

Subject: Maths **Year** 10 **Ability** Foundation

Half Term 2 / weeks	Week 1-2	Week 3-4	Week 5-6	
Topic	Unit 16 - Formula, Equations and Identity	Unit 17 - Pythagoras	Unit 18 - Calculations	Reteach and Retention
Topic overview	To recall algebra skills building into changing the subject and substituting a range of values.	To recall and use Pythagoras' theorem in a range of contexts for different styles of questions	To understand the use and limitations of calculators and the impact of rounding on answers including estimation	Focus on the process of reteach and retention, knitting together the learning in reaction to the assessments completed
Pupils will learn...				
Components	<ul style="list-style-type: none"> To know the difference between a formula, equations and identity. To rearrange simple formulae To substitute positive values into expressions. To substitute negative values into expressions. To substitute fractions and decimals into expressions. 	<ul style="list-style-type: none"> To use Pythagoras' theorem to find the length of the hypotenuse. To use Pythagoras' theorem to find the length of a shorter side. To length of a line segment given coordinates. 	<ul style="list-style-type: none"> Use estimation to evaluate approximations to numerical calculations. To give upper and lower bounds. To give upper and lower bounds of calculations. To add, subtract, multiply and divide decimals. To solve best buy problems. To use a calculator. 	Staff complete a program of adaptive reteaching on specific topics based on the individual/class needs within their groups. Regular assessments are used to identify gaps in learning. Any gaps found are then addressed in lessons to help support learning and retention. Clear areas for improvement are monitored by individual staff and at a departmental level.
What pupils should already know (prior learning components)	Pupils will need to show they are able to solve linear equations to go forward and rearrange equations/formulas. Pupils will need to be able to spot relationships between numbers	Students should be confident at squaring, square rooting numbers and rearranging equations. Pupils will also need to be able to round their values to given decimal places or significant figures.	Students should be confident at rounding values to a given amount of significant figures. Pupils will need to understand proportion and show good communication to be awarded process marks. Please push the importance and model good practice, especially for the best buys problems	All the half term content will have been covered by this point. Staff will use departmental tracking documents to analyse the gaps in learning from the most recent assessments and all previous assessments. The ability to structure and breakdown a problem-solving question as exemplified in the TFI questions throughout the course.
Transferrable knowledge (skills)	Algebraic skills of manipulation and substitution will be used constantly through the curriculum through KS4 and beyond including in the next unit. The recap of fractions and decimals will also further confidence	This topic will use students' knowledge and understanding of squaring and use of formulae and then extend this to increasing difficult problems requiring students to visualise and assess the validity of answers. This will be used again later in 3D questions and in trig later in the curriculum.	The topic will build students' confidence with basic calculator skills. These skills underpin almost all of life mathematics. This is particularly the case with confidence with estimating values which will be used to validate answers. Best buy questions aim to give students life skills that use mathematical skills to make informed decisions.	This activity should serve to highlight and address areas of weakness in teaching and learning or retention. This early intervention to understand specific key areas for improvement or development. This should help to build confidence and improve students' ability to answer these and directly sequential problems.
Key vocabulary pupil will know and learn	Identity, Formulae, Equations, Rearrange, Subject, Linear, Substitute,	Pythagoras, Coordinates, Lengths, Missing side, Longest side, Shortest side,	Bounds, Upper, Lower, Degree of accuracy, Truncated error intervals, Decimals, Best buy, Calculator,	
Assessment activities	Year 10 Half Term Test 8 Homework 16 – Formula, Equations and Identity	Year 10 Half Term Test 8 Homework 17 – Pythagoras	Year 10 Half Term Test 8 Homework 18 - Calculations	AFL and adaptive teaching will continue to support staff to assess the address areas.

Resources available	MathsWatch clips: 95, 101, 136	MathsWatch clips: 150	MathsWatch clips: 18, 19, 66, 67, 90, 91, 132, 155	Before any assessments are completed, revision and guidance materials are provided for students to assist in independent study.
Notes Why this topic is important...	Students start this unit with significant algebraic skills but now start to use them in more abstract forms. The strong use of substitution and the need to illustrate the steps taken in this process needs to be ensured to help to build this increasingly abstract area of maths.	The real world use of Pythagoras is a significant skill for numerous jobs such as construction and design. This topic looks to build knowledge of the connection of theory and practice in the real world. Students need to understand the different styles of questions that can be asked as well as and understanding of the relevance of that answer. This topic should aim to set up 3D problems as well as trig latter in the curriculum.	The start of this unit uses the basic calculator operations which have been covered numerous times in earlier years. Although its is often seen as basic more topics/marks use the skills of accurate use of a calculator than any other that we teach. An advancement through these skills will lead to increasingly challenging problems being completed. Best buy questions which are often present in problem solving questions as well is a key life skill.	This is an important point in the curriculum plan that enables individual teachers to review the gaps in learning for the classes they teach. The half-termly assessments are used to track students' progress and enable teachers to react quickly to any gaps in knowledge and prepare students for the next assessment. The feedback and modelling of the exam answers enables students to pick up exam techniques and the ability to communicate effectively.