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**	**Quadratics**	**Graphs and data**	**Circles and Trigonometry**	**Rates of Change**
	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 •	• Know a tangent touches the curve at one place only • **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 • Advantages and disadvantages of different types of average •	• What different parts of a speed time and distance time graph show • The gradient of curves vary • Know conversion graphs change from one unit to another • The names of different parts of a circle • **In trigonometry corresponding sides are proportional**	• The equation of a circle links its x and y coordinates to its radius
	Pupils should be able to do…	• Construct a tree diagram • Find independent and	• Solve simultaneous equations graphically and	• Find missing values for quadratic graphs	• Plot straight line graphs • Find the gradients of straight lines	• **Label a triangle** • **Know the trig ratios**	• Use the unitary method

		dependent probabilities from a tree diagram • Solve problems involving compound measures • Calculate with surds • Rationalise surds • Simplify surds • Calculate effectively with powers	algebraically including quadratics • Use Wendy's way • Expand polynomials • Factorise quadratics and solve • Complete the square • Quadratic formula • Write in standard form • Calculate in standard form and change between standard form and ordinary numbers • Find and use upper and lower bounds •	• Plot accurately • Use completing the square to find the turning point • Interpret roots of graphs • Find the equation of a graph from key information	• 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 • Estimate mean from a grouped frequency table • Compare populations • Compare averages • Estimate mean from a grouped frequency table • Compare populations • Compare averages • **Recognise equations of lines that are parallel and perpendicular**	• **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** • Draw and interpret conversion graphs • Compare different graphs and draw conclusions	• Solve direct proportion problems • Solve indirect proportion problems • Recognise the graphs for direct and indirect proportions • Recall the equation for a circle • Find the equation of a tangent to a circle centre (0,0) • The area under a velocity time graph represents the area • Find the gradients of curves by drawing tangents
	Why are we doing this now? *How does it build on prior learning and prepare for knowledge*	Probability is further developed and now introduces Venn diagrams and tree diagrams. Compound measures and	Algebra in year 8 and 9 allows for simultaneous equations to be developed. This also supports work on quadratics.	Pupils plot quadratic graphs, linking to work in HT2 and also linear graphs at KS3. Pupils also identify features of quadratic graphs.	Prior learning that pupils need to remember are: • The equations of straight line graphs as y=mx+c	Pupils look at distance time/ speed graphs building on compound measures from HT1. Tangents to graphs are studied and finding the gradients for curves	Multiplicative relationships now is seen in direct and inverse proportion as is real life graphs.

	and learning still to come?	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 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	Prior learning that pupils need to remember are: • How to solve linear equations • How to plot graphs • Factorising quadratics with/out a coefficient of x^2 • Square numbers, cube numbers and their roots • Basic laws of indices • Rounding to various degrees of accuracy including significant figures	Multiplicative relationships is now seen embedded in scale drawings and angle work is developed for bearings. 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**	• How to interpret straight line graphs • Find the area of triangles, trapeziums, rectangles • Plot bar charts • How to find mean median mode and range from a list •	building on knowledge of gradients from linear graphs at KS3. **Trigonometry is building on from Pythagoras at KS3.** Prior learning that pupils need to remember are: • How to use a calculator effectively • 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	Prior learning that pupils need 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 New learning of area under a curve is introduced and this follows learning at KS3 of areas of trapeziums and other shapes. Equations of circles develops

		• General formulae for SDT, FPA, DMV					further algebraic manipulation and also links to tangents of circles.