CURRICULUM INTENT

ICT AND COMPUTING

HEAD
KNOWLEDGE-RICH

To ensure that ambitious substantive and disciplinary knowledge is at the heart of the curriculum. It is specified in detail and taught to be remembered; it is sequenced carefully over time. As a Catholic school we will prioritise knowledge of Jesus, scripture and the Church's teachings.

HEART
FAITH, LOVE AND RESPECT

Through students' experiences of the curriculum and wider school life, we will ensuring that our school is built on faith, love and respect. Students will have the opportunity to develop their relationship with Jesus through prayer, liturgy, retreat experiences and reflection.

HANDS
APPLYING KNOWLEDGE

Once secure, we will focus on the application of knowledge in order to problem-solve and make a difference in the word. Important skills will be modelled and practised until they are mastered. Students will be encouraged to live out their knowledge of the Catholic mission in all of their actions.

"The Catholic school is a path that leads to the three languages a mature person needs to know: the language of the mind, the language of the heart, and the language of the hands." Pope Francis

At Trinity, we are committed to providing our students with a world-class education that equips them with the knowledge, skills, and experiences necessary to thrive in the digital age. Our IT and Computer Science department plays a pivotal role in this endeavor, offering a dynamic and forward-thinking curriculum designed to empower students aged 11-18 to become proficient, innovative, and responsible users of technology. Our vision is to inspire the next generation of IT

CURRICULUM INTENT OVERVIEW

HEAD **KNOWLEDGE-RICH**	• We aim for students to understand and fundamental principles and concepts of Computer Science such as the art of programming and understanding how an actual computer works. • We aim for them to know the key components that make up digital systems and how they communicate. • To understand the impacts of digital technology to the individual, wider society, the ethical change s and cultural impacts as well as the positive and negative impacts digital technology has had on the environment. • All pupils have the right to access the Computer Science curriculum which covers the National Curriculum. Furthermore, students have the right and need to be fluent in digital literacy as this will prepare them for the world of work. All students are exposed to functional knowledge and practice of essential office-based skills as well as programming language to help explain the mechanics of software. • To ensure a broad range of skills and understanding, Computing is taught across three main strands: digital literacy, computer science and information technology. • In computer science we teach children to understand the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
HEART **FAITH, LOVE AND RESPECT**	**Students will:** • Develop positive attitudes to study and education as lifelong sources of personal satisfaction and as a means of developing the individual's talents for the benefit of the wider community. • Share best practice in lessons and empathise with others when having difficulty with projects. • Be pushed to achieve through hard work and commitment to see a job through to the end. • Develop care and compassion in a computer environment, they very often give a helping hand to their peers when coding or working on IT skills. • Consider the social, moral and environmental issues surrounding computing and IT, including laws specifically relating to the use of digital devices.
HANDS **APPLICATION OF KNOWLEDGE**	**Students will:** • Learn to use and express themselves and develop their ideas through ICT for example writing and presenting as well as exploring art and design using multimedia. • Within digital literacy, children develop practical skills in the safe use of ICT and the ability to apply these skills to solving relevant, worthwhile problems for example understanding safe use of internet, networks and email. • Be able to apply key algorithms and data representation and mathematical skills through practical and theoretical work**.** • be equipped with a range of creative media skills and provide opportunities to develop, in context, desirable, transferable skills in areas such as research, planning and evaluation. • Be able to pursue possible careers such as computer programmer, network manager, web designer, database controller, games designer, teacher, security expert, etc. C

CURRICULUM TO CLASSROOM

HEAD **KNOWLEDGE-RICH**	KNOWLEDGE FOCUSED	Exam classes have subject knowledge books. Classes in KS3 have access to core knowledge on their student drive. Resources/knowledge are available to all students via google classroom We make use of mind maps, presentations, flow charts to learn knowledge whilst also developing their software skills.
	EXPERT TEACHERS (EXPLANATIONS)	Expert teachers will have secure subject knowledge in all key stages.
	TAUGHT TO BE REMEMBERED	Lessons will start with a retrieval task from the previous lesson. There are summative tests at the end of every unit. In exam classes students will be tested on exam questions after going over the unit. Cold calling will be used to keep and hold students' attention.
HEART **FAITH, LOVE AND RESPECT**	ENCOURAGING CLASSROOMS BASED ON FAITH, LOVE & RESPECT	All students will be expected to behave in the learning environment. The following are a few examples. No drinks in the IT room. No talking whilst the teacher is talking. Students will be monitored by the use of specialist software. Teachers are able to control the screens of students in order to turn their monitors off during teacher talk to ensure maximum attention.
HANDS **APPLICATION OF KNOWLEDGE**	EXPERT TEACHERS (MODELLING)	Most lessons will involve the classroom teacher demonstrating what the students are expected to do. This is done via either students watching the interactive whiteboard or the teacher broadcasting their screen to the students. Exam questions are also shown to the students with the correct answer explained. Extended writing is modelled to students where it is required.
	DELIBERATE PRACTICE	Students are often given series of tasks to help them consolidate or apply knowledge. Often these tasks are scaffolded in small steps until students can complete these tasks more independently. Teachers monitor progress and offer one-to-one support where necessary.

LEARNING SEQUENCE – YEAR 7

OUTCOMES	• By the end of year 7 we expect that students can work on and wife computers safely. • Students will be able to use key software as part of the ICT curriculum. • Students will gain a foundation in Computer Science. • Students will start forming the basic principles for coding and animation.					
TOPICS	**E Safety**	**Presentation Software**	**Spreadsheets**	**Scratch**	**Inside the Computer**	**Animation**
DESCRIPTION	Give students various log on details and e-safety information. How to save work. Emailing. Google classroom. Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns. *Tier 2 Word Focus: Suitable*	Students are taught how to make a presentation and build on skills from primary school. Create a fir for purpose presentation using a range of features. *Tier 2 Word Focus: Format*	To introduce basic knowledge of spreadsheets. Create a table using formula with outputs connected to a chart. Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems *Tier 2 Word Focus: Trend*	To be able to block program basic code. Create a game using block code *Tier 2 Word Focus: Variability*	Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems *Tier 2 Word Focus: Integrate*	To understand the basic principles of animation. Develop an animation which uses the key features in stop frame animation *Tier 2 Word Focus: Incorporate*

LEARNING SEQUENCE – YEAR 8

OUTCOMES	- By the end of year 8 students should have acquired more complex programming knowledge and skills. - Students will acquire the foundations of web design. - Students will develop their understanding of digital literacy and safety/					
TOPICS	Cryptography	Web Design	Social Media	Scratch 2	Python	Micro bits
DESCRIPTION	To know how cryptography is used in modern times computers and its history in early computing.	An introduction into what makes a good webpage. To understand the terminology of websites.	Looking into advantages and disadvantages into social media and how it is used in business. To develop a presentation on how businesses can use social media to increase turnover.	Building on the block programming knowledge from year 7.Introduce advanced programming techniques, such as functions and variables, to make a game	To take the block code skills and convert them into text based programming. Introduce text based programming	To look at how micro bits can be programmed with basic code. Use the bbc micro bits website to help with their coding.

LEARNING SEQUENCE – YEAR 9

OUTCOMES	• By the end of year 9, students have built on their foundational knowledge in Y7 and 8 in ICT, Computer Science and Digital Literacy. They are ready to tackle more complex tasks.				
TOPICS	**Binary/Hex**	**Web Authoring**	**Computational Thinking**	**Spreadsheets 2**	**Python 2**
DESCRIPTION	Introduction into number systems and why they are used in computing. Understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal].	Taking the knowledge from web design and being able to make a webpage in HTML. Understand HTML code with the use of opening and closing tabs	To introduce more computational aspects and how they are used. Understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits.	Continuing with spreadsheets from year 7 giving a good understanding for IT at KS4. Understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem.	Continuing with programming in year 8 giving a good understanding for Computer Science at KS4. Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions

LEARNING SEQUENCE – YEAR 10

TOPICS	GCSE Computer Science. Computer Systems.	OCR National ICT. Data Manipulation Using Spreadsheets
DESCRIPTION	- Systems architecture - Memory and storage - Computer networks, connections and protocols - Network security - Systems software - Ethical, legal, cultural and environmental - Impacts of digital technology	- Planning and designing the spreadsheet solution. - Creating the spreadsheet solution. - Testing the spreadsheet solution. - Evaluating the spreadsheet solution.

LEARNING SEQUENCE – YEAR 11

TOPICS	GCSE Computer Science. Computer Systems.	OCR National ICT. IT in the Digital World	OCR National ICT. Using Augmentated Reality to Present Information
DESCRIPTION	- Algorithms - Programming fundamentals - Producing robust programs - Boolean logic - Programming languages and Integrated Development Environments	- Design Tools. - Human Computer Interface (HCI) in everyday life. - Data and testing. Cyber-security and legislation. - Digital Communications o Internet of Everything (IoE).	- Augmented Reality (AR). - Designing an Augmented Reality (AR) model prototype. Creating an Augmented Reality (AR) model prototype. Testing and reviewing.

LEARNING SEQUENCE – YEAR 12

TOPICS	A-level Computer Science. Computer Systems.	BTEC Extended Certificate and Diploma	BTEC Diploma
DESCRIPTION	The internal workings of the (CPU), data exchange, software development, data types and legal and ethical issues.	Information Technology Systems and Website Development	Programming and IT Project Management

LEARNING SEQUENCE – YEAR 13

TOPICS	A-level Computer Science. Computer Systems.	BTEC Extended Certificate and Diploma	BTEC Diploma
DESCRIPTION	**Algorithms and program-ming** Using computational thinking to solve problems. Calculators not allowed. And **Programming project** Students will be expected to analyse a problem, and design, develop and test, and evaluate and document a program. The program must be to solve it written in a suitable programming language.	Creating Systems to Manage Information And Using Social Media in Business	Computer Games Development And Cyber Security and Incident Management

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.