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Recovery curriculum outline 2022-23

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



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Curriculum overview

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Subject	Computing	Year group	7
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>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 present information for an audience, not ourselves, though what we present is a reflection on us in the real world2. Computer don't provide us with answers; we need to build models that help us explore answers3. Solutions to problems already exist – we just need to spot where this has happened before and adapt them, (pattern recognition and creating adapted algorithms)4. We can copy other peoples' work as long as we give credit from where we got it from5. One big problem is just lots of smaller, easier-to-solve problems, (decomposition)6. Your computer directly connects to another in any place in the world
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
Learner skills:	



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	Term 6 Jun-Jul
The Big Question	
Big picture questions:	How are all the computers in the world connected?
Content (Linked to TCs):	<p>TC6</p> <ul style="list-style-type: none">• What a computer network is and explain how data is transmitted between computers across networks• What a 'protocol' is and provide examples of non-networking protocols• What hardware is necessary for connecting devices on a network• How to compare wired to wireless connections and list examples of specific technologies currently used to implement such connections• What 'bandwidth' is• What the internet is• How data travels between computers across the internet• What the difference between the internet, its services, and the World Wide Web are• Different internet services and the context in which they are used• That 'connectivity' is the capacity for connected devices ('Internet of Things') to collect and share information about people with or without their knowledge (including microphones, cameras, and geolocation)• How internet-connected devices can affect people• What different network components are (servers, browsers, pages, HTTP and HTTPS protocols, etc.) and how they work together
Vocabulary Instruction:	Network, Hub, Server, Router, ISP, Protocol, Mainframe, personal, computer, stand-alone, HTTP, Wired, Wireless, 3G, 4G, 5G, WiFi, Bandwidth, Bit, megabit, Gigabit, Broadband, Buffering, Packet, IP, address, packet, header, payload, Transmission, Control, Protocol, Internet, Protocol, World, Wide, Web, WWW, internet, services, Email, Voice, over, Internet, Protocol, (VoIP), Internet, of, Things, (IoT), Spam, privacy, Security, web, browser, web, server, web, page, search, engine
Assessment:	Knowledge check Topic test Summative Assessment 2
Key/Historical misconceptions in this unit:	Wi-Fi means you are connected to the Internet. Your computer connects directly to the Internet.



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Sequencing:	<p>We have chosen to sequence the year 7 curriculum like this because...</p> <p>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 on considered use of technology right at the start of the year. We want students to recognise how to present themselves with confidence and compassion. There also needs to be an understanding of how computers know what to do and how we can use them to achieve tasks. The topic in the last term also serves as a bridge into next year revealing the complexities that lie beneath the surface of the black box we use.</p>
National Curriculum plus:	<p>In addition to teaching the statutory elements of the national curriculum, we also include</p> <p>Effective use of technology as a tool to aid learning. We consider how online tools can help us communicate and assist in our learning. We want students to be independent and open so that learning is never hindered. We focus on effective use of email and MS Teams to help students understand how technology can help throughout their lives.</p>