	Stage 9	
	Topics	
Half Term 1	Indices S9/10F	Know and use the laws of indices Know $a^1 = a$ and $a^0 = 1$
	Standard Form S9/10F	Write and interpret large and small numbers in Standard Form Add,subtract, multiply, divide numbers written in standard form
	Simultaneous Equations 1	Solve two linear simultaneous equations in two variables algebraically. Find approximate solution using a graph. Derive two simultaneous equations and solve.
	Pythagoras 2 S9	Know and use Pythagoras' Theorem in right angled triangles and problem solve.
	Trigonometry 2	Know and use the trigonometric ratios, $\sin\theta$ = opp/hyp, $\cos\theta$ = adj/hyp, $\tan\theta$ = opp/adj. Use trigonometry to solve problems with bearing and angles of eleavation/depression.
Half Term 2	Similarity and Congruence S9/10F	Know the criteria for triangles to be congruent (SSS, SAS, ASA, RHS) Know that AAA shows triangles are similar Understand the idea of Scale Factor Represent Scale factors as ratio, include Area and volume
	Angles	Know angles and parallel line properties. Know properties of vertically opposite angles Know angles in a triangle add up to 180 degrees and use to problem solve. Find interior/exterior/number of sides in polygons.
	Circle Theorems	Know and use: Angles in the same segment are equal Angles subtended by a diameter are 90 degrees. Angle subtended at the centre is twice the angle subtended at the circumference Opposite angles in a cyclic quadrilateral are equal The angle between a radius and a tangent is 90 degrees Alternate Segment Theorem The 2 tangents diagram
	Percentages	Be able to increase / decrease by a percentage using a multiplier Be able to increase repeatedly by the same percentage Understand the difference between and find Compound and Simple Interest Find the original amount given a known Percentage increase / decrease Solve problems involving area / volume / money relating to percentage increase / decrease
	Probability S9/10F	Apply ideas of randomness, fairness, equally likely events. Calculate expected outcomes Find relative frequencies and understand the link to bias and sample size. Use Venn Diagrams and Tree Diagrams.
	Algebra 1 S9/10F	Understand the meaning of an identity and solve identity problems. Multiply two linear expressions of the form $(x + a)(x + b)$ Expand the expression $(x \pm a)^2$ Simplify an expression involving 'x2' by collecting like terms Factorise an Quadratic of the form ax^2+bx where a and b have a common factor. Factorise a quadratic expression of the form $x^2 + bx + c$ Create an expression or a formula to describe a situation Solve a quadratic equation of the form $x^2 + bx + c = 0$ Know and recognise the difference of 2 squares Know and recognise a Perfect Square e.g. $(x+3)^2= x^2+6x+9$ Understand that the solution to a Quadtratic is the points where it intercepts the x axis and that these are called the roots.
	Rounding/estimation S9/10F	Round to Decimal Places Round to Significant Figures Round to 1 SF and use the answers to generate estimates. Specify an error as an inequality Estimate the amswers to problems using 1 sig fig or sensible rounding Check answers usng estimation

Half term 3	Measures S9/10F	Calculate speed from distance and time. Calculate density, pressure, population density.
	Coords and Graphs 1 S9/10F	Use the form y = mx + c to identify parallel lines Rearrange an equation into the form y = mx + c Find the equation of a line through one point with a given gradient Find the equation of a line through two given points Interpret the gradient of a straight line graph as a rate of change Plot graphs of quadratic (cubic, reciprocal) functions Recognise and interpret the graphs of quadratic (cubic, reciprocal) functions Sketch graphs of quadratic (cubic, reciprocal) functions Plot and interpret graphs of non-standard functions in real contexts Find approximate solutions to kinematic problems involving distance, speed and acceleration
	Sequences	Recognise a sequence of square, cube and triangular numbers Recognise the Fibonacci sequence Generate Fibonacci type sequences Find the next three terms in any Fibonacci type sequence Generate an Arithmetic and a Geometric sequence Given an Arimethic or a Geometric sequence, find its formula Use and find the nth term for linear and quadratic sequences.
	Constructions 1 S9/10F	Revise all previous constructions: Perpendicular bisector of a line Bisect an angle Construct SSS triangle Construct SAS and ASA triangles using rule and protractor Construct a Perpendicular through a point on the line Construct a Perpendicular through a point not on the line Construct RHS triangles using ruler and compasses Construct ASS triangles and see the "Ambiguous Case Scenario" Draw Loci.
Half Term 4	Inequalities 1	Understand the meaning of the four inequality symbols Choose the correct inequality symbol for a particular situation Represent practical situations as inequalities Recognise a simple linear inequality Find the set of integers that are solutions to an inequality Use set notation to list a set of integers Use a formal method to solve an inequality Use a formal method to solve an inequality with unknowns on both sides Use a formal method to solve an inequality involving brackets Know how to deal with negative number terms in an inequality Know how to show a range of values that solve an inequality on a number line Know when to use an open / closed circles at the end of a range of values shown on a number line Use a number line to find the set of values that are true for two inequalities
	Statistics 1 S9	Construct and interpret graphs of time series Construct and interpret compound bar charts and other graphs and charts Interpret a scatter diagram using understanding of correlation Construct a line of best fit on a scatter diagram Use a line of best fit to estimate values Know when it is appropriate to use a line of best fit to estimate values Find the equation of a line of best fit. Find the Median and Quartiles. Understand why IQR is better than Range. Construct Cumulative Frequency Diagrams. From CF Diagrams;

		- Construct Box Plots and compare data samples (H) - Estimate Median and IQR. (H)
	Faactorise 2 Brackets	Factorise brackets of the form $ax^2 + bx + c$ Solve Equations of the form $2x^2 + 7x + 6 = 0$ by factorising Expand products of 2 or more brackets (using grid method) Simplify expressions involving the Laws of Indices. Cancel Algebraic Frations where the numerator or denominator require factorising in order for this to be possible.
Half Term 5	Coord and Graphs 2 S9/10F	Plot use and interpret - Conversion graphs - Distance time graphs - Speed (velocity) time graphs Interpret the gradient of a straight line graph as a rate of change Plot graphs of quadratic (cubic, reciprocal) functions Recognise and interpret the graphs of quadratic (cubic, reciprocal) functions Sketch graphs of quadratic (cubic, reciprocal) functions Plot and interpret graphs of non-standard functions in real contexts Find approximate solutions to kinematic problems involving distance, speed and acceleration
	Circumference and Area 2 S9	- Know the parts of a circle - Find the area and circumference of a circle, semi circle, quadrants, composite shapes - Calculate with multiples of Pi. - Areas and perimeters of Sectors of Circles. - Surface area and Volumes of spheres, cones and composite solids.
	Ratio and Proportion S9	Identify and work with fractions in ratio problems Express one quantity as a fraction of another. Simplify ratio Share quantities in a given ratio. Understand and use proportion. Relate ratios to fractions and linear functions.
Half Term 6	Constructions 1 S9 10F	Construct a perpendicular bisector of a line segment. Construct a perpendicular to a given line from/at a given point. Construct a angle bisector and construct a 60 degree angle. Know that the perpendicular distance from a point to a line is the shortest distance. Use constructions to solve Loci problems.
	Bearings	Apply properties of angles at a point, on a straight line, vertically opposite. Use alternate, corresponding angles. Use and interpret scale factors, scale drawings, maps. Measure angles and write as bearings.
	Trigonometry 2	Know the difference between Scalar and Vector quantities. Find the area under a Velocity -Time graph (Displacement) when the graph is; - made up of straight lines - made up of curves which can be approximated as straight lines Plot, use and interpret Distance- Time graphs, Speed (Velocity)-Time graphs. Interpret Gradient as a rate of change (e.g. Acceleration on a VT Graph) and understand that; - a tangent represents an "instantaneous acceleration" at that moment. - the gradient of the line between 2 points represents the average acceleration during the period.