

Year 10

Timing	Unit Title	Key Question	Knowledge	Assessing Understanding
Autumn	Angles and Trigonometry Number 1 Algebra 1 Mensuration	How is trigonometry applied to non-right angled triangles and to 3D shapes? Can you work with indices and surds? Can you factorise a quadratic? Can you find the upper and lower bounds of a measurement and use in calculations? Can you solve volume problems?	<ul style="list-style-type: none"> ● 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 <ul style="list-style-type: none"> ● HCF and LCM ● Numerical indices ● Standard form problem solving ● Surds (simplifying, manipulating and rationalising the denominator) <ul style="list-style-type: none"> ● Algebraic indices ● Expanding (multiplying up to 3 brackets) ● Factorising <ul style="list-style-type: none"> ● Perimeter and area ● Units and accuracy ● Volume and surface area <ul style="list-style-type: none"> - Prisms - Cylinders and spheres - Pyramids and cones 	How understanding is assessed <ul style="list-style-type: none"> ● 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 <ul style="list-style-type: none"> ● In addition to the understanding of the concepts significant algebraic & problem solving skills are required. Assessment Point information <ul style="list-style-type: none"> ● Timed questions using past GCSE papers relevant to topics studied.

	Algebra 2	Can you solve different types of equation?	<ul style="list-style-type: none"> • 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? Can you calculate with compound measures?	<ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • In addition to the understanding of the concepts significant algebraic & problem solving skills are required. Assessment Point information <ul style="list-style-type: none"> • Timed questions using past GCSE papers relevant to topics studied.

	<p>Proportion</p> <p>Exponential functions</p>	<p>Can you solve problems involving direct and inverse proportion?</p> <p>Can you solve problems with exponentials?</p>	<ul style="list-style-type: none"> • 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	<p>Graphs 2</p> <p>Probability & combinations</p> <p>Similarity and congruence</p> <p>Circle theorems</p>	<p>Can you construct and interpret real-life graphs?</p> <p>Can you construct and use a probability tree? Can you construct and use a venn diagram?</p> <p>Can you apply the concepts of congruency and similarity?</p> <p>Can you work with standard circle theorems?</p>	<ul style="list-style-type: none"> • Real life graphs <ul style="list-style-type: none"> - 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) • Circle theorems • Proofs • Finding the equation of a tangent at a point on a circle 	<p>How understanding is assessed</p> <ul style="list-style-type: none"> • 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. <p>Skills</p> <ul style="list-style-type: none"> • In addition to the understanding of the concepts significant algebraic & problem solving skills are required. <p>Assessment Point information</p> <ul style="list-style-type: none"> • Timed questions using past GCSE papers relevant to topics studied.