

Year: 10

Subject: Mathematics

Autumn Term		
Overarching Topic:		
What has come before and what comes later:	Year 9 curriculum covers previous knowledge, following Autumn Percentages, fractions, ratio, congruence and similarity, algebraic manipulation, substitution and functions, area and perimeter, volume and surface area	
	Percentages, direct and inverse proportion, histograms, circles and theorems, linear and quadratic equations, quadratic graphs and inequalities will be taught.	
	Foundation	Higher
The Big Questions (What questions will students be able to answer upon mastery of the topic?)	<p>What do the m and c represent in <math>y=mx+c</math>?</p> <p>How do you work out the gradient between two points?</p> <p>Can you write down the equation of a line using the gradient and a point it passes through?</p> <p>Can recognise parallel lines from their equations and understand why two lines are parallel?</p> <p>Can you plot data for a scatter graph?</p> <p>Do you understand what correlation means and know the different types?</p> <p>Can you draw a line of best fit for a scatter graph and use it to make predictions?</p> <p>Can you interpolate and extrapolate apparent trends whilst knowing the dangers of doing so?</p> <p>Do you know what population and sample mean for a set of data?</p> <p>Do you know how to take a random sample and the advantages and disadvantages of doing so?</p> <p>Can you calculate the mean, mode, median and range for a set of data?</p> <p>Can you use average and spread measures to compare two sets of data?</p> <p>Do you understand what is meant by an outlier?</p> <p>Can you draw a pie chart for a set of data?</p> <p>Can you interpret information from a pie chart?</p> <p>Can you reflect a 2D shape using a mirror line?</p> <p>Can you describe a reflection stating its mirror line?</p>	<p>What do the m and c represent in <math>y=mx+c</math>?</p> <p>How do you work out the gradient between two points?</p> <p>Can you write down the equation of a line using the gradient and a point it passes through?</p> <p>Can recognise parallel lines from their equations and understand why two lines are parallel?</p> <p>Can recognise perpendicular lines and find equations of perpendicular lines?</p> <p>Can you solve linear inequalities in two variables?</p> <p>Can you represent the solution set to an inequality using set notation and on a graph?</p> <p>Do you know what population and sample mean for a set of data?</p> <p>Do you know how to take a random sample and the advantages and disadvantages of doing so?</p> <p>Can you calculate the mean, mode, median and range for a set of data?</p> <p>Can you calculate the interquartile range for a set of data and use this in making comparisons?</p> <p>Can you use average and spread measures to compare two sets of data?</p> <p>Do you understand what is meant by an outlier?</p> <p>Can you calculate the cumulative frequency for a grouped set of data?</p> <p>Can you plot and draw a cumulative frequency curve?</p>

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	<p>Can you rotate a 2D shape using a centre of rotation?</p> <p>Can you describe a rotation, stating its centre of rotation, angle and direction?</p> <p>Can you translate a shape using a vector?</p> <p>Can you describe a translation stating its vector?</p> <p>Do you understand transformations of 2D shapes which produce congruent shapes?</p> <p>Can you enlarge a 2D shape using a centre of enlargement and scale factor?</p> <p>Can you describe an enlargement stating its centre of enlargement and scale factor?</p> <p>Do you understand the link between enlargements and similar shapes?</p> <p>Can you write large and small numbers in standard form?</p> <p>Can you write standard form numbers as their actual number?</p> <p>Can you add, subtract, multiply and divided numbers in standard form?</p> <p>Do you understand what a term in a sequence is?</p> <p>Can you calculate the differences between terms of a sequence?</p> <p>Can you generate a sequence using a term to term rule?</p> <p>Can you generate a sequence using a position to term rule?</p> <p>Can you calculate the nth term of a sequence?</p> <p>Can you recognise and use simple sequences involving a geometric progression?</p> <p>Can you calculate a percentage of an amount?</p> <p>Can you increase and decrease and amount by a percentage?</p> <p>Can you calculate percentage change?</p> <p>Can you interpret percentage change as a fraction and decimal?</p> <p>Can you set up and solve problems involving growth and decay problems including compound interest?</p>	<p>How do you find the median, quartiles and interquartile range from a cumulative frequency diagram?</p> <p>Can you use a cumulative frequency curve to produce box plots and then make comparisons?</p> <p>Based on given rounded values, can you state upper and lower bounds?</p> <p>Using rounded values, can you find maximum and minimum solutions to problems?</p> <p>Can you enlarge a 2D shape using a centre of enlargement and scale factor?</p> <p>Can you perform enlargements using negative and fractional scale factors?</p> <p>Can you describe an enlargement stating its centre of enlargement and scale factor?</p> <p>Can you describe enlargements where negative and fractional scale factors are involved?</p> <p>Do you understand the link between enlargements and similar shapes?</p> <p>Can you describe the changes and invariance achieved by combinations of rotations, reflections and translations?</p> <p>What is a surd?</p> <p>Can you estimate powers and roots of any given positive number?</p> <p>Can you calculate using exact surds?</p> <p>Can you simplify expressions involving surds?</p> <p>Are you able to multiply and divide values in index form?</p> <p>Are you able to use the power law involving a bracket?</p> <p>Are you able to use fractional and negative indices?</p> <p>What is a base raised to a power zero?</p> <p>Can you recognise alternate, corresponding angles on parallel lines?</p> <p>Can you deduce and use angle sum in any polygon?</p> <p>Can you use the rule for the sum of exterior angles of all polygons?</p> <p>Can you apply angle facts and properties of quadrilaterals to derive results about angles and sides?</p> <p>Can you measure and interpret bearings?</p>
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		Can you use ruler and compass to construct perpendicular bisectors of a line segment, perpendiculars to a given line from/at a given point and bisect a given angle? Can you use ruler and compass to solve loci problems?
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