



CURRICULUM INTENT

COMPUTING



At Trinity, we believe every student should leave with the knowledge, skills and confidence to thrive in an increasingly digital world. Our Computing curriculum is designed to inspire curiosity, develop resilience and equip students with a secure understanding of Computer Science, Information Technology and digital literacy through an ambitious, knowledge-rich curriculum. Guided by Trinity's vision of Head, Heart and Hands, we encourage students not only to understand how technology works, but also to think critically about how it should be used. Through the values of Catholic Social Teaching, we aim to develop responsible, ethical digital citizens who use their knowledge creatively, confidently and in service of others. Whether students pursue careers in technology or simply navigate an ever-changing digital society, we want every young person to leave Trinity prepared to make a positive contribution to the world around them.



CURRICULUM INTENT OVERVIEW

 HEAD KNOWLEDGE-RICH	Students will: • Deliver an ambitious, knowledge-rich curriculum that equips every student with a secure foundation in Computer Science, Information Technology and digital literacy. • Develop deep understanding through a carefully sequenced curriculum that builds knowledge progressively from Key Stage 3 to Key Stage 5. • Embed disciplinary literacy through explicit teaching of Tier 2 and Tier 3 vocabulary, reading and technical communication. • Secure knowledge through retrieval practice, spaced learning and regular assessment, enabling students to remember and apply their learning. • Develop curious, resilient and independent learners who can think computationally, solve problems and thrive in an increasingly digital world.
 HEART FAITH, LOVE AND RESPECT	Students will: • Consider the social, moral and environmental issues surrounding computing and IT, including laws specifically relating to the use of digital devices. • Develop responsible digital citizens who use technology safely, respectfully and ethically. • Promote the principles of Catholic Social Teaching by encouraging students to consider the moral and social impact of technology. • Develop a culture of stewardship, empowering students to use emerging technologies, including Artificial Intelligence, responsibly and with integrity. • Encourage students to use technology for the common good, recognising its potential to improve the lives of others. • Promote resilience and digital wellbeing by equipping students with the knowledge and confidence to navigate an ever-changing digital world safely.
 HANDS APPLICATION OF KNOWLEDGE	Students will: • Apply Computing knowledge creatively and confidently to solve real-world problems through programming, digital design and computational thinking. • Develop practical, industry-relevant skills that prepare students for further education, future employment and lifelong learning. • Foster resilience, creativity and independence by encouraging students to design, test, debug, evaluate and refine digital solutions. • Promote collaboration and effective communication, enabling students to work successfully with others to achieve shared goals. • Use their Computing knowledge and skills responsibly in service of others, making a positive contribution to their community and the wider world.



CURRICULUM TO CLASSROOM

 HEAD KNOWLEDGE-RICH	KNOWLEDGE FOCUSED	At Key Stage 3, all classes have access to core knowledge materials through their student drive, with lesson resources and key content also available via Google Classroom. Each topic is supported by a knowledge organiser that outlines the essential knowledge, vocabulary, and concepts students are expected to learn and remember. These resources support retrieval practice, independent revision, and long-term knowledge retention.
	EXPERT TEACHERS (EXPLANATIONS)	Expert teachers use secure subject knowledge to deliver clear, accurate, and engaging explanations across all key stages. Explanations are carefully sequenced, drawing on prior learning to introduce new concepts in manageable steps. Teachers use modelling, worked examples, questioning, and regular checks for understanding to ensure students develop a secure understanding of key knowledge and skills while addressing misconceptions effectively.
	TAUGHT TO BE REMEMBERED	Lessons frequently begin with retrieval activities that revisit previous learning, while key concepts are revisited throughout the curriculum using a spiral approach. Knowledge organisers, low stakes quizzes, and homework reinforce core knowledge, cold calling and targeted questioning ensure all students actively recall and apply what they have learned. Teachers use modelling, worked examples, and repeated application of concepts in practical contexts to strengthen understanding. At the end of each unit, students complete summative assessments that include retrieval from previous topics, while KS4 and KS5 students regularly complete exam-style questions to consolidate knowledge and prepare for external assessments.
HEART FAITH, LOVE AND RESPECT	ENCOURAGING CLASSROOMS BASED ON FAITH, LOVE & RESPECT	The Computing department promotes a calm, respectful, and purposeful learning environment where all students are expected to contribute positively to lessons. Clear routines and high expectations support effective learning, including listening attentively during teacher instruction, following classroom expectations, and using equipment responsibly. Specialist classroom management software enables teachers to monitor student activity and control screens during direct instruction, ensuring students remain focused and engaged. Through the curriculum, students also develop an understanding of digital citizenship, learning how to stay safe online, communicate respectfully, and make ethical and responsible decisions when using technology. This encourages students to use digital technologies with integrity, respect, and consideration for others through the lense of the Catholic Social Teaching.

HANDS APPLICATION OF KNOWLEDGE	EXPERT TEACHERS (MODELLING)	Teachers use explicit modelling to demonstrate new knowledge and skills before students work independently. This includes live demonstrations using the interactive whiteboard or screen broadcasting software, allowing students to follow each step of a process. In programming lessons, the PRIMM approach (Predict, Run, Investigate, Modify, Make) is used to scaffold learning from understanding existing code to creating original solutions. Within Cambridge Nationals in IT, teachers model exemplar coursework, demonstrate how to interpret and respond to client briefs, and work through practice scenarios to show how tasks should be planned, completed, and evaluated against the assessment criteria. Teachers also model exam style responses, extended writing where appropriate, and worked examples to demonstrate successful outcomes and address misconceptions.
	DELIBERATE PRACTICE	Students regularly complete carefully sequenced tasks to consolidate and apply new knowledge and skills. Lessons include frequent check-ins for understanding, allowing teachers to assess learning in real time, circulate the classroom, and provide immediate feedback to address misconceptions. Teachers use worked examples, scaffolded activities, and repeated practice to build fluency before gradually removing support. In programming, students develop confidence through the PRIMM approach and debugging activities, while in vocational units they refine their work through teacher feedback and redrafting. Exam-style questions, practical application tasks, and opportunities for self- and peer-assessment further reinforce learning and develop independence.



LEARNING SEQUENCE – YEAR 7

OUTCOMES	- Understand and apply safe and responsible use of digital technologies, including eSafety and appropriate use of AI tools. - Organise, manage, and store files effectively using folders and clear naming conventions. - Use email confidently to compose, send, reply to, forward messages, and manage attachments appropriately. - Create and develop presentations using a range of features, including text, images, transitions, and animations, based on a given scenario. - Use spreadsheet software to enter, organise, and analyse data using formulae and functions such as SUM, AVERAGE, MIN, and MAX. - Sort data and create charts and graphs to identify patterns and present information clearly. - Understand the basic components of a computer system, including CPU, memory, storage, input/output devices, and wearable technologies. - Demonstrate understanding of key programming concepts in Scratch, including sequencing, variables, selection, operators, and count-controlled loops. - Understand how animation works and identify different types of animation, including 2D, 3D, and stop motion.					
	TOPICS	E Safety	Presentation Software	Spreadsheets	Scratch	Inside the Computer
DESCRIPTION	Students develop the core digital skills needed to work safely, responsibly and efficiently in a digital environment. They learn how to organise and manage files using folders, save and back up work appropriately, and use clear file naming conventions. Pupils gain confidence in using email by composing, sending,	Students build on presentation skills developed in primary school by creating a fit for purpose presentation based on a scenario. They use a range of presentation features, including text formatting, images, transitions and animations, to produce well-designed, purposeful presentations while	Students build on spreadsheet skills developed in primary school by learning how to organise, calculate, and present data using spreadsheets. They develop an understanding of basic spreadsheet components such as cells, rows, columns, and worksheets, and use both formulae and functions to perform calculations and	Students are introduced to the core programming concepts used in Scratch, including sequencing, variables, selection, operators, and count-controlled loops. They learn how to design programs by arranging blocks in the correct order, storing and using	Students develop an understanding of the internal and external components that make up a computer system and how they work together to process, store, and output data. They learn about key hardware such as the CPU, motherboard, storage devices, and	Students develop an understanding of how animation is used to create the illusion of movement through a sequence of images shown in rapid succession. They explore different types of animation, including 2D animation, 3D computer-generated animation, and stop

	replying to and forwarding messages, as well as attaching and accessing files. Throughout the unit, learners explore safe online communication, recognising potential risks and demonstrating appropriate digital behaviour. They are also introduced to the responsible use of artificial intelligence (AI), understanding how AI tools can support learning and productivity while recognising the importance of verifying information, protecting personal data, and using AI ethically and responsibly.	developing effective digital communication skills.	analyse data. Students also learn how to sort data, create and customise charts and graphs to identify patterns, and apply formatting techniques to improve clarity and presentation of information.	data in variables, making decisions using conditions, applying mathematical and comparison operators, and repeating actions efficiently using loops.	power supply, as well as input and output devices. Students also explore different types of memory, including RAM and ROM, and begin to understand how computers communicate internally. In addition, they are introduced to emerging technologies such as wearable devices, developing awareness of how computing systems are used in everyday life.	motion, gaining awareness of how each style is created and used in media and digital content.
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LEARNING SEQUENCE – YEAR 8

TOPICS	OUTCOMES					
	Social Media	Scratch 2	Website Authoring	Python	Micro:bits	IT in the Digital World
DESCRIPTION	- Understand how social media is used by businesses to communicate, market, and engage with audiences. - Create interactive programs using sequencing, variables, selection, and iteration to solve problems. - Build basic web pages using HTML structure and CSS styling to present information effectively. - Understand the basics of AI and how AI is used in everyday life. - Understand copyright and apply safe, legal, and responsible use of digital content. - Understand how cryptography is used to encrypt and protect information. - Use visualisation tools to plan and communicate digital ideas considering audience, purpose, and design principles.					
	Students develop an understanding of how businesses use social media to reach and engage audiences, build brand awareness, and promote products and services. They explore a range of platforms such as Instagram, Facebook, Twitter, LinkedIn, and TikTok, and how each is used for different business purposes. Students also consider the benefits and challenges of	Students build on programming skills developed in Year 7 by creating more complex interactive programs in Scratch, such as quizzes and games. They extend their understanding of sequencing, variables, selection, operators, and iteration to include more advanced use of loops, condition-controlled repetition, and decision making with	Students develop an understanding of how websites are structured and created using HTML and CSS. They learn the basic structure of an HTML document and how tags are used to define elements such as headings, paragraphs, images, links, and lists. Students also explore how CSS is used to control the appearance of a webpage, including colours, fonts, and layout,	Students are introduced to the fundamentals of text based programming using Python. They learn how to use print statements to display output, understand key data types including strings, integers, floats, and Booleans, and use variables to store and manipulate data. Students develop understanding of selection through if/else	Students are introduced to physical computing using the BBC Micro:bit, a small programmable microcontroller with built-in sensors, buttons, and a 5x5 LED display. They learn how to connect, program, and test simple programs that produce outputs such as text and images on the LED matrix. Students also explore how the Micro:bit responds to inputs such as	Students will explore how IT is used to design, develop, and secure digital products. They will learn how design tools such as mind maps, storyboards, wireframes, and flowcharts are used to plan ideas, while considering layout, colour, accessibility, user needs, and audience. They will also learn about artificial intelligence, copyright, and

	using social media, including managing feedback, maintaining an online presence, and responding to changing trends. In addition, they are introduced to business demographics and how organisations use audience data to target marketing effectively. Students begin to understand how business analytics is used to identify patterns, interpret data, and support decision making, alongside completing structured online learning such as the IDEA Award.	if-else statements. Students also develop their ability to use variables to store and track information such as scores, creating more dynamic and interactive programs.	enabling them to create simple, well structured web pages.	statements to make decisions within programs and use input() to interact with users. They also begin to explore subroutines to create reusable blocks of code, applying these skills to build simple interactive programs such as quiz applications.	button presses and sensor data, developing an understanding of how hardware and software work together in real world embedded systems.	cryptography, and how these are used in real world contexts. This topic underpins computing and supports progression into Cambridge Nationals in IT and GCSE Computer Science.
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LEARNING SEQUENCE – YEAR 9

TOPICS	OUTCOMES					
	Computational Thinking	Spreadsheets 2	IT in the digital world 2	Python 2	Data Representation	Artificial Intelligence
DESCRIPTION	• Apply computational thinking skills, including decomposition, abstraction, pattern recognition, and algorithm design, to solve problems using flowcharts and pseudocode. • Use advanced digital skills across spreadsheets, programming, and website development to create, analyse, and evaluate solutions. Students will apply formulae, data modelling techniques, HTML, and Python programming concepts including selection and iteration. • Understand how digital systems work, including computer networks, cloud computing, data representation, and how information is stored and processed using binary, denary, and hexadecimal. • Design and evaluate digital products by considering user needs, audience, accessibility, security, and real-world applications of technology. • Understand the impact of emerging technologies, including Artificial Intelligence and Augmented Reality, and evaluate their benefits, limitations, ethical considerations, and use in society. • Develop awareness of cyber security and responsible digital behaviour by understanding online threats, data protection, AI bias, and the importance of using technology safely and effectively.					
	Students develop an understanding of how problems can be broken down and solved using computational thinking skills. They explore algorithm design by creating step-by-step instructions to solve problems, and learn how decomposition can be used to break complex problems into smaller parts. They develop skills in	Students build on prior spreadsheet knowledge by developing more advanced skills in data modelling and multi-sheet work. They learn how to use formulae and functions such as SUM, AVERAGE,	Students will explore how computer networks connect devices and enable communication, including LANs, WANs, the internet, and cloud computing. They will investigate the benefits and limitations of cloud storage and how these technologies are used in real-world contexts. Students will develop an	This unit builds on prior programming knowledge developed in Year 8 by developing more advanced and structured Python programming skills. Students extend their understanding of variables, data types, input/output, and selection (if/else) to create more interactive and problem-based programs. They are	This unit introduces how data is represented in digital systems using binary, denary, and hexadecimal number systems. Students learn how computers use binary (base 2) to store and process all data, and how this differs from denary (base 10), which is used in everyday life. They develop skills in converting between binary and denary, as well as	Students will develop an understanding of Artificial Intelligence (AI) and how it is used in modern society. They will explore the difference between rule-based and data-driven approaches, identify examples of AI applications, and evaluate the benefits and challenges associated with the use of AI technologies. Students will investigate how

	pattern recognition to identify similarities and simplify solutions, and abstraction to focus on the most important information while ignoring unnecessary detail. Students also learn how to represent algorithms using flowcharts and pseudocode, understanding key flowchart symbols and how structured, readable instructions can be used to design effective solutions.	MIN, and MAX to analyse data across different contexts. Students also explore multi-sheet referencing by renaming worksheets and using data from other sheets within formulas. In addition, they develop an understanding of modelling, using spreadsheets to test different scenarios and see how changes to data can affect outcomes.	understanding of Augmented Reality (AR) through a Cambridge Nationals IT-style project, where they will design and present a digital solution based on a given scenario, considering audience, purpose, and user needs. Students will develop website creation skills using HTML through the PRIMM approach, learning how webpages are structured and applying coding techniques to create digital products. They will also explore cyber security, including malware, phishing, social engineering, password security, two-factor authentication, and digital footprints, to understand how to stay safe online.	introduced to iteration through count-controlled (for) and condition-controlled (while) loops, enabling them to repeat actions and develop more efficient solutions. This unit focuses on combining programming constructs to design and build more complex, functional programs that solve real-world problems.	understanding binary addition. The unit also explores hexadecimal as a more compact way of representing binary values. In addition, students learn about colour depth and how binary is used to represent images, including how different bit depths affect image quality, detail, and file size.	computers learn from data through machine learning. They will explore different approaches to machine learning, including supervised, unsupervised, and reinforcement learning, and understand how classification models use labelled data to make predictions. Students will explore the importance of data quality when developing AI systems. They will investigate how training and test data are used, how accuracy is measured, and how bias within datasets can influence the decisions and predictions made by machine learning models.
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LEARNING SEQUENCE – YEAR 10

TOPICS	GCSE Computer Science. Computer Systems.	IT Level 1/Level 2 – J836 OCR National ICT.
DESCRIPTION	• Systems architecture • Memory and storage • Computer networks, connections and protocols • Network security • Systems software • Ethical, legal, cultural and environmental • Impacts of digital technology	R070: Using Augmented Reality to present information • Designing an Augmented Reality (AR) model prototype. • Creating an Augmented Reality (AR) model prototype. • Testing and reviewing. Students will commence their study of: Unit R050: IT in the digital world • Design Tools. • Human Computer Interface (HCI) in everyday life. • Data and testing. Cyber-security and legislation.



LEARNING SEQUENCE – YEAR 11

TOPICS	GCSE Computer Science. Computer Systems.	OCR National ICT. Using Augmented Reality to Present Information
DESCRIPTION	• Algorithms • Programming fundamentals • Producing robust programs • Boolean logic • Programming languages and Integrated Development Environments	Unit R050: IT in the digital world • Design Tools. • Human Computer Interface (HCI) in everyday life. • Data and testing. Cyber-security and legislation. • Digital Communications o Internet of Everything (IoE). Unit R060: Data manipulation using spreadsheets • Planning and designing the spreadsheet solution. • Creating the spreadsheet solution. • Testing the spreadsheet solution.

LEARNING SEQUENCE – YEAR 12

TOPICS	A-level Computer Science	Level 3 BTEC National in Information Technology
DESCRIPTION	The A Level Computer Science qualification helps you understand the core academic principles of computer science. Classroom learning is transferred into creating real-world systems through the creation of an independent programming project. The A Level course will develop your technical understanding and your ability to analyse and solve problems using computational thinking. Component 01: Computer Systems. Computer systems Students are introduced to the internal workings of the (CPU), data exchange, software development, data types and legal and ethical issues. The resulting knowledge and understanding will underpin their work in component 03. It covers: • The characteristics of contemporary processors, input, output and storage devices • Types of software and the different methodologies used to develop software • Data types, data structures and algorithms Component 02: Algorithms and programming This builds on component 01 to include computational thinking and problem-solving. It covers: • What is meant by computational thinking (thinking abstractly,	Unit 1: Information Technology Systems: This unit is an externally assessed mandatory unit that lays the foundation for the entire course. This unit provides essential underpinning knowledge of information technology systems, terminology, concepts and processes. There are many opportunities for learners to apply the knowledge gained in this unit to other units. For example, Topic B2 introduces learners to various types of networks, such as PANs, LANs, WANs, and VPNs. This knowledge can then be utilised in Unit 2, where learners will demonstrate their understanding of the cybersecurity risks associated with these networks. Topic E1 introduces learners to a range of online services, which they can later apply in Unit 3 when designing and developing a website in response to a brief. Similarly, Topic E2 familiarises learners with different data sources, collection methods, and techniques for improving data accuracy. This knowledge will be relevant in Unit 4, where learners will design and develop a database to meet a client’s requirements. Unit 3: Website Development This unit combines theoretical understanding with hands-on technical execution to equip students with essential web development skills. Students will analyse real-world websites, design and build a functional site in response to a professional client brief, and evaluate its performance through rigorous testing. By bridging industry-standard practices with creative problem-solving, this unit prepares students for higher education and establishes a foundational portfolio for future careers in software development, database management, and systems IT. Students will commence their study of:

thinking ahead, thinking procedurally etc.) • Problem solving and programming – how computers and programs can be used to solve problems • Algorithms and how they can be used to describe and solve problems. Component 03: Programming project Students are expected to apply the principles of computational thinking to a practical coding programming project. They will analyse, design, develop, test, evaluate and document a program written in a suitable programming language. The project is designed to be independently chosen by the student and provides them with the flexibility to investigate projects within the diverse field of computer science. We support a wide and diverse range of languages	Unit 2: Cyber Security and Incident management This unit develops understanding of cyber security threats, vulnerabilities, and the methods used to protect organisations and their data. Students explore how and why cyber attacks occur, alongside the increasing risks associated with reliance on networked systems and digital data. They learn about a range of protection methods and how organisations plan for and respond to security incidents. The unit also introduces forensic approaches used to investigate cyber security breaches and evaluate their effectiveness in different scenarios. This unit supports progression into further study in IT and helps develop awareness of the importance of securing modern digital systems. Unit 4: Relational Database Development This unit explores the critical role of databases as the foundational backbone of modern digital society, from global e-commerce systems to web applications. Students will master the theoretical architecture of data, focusing on relational models, data storage, and normalization techniques. Transitioning from theory to hands-on practice, students will use a Database Management System (DBMS) to design and develop robust, efficient data solutions that meet explicit client requirements. This unit provides the essential data fluency required for higher education computing courses and professional development roles.
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LEARNING SEQUENCE – YEAR 13

TOPICS	A-level Computer Science. Component 2: Algorithms and programming & Component 3: Programming project	Level 3 BTEC National in Information Technology
DESCRIPTION	Component 03: Programming project Component 01: • Legal, moral, cultural and ethical issues. • Data exchange between different systems	Unit 2: Cyber Security and Incident management Unit 4: Relational Database Development



ENRICHMENT, SUPPORT, EXTRA-CURRICULAR

- We ensure that the IT rooms are open most lunchtimes so that students can complete homework, access extra support and/or complete project work.
- GCSE and A-Level interventions and revision during exam seasons.
- Students are encouraged to use the computers to support their Duke of Edinburgh projects, including planning, establishing, and running their own clubs, such as a Scratch Club.