



CURIOSITY

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Recovery curriculum outline 2022-23

	Mathematics
	Term 6 Jun-Jul
Year 7:	Developing Number Sense Sets and Probability Prime Numbers and Proof Home Learning White Rose Maths
Year 8:	The Data Handling Cycle Measures of Location Home Learning White Rose Maths
Year 9:	Probability Algebraic representation Revision Home Learning White Rose Maths
Year 10: GCSE	Non-calculator methods Types of Number and sequences Indices & Roots Home Learning White Rose Maths



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Curriculum overview

Subject	Mathematics	Year group	10
Vision statement:	<p>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.</p> <p>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:</p> <p><i>'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.'</i></p> <p>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.</p>		
Curriculum intent:	<p>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.</p> <p>Students will be taught to have a firm understanding of number bonds and be confident in using non-calculator strategies for solving problems.</p> <p>Students will be stretched and challenged through problem solving tasks to develop resilience.</p> <p>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.</p> <p>This will be achieved by staff working together in planning lessons that allow ALL students to achieve/ exceed their potential through:</p> <p>Common lesson planning formats; Expert knowledge of the subject; Differentiated material;</p> <p>Regular use of AfL to assess progress in a lesson; Regular use of formal marking and feedback;</p> <p>Regular summative assessments to ensure appropriate progress and intervention.</p>		
Threshold Concepts (TCs):	<p>TC1 Algebraic manipulation - This concept involves recognising mathematical properties and relationships using symbolic representation</p> <p>TC2 Number sense - This concept involves understanding the number system and how they are used in a wide variety of mathematical ways</p> <p>TC3 Shape facts - This concept involves recognising the names and properties of geometry shapes and angles.</p> <p>TC4 Multiplicative reasoning - This concept involves using ratio and proportion and understanding of reciprocals in real world applications</p> <p>TC5 Representing and interpreting data - This concept involves interpreting, manipulating and presenting data in various ways.</p> <p>TC6 Calculator skills - This concept involves fluent application of mathematical operations on a scientific calculator</p> <p>TC7 Understanding and calculating risk - This concept involves knowing the rules of probability in the correct context</p>		



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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









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Learner skills:	<div style="display: flex; justify-content: space-around; text-align: center;"> <div style="width: 15%;"> <p>Critical thinking</p>  <p>CRITICAL THINKING</p> </div> <div style="width: 15%;"> <p>Organisation</p>  <p>ORGANISATION</p> </div> <div style="width: 15%;"> <p>Collaboration</p>  <p>COLLABORATION</p> </div> <div style="width: 15%;"> <p>Adaptability</p>  <p>ADAPTABILITY</p> </div> <div style="width: 15%;"> <p>Oracy</p>  <p>ORACY</p> </div> <div style="width: 15%;"> <p>Self-quizzing</p>  <p>SELF QUIZZING</p> </div> </div>
	Term 6 Jun-Jul
The Big Question	
Big picture questions:	How does rounding keep us safe?
Content (Linked to TCs):	<p>TC1 - Algebraic manipulation</p> <p>TC2 - Number sense</p> <ul style="list-style-type: none"> • Review - Mental/written methods of integer/decimal addition and subtraction • Review - Mental/written methods of integer/decimal multiplication and division • Review - The four rules of fraction arithmetic • Exact answers • H - Rational and irrational numbers (convert recurring decimals here) • H - Understand and use surds • H - Calculate with surds • Review - Rounding to decimal places and significant figures • Review - Estimating answers to calculations • Understand and use limits of accuracy • H - Upper and lower bounds • Use number sense • Solve financial maths problems • Break down and solve multi-step problems • Review - Understand the difference between factors and multiples • Review - Understand primes and express a number as a product of its prime factors • Review - Find the HCF and LCM of a set of numbers • Describe and continue arithmetic and geometric sequences



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	<ul style="list-style-type: none">• Explore other sequences• H - Describe and continue sequences involving surds• Review - Find the rule for the nth term of a linear sequence• H - Find the rule for the nth term of quadratic sequence• Review - Square and cube numbers• Calculate higher powers and roots• Review - Powers of ten and standard form• Review - The addition and subtraction rules for indices• Understand and use the power zero and negative indices• Work with powers of powers• H - Understand and use fractional indices• Review - Calculate with numbers in standard form
Vocabulary Instruction:	Sequences, indices, surds, bounds, rational, irrational.
Assessment:	Topic Assessments Summative Assessment 2
Key/Historical misconceptions in this unit:	<ul style="list-style-type: none">• Not knowing their square numbers making it difficult to simplify surds• $2^3 \neq 2 \times 3$ and $2^{-3} \neq -8$• Recognise fractional indices are roots
Sequencing:	We have chosen to sequence the Year 10 Recovery Curriculum like this because students are able to build on their knowledge from previous years and extend and deepen their understanding of the concepts. Regular revisiting of topics which would have been covered in previous years in the four to start allows for any gaps to be identified and addressed.



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Values	<p>This scheme of work promotes the school values of Compassion, Curiosity and Courage by:</p> <p>Compassion - Students show compassion through a culture of being non-judgmental when questions are answered incorrectly.</p> <p>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.</p> <p>Courage - Students are encouraged to show courage through attempting questions</p>
National Curriculum plus:	<p>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.</p> <p>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:</p> <ul style="list-style-type: none">• 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