CURIOSITY COMPASSION COURAGE

Curriculum overview

Subject	BTEC Digital IT	Year group	11
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:	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. ***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.*** 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." 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. Building on this knowledge and understanding, students are equipped to use **information technology** to create programs, systems and a range of content. 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.		

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Threshold Concepts (TCs):	1. Information is data given context to make it useful 2. We don't need to know what the data is in order to make a decision about data 3. Finding information requires us to understand what specific data needs to be analysed 4. How we present findings can cause bias without us meaning to 5. All use of technology creates only benefits for the communicators 6. Training users is one of the most effective security measures we can take when securing computer networks 7. Increased use of digital systems can harm the environment 8. Computer systems transform data from a less useful form into a more useful one
KS2 National Curriculum summary:	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. Pupils should be taught to: • 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:	 CRITICAL THINKING  ORACY  COLLABORATION  SELF QUIZZING  ADAPTABILITY  ORGANISATION

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	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	**How can we make decisions with data?**					
Big picture questions:	**What is a data dashboard?**	**What causes bias in our information?**				
Content (Linked to TCs):	TC2, TC3 • How data can be imported from an external source • How to apply data processing methods • How to use a dashboard to select and display information summaries based on a given large data set	TC4 • How to draw conclusions on a data set • How to use a data dashboard in order to make recommendations • How to assess how well presentation features have been used • How to present information in a way that doesn't allow for misinterpretation, bias or inaccuracy	TC1/2/3/4 Finalisation of internal assessment project.			
Vocabulary Instruction:	Data processing, external, data manipulation, importing , formulae, decision-making , lookup, string operation, count, logical, sorting, outline, filtering, absolute, relative, referencing, macros, validation, conditional formatting, data set, controls, pivot tables, range, axis	Conclusions, trends, patterns, anomalies, errors, recommendations, target, deploy, transport schedules, misinterpret, bias, inaccurate	All previous.			

Assessment:	Knowledge check Topic test	**Trial assessment**	Comp 2 internal assessment			
Key/Historical misconceptions in this unit:	Analysing data in a spreadsheet requires complex mathematical formula.	Numerical information cannot be biased as it is purely based on facts. All data contains trends and patterns.	n/a			

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	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	**How do we use IT in the world of work?**					
Big picture questions:	**How has IT affected the way we communicate?**	**How do we protect systems we use?**	**What impacts does increased technology use have on the wider world?**	**Can we create a picture of how a computer system operates?**		
Content (Linked to TCs):	TC5 • How modern technologies impact on the way organisations perform tasks • How technologies are used to manage teams, to enable stakeholders to access tools and services, and to communicate effectively • The positive and negative impact that the use of modern technologies has on organisations and stakeholders	TC6 • Why systems are attacked • What the nature of attacks are • How attacks occur • What the potential impact of breaches in security on the organisation and stakeholders are • How different measures can be implemented to protect digital systems • What the purpose of different systems are and how their features and functionality protect digital systems • How one or more systems or procedures can be used to reduce the nature and/or impact of threats • What the need for and nature of security policies in organisations is	TC7 • What the responsible use of digital systems looks like • How systems and services share and exchange data • What the environmental considerations of increased use of digital systems are • What the scope and purpose of legislation that governs the use of digital systems and data is • How legislation has an impact on the ways in which organisations use and implement digital systems • What the wider ethical considerations of use of technologies, data and information are • What organisations' responsibilities are that ensure that they behave in an ethical manner	TC8 • Understand how organisations use different forms of notation to explain systems, data and information • Be able to interpret information presented using different forms of notation in a range of contexts • Be able to present knowledge and understanding using different forms of notations	Targeted revision	

		• The content that constitutes a good security policy and how it is communicated to individuals in an organisation • How procedures in security policies are implemented in organisations				
Vocabulary Instruction:	Stakeholders, collaboration, scheduling, communication platforms, communication channels, information, data, media, inclusivity, accessibility, interface , infrastructure, distributed/disbursed data, collaboration, remote working, flexibility, working styles	Security, threats, mitigate, organisation policy, procedures, cyber security, breaches, organisation, stakeholders, espionage, malware, virus, worms, botnet, rootkit, Trojan, ransomware, spyware, denial of service attacks, phishing, emails, texts, phone calls, pharming, social engineering, shoulder surfing, 'man-in-the-middle' attacks, disclosure, leaking, portable, untrustworthy , productivity, downtime, access restriction, biometrics, two-factor authentication , firewall, software, interface , anti-virus, hardening, encryption , ethical hacking, white hat, grey hat, penetration testing, recovery	Shared data, legal, privacy, ethical, manufacturing, disposal, equal access, guidelines, neutrality , acceptable use, scope, assets, acceptable, unacceptable, monitoring, sanctions, agreement, policy, data protection, lawful processing, intellectual property, trademarks, patents, copyright, permissions, licensing, attribution, unauthorised access, unauthorised modification, malware	Standard conventions, notation, data flow diagrams, flowcharts, system diagrams, tables, information flow diagrams, flowcharts	All previous.	

Assessment:	Knowledge check Topic test	November PPE	Knowledge check Topic test	March PPE	**Public examination**	
Key/Historical misconceptions in this unit:	The use of technology only ever brings benefits to the people that use it. Use of technology is easy-to-use for every one of every background.	The biggest risk to network security is more advanced programs being created.	Laws to do with technology are created to directly stop the misuse of technology taking place.	Diagrams that describe the operation of computer systems are highly technical and extremely detailed.	n/a	
Sequencing:	**We have chosen to sequence the year 11 curriculum like this because…** Teaching is split this year between content for the Component 3 examination and also the finalisation of Component 2. This is so that students have time for spaced retrieval of key learning and knowledge in the up to the examination. Topics for the exam are based on the content in the specification and consider firstly how individuals use technology in the world of work, progressing on to the use of technology by groups of people and then finally in a much wider context.					
Values	**This scheme of work promotes the school values of Compassion, Curiosity and Courage by:** *Compassion:* Users of computers are creating things for people to use and read. They should therefore do this in a way that considers the impact of their actions and use this as a moderating voice. *Curiosity:* Students apply their learning to many practical examples. They are given problems to solve and use their prior learning to help arrive at new solutions. *Courage:* The nature of the work and the activities they have to complete develop the courage of students. They need to learn how to solve more complex problems by breaking them down into lots of smaller, easier-to-achieve tasks.					
National Curriculum plus:	**In addition to teaching the statutory elements of the national curriculum, we also include** Again, relation to real life examples helps to enhance the vocational element of the course. Students need to understand how what they are learning applies to the world practically in a direct way that they can draw on their experiences.					