



Ursuline College

Computing Department

The Team

Staff Member	Role	Email Address
Mrs Emma Stannard	Curriculum Leader/ Teacher	StannardE@ursuline.kent.sch.uk
Mr Matthew Fuller	Teacher	FullerM@ursuline.kent.sch.uk
Mr James McAuley	Teacher	McauleyJ@ursuline.kent.sch.uk
Mrs Helen Smyth	Teacher	SmythH@ursuline.kent.sch.uk

Key Stage 3

During Key Stage 3, pupils will have discrete lessons which aim to establish key computing skills and knowledge which is evidenced through practical skills completed in class. The Key Stage 3 curriculum is designed to incorporate both the Computing national curriculum as well as the development of essential ICT skills that are required to support them throughout their learning but also into the workplace. This curriculum is designed to allow the students to opt into either the Pearson BTEC Tech Award in Digital Information Technology or Computer Science for further studies at KS4.

Careers education runs as a deliberate thread through every year of Key Stage 3, building progressively so that pupils leave with a clear understanding of the routes open to them. In Year 7, pupils are introduced to careers and pathways in computing. In Year 8, they explore job families, the skills employers value, and begin planning their own pathways. In Year 9, they follow an extended careers programme covering post-16 and post-18 routes — including A-levels, T-levels, apprenticeships and university — alongside diversity and ethics in the technology industry.

Students can expect to learn the following:

- How to use technology and stay safe online, including protecting themselves from online threats, and understanding the principles of cyber security such as malware, social engineering and how data is protected through encryption.
- Investigating the impact of modern and emerging technologies on society.
- How to plan and develop products in line with audience needs.
- Developing problem solving and programming skills.
- Improving digital skills that can be applied across the curriculum.
- Exploring artificial intelligence and machine learning and considering the ethical questions these technologies raise for society.
- Exploring careers, pathways and opportunities in computing and technology through a structured, progressive programme that develops employability skills and awareness of post-16 and post-18 routes.
-

- The online-safety and cyber security bullet now reads as one, opening on staying safe online before moving into the security-of-systems side, so the personal safeguarding element stays clear. AI has kept its own bullet. Let me know if you'd like any further tweaks.

	Cycle 1	Cycle 2	Cycle 3
Year 7	• Getting started with school systems: logging in, Teams, OneDrive and secure passwords. • Modernised e-safety: online bullying, scams and phishing, and AI deepfakes and misinformation. • Introduction to computer hardware and how a computer works. • Introduction to careers and pathways in computing.	• The CPU and the fetch-decode-execute cycle in more depth. • Binary and data representation: converting between binary and denary, and ASCII. • Computational thinking and writing simple algorithms. • Physical computing with Micro Python on the micro: bit. • Introduction to Python programming using Turing Lab.	• Python programming in Thonny: syntax, selection, loops and debugging. • Designing effective and accessible user interfaces. • Web development: understanding HTML and building and styling basic web pages.
Year 8	• Careers in computing: job families, employer skills and pathway planning. • Modernised e-safety: scams and phishing, AI deepfakes and image-sharing (Breck Bednar anchor). • Data representation: binary, hexadecimal and binary addition, Boolean logic, and how images and sound are stored. • Introduction to networks: LANs, WANs and network hardware.	• How the internet and networks work: packets, IP addresses, Wi-Fi and security. • Text-based programming in Python: selection, loops and sub-routines, building a program project. • Introduction to spreadsheets: functions and formulae.	• Spreadsheets: maths functions, charts and IF (selection) logic. • Game development in Game Maker: sprites, movement, collisions, scoring, sound and menus. • Web development: understanding HTML and building and styling basic web pages.
Year 9	• Extended careers programme pathways (A-levels, T-levels, apprenticeships), post-16 and university routes, and diversity and ethics in tech. • Cyber security taster: your data, social engineering, malware, defence and encryption.	• Python programming revision and projects: loops, turtles, random numbers and challenges. • Building web apps with JavaScript, developing the HTML and CSS learned in Year 8.	• Advanced game development in Game Maker using GML. • Algorithms: self-marking quizzes, sorting (bubble, merge and insertion) and encryption basics. • Artificial intelligence, machine learning and AI ethics.

Key Stage 4

Exam Board: Pearson/BTEC

Link to Specification: <https://qualifications.pearson.com/en/qualifications/btec-tech-awards/digital-information-technology.html>

Qualification Information:

This qualification is designed for Key Stage 4 learners who want to develop practical digital and IT skills through real-world, vocational contexts. It is ideal for students who enjoy working with technology and want to understand how it is used in business and society.

The course focuses on four key areas:

- **Project planning and user interface design** – learning how to design and create digital products that meet specific user needs
- **Data management and interpretation** – exploring how data is collected, analysed, and presented to support decision-making
- **Digital ways of working** – developing essential knowledge in cyber security, virtual teamwork, and the legal and ethical use of technology
- **Professional behaviours and skills** – building strong communication, time management, and problem-solving skills valued in the digital sector

Students who wish to pursue a Level 2 BTEC in Digital Information Technology will be required to explore three units of work over the 2 years. This will include two internally assessed pieces of coursework (worth 30% each) and an externally assessed examination (40% of the qualification)

Future Careers: Study of the qualification as part of Key Stage 4 learning will help learners to make more informed choices for further learning, either generally or in this sector. The choices that learners can make post-16 will depend on their overall level of attainment and their performance in the qualification. Learners who generally achieve at Level 2 across their Key Stage 4 learning might consider progression to: A Levels as preparation for entry to higher education in a range of subjects OR study of a vocational qualification at Level 3, such as an OCR Cambridge Advanced Nationals in Computing: Application Development, which prepares learners to enter employment or apprenticeships, or to move on to higher education by studying a degree in the digital sector.

Year 10	Component 1: Explore user interface design and development principles Component 1: Investigate how to use project planning techniques to manage a digital project	Component 1: Investigate how to use project planning techniques to manage a digital project Component 1: Discover how to develop and review a digital user interface.	Component 2: Explore how data impacts on individuals and organisations Component 2: Draw conclusions and make
Year 11	Component 2: Develop a dashboard using data manipulation tools. And Component 3: Explore how modern information technology is evolving	Component 3: Consider legal and ethical issues in data and information sharing And Consider legal and ethical issues in data and information sharing	Component 3: Consider legal and ethical issues in data and information sharing And Understand what cyber security is and how to safeguard against it.

Key Stage 5

Exam Board: OCR

Link to Specification: <https://www.ocr.org.uk/qualifications/cambridge-advanced-nationals/computing-application-development-level-3-h029-h129/#extended-certificate>

Qualification Information:

This qualification introduces learners to the practical and creative aspects of computing, with a focus on real-world applications. It includes units on:

- **UX/UI Design** – planning and developing user interfaces that meet client requirements
- **Game Design** – exploring the principles of game development, from concept to playability
- **Virtual and Augmented Reality** – investigating immersive technologies and how they are used across industries
- **Client Communication** – interpreting briefs, documenting ideas, and presenting solutions effectively

Learners will gain valuable experience in project planning, problem-solving, critical thinking, and independent study—essential skills for higher education and careers in the digital sector.

Students will study five units over the two years. Three units will be internally assessed pieces of coursework, and the other two units are externally assessed examinations.

Future Careers:

The OCR Level 3 Alternative Academic Qualification Cambridge Advanced National in Computing: Application Development will develop knowledge, understanding and skills that will help prepare you for progression to undergraduate study when taken alongside other qualifications and are relevant to the ICT practitioners' sector. This course supports progression to university courses in computing, digital media, software development, and design, and is also relevant for students considering careers in app development, game design, user experience (UX), and emerging technologies such as virtual and augmented reality.

	Cycle 1	Cycle 2	Cycle 3
Year 12	Unit F160: Topic Area 1: Types of software used in application design Topic Area 2: Software development models Topic Area 3: Planning application development projects Topic Area 4: Application design scoping Topic Area 5: Human computer interface and interaction Topic Area 6: Job roles and skills	Unit F160: Exam Revision Unit F162: Topic Area 1: Principles of UX and UI design Topic Area 2: Plan UX/UI solutions Topic Area 3: Design UX/UI solutions Topic Area 4: Communicate UX/UI solutions	Unit F162: Topic Area 5: Review and improve UX/UI solutions Unit F161: Topic Area 1: Application software considerations Topic Area 2: Data and flow in application software Topic Area 3: API and protocols Topic Area 4: Application software security
Year 13	Unit F161: Topic Area 5: Operational considerations Topic Area 6: Legal considerations Unit F163: Topic Area 1: Game design Topic Area 2: Plan and design high-fidelity game prototypes Topic Area 3: Create high-fidelity game prototypes Topic Area 4: Test high-fidelity game prototypes	Topic Area 5: Review and improve high-fidelity game prototypes Unit F164: Topic Area 1: Fundamentals of website development Topic Area 2: Plan and design high-fidelity website prototypes Topic Area 3: Create high-fidelity website prototypes Topic Area 4: Test high-fidelity website prototypes	Unit F164: Topic Area 5: Review and improve the effectiveness of high-fidelity website prototypes