

## Maths Alive Theme: We are Questioning

	What we do	When we do it	How it helps students to develop our Alive theme
<b>Year 10</b>	Trigonometry – working with the proportions of triangles to find trigonometric ratios and use these to find missing values.	Term 5	Students have to question - what information is missing; identify and label what information they have; use this to identify which ratio to use.
<b>Year 11</b>	Developing skills at answering problem solving and reasoning questions linking together a range of topics.	Term 1, 3 and 5	Students have to question what information is needed to solve a particular problem. This requires questioning both what topic and objective is being assessed. Once a solution is found then students need to question the validity of their answer.

## Maths Year 10 Alive Themes

Term	Alive Theme	What we do	How it helps students to develop that Alive theme
1	Resilience	Indices	This is a very challenging topic, which requires dedication and resilience to secure a deep understanding of this representation of number.
2	Forgiving	Surds	This topic can cause many students to make errors, so they need to develop the skill of self-forgiveness when they make mistakes.
3	Organised	Pie Charts	Students need to keep their work organised in order to calculate and analyse their data correctly.
4	Communicate	Rearranging Formulae	Students need to clearly show their steps taken in order change the subject of a formula and achieve all the method marks available in exam questions.
5	Trust and Truth	Pythagoras' Theorem	Working with the proof of Pythagoras' Theorem students follow the geometrical proof which leads them to the use of the equation.
6	Justice and Respect	Ratio and Proportion	Students learn to maintain proportions fairly.

Term	Alive Theme	What we do	How it helps students to develop that Alive theme
1	Organised	Understand the different types of numbers; be able to categorise numbers according to their types; be able to order decimals and fractions.	Ultimately this will help students to gain marks on the initial few questions of their GCSE papers. It feeds into a sense that maths can be seen as a system for analysing and categorising, for imposing order.
2	Communicate	Introduction to algebra and the beginnings of evolving clear written methods for simplifying expressions and solving increasingly complex equations.	This will develop students' abilities to communicate effectively. Clear written methods are key in maths in terms of developing ordered thinking.
3	Review	Sequences. We will review our understanding of times tables patterns on which algebraic sequences are predicated and use this to develop a secure understanding of the algebra of sequences.	Develops students' understanding of the power of ongoing review and consolidation for developing new knowledge and skills.
4	Resilient	Drawing graphs. Beginning with linear graphs and moving on to quadratics later in the course. Students will struggle with drawing axes, with understanding relationships between variables.	Develops students' understanding of the interconnection between multiple possible different ways of understanding mathematical concepts, eg equations and line graphs.
5	Creative	We will be doing transformations which involves lots of careful thinking and drawing.	Develops students' understanding of the interplay of multistep processes in building an apparently simple result.
6	Resilient	Simultaneous Equations	Students know enough maths to solve these but will struggle to perform all the necessary steps. This will develop their understanding that they can build from the building blocks they have been developing.