# Stuart Bathurst Catholic High School

## Mathematics Department

Long-term sequencing Year 10 Higher

**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:**
**STUDENTS MUST KNOW:**

**Number properties –** four operations with fraction, order of operations, multiply and divide decimals, simplify surds, laws of indices, converting in standard form, calculating In standard form, expanding brackets with surds, rationalising surds, calculating with surds.

**FDP –** percentage increase and decrease, reverse percentages, finding a percentage multiplier, compound interest.

**Geometry and measure –** angles in parallel lines, sum of angles in polygons, exterior angles, interior angles.

**Algebra 1 –** substituting into expressions, converting compound measures, best buys, VAT, tax, percentage increase and decrease.

**Approximations –** rounding to a given significant figure, estimation, upper and lower bound, error intervals, calculating with bounds.

**Collecting and interpreting data –** draw and read histograms, two-way tables, C.F. graphs, box plots, time series graphs, Venn diagrams, and pie charts.

**Algebra 2 –** expanding brackets, solving equation including unknown on both sides, factorising and solving quadratics, completing the square, simplifying algebraic fraction, calculating with algebraic fractions.

**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.**

**TERM 2:**
**STUDENTS MUST KNOW:**

**Sequences –** finding the nth term of a linear sequence, finding the nth term of a quadratic sequence.

**Shape properties –** finding missing lengths in similar shapes, exploring similar area and volume, congruency, applying bearings.

**Proportion 1 –** sharing in a given ratio, combining ratios, converting recurring decimals to fractions.

**Algebra 3 –** changing the subject of formulae (simple), changing the subject of formulae with unknowns appearing twice, functions, composite functions, inverse functions, constructing a proof.

**Transformation –** transform and describe using rotations, reflection, translation, positive enlargements, negative enlargements, fractional enlargements, problem solve with vectors.

**Probability –** relative frequency, expected outcomes, probabilities from diagrams, Venn diagrams and tree diagrams including non-replacement.

**Proportion 2 –** Direct and inverse proportion equations, percentage profit and change.

**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.**

**TERM 3:**
**STUDENTS MUST KNOW:**

**Triangles –** using trigonometry to find missing angles and sides in a triangle, use the sine rule, use the cosine rule, find the area of non-right-angled triangles.

**Interpreting data –** finding averages from grouped and ungrouped data, finding averages from diagrams, working with times series graphs and finding moving averages, reading histograms.

**Equations and inequalities –** solving all types of linear equations and inequalities, solving linear simultaneous equations using elimination and substitution, solving quadratic simultaneous equations using substitution and factorisation, working with iteration.

**Circles –** area and circumference of a circle, compound area, area of a sector, arc length, volume of prisms (including cylinders, volume of spheres and cones, surface area of prisms (including a cylinder), surface area or spheres and cones, circle theorems.

**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: 3-part homework (spiral, develop, apply), and additional worksheets where appropriate.**