CURIOSITY COMPASSION COURAGE

Academic outline 2024-25

Mathematics						
	Term 1 Aug-Oct	Term 2 Nov-Dec	Term 3 Jan-Feb	Term 4 Mar-Apr	Term 5 Apr-May	Term 6 Jun-Jul
Year 7:	Sequences Algebraic Notation Equality and Equivalence Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2	Place Value and Ordering Numbers FDP equivalence Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2	Solving Problems with Addition/Subtraction Solving Problems with Multiplication/Division Fractions and Percentages of Amounts Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2 Oak Academy link 3 Oak Academy link 4	Operations and Equations with Directed Numbers Addition and Subtraction of Fractions Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2	Constructing, Measuring and Using Geometric Notation Developing Geometric Reasoning Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2	Developing Number Sense Sets and Probability Prime Numbers and Proof Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2
Year 8:	Ratio and Scale Multiplicative Change Multiplying and dividing fractions Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2 Oak Academy link 3	Working in the Cartesian plane Representing data Tables and probability Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2 Oak Academy link 3	Brackets, equations and inequalities Sequences Indices Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2 Oak Academy link 3	Fractions and Percentages Standard Index Form Number Sense Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2 Oak Academy link 3	Angles in parallel lines and polygons Area of trapezia and circles Line symmetry and reflection Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2 Oak Academy link 3	The Data Handling Cycle Measures of Location Home Learning | White Rose Maths Oak Academy Link 1

CURIOSITY COMPASSION COURAGE

Year 9:	Straight line graphs Forming and solving equations Testing Conjectures Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2 Oak Academy link 3	Three-dimensional shapes Constructions and Congruency Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2	Numbers Using percentages Maths and Money Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2 Oak Academy link 3	Deduction Rotation and Translation Pythagoras Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2 Oak Academy link 3	Enlargement and Similarity Solving ratio and proportion problems Rates Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2 Oak Academy link 3	Probability Algebraic representation Revision Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2
Year 10 : GCSE HIGHER	Representing solutions of equations & inequalities Simultaneous Equation Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2	Congruence, similarity & enlargement Trigonometry Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2 Oak Academy link 3 Oak Academy link 4	Angles and Bearings Working with circles Vectors Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2 Oak Academy link 3 Oak Academy link 4	Ratios & Fractions Percentages & Interest Probability Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2 Oak Academy link 3	Delving into data Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2	Non-calculator methods Types of Number and sequences Indices & Roots Home Learning | White Rose Maths Oak Academy link 1 Oak Academy link 2 Oak Academy link 3
Year 10: GCSE FOUNDATION	Decimals and Fractions Expressions and Formulae Linear Equations Oak Academy link 1 Oak Academy link 2	Approximations Ratio, Speed and Proportion Angles Oak Academy link 1 Oak Academy link 2 Oak Academy link 3	Perimeter and Area Transformations Linear Graphs Oak Academy link 1 Oak Academy link 2 Oak Academy link 3	Volumes and Surface Areas of Prisms & Curved Shapes and Pyramids Charts, Tables and Averages Oak Academy link 1 Oak Academy link 2	Number and Sequences Linear Inequalities Probability and Events Oak Academy link 1 Oak Academy link 2 Oak Academy link 3	Pythagoras' Theorem Measures and Scale Drawings Oak Academy link 1 Oak Academy link 2

		Oak Academy link 4				
Year 11: GCSE HIGHER	Graphs Oak Academy link 1 Oak Academy link 2 Oak Academy link 3 Oak Academy link 4 Oak Academy link 5	Algebra Oak Academy link 1 Oak Academy link 2 Oak Academy link 3 Oak Academy link 4	Reasoning Oak Academy link 1 Oak Academy link 2 Oak Academy link 3 Oak Academy link 4	Revision and Communication Oak Academy link 1 Oak Academy link 2 Oak Academy link 3 Oak Academy link 4	Revision	Exams
Year 11: GCSE FOUNDATION	Simultaneous Equations Percentages and Compound Measures Percentages and Variation Oak Academy link 1 Oak Academy link 2	Powers and Standard Form Quadratics Representation and Interpretation Oak Academy link 1 Oak Academy link 2 Oak Academy link 3	Non linear graphs Combined Events Constructions and Loci Congruence and Similarity Vectors Oak Academy link 1 Oak Academy link 2 Oak Academy link 3 Oak Academy link 4 Oak Academy link 5	Right angled triangles Revision Oak Academy link 1	Revision	Exams

CURIOSITY COMPASSION COURAGE

Curriculum overview

Subject	Mathematics	Year group	11H
Vision statement:	At Landau Forte our curriculum exists to ensure all students regardless of background and ability have the opportunity to unlock their potential. We are committed to students being challenged from their previous key stage learning experiences. Our broad and balanced curriculum is ambitious, coherently planned and sequenced, and will provide the platform for preparing students with the foundations for examination success. Our Curriculum Intent has been informed by a wide variety of researchers and is steeped in evidence based research. Christine Counsell summarises the aspiration of our curriculum to empower all learners creating a pathway to success in university, their career and life: *'A curriculum exists to change the pupil, to give the pupil new power. One acid test for a curriculum is whether it enables even lower attaining or disadvantaged pupils to clamber into the discourse and practices of educated people, so that they gain powers of the powerful.'* As well as excellent academic success we aim to ensure our students leave us as polite and well-rounded young adults. Our new core values of Compassion, Courage and Curiosity are currently being embedded throughout our curriculum offer to ensure we continue to meet our social, emotional, spiritual and moral obligations.		
Curriculum intent:	All students acquire the mathematical life skills necessary for the world of work, no matter what their starting point is, catering for all abilities and backgrounds. We have a strong belief that all students can achieve in Maths. Students will be taught to have a firm understanding of number bonds and be confident in using non-calculator strategies for solving problems. Students will be stretched and challenged through problem solving tasks to develop resilience. Students are encouraged to show courage through attempting questions in environment where other students show compassion through a culture of being non-judgmental when questions are answered incorrectly. Students are also encouraged to show curiosity through asking questions and taking a genuine interest in the real life applications of the Maths that they are learning. This will be achieved by staff working together in planning lessons that allow ALL students to achieve/ exceed their potential through: Common lesson planning formats; Expert knowledge of the subject; Differentiated material; Regular use of AfL to assess progress in a lesson; Regular use of formal marking and feedback; Regular summative assessments to ensure appropriate progress and intervention.		
Threshold Concepts (TCs):	TC1 Algebraic manipulation - This concept involves recognising mathematical properties and relationships using symbolic representation TC2 Number sense - This concept involves understanding the number system and how they are used in a wide variety of mathematical ways TC3 Shape facts - This concept involves recognising the names and properties of geometry shapes and angles. TC4 Multiplicative reasoning - This concept involves using ratio and proportion and understanding of reciprocals in real world applications TC5 Representing and interpreting data - This concept involves interpreting, manipulating and presenting data in various ways. TC6 Calculator skills - This concept involves fluent application of mathematical operations on a scientific calculator TC7 Understanding and calculating risk - This concept involves knowing the rules of probability in the correct context		

KS2 National Curriculum summary:	The curriculum ensures that all pupils around England get the essential knowledge they need to become educated citizens. So, it doesn't matter which school or area children are studying at - they will develop the same fundamental maths skills. Included in this frame of work are curriculum aims, which pupils need to meet at the end of each school year. Children who want to expand their knowledge even further will get the opportunity to do so. But essentially, they will all start from basics by learning about the key topic areas covered in the national curriculum for KS2 maths. The eight main maths areas, which are included in the national curriculum for maths throughout KS2 are: • Number - Number and Place Value • Number - Addition and Subtraction • Number - Multiplication and Division • Number - Fractions • Measurement • Geometry - Properties of Shape • Geometry - Position and Direction (not included in year 3) • Statistics As pupils get to year 6, they would have developed a deep understanding of these maths concepts. That's why two additional topic areas are introduced to the curriculum, which are: • Ratio and Proportion • Year 6 Algebra

CURIOSITY COMPASSION COURAGE

Learner skills:	Critical thinking  	Organisation  	Collaboration  	Adaptability  	Oracy  	Self-quizzing 
	Term 1 Aug-Oct	Term 2 Nov-Dec	Term 3 Jan-Feb	Term 4 Mar-Apr	Term 5 Apr-May	Term 6 Jun-Jul
The Big Question						
Big picture questions:	How can you find the equation of a perpendicular line? How can we use our knowledge of types of graphs to solve problems? How can we use our knowledge of graphs to solve real life problems?	What is the most efficient way to solve an equation? How can we use algebraic techniques to solve problems? What different ways can we work with functions?	How can you use the concept of proportion in Maths? What are the main circle theorems? What is meant by algebraic proof?	How can you apply transformations to graphs? How can you compare distributions? How can you show a Mathematical proof?		
Content (Linked to TCs):	TC1 Algebraic manipulation TC4 Multiplicative reasoning • Gradients and lines • Non-linear graphs • Using graphs	TC1 Algebraic manipulation • Expanding and factorising • Changing the subject • Functions	TC1 Algebraic manipulation TC3 Shape facts TC4 Multiplicative reasoning • Multiplicative reasoning • Geometric reasoning • Algebraic reasoning	TC2 Number sense TC3 Shape facts TC4 Multiplicative reasoning TC5 Representing and interpreting data • Transforming and constructing • Listing and describing • Show that	Revision	Exams

Key vocabulary:	Gradient: the steepness of a line Intercept: where two lines cross. The y-intercept: where the line meets the y-axis. Parallel: two lines that never meet with the same gradient. Co-ordinate: a set of values that show an exact position on a graph. Linear: linear graphs (straight line) – linear common difference by addition/ subtraction Asymptote: a straight line that a graph will never meet. Reciprocal: a pair of numbers that multiply together to give 1. Perpendicular: two lines that meet at a right angle Parabola: The shape of a quadratic graph Asymptote: A straight line that continually	Expand, factorise, function, inverse, composite	Ratio, share, simplify, parallel, proof	Construct, translation, rotation, reflection, enlargement, congruent, similar		

	approaches a given curve but does not meet it Infinity: Increases without a bound Exponential: Rate of increase becomes quicker and quicker as the thing that increases becomes larger Tangent: A straight line or plane that touches a curve or curved surface at a point, but if extended does not cross it at that point Direct proportion: The relation between quantities whose ratio is constant Inverse proportion: This occurs when one value increases and the other decreases Distance/time graph: A graphical representation of how far an object or person has travelled against time Acceleration: Increase in speed or rate					

	Deceleration: Reduction in speed or rate					
Assessment:	KLT 1 (Past paper)	PPE (3 papers)		PPE (3 Papers) KLT 2 (Past paper)		
Key/Historical misconceptions in this unit:	Joining points up on a quadratic graph with straight lines rather a smooth curve	When changing the subject ensure signs are considered	Listing outcomes rather than proving algebraically	Using multiple transformations rather than just a single transformation		
Sequencing:	We have chosen to sequence the year 11 curriculum like this because it reviews all of the GCSE topics required for their exams. Starting with core foundations of algebra which stretches through all topics. Then through the basic number work that is required in both the non-calculator and calculator papers. Students are then stretched through a range of topics that rely on these foundations to be strong.					
Values	This scheme of work promotes the school values of Compassion, Curiosity and Courage by: Compassion - Students show compassion through a culture of being non-judgmental when questions are answered incorrectly. Curiosity - Students are encouraged to show curiosity through asking questions and taking a genuine interest in the real life applications of the Maths that they are learning. Courage - Students are encouraged to show courage through attempting questions					
National Curriculum plus:	In addition to teaching the statutory elements of the national curriculum, we also include opportunities to extend their learning beyond the classroom. For example practical examples and going further than the curriculum in terms of what they are expected to know from a financial literacy perspective. Preparation of students to take Level 2 further maths in support of achieving additional qualifications, higher grades in their normal GCSE maths and in preparation for A-level maths: • Rationalisation of surds using difference of 2 squares • Domains and ranges of functions • Expanding triple brackets					

	• Binomial expansion • Factor theorem • Advanced algebraic fractions • Sketching functions and interpreting graphs • Transformations of functions • Trig identities • Algebraic proof • Limiting values of sequences and expressions • Equations of circles not centred on the origin • Differentiation • Matrices • Matrix transformations • Geometric proof