

Year 9

Timing	Unit Title	Key Question	Knowledge	Assessing Understanding
Autumn	Index laws	Can you use index laws?	<ul style="list-style-type: none"> Using all index laws including negative and fractional powers. 	<p>How understanding is assessed</p> <ul style="list-style-type: none"> By applying the theory to a range of questions and increasingly more complex situations Discussion in lessons, sample problems Homework and tests <p>Skills</p> <ul style="list-style-type: none"> Understanding of the concepts Numerical skills Algebraic skills Problem solving skills <p>Assessment Point information</p> <ul style="list-style-type: none"> Classroom tests relevant to topics studied
	Standard form	Can you convert numbers to standard form?	<ul style="list-style-type: none"> Converting ordinary numbers to standard form and vice versa. Operations using numbers in standard form (non-calculator and calculator methods). 	
	Simultaneous equations	Can you solve simultaneous equations using algebra?	<ul style="list-style-type: none"> Changing subject of a formula Solving equations by elimination method. Solving equations by substitution method Problem solving. 	
	Quadratic Expressions	Do you know how to expand and factorise quadratic expressions?	<ul style="list-style-type: none"> Expanding single & double brackets. Factorising of expressions. Factorising quadratics (x^2 only). Difference of two squares. 	
	Linear Graphs	Can you find the equations of linear graphs?	<ul style="list-style-type: none"> Drawing straight line graphs Finding the equation of a line from its graph or 2 coordinates. Solving linear simultaneous equations graphically. 	
	Non-linear Graphs		<ul style="list-style-type: none"> Plot and interpret graphs arising from real-life situations Quadratic, Exponential and Reciprocal graphs. 	

			<ul style="list-style-type: none"> • Drawing a tangent to a curve and finding the gradient. • Rate of change 	
Spring	Pythagoras' Theorem	Can you use Pythagoras' Theorem to solve right-angled triangle problems?	<ul style="list-style-type: none"> • Using Pythagoras' theorem to find missing sides. • Problem Solving 	<p>How understanding is assessed</p> <ul style="list-style-type: none"> • By applying the theory to a range of questions and increasingly more complex situations • Discussion in lessons, sample problems • Homework and tests <p>Skills</p> <ul style="list-style-type: none"> • Understanding of the concepts • Numerical skills • Algebraic skills • Problem solving skills <p>Assessment Point information</p> <ul style="list-style-type: none"> • Classroom tests relevant to topics studied
	Trigonometry	Do you know how to apply the ratios sine, cosine and tan to find unknown lengths and angles?	<ul style="list-style-type: none"> • 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. 	
	Proportion	Can you use algebra to solve proportionality problems?	<ul style="list-style-type: none"> • Direct Proportion • Inverse Proportion 	
	Construction and Loci	Can you construct perpendicular bisectors and angle bisectors?	<ul style="list-style-type: none"> • Perpendicular and angle bisectors • Constructing triangles and quadrilaterals. • Loci 	
	Congruence Similarity and Enlargement	Can you prove two triangles are congruent?	<ul style="list-style-type: none"> • Congruent Triangles • Similarity • Enlargement • Scale Drawing 	
	Perimeter, Area and Volume	Can you find the volume and surface area of cones and pyramids?	<ul style="list-style-type: none"> • Recap perimeter and area of circles & compound shapes. • Finding the arc length & area of a sector. • Recap volume of prisms e.g. cylinders. 	

			<ul style="list-style-type: none"> Finding the surface area of prisms. Converting between units. Volume and surface area of pyramids. Volume and surface area of cone. 	
	Percentages and Fractions Recap	Can you change recurring decimals to fractions?	<ul style="list-style-type: none"> Recap percentage of amounts, percentage increase/decrease. Percentage change. Reverse percentage. Revision of simplifying, adding, subtracting, multiplying & dividing fractions Changing a recurring decimal to a fraction. 	
Summer	Probability	Can you draw & use a tree diagram?	<ul style="list-style-type: none"> 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?	<ul style="list-style-type: none"> Introducing Sets Venn Diagram Union and Intersection 	How understanding is assessed <ul style="list-style-type: none"> By applying the theory to a range of questions and increasingly more complex situations Discussion in lessons, sample problems Homework and tests

	Inequalities	Can you show inequalities on a graph?	<ul style="list-style-type: none"> • Notation & drawing inequalities on a number line. • Solving linear inequalities. • Graphical inequalities (linear) including identifying regions. 	Skills <ul style="list-style-type: none"> • Understanding of the concepts • Numerical skills • Algebraic skills • Spatial awareness • Problem solving skills Assessment Point information <ul style="list-style-type: none"> • Exam relevant to topics studied
	Data	Can you analyse data?	<ul style="list-style-type: none"> • 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. 	
	Using codes / trip to Bletchley Park	Can you crack codes using a Caesar Wheel & design your own code?	<ul style="list-style-type: none"> • Designing codes. 	
	Upper & lower bounds	Can you solve problems using upper and lower bounds.	<ul style="list-style-type: none"> • Identifying the upper & lower bounds of a rounded number. • Simple calculations involving upper & lower bounds. 	