

Year 9

Timing	Unit Title	Key Question	Knowledge	Assessing Understanding
Autumn	Index laws	Can you use index laws?	Using all index laws including negative powers.	How understanding is assessed - By applying the theory to a range of questions and increasingly more complex situations - Discussion in lessons, sample problems - Homework and tests Skills - Understanding of the concepts - Numerical skills - Algebraic skills - Problem solving skills Assessment Point information - Classroom tests relevant to topics studied
	Standard form	Can you convert numbers to standard form?	- Converting ordinary numbers to standard form and vice versa. - Operations using numbers in standard form (non-calculator and calculator methods).	
	Rearranging formulae	Can you make a specific variable the subject in a formula?	- Rearrange formulae to change the subject - Solving worded problems with rearranging formulae.	
	Linear Graphs	Can you find the equations of linear graphs?	- Drawing straight line graphs - Finding the equation of a line from its graph or 2 coordinates.	
	Simultaneous equations	Can you solve simultaneous equations using algebra?	- Solving equations by elimination method. - Solving equations by substitution method - Problem solving.	
	Quadratic Expressions	Do you know how to expand and factorise quadratic expressions?	- Expanding single & double brackets. - Factorising of expressions. - Factorising quadratics (x^2 only). - Difference of two squares.	

	Non-linear Graphs		- Plot and interpret graphs arising from real-life situations - Quadratic and Reciprocal graphs. - Drawing a tangent to a curve and finding the gradient. - Rate of change	
Spring	Trigonometry	Do you know how to apply the ratios sine, cosine and tan to find unknown lengths and angles?	- Using sine, cosine and tangent to find sides and angles on in right angled triangles. - Problem solving involving angle facts, bearings & angles of elevation / depression.	How understanding is assessed - By applying the theory to a range of questions and increasingly more complex situations - Discussion in lessons, sample problems - Homework and tests Skills - Understanding of the concepts - Numerical skills - Algebraic skills - Problem solving skills Assessment Point information - Classroom tests relevant to topics studied
	Construction and Loci	Can you construct perpendicular bisectors and angle bisectors?	- Perpendicular and angle bisectors - Constructing triangles and quadrilaterals. - Loci	
	Fraction, Ratio and Proportion	Can you solve problems involving direct and inverse proportions?	- Revision of simplifying, adding, subtracting, multiplying & dividing fractions - Changing a recurring decimal to a fraction. - Direct and Inverse Proportion Problems	
	Percentages Recap	Can you change recurring decimals to fractions?	- Recap percentage of amounts, percentage increase/decrease. - Percentage change. - Reverse percentage.	

			Compound percentage change. Growth and decay and repeated compound change.	
	Congruence, Similarity and Enlargement	Can you find the missing length by comparing two similar triangles?	- Understanding congruent shapes - Understand the idea of similarity - Solve problems involving similarity (length only)	
	Perimeter, Area and Volume	Can you find the volume and surface area of cones and pyramids?	- Recap perimeter and area of circles & compound shapes. - Finding the arc length & area of a sector. - Recap volume of prisms e.g. cylinders. - Finding the surface area of prisms. - Converting between units. - Volume and surface area of pyramids. - Volume and surface area of a cone.	
Summer	Algebraic Fraction	Can you work with algebra fractions?	- Simplifying algebraic fractions - Adding and subtracting algebraic fractions - Multiplying and dividing algebraic fractions - Solving equations with algebraic fractions	
	Probability	Can you draw & use a tree diagram?	- Introducing probability - Probability of single events - Probability of combined events - Mutually exclusive events. - Drawing tree diagrams for independent events.	
	Sets and Venn Diagrams	Can you understand different set notations?	- Introducing Sets - Venn Diagram	

			• Union and Intersection • Find probabilities using a Venn diagram	
	Inequalities	Can you show inequalities on a graph?	• Notation & drawing inequalities on a number line. • Solving linear inequalities. • Graphical inequalities (linear) including identifying regions.	
	Data	Can you analyse data?	• Mean, median, mode & range from lists of data & frequency tables. • Finding the mean from grouped data. • Cumulative frequency & finding the median. • Finding the interquartile range from a list of data & from grouped data. • Frequency polygons.	How understanding is assessed • By applying the theory to a range of questions and increasingly more complex situations • Discussion in lessons, sample problems • Homework and tests Skills • Understanding of the concepts • Numerical skills • Algebraic skills • Spatial awareness • Problem solving skills Assessment Point information • Exam relevant to topics studied
	Using codes / trip to Bletchley Park	Can you crack codes using a Caesar Wheel & design your own code?	• Designing codes.	
	Upper & lower bounds	Can you solve problems using upper and lower bounds.	• Identifying the upper & lower bounds of a rounded number. • Simple calculations involving upper & lower bounds.	