St Mary's Catholic School
Department Curriculum Planning
Department: **Maths**

Year Group: **Year 12**

This is the plan for the taught curriculum during achievement period: **Two (Jan-Apr)**

Brief summary of the topic/work being covered during this period
The Spring term of Key Stage 5 Year 12 consists of the remainder of the Pure maths content, followed by each of the applied modules with the respective members of staff (one teacher covers the Statistics content, the other covers the Mechanics content): **Pure** **Substantive knowledge** • Integrating x^n • Areas under curves and between curves and lines • Cosine rule, sine rule and area of a triangle • Trigonometric graphs and transformations • Exact trigonometric ratios **Disciplinary knowledge** • Integration (including the fundamental theorem of calculus, finding an equation of a curve, and finding areas). • Trigonometry **Statistics** **Substantive knowledge** • Populations and samples • Types of data and introduction to the large data set • Venn diagrams • Mutually exclusive and independent events **Disciplinary knowledge** • Sampling and data interpretation (including analysis of the Large Data Set) • Probability (including conditional probability and basic probability distributions) **Mechanics** **Substantive knowledge** • Language of kinematics • SUVAT equations • Forces and Newton`s laws **Disciplinary knowledge** • Kinematics • SUVAT equations • Forces
Prior knowledge needed for this unit/topic from previous teaching
Pure 1. Students need to be comfortable with differentiation from the previous term, along with areas of triangles, rectangles, etc. 2. Students will review GCSE trigonometry first before moving onto solving equations **Statistics** 1. Students will be familiar with all ways of displaying data, as well as basic data interpretation, and basic sampling 2. Students will be familiar with solving probability problems at GCSE, including multiple events. **Mechanics** Students will be familiar with forces and friction from studying Physics. They will need a good grasp of algebraic manipulation and substitution, as well as an understanding of vectors and trigonometry from the Pure aspect of maths.
Rationale for students studying this unit/topic
We have recently re-ordered the scheme of work to its current sequence; in order that students are meeting the basic maths content of calculus and trigonometry, before going on to develop them in Further Mathematics, for those that are studying this subject too. We also felt that it helped the weaker students to keep Pure and applied content separate and really consolidate the pure maths before moving to applied. Regular assessment throughout the year, as well as starter activities, ensures regular recap and review of earlier topics despite moving on. There are a couple of elements of year 2 content taught during this term too, that fits in well with the year 1 content and has been found to be accessible enough to teach in year 1: Area between two curves and Conditional Probability.

Key concepts/ideas that are taught to students in this unit/topic, including any anticipated gaps in knowledge and plan to overcome these

Students will be taught to use alternative techniques this year that will be more beneficial and lead to strategies that are more efficient during the A Level course.

Students will be expected to have a Casio class wiz calculator and will be taught to use this in line with the A Level specification to support their answering of questions; in particular this term with numerical solution to integration (for checking), and for statistical analysis, data interpretation and probability distributions - marks awarded for calculation have been removed from the Statistics specification almost entirely; students are expected to use their calculators effectively to find numerical solutions and the marking emphasis is placed on the interpretation of results.

New key terminology students will be taught during this topic/unit

Tier 3

Integration, Probability Distribution, Kinematics, Equilibrium, Newton's Laws.

Plan for Assessment

- An assessment plan is in place for Y12, which includes regular in-class assessments that build up in length as more content is covered. In the first term, they will complete a further 6 of these assessments (the final two to include elements of Statistics and Mechanics). They offer an opportunity for students to reflect on their understanding of the content being covered, their recall of previous topics taught up to that point and act to give staff an idea of areas of individual and whole class, weakness.
- Students will be assessed through weekly homework tasks, for which they are expected to score highly on and be pro-active in seeking support for any questions found to be difficult.