Levenshulme High School – Curriculum Map – Maths

		Term 1		Term 2		Term 3	
	No. of Weeks	(7)	(7)	(7)	(5)	(6)	(7)
Year 10 Higher	**Topic Title and NC link**	**Probability and Number**	**Algebra**	**Graphs and Data**	**Rates of Change and Graphs**	**Circles and Trigonometry**	**Proportion, Further Graphs and Iteration**
	Pupils should know…	• What relative probability is • Use Venn diagrams • How to multiply and add fractions • When to use AND/OR rules • What compound units are • The difference between rational and irrational numbers • The effect of different powers on numbers • Recognise a need for really big and really small numbers • Measurements are accurate to a limited degree	• How to find solutions that satisfy a set of rules • When and how to form simultaneous equations to solve a problem with two unknowns • When and how to use and apply quadratic skills • A quadratic equation has up to two solutions • There are a choice of methods to use for solving • The quadratic formula	• General shape of a quadratic • What a turning point is • The roots of a graph • **How to calculate the equation of parallel and perpendicular lines** • How to calculate averages from tables – discrete and continuous • Draw and interpret histograms, cumulative frequency diagrams and box plots	• What different parts of a speed time and distance time graph show • The gradient of curves vary • The area under a velocity time graph represents the area • Know conversion graphs change from one unit to another • Know a tangent touches the curve at one place only	• The equation of a circle links its x and y coordinates to its radius • The names of different parts of a circle • **In trigonometry corresponding sides are proportional**	• That proportions compare one part to the whole whereas ratio compares one part to another part • Iteration is a method of repeating a process • **How to change recurring decimals to fractions** • **Difference between terminating and recurring decimals**
	Pupils should be able to do…	• Construct a tree diagram • Find independent and dependent probabilities from a tree diagram	• Solve simultaneous equations graphically and algebraically including quadratics	• Find missing values for quadratic graphs • Plot accurately • Use completing the square to	• Plot straight line graphs • Find the gradients of straight lines • Find the gradients of curves by drawing tangents	• Recall the equation for a circle • Find the equation of a tangent to a circle centre (0,0) • **Label a triangle**	• Use the unitary method • Solve direct proportion problems

		• Solve problems involving compound measures • Calculate with surds • Rationalise surds • Simplify surds • Calculate effectively with powers • Write in standard form • Calculate in standard form and change between standard form and ordinary numbers • Find and use upper and lower bounds	• Use Wendy's way • Expand polynomials • Factorise quadratics and solve • Complete the square • Quadratic formula	find the turning point • Interpret roots of graphs • Find the equation of a graph from key information • Estimate mean from a grouped frequency table • Compare populations • Compare averages • **Recognise equations of lines that are parallel and perpendicular**	• Draw and interpret conversion graphs • Compare different graphs and draw conclusions • Calculate the area under a linear graph • Draw a tangent to a curve • Calculate the gradient of a tangent to a curve • Calculate the area under a quadratic/other graph	• **Know the trig ratios** • **Use the ratios to find unknown lengths** • **Use the ratios to find unknown angles** • **Recall the exact values of given trig ratios** • **Use trig within 3D shapes**	• Solve indirect proportion problems • Recognise the graphs for direct and indirect proportions • To rearrange equations to estimate answers using iteration
	Why are we doing this now? *How does it build on prior learning and prepare for knowledge and learning still to come?*	Probability is further developed and now introduces Venn diagrams and tree diagrams. Compound measures and converting units build on year 8 measures and this will feed into bounds later in this half term. Surds have been visited in year 9 and at KS4 manipulation	Algebra in year 8 and 9 allows for simultaneous equations to be developed. This also supports work on quadratics. Prior learning that pupils need to remember are: • How to solve linear equations • How to plot graphs	Pupils plot quadratic graphs, linking to work in HT2 and also linear graphs at KS3. Pupils also identify features of quadratic graphs. Multiplicative relationships is now seen embedded in scale drawings and angle work is developed for bearings.	Pupils look at distance time/ speed graphs building on compound measures from HT1. Tangents to graphs are studied and finding the gradients for curves building on knowledge of gradients from linear graphs at KS3. New learning of area under a curve is introduced and this follows learning at	Equations of circles develops further algebraic manipulation and also links to tangents of circles. **Trigonometry is building on from Pythagoras at KS3.** Prior learning that pupils need to remember are: • How to use a calculator effectively	Multiplicative relationships now is seen in direct and inverse proportion as is real life graphs. Effective use of a calculator and algebraic manipuation in iteration. Prior learning that pupils need

		of surds is developed. Indices revisits and builds on year 8 index laws and develops skills using reciprocals. This then leads into standard form. Rounding is well embedded at KS3 and developed into looking at bounds. Prior learning that pupils need to remember are: • Probability terminology • Probability is out of 1 • Understand the probability scale • The scale ranges from 0-1 • Relationships between units of measure • General formulae for SDT, FPA, DMV • Square numbers, cube numbers and their roots • Basic laws of indices	• Factorising quadratics with/out a coefficient of x^2	Properties of polygons builds on properties of 2D shapes from KS3. Prior learning that pupils need to remember are: • Difference between a linear and quadratic graph • Plot coordinates in all four quadrants • Substitute into formulae • **Find the reciprocal of numbers** • **Find gradients, intercepts and equations of lines** • Find averages from lists • Plot bar charts	KS3 of areas of trapeziums and other shapes. Prior learning that pupils need to remember are: • The equations of straight line graphs as y=mx+c • How to interpret straight line graphs • Find the area of triangles, trapeziums, rectangles	• How to convert between fractions and decimals • How to draw a bearing • That the hypotenuse is the longest side of a right angled triangle • How to use a ruler and a protractor	to remember are: • How to share in a given ratio • How to use proportional relationships to fin unknowns • Knowledge of natural numbers, integers, fractions, decimals and percentages as well as factors, multiples and primes • Simple ratios and rate problems

		• Rounding to various degrees of accuracy including significant figures					