TERM 3:**
STUDENTS MUST KNOW: **Ratio and Scale –** dividing in a given ratio, simplifying ratio, writing ratios in the form 1:n, comparing ratio, understanding gradient as a ratio. **Multiplicative change –** problems with direct proportion, converting currency, conversion graphs, graphs of direct proportion, similar shapes, interpret maps using scales and ratios. **Multiplying and Dividing fraction –** multiply a fraction by an integer, multiply any fractions, understand the reciprocal, divide an integer by a fraction, divide any fraction, multiply and divide mixed and improper fractions, multiply and divide algebraic fractions. **Working in the cartesian plane –** working with coordinates, draw line parallel to the axis, recognise graphs, explore the gradient of y=kx, explore negative gradients, plot y=mx+c, explore non-linear graphs, find the midpoint of a line segment. **Collecting and representing data –** draw and interpret scatter graphs, describe correlation, draw and use lines of best fit, recognise types of data, read and interpret frequency tables, represent data in two-way tables. **Tables and probability –** construct a sample space, find probabilities from sample spaces/Venn diagrams and two-way tables, use the product rule. **HOW THIS WILL BE ASSESSED:** **End of unit assessments at least twice a half term.** **Learning review windows twice a year.** **Formative assessment in lessons - mini white boards.**	**STUDENTS MUST KNOW:** **Brackets, equations and inequalities –** expanding and factorising single brackets, expanding double brackets, forming and solving equations with brackets, equations with unknowns on both sides. **Sequences –** generate a sequence from a written rule, generate a sequence using substitution, find the nth term of a linear sequence. **Indices –** adding and subtracting with indices, simplifying expressions with indices, laws of indices. **Fractions and percentages –** converting between FDP, find a percentage multiplier, increase and decrease by a given percentage using a percentage multiplier, express one number as a fraction or percentage of another, percentage change, reverse percentages. **Standard form –** write numbers in and out of standard form, add and subtract in standard form, multiply and divide in standard form, use your calculator for standard form, understand negative and fractional indices. **Number sense –** rounding to given decimal places and significant figures, estimating, order of operations, calculating with money, converting length/weight/capacity, converting units for area and volume, solving problems with time and the calendar. **HOW THIS WILL BE ASSESSED:** **End of unit assessments at least twice a half term.** **Learning review windows twice a year.** **Formative assessment in lessons - mini white boards.**	**STUDENTS MUST KNOW:** **Angles in parallel lines and polygons –** knowledge of angles on a straight line and around a point, angles in parallel lines, sum of angles in a polygon, special angles in polygons, use of algebra in angles in parallel lines. **Area of trapezia and circles –** area of parallelograms/triangles/squares and rectangles, area of a trapezium, area of a circle with a calculator, area of a circle without a calculator, circumference of a circle, area of parts of a circle, area of compound shapes. **Symmetry and reflection –** reflection shapes in horizontal and vertical lines, reflecting shapes in diagonal lines, reflecting shapes both touching and not touching the mirror line, plotting a mirror line. **Data handling cycle –** setting up a statistical enquiry, questionnaires, pictograms, bar charts, line graphs, pie charts, working with the range and misleading graphs. **Measures of location –** understanding mean/median and mode, ungrouped averages from a table, grouped averages from a table, choosing a suitable average, identifying outliers, comparing distributions. **HOW THIS WILL BE ASSESSED:** **End of unit assessments at least twice a half term.** **Learning review windows twice a year.** **Formative assessment in lessons - mini white boards.**

Home learning set will consist of a combination of: Paper homework which includes retrieval and develop tasks, and additional worksheets where appropriate.