

## Curriculum Overview

### Subject: Computing and IT

#### Ambition

By the end of Year 11 a student of Computing & IT at Dixons Trinity will:

- Become digitally literate: students can use, express themselves and develop their ideas through the use of technology. The curriculum has been designed to equip students to use computational thinking, innovation and creativity to thrive post-16 and beyond.
- Students will be well equipped to critically research existing technologies, implement design model ideas. Students will investigate and develop an understanding of user interfaces, applications and research.

#### Department Sentence

"The Computing department, through their love for ICT & Computing, empowered students with the knowledge and skills to prepare themselves for anything."

#### Principles

##### Intelligent sequencing of powerful knowledge

- Students at Dixons Trinity Academy study the three pillars of ICT and computing to develop their knowledge on Computer Science, Information Technology and Creative Media. Core skills and knowledge are delivered in year 7 with rigour in application becoming more complex as they progress through the five year curriculum experiencing both project and theory-based work.
- In year 7 and 8 we prioritise teaching fundamental concepts, which allows students to develop understanding and ensure that their able apply their learning to different scenarios in computing, these substantive topics have been selected that we know the students will continuously come across throughout their education in computing here at Trinity. For example, Y7 students learn about the basics of user interfaces, this is then developed in year 8 when they are researching different types of interfaces, in year 9 BTEC DIT they are exposed to features that enhance user interfaces, in year 10 and 11 they are using a real-life scenario to develop and create their own interface to meet an organisation/users needs. Concepts are encountered multiple times throughout the 5 year curriculum, building in rigour as students progress.
- The curriculum at years 7 and 8 is designed to give students a wide range of both computing and IT knowledge and skills across the SoW and to develop key skills such as computational thinking, creativity and analytical skills. This includes developing a sense of understanding on the architecture of a computer, security in computing and complex substantive concepts within the domain of programming.
- Our lessons also provide opportunity for 'reading reconsidered' to allow students to read aloud to improve student's vocabulary in computing and the students to understand the key vocabulary. Students are exposed to a set of new keywords when we start a new topic which they will continuously refer to in retrieval practice and for homework. Using 'control the game' to read industry style briefs and extracts from a scenario and exam questions also provides students opportunity to develop their reading fluency.
- The PDS curriculum is centred on giving the student's knowledge outside of academia to help them become functioning and contributing members of society. Students engage in discussions about cyber-security, being safe on the internet, being aware of the potential dangers and how to prevent them from happening. Students learn how to plan and organise their time effectively, this is an integral part of the Digital Information Technology course as students are required to create project plans, milestones, Gantt charts and checklists to manage their project well. This allows them to have a clear understanding of business and other organisations.
- We are committed to our EDI & policy. The computing and IT department actively include people from varying different backgrounds and origins to make sure a fair representation. We use career spotlights to help tackle this issue giving examples of varied careers and people within those jobs from different cultures and heritage. We create value for female pupils and ethnic minorities by highlighting role models and inspirational people in the creative and tech industries.
- **Beyond the National Curriculum**
  - Our students experience computing and IT education through three strands: Computer Science, Information Digital Technology and Creative Media. The substantive knowledge that underpins these specialism is the same, however allowing different approaches to computing and IT education allows students more opportunities for mastery, autonomy and to be successful to climb their mountain to university, thrive in a top a job or an alternative.

## Overview

All children are entitled to a curriculum and to the powerful knowledge which will open doors and maximise their life chances. Below is a high-level overview of the critical knowledge children will learn in this particular subject, at each key stage through to Year 11, in order to equip students with the cultural capital they need to succeed in life. The curriculum is planned vertically and horizontally giving thought to the optimum knowledge sequence for building secure schema.

		<b>Knowledge, skills and understanding to be gained at each stage*</b>		
		<b>Computing</b>	<b>Digital IT</b>	<b>Creative Media</b>
<b>Year 7</b>	<b>Concepts</b>	E-Safety Hardware and Peripherals, Computer Systems, Storage Devices Algorithms, flowcharts Representing images, binary numbers	Basic Microsoft Skills Introduction to Spreadsheets	Magazine Creation on Microsoft Publisher Image productions, editing media productions
	<b>Procedural Knowledge</b>	Online Safety, designing algorithms, flowchart symbols, step by step instructions, binary numbers 0,1. Software, Hardware, Input and output devices. Comparing storage devices.	How to format, complete accurate functions, generate data. Selecting appropriate tools to	Types of media products Using Microsoft publisher, Powerpoint, Microsoft Word Creating word documents to write a written document Using the internet to research
<b>Year 8</b>	<b>Concepts</b>	Operating Systems and systems security Computer Crime Programming Representing Images in Binary	Operating Systems Advanced Spreadsheets	Leaflet Creation Mobile applications Enhanced Image Productions
	<b>Procedural Knowledge</b>	Image representation through colours, numbers and characters ASCII Characters, Metadata, Pixelated	Publisher skills Researching and implementation process	User Interface design, house style designs, design principles, prototyping, logo creation, storyboard and sketching, review and improving from user reviews Evaluating and analysing media products
<b>Year 9</b>	<b>Concepts</b>	Introduction to user interfaces and how hardware and software's are linked to communicate with user interfaces	Exploring User Interface	Exploring Media Products
	<b>Procedural Knowledge</b>	Target Audience Basic inputs and outputs of a system Computer Systems	Research and Evaluate Essay Writing Project proposals Prototyping Storyboard, review and refine	Research and Evaluate, Essay Writing, Pre Production process
<b>Year 10</b>	<b>Concepts</b>	Cyber Security Issues Environmental and Social Issues.	Creating a project plan, Designing an efficient user interface, Audience needs, Developing a user interface, refining the user interface, Review and analysis, collecting, presenting and interpreting data, characteristics of data and information, data processing methods, threats, produce a dashboard	Evaluation, Photography, Photoshop, Publisher Design, Mood-boards, Prototype, Storyboards, Photo Manipulation, Pre-Production Process, Production Process and Post-production process
	<b>Procedural Knowledge</b>	User Accessibility and its uses in information systems Hardware/Software & User Requirements, project constraints, security constraints. Internal Threats/External Threats	User Interface Design, Design principles, Transferable data manipulation tools to make effective designs, data analytics, managing data, data modelling, data conclusions, dashboard creation	Photography, Implementation, Photo Manipulation, Editing processes, pre-production process
<b>Year 11 Exam Preparation/ Projects</b>		Paper 1 and Paper 2 Revision Exam preparation Paper 1: Computer Systems Paper 2: Computational Thinking and programming	Component 2: (Unseen brief from exam board released in November) Component 3 Creative Media: (Unseen brief from exam board released in March) Component 3 Digital Information Technology: Effective Digital Practices External Exam (Modern Technologies, Impact of Modern Technologies, Cyber Security, Prevention and Management of threats to data, Policy, Wider implication of digital systems, Legal and Ethical, Planning and Communication in Digital Systems	

**\*A powerful, knowledge-rich curriculum teaches both substantive knowledge (facts; knowing that something is the case; what we think about) and non-declarative or procedural knowledge (skills and processes; knowing how to do something; what we think with). There are no skills without bodies of knowledge to underpin them. In some subjects, a further distinction can be made between substantive knowledge (the domain specific knowledge accrued e.g. knowledge of the past) and disciplinary knowledge (how the knowledge is accrued e.g. historical reasoning). Please refer to the DAT Curriculum Principles, published on the Trust website, for further information about how we have designed our curriculum around these concepts**

## Homework

**From Y7 onwards, our belief is that homework should be interleaved revision of powerful knowledge that has been modelled and taught in lessons. This knowledge is recalled and applied through a range of low-stakes quizzing and practice for every year group and is tied to Morning Meeting.**



***In addition, to support depth of learning and retrieval of powerful knowledge specifically in our subject domain we also:***

- The computing department uses Seneca learning and paper-based quizzes for students to reflect on their learning from lessons. This is regularly checked and misconceptions are addressed in lesson Do Nows. Students in upper school are provided with a retrieval practice booklet and exam practice booklets to complete parts of this as homework, using exam questions and techniques to prepare themselves for their GCSE. For BTEC DIT/Creative Media students, homework worksheets are provided for them to recall knowledge and apply this on their written research tasks to prepare for individual project based responses.