

Student Knowledge and Skills Tracker for Year 9

Term 1	Check		
Unit 1 – Indices and Standard form			
• I can state and use the laws of indices			
• I can simplify an expression involving indices			
• I can apply zero indices			
• I can apply negative indices			
• I can express and compare numbers in standard form			
• I can calculate using numbers in standard form			
Unit 2 – Proportion			
• I understand the ideas of direct and inverse proportion			
• I can determine whether 2 quantities are in direct or inverse proportion from a graph, a table or an equation connecting the 2 quantities			
• I can solve practical problems involving direct and inverse proportion			

Term 2	Check		
Unit 3 – Linear Equations in 2 Variables			
• I can rearrange a formula to change the subject			
• I understand the properties of a linear equation in two variables (two letters)			
• I can draw the graph of a linear equation in two variables			
• I understand the idea of simultaneous equations and their solutions			
• I can solve simultaneous equations in two variables using the graphical method, the substitution method and the elimination method			

• I recognise the approximate nature of the graphical method			
• I can apply simultaneous linear equations in two variables to solve problems			
Unit 4 – Factorisation and Quadratic Expressions			
• I understand factorisation of an algebraic expressions is the reverse process of expansion			
• I can factorise a linear algebraic expression by using common factors			
• I can manipulate quadratic expressions			
• I can expand the product of two linear algebraic expressions			

Term 3	Check		
Unit 5 – Non-Linear Graphs			
• I can interpret and draw distance-time graphs and other graphs that show rates of change			
• I can use graphs for rates of change to solve problems			
• I can interpret and draw the graph of a quadratic function $y = ax^2 + bx + c$			
• I can state the properties of quadratic graphs			
• I can interpret and draw exponential, reciprocal and piece-wise graphs			

• I can state the properties of exponential and reciprocal graphs			
Unit 6 – Geometric Construction and Loci			
• I can construct perpendicular bisectors and angle bisectors using a pair of compasses and a ruler			
• I can recognise the properties of perpendicular bisectors and angle bisectors			
• I can construct a perpendicular to a line from a point or at a given point using a pair of compasses and a ruler			
• I can construct triangles using a pair of compasses, a ruler and a protractor			
• I can construct and describe loci for the paths of points on a plane			
Unit 7 – Pythagoras’ Theorem			
• I can state Pythagoras’ Theorem			
• I can apply Pythagoras’ Theorem to solve problems involving right-angled triangles			
• I can apply the converse of Pythagoras’ Theorem to determine whether a triangle has a right angle			
• I can recognise and use the perpendicular distance from a point to a line as the shortest distance to the line			

Term 4	Check		
Unit 8 – Congruence, Similarity and Enlargement			
• I can state the conditions for two triangles to be congruent			
• I can identify congruent triangles			
• I can solve problems involving congruence			
• I can understand the idea of similarity			

• I can state the properties of similar polygons			
• I can solve problems involving similarity			
• I can enlarge a plane figure by a scale factor			
• I can interpret scale drawings			
Unit 9 – Trigonometry and Bearings			
• I can state the definitions of trigonometric ratios (sine, cosine and tangent) of acute angles			
• I can use trigonometric ratios to find unknown sides and angles in right-angled triangles			
• I can Apply the trigonometric ratios to solve problems			
• I can measure and calculate bearings			
• I can solve problems involving bearings			

Term 5	Check		
Unit 10 – Surface Area of Pyramids and Cones			
• I can visualise the idea of surface area of pyramids and cones using nets			
• I can find the surface areas of pyramids and cones			
• I can find the surface areas of composite solids involving prisms, cylinders, pyramids and cones			

Term 6 (Topics in grey are only for higher tier)	Check		
GCSE – Algebraic Expressions			
I can write instructions like multiply 2 by x as $2x$			
I understand expressions, terms, equations and formulae			
I can substitute numbers into expressions			
I can change worded problems into algebra, then use the formula			

E.g, a car hire company charges £100 plus £30 per day. Write a formula for the cost of hiring			
I can simplify expressions by collecting the like terms			
I can understand powers/indices in algebra like $a^2 \times a^3$			
I can expand brackets eg $3(x+4)=3x+12$			
I can expand and simplify expressions with more than one bracket eg $3(2x+3)+2(5x+4)$			
I can factorise expressions eg $15x+25=5(3x+5)$			
I can simplify algebraic expressions			
I can solve equations involving algebraic fractions			
GCSE – Data Handling (Statistics)			
I understand sampling methods like random sampling			
I can give advantages and disadvantages of different types of sampling methods and I understand bias			
I can organise data into frequency tables and stem and leaf diagrams.			
I can organise data into, and interpret, two-way tables, pictograms and bar charts (Calculate the angles for pie charts)			
I can draw and interpret pie charts inc. calculate the angles for pie charts			
I can find the mean, median, mode and range of data			
I can find the inter-quartile range (IQR)			
I can find the mean from a frequency table			
I can find the mean of combined data sets			
I can calculate a stratified sample			