Year 11

Timing	Unit Title	Key Question	Knowledge	Assessing Understanding
Autumn	**Equations and inequalities** **Equations and graphs**	Can you solve a quadratic equation by completing the square? Can you solve simultaneous equations? Can you use graphs to solve equations? Can you sketch quadratic and cubic graphs? Do you know how to approximate a solution using iteration? Can you represent inequalities graphically?	• Solve quadratics by completing the square • Solving linear simultaneous equations • Solving linear and quadratic simultaneous equations • Solving linear inequalities • Solving simultaneous equations graphically • Make approximations to quadratic equations using graphs • Sketch graphs by considering shapes, roots and y intercepts • Identify maximum/minimum points by completing the square • Expand triple brackets • Understand iteration notation • Use iteration to make approximations • Solve quadratic and cubic equations using an iterative process • Know the 'change of sign' means that there is a root • Representing inequalities graphically and solve • Represent and interpret linear inequalities • Solve quadratic inequalities	**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 skills are required. **Assessment Point information** • Timed questions using past GCSE papers relevant to topics studied.

	Algebra 3 **Vectors** **Algebra 4** **Sequences**	Can you work confidently with algebraic fractions? Can you manipulate surds and rationalise denominators? How are vectors used? Can you use vectors to solve geometric problems? What do we mean by a function? How can algebra be used to prove a result? Can you generate sequences? Can you find the nth term?	• Add, subtract, multiple and divide algebraic fractions • Simplify algebraic fractions • Solve equations involving algebraic fractions • Rationalise denominators with 2 terms • Vector notation, +, - , x and ÷ • Graphical representation • Modulus • Vector arithmetic • Application to simple geometric proofs • Geometric problem solving • Function notation • Composite functions • Inverse functions • Prove a result using algebra • The difference between an equation and an identity. • Linear sequences (arithmetic) • Non-linear sequences • Find the nth term of a quadratic sequence	
Spring	**Further statistics**	Do you know how and why sampling is used? Can you draw, interpret and compare cumulative frequency graphs, box plots and histograms	• Simple random sample • Pearson capture-recapture method • Make predictions based on sampling • Calculate the median and quartiles from a list of data • Draw and interpret cumulative frequency tables and diagrams	

	Trigonometry graphs, ratios & equations **Transformations and construction revision** **Graphs transformations** **Revision**	Can you sketch and recognise the graphs of sine, cosine and tangent functions? Can you solve simple trig equations? Do you know exact trig ratios? Can you remember 2D transformations? Can you remember constructions of lines and simple shapes? Can you sketch the transformations of graphs?	• Calculate the median, quartiles and interquartile range from a cumulative frequency diagram • Draw, interpret and compare box plots • Find quartiles and interquartile range from stem and leaf diagrams • Draw and interpret histograms • Calculate frequency density • Use histograms to estimate the median • Graphs of y = sinx, y = cosx and y =tanx Must be able to draw and know the key points • Know the exact values of $sin\theta$ and $cos\theta$ for $\theta = 0°, 30°, 45°, 60°, 90°$ and the exact values of $tan\theta$ for $\theta = 0°, 30°, 45°, 60°$. • 3D drawings, plans and elevations • 2D transformations • Bearings and Scale drawings • Constructions • Loci • Graphs translations f(x)+a f(x+a) • Graph reflections f(-x) –f(x) • All transformations of trig curves	**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 skills are required. **Assessment Point information** • Timed questions using past GCSE papers relevant to topics studied.

Summer	**Revision and practising past papers**			