



CURIOSITY

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Recovery curriculum outline 2022-23

		Computing
		Term 6 Jun-Jul
Year 7:	Networks Oak academy lessons 1-6	
Year 8:	Media - vector graphics Oak academy lessons 1-5	
Year 9:	Media - vector graphics Oak academy lessons 1-5	
Year 10: GCSE	P1 - Programming: Working with data Oak academy lessons 3-6 P2 - Computing issues Oak academy lessons 1-7	
Year 10: BTEC IT	Comp 2: LAA Investigating use of data Mr Aliz Class - LAA	



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Curriculum overview

Subject	Computing	Year group	8
<p>Vision statement:</p>	<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>		
<p>Curriculum intent:</p>	<p>Computing will be central to everything students do in their future lives. This subject gives students the opportunity to utilise technology to enhance the way they live and work. It will also be used as a lens to develop their understanding of the world around them.</p> <p><i>In essence, computing should be seen as an underpinning subject that facilitates new learning and thinking in all other areas. The computer should be a tool that pupils use in the same way as a calculator or a pen.</i></p> <p>As outlined within the National Curriculum: “A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science and design and technology, and provides insights into both natural and artificial systems.”</p> <p>The core of computing is computer science, in which students are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming.</p> <p>Building on this knowledge and understanding, students are equipped to use information technology to create programs, systems and a range of content.</p> <p>Computing also ensures that students become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world. The need to use technology with care and compassion should be considered throughout all lessons.</p>		



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Threshold Concepts (TCs):	<ol style="list-style-type: none"> 1. We count in tens as it is convenient for us using our hands; computers count in two's as it is convenient for them using switches 2. Computer programs change what they do based how they are used so we have to make programs where we don't know what information will be provided 3. Computers make it look like they are doing many things all at once when really they are doing one thing at a time very quickly 4. Solutions to problems in a computer require many repeated steps and we should find ways to shortcut this even if it requires more thought in the short-term 5. Drawing on a computer screen is like drawing on a 2D graph 6. Problems have usually been solved before (pattern recognition)
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KS2 National Curriculum summary:	<p>A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> • design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • use sequence, selection, and repetition in programs; work with variables and various forms of input and output • use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • understand computer networks, including the internet; how they can provide multiple services, such as the World Wide Web, and the opportunities they offer for communication and collaboration • use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information • use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact
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Learner skills:	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  CRITICAL THINKING </div> <div style="text-align: center;">  ORACY </div> <div style="text-align: center;">  COLLABORATION </div> <div style="text-align: center;">  SELF QUIZZING </div> <div style="text-align: center;">  ADAPTABILITY </div> <div style="text-align: center;">  ORGANISATION </div> </div>
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Term 6 Jun-Jul

The Big Question

Big picture questions:

How do computers draw?

Content (Linked to TCs):

TC5

- How to draw basic shapes with different properties
- How to manipulate individual objects
- How to manipulate groups of objects
- How to combine paths by applying operations
- How to convert objects to paths
- How to draw paths
- How to edit path nodes
- How to combine multiple tools and techniques to create a vector graphic design
- What vector graphics are
- Where using vector graphics would be appropriate
- How to peer assess project work
- How to improve project work based on feedback

Vocabulary Instruction:

Vector, raster, bitmap, paths, pixels, rectangle, ellipse, segment, arc, polygon, star, fill, stroke, select, move, resize, rotate, duplicate, flip, z-order, paths, operations, select, group, ungroup, align, distribute, union, difference, intersection, equidistant, object, node, freehand, path node, path segment, handles, monochrome, logo, illustration, icon, algorithms, formulae, scalable, svg (Scalable Vector Graphic)

Assessment:

Knowledge check
Topic test

Key/Historical misconceptions in this unit:

All drawing in a computer is done by hand.



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Sequencing:	We have chosen to sequence the year 8 curriculum like this because... All three aspects of computing, (digital literacy, IT, computer science,) need to be covered in equal measure to ensure a common baseline that cannot be assured with previous education settings. These topics represent the fundamentals for the rest of the students' time at QEMS and need to be in place at an early age. There is a focus this year on the specifics of how we get computers to do the things we want. We want students to understand that solving computer-based problems is a combination of lots of smaller, easier-to-solve problems. If the smaller problems are specific enough then it is likely that these solutions already exist in some form and the only challenge is to find them and join them back up together. The technicalities of how computers work are also explored at various points in the year and the reasons why they are done in the way that they are.
National Curriculum plus:	In addition to teaching the statutory elements of the national curriculum, we also include...(with justification to local context) Consideration throughout the year about how the topics we are covering are linked to what needs to be done in the wider world. There are many links to use of technology in jobs and lives and some of the activities, (such as building a mobile phone app,) are chosen to provide contexts with which learners will be familiar. We also explore how we utilise the Internet to catalogue and retrieve information so that learners are able to more easily find what they need using the knowledge of how it is found.