Year 9 Maths Foundation

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic (s)	**NUMBER 6 ALGEBRA 4 Chapter 1/2**	**ALGEBRA 5 Chapters 3/4**	**RATIO 3 Chapters 5/6**	**GEOMETRY 4 Chapters 7/8/9**	**GEOMETRY 5 Chapters 10/11**	**STATISTICS 3 Chapters 12/13**
Topic Objectives	Develop confidence with Factors, Multiples, Primes, HCF and LCM. Be able to use prime factorisation. Write numbers using standard form notation and use to solve problems Add, subtract, expand and factorise linear expressions	Solve linear equations and manipulate formulae. Plot cartesian coordinates in 2D and extend into graphs of linear functions. Use and find gradients and intercepts of linear functions.	Review basic Ratio and then develop Direct and Inverse Proportion including graphs, Calculation involving Ratio, Rates and Speed, Exchange Rates and Simple Interest	Consolidate and develop 2D Shape: Angle calculation with properties of triangles, quadrilaterals and polygons. Construct shapes. Identify and use congruency.	Enlarge and reduce shapes Use scale factor to calculate sides and angles in similar shapes Identify the Hypotenuse, Adjacent and Opposite sides of a right-angled triangle Use Pythagoras' Theorem to solve problems. Calculate Trig values and use Trigonometry to calculate unknown angles and sides.	Understand and calculate averages for ungrouped data Calculate mean for grouped data Make comparisons between sets of data Understand probability and associated terms. Find the probability of a single event and list outcomes. Draw and use Venn diagrams

Acquired Knowledge / Skills	• Find HCF and LCM for up to 3 integers • Write a composite number as a product of primes using index notation • Understand what an index represents and use negative powers for reciprocals • Add and subtract linear expressions • Expand and simplify linear expressions • Expand the product of linear expressions • Factorise by finding common factors	• Solve linear equations with one variable including examples with the variable on both sides • Solve equations including those with brackets • Change the subject of a formula and use to find an unknown variable • Cartesian coordinates in 2D • Draw the graph of a linear function given a table of values • Identify and interpret the gradient • Recognise and draw functions in the form y=mx+c • Graphs of quadratics given a table of values	• Write ratios as fractions (simplify) • Understand the ideas of direct and inverse proportion • Solve problems involving proportion • Link rate to expressing 1 quantity per unit of another • Convert money using exchange rates • Calculate simple interest using percentages • Understand and calculate speed and average speed	• Classify different types of triangles, quadrilaterals and polygons • Explore the properties of different types of triangles, quadrilaterals and polygons • Calculate unknown angles in triangles, quadrilaterals and polygons • Construct triangles SSS, SAS and ASA • Construct perpendicular lines from/through point • Construct perpendicular and angle bisectors • Translate, reflect and rotate shapes • Identify and use congruence	• Enlarge and reduce by a scale factor • Find the sides and angles of similar shapes • Identify the hypotenuse and use Pythagoras's Theorem to calculate unknown sides in any right-angled triangle • Recognise the relationships between 2 sides and 1 acute angle of a right-angled triangle • Find unknown sides and angles in right-angled triangles	• List data in order and calculate mean, median, mode and range • Discuss the advantages of each • Calculate the mean of data in a frequency table • Make comparisons between sets of data • Define probability using terms and numbers • Used a sample space diagram to list outcomes • Represent sets on a Venn diagram and use to calculate the probability

		• Interpret real life non-linear graphs				
Target Vocabulary	Integer Factor Multiple Prime Product Index Indices Simplify Expand Factorise	Solve Coordinate Function Axes Intercept Gradient Quadratic Reciprocal	Ratio Equivalent Proportion Function Inverse Rate Speed Exchange Rate Interest	Angle sum Polygon Bisect Construct Perpendicular Adjacent Parallel	Enlarge Scale factor Congruent Similar Square Root Hypotenuse Opposite Adjacent Pythagoras Trigonometry Inverse Sine Cosine Tangent	Mean Median Mode Range Frequency Certain Impossible Likely / Unlikely Evens Sets Venn diagram
Assessment		**DECEMBER ASSESSMENT 7** 4 levels of assessment Crossover questions between each		**APRIL ASSESSMENT 8** 4 levels of assessment Crossover questions between each		**JULY ASSESSMENT 9** 4 levels of assessment Crossover questions between each

Year 9 Maths Higher

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic (s)	NUMBER 6 RATIO 3 CHAPTERS 1/2	ALGEBRA 5 CHAPTERS 3/4	GEOMETRY 4 CHAPTERS 5/6/7	GEOMETRY 5 CHAPTERS 8/9	GEOMETRY 6 STATISITICS 3 CHAPTERS 10/11	STATISITICS 4 CHAPTERS 12
Topic Objectives	Review and develop laws of positive including negative indices and standard form Review ratio and then develop direct and inverse proportion to solve problems	Solve linear equations and manipulate formulae. Solve simultaneous linear equations graphically and algebraically. Factorise linear and manipulate quadratics (expand). Expand 2 brackets and develop into manipulating, graphing and factorising quadratic expressions Interpret and draw, exponential, reciprocal and distance-time graphs	Review and develop constructing with a compass and ruler. State and apply Pythagoras' Theorem. State and use the rules of congruency in triangles	Use the concepts of congruency and similarity to solve problems. Enlarge using scale factor and interpret scale drawings State and use Trigonometric ratios to find unknown sides and angles Measure, calculate and solve problems involving bearings	Develop visualising and calculating the surface areas and volumes of pyramids, cones and composite solids. Review frequency tables and charts Develop calculations involving mean, median, mode and range Make comparisons between sets of data	Review and develop understanding and use of probability for a single event. Use sample space diagrams. Use addition for mutually exclusive events Use Set language and notation and draw and use Venn Diagrams to find probabilities **Extend** into tree diagrams
Acquired Knowledge / Skills	• Know and understand the definition a^n and use the 5 laws of indices	• Rearrange formula to change subject • Draw the graph of a linear equation	• Construct perpendicular and angle bisectors • Construct perpendicular	• Know and use the congruency rules: SSS, SAS, ASA, RHS	• Know and use the surface area formulae for cones and pyramids	• Use terms and definitions linked to probability • Understand the basics of stating

	• Simplify an expression involving indices • State and apply the definitions of negative and zero indices • Express, compare and calculate using numbers in standard form • Understand and use direct and inverse proportion (graph, table or equation) • Solve practical problems using proportion	• Solve simultaneous equations using graphs, substitution and elimination • Factorise by extracting common factors • Expand the product of expressions • Factorise ax^2+bx+c • Know special products and factorise using • Draw and interpret graphs for constant rates of change • Draw and interpret graphs of quadratic functions • Draw Exponential, Reciprocal and piece wise graphs	lines from and through a point P • Construct triangles and quadrilaterals • Use and apply Pythagoras' theorem to solve problems involving right angled triangles • Apply the converse of Pythagoras' theorem • Link perpendicular distance as the shortest distance to a line • Know and use the congruency rules: SSS, SAS, ASA, RHS	• Use similarity rules to calculate missing sides in polygons • Use a scale factor for enlargement and link to scale drawings • Know and use SOHCAHTOA to calculate sides and angles in right angled triangles • Use the 8-point compass • Describe and draw a direction using a 3-figure bearing	• Know and use the volume formulae for cones and pyramids • Solve problems involving surface area and volumes of composite solids including prisms, cylinders, cones and pyramids • Understand and use the mean, median, mode and range for ungrouped data • Calculate the mean of grouped data • Make comparisons between sets of data	the probability of an event • Know and use the fact that 2 event are mutually exclusive if they cannot occur at the same time • Understand addition of probabilities • Draw sample space diagrams for two events and link to a tree diagram • Describe Sets and subsets using correct notation and link to Venn diagrams
Target Vocabulary	Positive Negative Index Indices Power Proportion Inverse	Rearrange Simultaneous Factorise Expand Quadratic Reciprocal Exponential	Perpendicular Bisector Construct Hypotenuse Root	Congruent, Similar Scale, Scale factor Trigonometric ratio Opposite, Adjacent, Hypotenuse Compass, Bearing	Face, Surface Circumference Area, Volume Cone, Pyramid, Prism Mean, Median, Mode,	Chance Probability Event Outcome Set, Intersection, Union Venn diagram

					Range Frequency	
Assessment		**DECEMBER ASSESSMENT 7** 4 levels, with crossover questions between each		**APRIL ASSESSMENT 8** 4 levels, with crossover questions between each		**JULY ASSESSMENT 9** 4 levels, with crossover questions between each