All Saints' Catholic High School

Luceat lux Vestra

Subject: Maths **Year:** 10

10	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Aim of Unit	The main aim of this unit is to get students to have a clear understanding of Similarity.	The main aim of this unit is to have students developing algebra	The main aim of this unit is to give our students a clear understanding of Geometry	The main aim of this unit is for students to become proficient with Proportions and proportional change	The main aim of this unit is for students to delve into data.	The main aim of this students is to deepen their understanding of using number
Composite Knowledge *(a task that requires several building blocks or components)*	To be able to recognise and solve problems by applying their knowledge of congruence, similarity and enlargement. To be able to understand, use and apply trigonometry.	To be able to represent solutions of equations and inequalities. To solve simultaneous equations	To be able to recognise angles and bearings, circles and vectors.	To be able to apply their knowledge of ratio and fractions. To use percentages and interest relating to real life situations where possible. To solve problems with probability.	To be able to collect, represent and interpret data	To be able to use non-calculator methods. To use different types of number and recognise, use and develop sequences. To use indices and roots
Component Knowledge *(the building blocks that together, when*	To be able understand the difference between congruence and similarity. To enlarge a shape about a given point,	To form and solve equations and inequalities in a variety of contexts, including with unknowns on both sides	To be able to review KS3 angle rules and to understand and use bearings	To be able to use ratio's, including mixed units. To be able to write fractions from ratio's and fractions in ratios.	To understand sampling including the possible limitations. To construct and interpret tables and line	To use four operations with integers (positive and negative) decimals and fractions with and without context

known, allow successful performance of a complex task)	understand and use similarity. To find missing sides in similar shapes including pairs of similar triangles. To understand and use the conditions for a pair of congruent triangles. To understand trigonometric ratios. To work out missing lengths and angles in right angled triangles. To know and use the exact values of key angles.	To represent solutions to inequalities on a number line To represent solutions to equations graphically. To understand the meaning of solution, appreciating that some equations have multiple solutions. To form and solve a pair of linear simultaneous equations graphically. To form and solve a pair of linear simultaneous equations algebraically.	To review area and circumference. To name parts of a circle and perform related calculations. To find areas and volumes related to circles especially cylinder, cone, spheres etc. To understand vector notation. To use vector arithmetic (addition, subtraction and multiplication by a scalar. To understand vectors and translations.	To combine ratios To calculate unit prices and use to compare to assess which are the best buys. To convert between different currencies. To convert between fractions, decimals and percentages. To calculate percentages and percentage changes To calculate one number as a percentage of another. To calculate simple and compound interest. To evaluate exponential change, for example depreciation To find the original values. (Reverse percentages). To be able to review single event probability by comparing theoretical and	graphs for time series data. To understand and represent with grouped data. To understand and identify correlation. To use lines of best fit, understanding the dangers of extrapolation. To construct and interpret frequency polygons. To evaluate measures of location and dispersion. To use statistical diagrams and measures to compare distributions.	(include all areas of previous study) To work with exact answers eg area and volume. To evaluate calculations involving percentages. To use factors, multiples, primes and prime factorisation. To recognise arithmetic and geometric sequences. To recognise and use other sequences. To work out powers and roots. To use rules of indices. To calculate with numbers in standard index form.

				experimental probabilities. To understand and work with mutually exclusive and independent events. To construct and interpret tree diagrams. To find probabilities from frequency trees, tables and Venn diagrams.		
Rationale *(why?):* Links to prior & future learning	This unit provides students with access to revisit angle rules, including angles in parallel lines. It also allows the student to revisit equations especially variants of ax=b. Lastly it revisits Pythagoras theorem. This unit builds on area and volume of similar shapes, formal proof of congruency of triangles. Pupils will be introduced to enlargement by a negative scale factor. Using trigonometry in 3D shapes will be developed further. Pupils will be	This unit continues to build on knowledge from KS3 and introduces students to the context for equations to include probability, area, angles, ratio problems etc. It provides students with the higher content of using set notation for solutions, being able to solve inequalities in two variable, identifying regions. It enables student's to solve quadratic equations and inequalities by factorisation only. Students should be	This unit builds on the work covered already in trigonometry. It enables students to revisit area and volumes of other shapes including compound shapes. It develops puipil's mathematical understanding of estimation, rounding and significant figures. For future learning pupil's derive, use and prove first four circle theorems (the rest are covered in y11). It enables them to understand and use the equation of a circle. Pupil's will be able to	This unit continues to develop formal methods of calculation and revisit fraction arithmetic. This unit provides students with the higher content of area and volume ratios. It enables students to use the iterative methods. For future learning pupils can calculate and interpret conditional probabilities.	This unit continues to build on knowledge from KS2 but introduces students to using equations (eg solving problems about the mean) and using non – calculator methods where appropriate. This will be further developed by constructing and interpreting cumulative frequency diagrams, box plots and histograms. It will enable you to understand quartiles,	This unit is to develop students understanding of number. It links to pupil's prior knowledge of converting fractions, decimals and percentages. It enables students to revisit exact trigonometrical values, area and volume formulae, finding exact answers in terms of π. It involves solving problems involving financial mathematics. This unit develops the higher content of calculating with surds, finding the nth term for a quadratic sequence,

	introduced to deriving and using the sine and cosine rules as well as using the area formula ½absinC for non-right angled triangles.	able to solve simultaneous equations with one linear and one quadratic.	construct geometric proofs with vectors.		use and interpret the inter – quartile range.	understanding and using fractional indices. It allows work to take place with rational and irrational numbers including recurring decimals. Finally it enables you to work with limits of accuracy, including upper and lower bounds.
Assessment Task	Two end of block assessments on 1/ Congruence, similarity and enlargement. 2/ Trigonometry	Two end of block assessments – 1/ Representing solutions of equations and inequalities. 2/ Simultaneous Equations Summative Christmas assessment	Three end of block assessments 1/ Angles and bearings 2/ Working with circles 3/ Vectors	Three end of year assessments on: - 1/ Ratio's and fractions 2/ Percentages and Interest 3/ Probability Summative Easter assessment	End of block assessment 1/ Collecting, representing and interpreting data	Thee end of block assessments 1/ Non calculator methods 2/ Types of number and sequences 3/ Indices and roots End of year PPE Exam
Enrichment	Careers Activity Maths, Why Bother? | MYPATH Careers Resources (mypathcareersuk.com) Enlargement Trigonometry	Careers Activity Maths, Why Bother? | MYPATH Careers Resources (mypathcareersuk.com) Equations Simultaneous Equations Inequalities	Careers Activity Maths, Why Bother? | MYPATH Careers Resources (mypathcareersuk.com) Geometry Vectors Circles	Careers Activity Maths, Why Bother? | MYPATH Careers Resources (mypathcareersuk.com) Ratio Fractions Percentages Probability	Careers Activity Maths, Why Bother? | MYPATH Careers Resources (mypathcareersuk.com) Data Statistics	Careers Activity Maths, Why Bother? | MYPATH Careers Resources (mypathcareersuk.com) Sequences Multiples Standard Form Whole Numbers Decimals