The Radclyffe School
"Working Together for Excellence"

Long term Plan September 2025 - 2026

Vision: Mathematics is a creative, highly valued and inter-connected discipline. It is essential to everyday life, is necessary for almost all forms of employment and is critical to additional subjects such as science and geography. Our knowledge-rich curriculum is carefully planned and sequenced to allow progression for all students, regardless of their starting point. The accessibility it provides allows a foundation for understanding the world around us, permits opportunities to reason mathematically, and facilitates an appreciation of the intense power of mathematics; ultimately resulting in enjoyment, curiosity and passion for this beautiful subject.

	HT1 (8 weeks)	HT2 (7 weeks)	HT3 (6 weeks)	HT4 (5 weeks)	HT5 (6 weeks)	HT6 (7 weeks)	Threshold concepts
Year 10							• Interpretation of the straight-line equation • Equivalency of ratio, proportion and measures • Applying and describing transformations; including on a cartesian grid • Area and circumference of circle proportions • Angles in parallel lines, polygons, and angles with algebra. • Data and probability representations and calculations with Venn and tree diagrams, box plots and histograms • Compound measures and proportionality • Missing lengths and angles of right-angled triangles. Sine and Cosine rule for non right-angled triangles. • Constructions, loci, regions and bearings • Quadratic and cubic equations and graphs • Forming and solving simultaneous equations • Geometric proof, similarity and congruence • Equations and inequalities: sequence generation

11H (set 1 & 2)	<u>HIGHER</u> Ratio and proportion (2) Area and volume (2) (inc cones and spheres and frustums- set 1 only) set 2 can do later in the year if mastered everything else Gradients and lines/non-linear graphs/using graphs (3) * Expanding and factorising/changing the subject (1) Recap angles/pythag/trig/ststandard form in core skills	<u>HIGHER</u> Expanding and factorising/changing the subject <u>(1)</u> Sequences and proof (1)* Proof set 1 only PPEs (2) Equations and formulae (2) Transformations inc neg,fractional (1) MAD TIME FROM THE PPES Recap rates during core skills	<u>HIGHER</u> Probability (1.5)** Functions and graphs (1.5) ** set 2 slightly edited version that includes venn diagram and set notation Rates (1) PPEs (2)	<u>HIGHER</u> Constructions and loci (1) Circle theorems (1) set 1 Vectors (1) set 1 Personalised plans based on the PPES	<u>HIGHER</u> Personalised plans based on the PPES		• Manipulation of fractions • Conversions/calculations with standard form • Apply the basic laws of indices • Constructions, loci and bearings • Apply properties of congruence and similarity to find unknown side lengths and angles • Connections between enlargement and similarity • Solve simultaneous equations both algebraically and graphically • Rearranging equations • Surds, functions and proof • Vector notation and arithmetic • Direct and inverse proportion • Transformation of graphs • Circle theorems

Year 11F	<u>FOUNDATION</u> Ratio and proportion (2) Area,perimeter and volume (2) Linear graphs, gradients and lines/ /using graphs (2) Exp and factorising/changing the subject (2) *(bring in shape revision with algebra) (PPE prep final week woven in) Recap angles in core skills and bearings as done in year 10*** Recap pythagoras and trig in core skills *** Recap congruence aanad similarity	<u>FOUNDATION</u> (PPE prep woven in) Sequences and proof (1) Equations, inequalities and formulae (1) (bring in shape revision with algebra) PPEs (2) Equations, inequalities and formulae (1) Work with circles inc cylinders (1) ** recap which is why condensed to 1 week Standard form (1) MAD TIME from PPEs built in	<u>FOUNDATION</u> Do Nows/home learning based on QLA from PPEs Transformations (2) Rates (1) Venn diagrams and set notation (1) PPES (2 weeks)	<u>FOUNDATION</u> Non-linear graphs (1.5)* set 3 only Constructions and loci (1.5) MAD TIME from PPEs Personalised medium term plans based on PPE results (2)	<u>FOUNDATION</u> Personalised medium term plans/ GCSE prep (3) GCSE begins (week 4		HYBRID SCHEME - Guidance says to use V3 - V2 not fit for purpose - Context of our students and where they are currently - PPEs being brought forward Looked aat guidance- tells you what can be omitted but doesn't for example include things that we will need to revise EG probability Added few things in from V2 Also added probability- This will need changing next year - Incorporating some topics that can be ommited in the core skills

Curriculum Intent

Year 7	Year 8	Year 9	Year 10	Year 11
By the end of Year 7 students are able to … Use their knowledge of the number system to assess how we can compare, order, estimate and round positive and negative numbers to make their use appropriate to the context in which they are being used. They will understand how fractions, decimals and percentages are interchangeable and equivalent to each other, and therefore allow for fluidity between the forms. Interleaved areas which use these important number skills will have been explored to demonstrate the interconnectedness of the concepts.	By the end of Year 8 students are able to … They have extended their knowledge of the number system by exploring how numbers can not be presented in also in standard form. They understand the purpose and importance of this, for example in Science with calculations in the Solar System (distance of / mass of a planet). Standard form has also developed to use conversion knowledge to compare and order numbers in standard form, and perform calculations both with and without a calculator. Percentages have developed to evaluate increases and	By the end of Year 9 students are able to … By the end of Year 9 students are able to … Build on Year 8 content where students plotted simple straight-line graphs. They will now be able to understand the meaning of m (gradient) and c (y-intercept) in the standard format of the equation of a straight line given by y=mx + c. Students will develop further understanding of solving linear equations and inequalities.	By the end of 10 students are able to … Divide a quantity into 2 or 3 parts given a ratio. They understand proportionality, and can use their knowledge to work out missing values of ingredients. Percentage change and profit have been explored to provide an understanding of the impact of percentage calculations. Building on the work from previous years they can work out areas of semi-circles and quarter of circles, and are able to use different methods to calculate shaded areas. Students	By the end of Year 11 students are able to … Algebraic terms are manipulated through the application of the laws of indices. Standard form is revisited and applied to complex calculations. Investigation of comparative shapes has allowed students to understand the difference between Congruency and Similarity. They recognise the rules associated with congruency and learn how to use scale factors to find missing sides in similar shapes. The link between scale factor and area/volume in

Constructing triangles with mathematical equipment will have allowed students to draw upon their KS2 knowledge of identification and classification of angles, triangles, quadrilaterals and polygons. They will know how to correctly label lines and angles for identification, and be able to calculate missing angles in problems. Venn diagrams will have been explored as a representation of data, with their function and the associated notation used. They will be able to interpret and calculate probabilities, using the correct terminology. Explore and compare numerical and graphical forms of sequences. They can make connections between pictorial and numerical sequences and investigate how patterns could progress. Algebraic notation, forming equations, solving and substitution are introduced – concepts they have not seen at KS2 – and they are shown how algebra allows us to find solutions to many problems.	decreases, and express numbers as percentages of each other. They will develop understanding of angle geometry and be able to calculate interior and exterior angles of polygons such as triangles and quadrilaterals. They will be able to find angles in parallel lines and prove geometric facts. Calculations of area will be extended from Year 6 to more complex 2D shapes such as trapezia, circles and compound shapes. Students can make links between direct proportion and straight-line equations and graphs - with the plotting, and interpretation of, straight line equations and graphs having been studied in depth. They can analyse the manipulation of both ratio and fractions with regards to their notation, simplification and links to multiplication. Students have investigated the most appropriate form for data sets, are able to interpret the information and can calculate probabilities. Data representation develops through drawing and interpreting comparative and composite data in bar charts. Fluently applying prior knowledge allows for the development now of comparative writing skills. Scatter graphs are carefully analysed, interpreted and plotted. This skill is transferrable to other subjects such as science and geography, which allows students to see the inter-connectedness of mathematics with other subject areas. Building upon the knowledge acquired in Y7, students have investigated the representation of equivalent expressions in expanded and factorised forms. They have combined their knowledge of concepts to solve equations involving brackets. They have applied their knowledge to inequalities, and can discuss the difference between inequalities and equations. The sequences studied have now introduced brackets and squared terms.	They will be able to reason through testing conjectures regarding patterns and relationships. They will develop understanding of identifying properties and names of 2-Dimensional and 3-Dimensional shapes as well as applying formulae to calculate and solve problems related to these shapes. They will be able to use Mathematical tools to construct accurate drawings. Students will develop their knowledge of the number system to include rational and real numbers. They will be able to use the 4 operations with integers, decimals and fractions and percentages. They will be able to strengthen their knowledge on standard form, the use of it as well as converting between ordinary numbers and standard form. Building on their learning of fractions in Year 8, students will look at 'reverse' percentage problems with and without calculators. The language of financial Mathematics, already introduced in Y7 and Y8 is further developed within various financial contexts. Students will extend their knowledge of angles rules and properties of shapes through solving angle-related problems which include algebra. Building on their study of line symmetry and reflection in Y8, students will now be able to rotate and translate shapes. Students will also be able to apply and use Pythagoras' Theorem to solve problems involving right-angled triangles. Students develop their knowledge of transformations to now include constructing similar shapes by enlargement. They will be able to solve ratio problems and make the links with direct proportion and graphs. Students will be able to use compound units such as speed, unit pricing and density to solve problems. Building upon knowledge acquired in Y7 and Y8 related to probability of single and combined events, students will now calculate frequency and expected outcomes of events.	develop their knowledge from Y9 to calculate the volume and surface area of cylinders and cones. Problems using compound measures are also explored with the opportunity to transfer their knowledge of speed, density and pressure to science subjects. Students will solve a range of equations including those with brackets and unknowns on both sides. This leads to solving inequalities, and representing them on a number line. Graphs of quadratic functions allows students to apply their skills of substitution and plotting coordinates. Identification of turning points, and maximum/minimum points deepens their understanding of such graphs. The skill of plotting co-ordinates is further developed through learning how to located the midpoint, first graphically and later without the graph. Problems involving right angled triangles are explored, with students learning how to use Pythagoras and Trigonometry as appropriate.	similar shapes is explored and applied. It is here that students deepen their understanding of the relationship between a scale factor and the unit of measure to which it is applied. Column vectors are introduced and linked with translation. They are able to apply and interpret vector geometry, and can add and subtract vectors as required. Students revisit key topics and recall facts, and practice problem solving in preparation for PPEs and final GCSE exam.

		Students extend their knowledge of graphs to look at interpretation and creation of different graphs i.e. quadratic graphs.		

*- indicates change to WR scheme published

Key

Yellow- change in the order for the Half Term

Blue- Addition (put back in from last half term)