Computing Phase One Curriculum

Curriculum Intent:

Computing at Trinity Academy St Edwards equips students to become digital citizens who can Communicate effectively. They are cyber security aware, with the ability to creatively use a range of computer devices and systems, enabling them to engage fully in a digital society. It supports students to become computational thinkers who can approach problems in a logical way.

Golden threads:

- Computer science
- Information technology
- Digital literacy

Overview:

The computing curriculum develops students into digital citizens by delivering a wide variety of projects where students take on the role of various positions in the IT industry. Students are aware of the skills required to be able to complete the tasks for each role to a high standard. Through delivery of projects including cyber security, coding and data modelling the curriculum is commensurate with the national curriculum and students are at the heart of its design to ensure engagement and progress.

Year 7

Content:

Project 1	Project 2	Project 3	Project 4
Cyber Security and Me **Vehicle:** Lightbox competition	**Can you reach your goal? (Scratch)** **Vehicle:** TASE game tournament	**Social media campaign (Vector)** **Vehicle:** info graphic	**Binary code** **Vehicle:** can you compute?
In this project students will develop knowledge and skills about how to protect themselves, their data, and their devices online. Students will take on the role as a 'Cyber security officer', they will design their own workstation looking at hardware and software requirements. Once they understand their role and protection methods students will	In this project students will be complete a project using the software Scratch. This is a programming project whereby students will take on the role as a 'Game designer'. In this role they will create their own version of the popular maze game 'Pac-Man'. This project will see students learn block coding to programme all sections	In this project students will learn the difference between raster and vector graphics. They will understand what creates a vector graphic looking at advantages and disadvantages of using such tools. Once students have some knowledge of this field, they will take on the role of a 'Social media manager'. In their role	In this project students will take on the role of a 'computer. They will convert from denary to binary and vice versa to understand who a computer operates. Once students are confident in this hexadecimal will be introduced and students will create and calculate pixel art. The key piece of work in this project will be pixel art containing the

present this in a Sway presentation aimed at users of the local library. Final products will be judged by staff at the Lightbox library. The best presentations will be awarded prizes and their work will be on display in the library.	of the game, from creating the maze, to programming the enemies to chase their character. Programming terms sequencing, iteration and selection will be vital to students beginning their coding journey. Final product of the maze game will be the key piece of work in this project.	they will create a social media campaign to launch a new product. The key piece of work in this project will be the social media campaign containing vector graphics for a specific audience and purpose. This will be assessed in the last 2 lessons of the project.	calculations to convert the image into binary. This will be assessed in the last 2 lessons of the project.

Year 8

Content:

Project 1	Project 2	Project 3	Project 4
Real Computer Crimes/ Businesses and Cyber Crime **Vehicle: Cybercrime around the world.**	**BBC Micro: Bit** **Vehicle: Retro style games.**	**Graphics (Photoshop)** **Vehicle: Game environment design.**	**Computer Bots** **Vehicle: Chat bot for given scenario.**
In this project students will look at real cybercrimes from around the world. They will learn reasons why people carry out cyber-attacks and the effects these attacks can have on the victims of the attacks. The key piece of work in this project will be a podcast where students have interviewed the author of a piece of malware that caused significant disruption to the digital world. This will be assessed in the last 2 lessons of the project.	In this project students will code BBC Micro: bits. BBC Micro: bits are coded with blocks in 'make code' and students will produce a series of retro style games. Magic 8 ball, coin toss, hot potato and many more. Problem solving and computational thinking skills all play a key role in this project. The key piece of work in this project will be a crystal ball code and	In this project students will use raster graphics to produce promotional material. They will edit images, apply filters, modify, and rotate. Creativity plays a key role in this project. The key piece of work in this project will be the final game environment created though out the project.	In this project students will learn about Artificial Intelligence (AI) and understand there are different types of Bots. Students will create a chat bot using vector and raster graphics. They will then write an algorithm, produce pseudocode, produce a flowchart and create the code for a chatbot. The key piece of work in this project will be the chat bot as a system assessed in the penultimate lesson of the project.

	debugging given codes assessed in the penultimate lesson of the project.		

Year 9

Content:

Project 1	Project 2	Project 3	Project 4
Python (text coding) **Vehicle: Hello world**	**Networking** **Vehicle: Network topologies**	**Big data** **Vehicle: Cyber-attacks data**	**Crack the code** **Vehicle: Escape room**
In this project students will use python to code a variety of scenarios. This builds on student's algorithm, pseudocode and flowchart knowledge. Sequence, selection and iteration will be at the heart of the codes. The key piece of work in this project will be a Python code for a specific audience and purpose. This will be assessed in the last 2 lessons of the project.	In this project students will take on the role of a network manager. Students will be given a scenario to design and build a network. They will need to know the hardware required considering advantages and disadvantages before making decisions. Students will then need to produce training material for the network and a security policy. The key pieces of work in this project will be the network design and security policy.	In this project students will take on the role as 'Data analysist'. They will be collected raw data about cyber-attacks to enter using a variety of input methods. Once the data is input students will create formulas and functions that will allow them to model the data. While modelling the data students will be able to make recommendations based on their findings on how to stay safe from cyber-attacks. The key piece of work in this project will be the use of formulas and functions assessed throughout the project.	In this project students will create and solve escape room style games. The games will be based on all topics covered in KS3, creating games for coding, graphics, data representation, networks, AI and so much more! The key piece for this project will be the final escape room. This will be assessed in the last 2 lessons of the project.

Who to contact about Phase One Computing:
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