

Year 10

Timing	Unit Title	Key Question	Knowledge	Assessing Understanding
Autumn	Angles and Trigonometry	How is trigonometry applied to non-right angled triangles and to 3D shapes?	- Angle properties including angles in polygons. - Pythagoras theorem and SOHCAHTOA. - Sine rule, cosine rule and area of a triangle ($\frac{1}{2}ab\sin C$) 2D and 3D problem solving	How understanding is assessed - Through applying the theory to a range of questions and increasingly more complex situations. - Discussion in lessons, sample problems. - Homework and tests involving past paper questions. Skills - In addition to the understanding of the concepts significant algebraic & problem solving skills are required. Assessment Point information - Timed questions using past GCSE papers relevant to topics studied.
	Number 1	Can you work with indices and surds?	- HCF and LCM - Numerical indices - Standard form problem solving - Surds (simplifying, manipulating and rationalising the denominator)	
	Algebra 1	Can you factorise a quadratic?	- Algebraic indices - Expanding (multiplying up to 3 brackets) - Factorising	
	Mensuration	Can you find the upper and lower bounds of a measurement and use in calculations? Can you solve volume problems?	- Perimeter and area - Units and accuracy - Volume and surface area - Prisms - Cylinders and spheres - Pyramids and cones	

	Algebra 2	Can you solve different types of equations?	- Solving linear equations - Solving quadratic equations - Rearranging formula	
Spring	Fractions, ratio and percentages Interpreting and representing data Graphs 1 Reasoning	Can you calculate with percentages? Can you work with ratio and proportion? Can you interpret and construct a variety of statistical diagrams including time series and scatter graphs? Can you work with the straight line graph equation $y = mx + c$? Can you sketch and use quadratic, cubic and reciprocal graphs?	- Fractions (add, subtract, multiply, divide, finding reciprocal) - Ratio and proportion (simplifying, problem solving, simple direct proportion) - Percentages (percentages of amounts, reverse percentages, simple interest, percentage change) - Converting between fractions, decimals and percentages - Time series - Scatter graphs and line of best fit - Averages and range - Reading and interpreting diagrams - Linear graphs ($y=mx+c$, parallel and perpendicular lines, mid points, line segments, sketch) - Quadratic graphs - Cubic and reciprocal graphs - Equation of a circle - Compound measures (Speed, distance and time, Mass, density and volume, Force, pressure and area) - Units	How understanding is assessed - Through applying the theory to a range of questions and increasingly more complex situations. - Discussion in lessons, sample problems. - Homework and tests involving past paper questions. Skills - In addition to the understanding of the concepts significant algebraic & problem solving skills are required. Assessment Point information - Timed questions using past GCSE papers relevant to topics studied.

	Proportion Exponential functions	Can you calculate with compound measures? Can you solve problems involving direct and inverse proportion? Can you solve problems with exponentials?	• Direct and inverse proportion algebraic problem solving • Know what is meant by an exponential function • Recognise the graphs of $y=a^x$ and $y=a^{-x}$ • Problem solving (growth and decay)	
Summer	Graphs 2 Probability & combinations Similarity and congruence	Can you construct and interpret real-life graphs? Can you construct and use a probability tree? Can you construct and use a venn diagram? Can you apply the concepts of	• Real life graphs - Distance time graphs - Velocity time graphs - Real life graphs and rates of change - Tangents and areas under curves • listing outcomes, combined events, sample space diagrams, mutually exclusive events and experimental probability • Independent events and tree diagrams • Conditional probability • Venn diagrams and set notation • Congruence (Proof) • Similarity (Length, area and volume problem solving)	How understanding is assessed • Through applying the theory to a range of questions and increasingly more complex situations. • Discussion in lessons, sample problems. • Homework and tests involving past paper questions. Skills • In addition to the understanding of the concepts significant algebraic & problem solving skills are required. Assessment Point information

	Circle theorems	congruence and similarity? Can you work with standard circle theorems?	• Circle theorems • Proofs • Finding the equation of a tangent at a point on a circle	• Timed questions using past GCSE papers relevant to topics studied.
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