Levenshulme High School – Curriculum Map – Maths Year 9 Core

		Term 1		Term 2		Term 3	
	Topic Title and NC link	**A8, A4, A11, A1, G8, R9**	**G5, G10, G11, A15, A16**	**G1, G2, G4, G9**	**G1, G14, A5, A7**	**N3, S3, G8, G14**	**S1, S2, P1, P2, P3**
Year 9 Core	*Pupils should know…*	• How to find missing points in shapes • How to find midpoints of lines • How to plot linear graphs including horizontal and vertical • How to identify gradient and intercept • How to give the equation of a line. • How to reflect in horizontal, vertical and diagonal mirror lines • Identify mirror lines and equations • What invariant means • The conventions for labelling	• How to find the term to term rule of a sequence and use it to generate terms of an arithmetic sequence • How to find the position to term rule and use it to generate terms of an arithmetic sequence • **What is a quadratic and geometric expression** • **Expand two brackets** • **Expand more than two brackets** • **Factorise a quadratic expression in different forms** •	• What does enlargement mean • How to identify if a shape has been enlarged • How to enlarge a shape with whole number and fractional scale factors • How to enlarge from a centre • How to find the centre of enlargement • The meaning of similarity and congruence • How to prove shapes are similar or congruent • Difference between proof and demonstration • How to construct triangles using a protractor and a compass	• How to draw a bar model to represent an equation • How to solve equations with variables on one and both sides • How to solve equations with fractions • Rearranging simple equations • In trigonometry corresponding sides are proportional • How to graph inequalities and **recognise regions**	• What translation means • What a vector is and how it is written • What a translation looks like • What rotation is • What rotation looks like • How to describe a transformation • Find HCF, LCM and unique factorisation theorem • **How to calculate the equation of parallel and perpendicular lines** • How to calculate the volume of a cuboid • What is cross sectional area	• What is a scatter graph and what is it used for • What is a line of best fit • How to read information from a scatter graph • Know and use the terms positive and negative correlation • Understand what is meant by relationship • Understand the terms interpolation and extrapolation • How to find averages from lists • Understand what range measures • What are quartiles • What is the interquartile

		angles, sides and lines • How to identify alternate, co-interior and corresponding angles • How to use our known angle facts to calculate missing angles on a straight line, at a point, in triangles and quadrilaterals • Use ratio • Draw and interpret scale diagrams • Draw and use bearings		• Label sides of a right-angled triangle • Know Pythagoras' theorem and be able to apply it to a question • How to construct line and angle bisectors using a compass • How to construct loci		• What is the formula for volume of a 3D shapes • How to find the volume of cubes, cuboids and triangular prisms	range and what does it tell us • Drawing and interpreting frequency diagrams • What is probability • What is the probability scale • How to calculate a probability
	Pupils should be able to do…	• Plot linear graphs • Interpret linear graphs • Fill in missing co-ordinates on a table. • Identify whether a co-ordinate is on a given line from the equation • reflect in horizontal,	• **Expand and factorise quadratic expressions** • **Identify subtracting the squares** • **Use Wendy's way to factorise harder quadratic expressions** • Find missing angles in parallel lines	• Enlarge a shape with and without a centre • Describe an enlargement • Find missing information from similar shapes • Prove that shapes are congruent • Find the missing hypotenuse of a right-angled triangle	• Able to solve equations where the coefficient of x is a fraction • Able to rearrange equations including formulas • How to apply knowledge of area of circles to finding volume	• To be able to translate a shape with worded instructions • To translate a shape using a given vector • To describe fully a translation • To be able to rotate a shape, including with a given number	• Use the product rule for counting • Calculate the quartiles from data and find the interquartile range • Compare data • State the chance of an event happening

		vertical and diagonal mirror lines • Identify mirror lines and equations • Identify invariant points • Problem solve with multipliers • Build on ratio from year 8. Apply this to a new context • Apply angle facts from Year 8 to bearing questions	• Solve more complex angle problems • Draw the plan and elevations of a 3D shape • Interpret plans and elevations • What the nth term is • How to recognise special sequences	• Find one of the other missing sides of a right-angled triangle • Solve problems using Pythagoras' theorem • **Apply Pythagoras' theorem to 3D problems**	• How to apply the knowledge of volume to problem solving questions • Draw straight line graphs and read inequalities • Label a triangle • Know the trigonometric ratios • Use the ratios to find unknown lengths and angles	of degrees, direction and centre of rotation • To describe fully a rotation • Answer problems using prime factor lists • Find the volume of 3D shapes and any prisms. • Recognise equations of lines that are parallel and perpendicular	• Calculate a probability given some data • Answer problems on probability include chance of something not happening • Show a probability on a numberline • Draw a scatter graph from a set of data • Draw a line of best fit • Describe the correlation • Describe the relationship • Read values from a scatter graph and make predictions using a line of best fit and interpolation and extrapolation •
	Why are we doing this now? How does it build on prior learning and prepare for knowledge and	Algebra skills studied with students in year 8 allow connections to be made from coordinate work from KS2 and	Further sequences building on those learnt in year 8 and using further algebra skills. Pupils further develop their algebra skills linking this back	Pupils have understanding of multipliers and how these apply to real life situations. This ties in to	Algebra in year 8 helped develop skills using bar models and beyond. This now continues	Rotations and translations are taught separate to the other transformations to aid students remember the	Pupils learn averages at KS2 and this unit builds on this looking at comparing and selecting the best average to use.

	learning still to come?	linear sequences from year 8 to equations. Further work is done on developing understanding of multiplicative relationship building on multipliers and divisors in year 7. Prior learning that pupils need to remember are: • How to read and plot co-ordinates • How to substitute • What symmetry means • How to use tracing paper • How to write and simplify a ratio • What a reciprocal is • How to share using a ratio • Pupils knowledge of ratio and angles allows for these two areas of	to grid multiplication. Factorising is linked in with factors and multiples. For this year only there is angles work to supplement home learning. Prior learning that pupils need to remember are: • **How to simplify algebra** • **How to multiply out a single bracket** • **How to factorise a single bracket** • How to identify the pattern of a sequence and use function machine to generate terms • How to recognise the LCM and HCF • Basic angle facts • Key words for angles • Names of shapes • 3D shape properties	enlargement and similarity Pythagoras builds on properties of triangles and utilises the algebra skills in a new context. • • Pupils have previously constructed accurate triangles and now delve further looking at bisectors and loci • Construction of triangles in year 8 leads to learning on congruency Prior learning that pupils need to remember are: • Use multipliers to find scale factors • Plot and read co-ordinates • Inverse operations •	with harder algebra. Trigonometry is introduced. Pupils have developed maths skills that now allow this to be taught. This includes ratio, algebraic manipulation, properties of triangles Prior learning that pupils need to remember are: • How to solve simple linear equations • Simplifying fractions • Square numbers and square roots • How to do inverse operations • Label the hypotenuse • That the hypotenuse is the longest side of a right angled triangle • Read inequalities	difference between them. Volume builds on 3D shapes in HT2 and work at KS2. Pupils apply number skills either to the product rule or HCF and LCM. . Pupils have plotted coordinates and learnt about straight line graphs and relationships with graphs. Prior learning that pupils need to remember are: • What factors and multiples mean • What LCM and HCF means • How to find a number's prime factors • How to find the HCF or LCM of two or more numbers • Area of basic shapes • How to write numbers in index form	Data is studied and looking at patterns and trends. Probability is studied using fraction and decimal skills Prior learning that pupils need to remember are: • Know and calculate mean, mode, median, and range for a set of data • Adding and subtracting fractions • Multiplying fractions • Knowledge of angles 90^o 180^o and 270^o

		maths to be combined			• Draw a linear graph	• Find the reciprocal of numbers • Find gradients, intercepts and equations of lines	