

# Year 10 Higher Scheme of learning 2021-2022 - Term 1

*Stretch key learning in italics*

Topic	Key learning	Hegarty Clip No	:(	:(	:(
Rationalising Surds	Rationalise the denominator involving surds	118-119			
	Use function notations	288-289			
	Find the inverse of a linear function	295-296			
	<i>Solve proof questions using consecutive integers</i>	325-327			
Perimeter & Area	Calculate arc lengths, angles and area of sectors	544- 547			
	Find the radius or diameter, given the area or circumference	540/535			
	Form equations involving more complex shapes and solve them	542-3/537-8			
	<i>Know the impact of estimating answers</i>				
Surface Area & Volume	Find the volume and surface area of a cylinder	572-4 / 586			
	Use the formula for the volume of a pyramid and find the surface area	576-7 / 579 / 587			
	Solve more complex shapes and solids including segments of circles and frustums.	578/589-590			
	Combinations of 3D forms such as a cone and sphere where the radius needs to be calculated	581-3/591			
<b>October half term</b>					
Solving quadratics	Solve quadratic equations by factorisation and completing the square	230-3/238-9			
	Solve quadratic equations by using the quadratic formula	241-242			
	Set up and solve quadratic equations	245			
Simultaneous equations	Use elimination or substitution to solve simultaneous equations	190-192/194			
	Solve 2 linear equations including where both need to be multiplied	193			
	Solve a linear and quadratic equation	246/259			
	Set up and solve simultaneous equations in a real life context	195			
Inequalities	Show inequalities on a number line	265-268			
	Solve simple linear inequalities	269-271			
	Solve 2 linear inequalities and compare them to see which value x satisfies	272			
	Justify why certain values in a solution can be ignored	272			
Probability	Work out probabilities from a Venn diagram and use set notation	383-388			
	Construct and use a probability tree diagram for independent events	361-363			
	Use a Venn diagram, two way table & tree diagram to calculate conditional probability	364-367 /389-391 /422-424			
	Compare relative frequencies from samples of different sizes	357			
<b>Christmas holidays</b>					

## Year 10 Higher Scheme of learning 2021-2022 - Term 2

*Stretch key learning in italics*

Topic	Key learning	Hegarty Clip No	😊	😐	😊
Direct and indirect proportion	Direct & Inverse proportion	89-92			
	Calculate an unknown quantity from quantities that vary in D or I proportion	339-342			
	Set up and use equations to solve problems involving D & I proportion	343-347			
	Relate algebraic solutions to graphical representation of the equations	348			
	Work out the multiplier for repeated proportional change as a single decimal				
Cum. Freq., box plots & Histograms	Construct and interpret CF tables and graphs	437-439			
	Interpret box plots to find the median, quartiles and IQR	436			
	Construct and interpret histograms from class intervals with unequal widths	442-449			
	Interpret two or more data sets from box plots and relate the key measures	436			
<b>February half term</b>					
Collecting data	<i>Understand what is meant by a sample and a population</i>	394			
	<i>Identify possible sources of bias and plan to minimise it</i>	394/395			
	<i>Design a survey where the questions eliminate bias</i>	399-400			
	<i>Justify why a sample may not be representative of the whole population</i>	395			
Advanced Trigonometry	Know and apply $\text{Area} = \frac{1}{2}ab\sin C$ to calculate the area, sides or angles of any triangle	516-519			
	Know and use the sine and cosine rules in 2D problems	520-533			
	Calculate the length of a diagonal of a cuboid	858			
	Find the angle between a line and a plane	854/856/858-860			
Changing the subject & Algebraic Fractions	<i>Rationalise the denominator involving surds</i>	118-119			
	<i>Simplify algebraic fractions</i>	170/229			
	<i>Apply the four operations to algebraic fractions</i>	172/229/244			
	<i>Change the subject of a formula, where the subject occurs on both sides</i>	285			
	<i>Change the subject of a formula where all variables are in the denominators</i>	286			
<b>Easter holidays</b>					

# Year 10 Higher Scheme of learning 2021 - 2022 - Term 3

Stretch key learning in *italics*

Topic	Key learning	Hegarty Clip No			
Accuracy & Bounds	Calculate upper and lower bounds of numbers given to varying degrees of accuracy	<b>137-138</b>			
	Find the upper and lower bounds of calculations involving perimeter, area and volume	<b>139</b>			
	Use inequality notation to specify an error interval	<b>774-777</b>			
	<i>Find upper and lower bounds in real life situations</i>	<b>138</b>			
Circle Theorems	Prove and use angle in a semi circle is a right angle & opposite angles in a cyclic quadrilateral sum to $180^\circ$	<b>595 / 597</b>			
	Prove and use all circle theorems	<b>816-820 / 594-606</b>			
	Find and give reasons for missing angles on diagrams	<b>603-606</b>			
	<i>Solve problems that involve reasoning and provide counter arguments</i>	<b>603-606</b>			
Circle Geometry	Select and apply construction techniques	<b>659-669</b>			
	Find the equation of a tangent to a circle at a given point	<b>320</b>			
	Recognise and construct the graph a circle ( $r$ centred at the origin)	<b>778-779</b>			
	Justify if a straight line graph would pass through a circle	<b>318-319</b>			
Quadratics & Circles	Expand the product of more than two linear expressions	<b>166</b>			
	Identify intersection points of a quadratic and linear graph	<b>259</b>			
	Solve quadratic inequalities in one variable by factorising	<b>277</b>			
	Use iteration with simple converging sequences	<b>322</b>			
<b>May half term</b>					
Transformations	Enlarge a shape by a given scale factor and centre	<b>642-647</b>			
	Describe and transform 2d shapes using combined transformations	<b>656-657</b>			
	Recognise and describe reflections on a coordinate grid	<b>652</b>			
	Find the centre of a rotation by trial and error	<b>654</b>			
	<i>Describe fully a single transformation with all relevant information</i>	<b>650-654</b>			
Vectors & Geometry proof	Understand and use vector notation	<b>622-624</b>			
	Calculate the sum, difference and scalar multiple of a vector	<b>625-626</b>			
	Find the length of vector using Pythagoras' Theorem	<b>627</b>			
	Solve geometric problems in 2D where vectors are divided in a given ratio	<b>628-631 /635-636</b>			
	Produce geometric proofs to prove points are collinear and vectors/ lines are parallel	<b>632-634</b>			
<b>Summer Holidays</b>					

