

## Year 10 Spring Term Maths Curriculum

Students in Year 10 study different content dependent upon their class. The classes will spend approximately two weeks studying each topic.

<b>Miss Robinson, Mr Hammond and Mr McClusky</b>		<b>Mr Storey-Scott</b>		<b>Mr Bullock and Mrs Joseph</b>	
<b>Ratio and proportion</b>	Understanding of ratio is consolidated including looking at how quantities can be split into a given ratio. Students then look at solving proportion problems using the double number line and unitary methods.	<b>Quadratic equations</b>	Building on previous work on quadratic functions students are introduced to the methods of solving quadratic equations graphically, by factorising and using the quadratic formula.	<b>3D coordinates, Pythagoras and trigonometry</b>	After looking at how the coordinate system can be extended into 3D, students look at how Pythagoras and trigonometry can be applied to problems involving this extra dimension
<b>Properties of shape</b>	Knowledge of the properties of triangles, quadrilaterals and polygons are consolidated before looking at area and perimeter problems involving rectangles, triangles, parallelograms and trapeziums.	<b>Direct and inverse proportion</b>	After looking at the difference between direct and inverse proportion students look at how equations can be formulated to express these relationships and used to solve associated problems.	<b>Circle compounds</b>	After consolidating previous work on perimeter and area of circle composites, reverse problems are looked at with students calculating radii and angles.
<b>Averages and graphs</b>	Students look at when it is appropriate to use each of the different averages to analyse data. Various graph for comparing data are revisited including bar charts, pictograms and scatter graphs.	<b>Enlargement and similar shapes</b>	Techniques for enlarging shapes by both positive and negative scale factors are studied. This leads onto students solving problems involving similar and congruent shapes.	<b>Functions</b>	Techniques for finding composite and inverse functions are studied. Students then consider the graphs of reciprocal and cubic functions before beginning to look at simple transformations.
<b>Algebraic expressions and sequences</b>	Students build upon algebra work from earlier in the year looking at the skills of expanding and factorising brackets. Sequences are then looked at with particular focus on nth term rules.	<b>Trigonometry</b>	Students investigate how the ratio of the lengths of sides of right-angled triangles are linked. This leads to trigonometric ratios being used to calculate missing sides, angles and solving other problems.	<b>Sine rule, cosine rule and area of triangles</b>	Sine and cosine rules are introduced to students, with time being spent looking at when each rule should be used. Areas of non-right-angled triangles are also calculated using trigonometry.
<b>Formulae</b>	Formulae are used to solve a variety of problems before the technique of changing the subject of a formula is introduced and applied in a variety of contexts.	<b>Sequences</b>	Work on arithmetic sequences is built upon with students now studying both geometric and simple quadratic sequences; this includes finding and using nth term rules.	<b>Graphing inequalities</b>	Students look at how both linear and quadratic inequalities can be expressed graphically and how these graphs can subsequently be used to find solutions.

After completing each topic students complete an assessed homework task which is recorded in the front of their yellow assessment books.

Students will also sit short two short tests this term. These are provisionally planned in the weeks beginning 14<sup>th</sup> February and 4<sup>th</sup> April. These tests will cover topics they have studied in the half term and prior knowledge. Students record their results of all tests in the back of their yellow assessment books.