



Year 7 Computing Curriculum intent

Provide students with the opportunity to develop their basic computing skills, understand how computers connect with each other. They will develop an understanding and appreciation of staying safe while using a computer then being to develop programming skills using block-based programming.

Year 7 Computing Curriculum Overview

Topic 1	Topic 2	Topic 3	Topic 4	Topic 5	Topic 6
Computing Fundamentals	Networks	Computational Thinking	E-safety	Programming Fundamentals	Vector Graphics
Key Question					
How do we use computers effectively at Grace College?	How do computers connect?	How do I think like a computer?	How do I use technology safely?	How can we program a computer to perform tasks	How are images produced on a computer?
Key Vocabulary					
Security Password Microsoft Office Etiquette Presentation Infographic	Network Protocol Hardware Software Wired Wireless	Pattern Selection Decomposition Abstraction Algorithm Sorting	Malware Virus Worm Trojan Spyware Anti-virus	Block based Input Variables Logic Loops Micro:bit	Vector Bitmap Group Layer Line Path

	The knowledge you will need to recall:	How you will apply this knowledge:	This links to:
1	- When you access a computer, it is important your log in routines are safe and secure, this includes your password. - Emails are an important type of communication in the modern world but there are some rules that should be considered when sending them - Different Office 365 applications have different functions, and it is important that the correct one is chosen to ensure work is as effective and efficient as possible	- You will learn the rules about how to be safe and secure when accessing computers, this includes being able to set a secure password, how often to change it. Then set your own secure password for your school account. - You will learn the various protocols surrounding email usage and composition and be able to recognise inappropriate emails. You will use this knowledge to send an appropriate email to your tutor. - You will learn the function and use of all the Office 365 suite of applications and their purpose. Then select the most appropriate to create an informative artefact.	This creates the foundations that will be needed every time a computer is used for a functional purpose. iDEA award Safe Online Citizen badge
2	- Computers use a range of protocols to function effectively - A network is 2 or more computers connected together but there are a range of hardware components that allow this to happen - Data travels in packets - The internet is a worldwide network that has a range of protocols that must be followed	- You will learn how a protocol is used to send a message - You will identify the types of hardware used to create a network and be able to select the most appropriate pieces of hardware to create a network in a range of scenarios - You will be able to identify what constitutes a packet and be able to translate a message from provided packet data - You will be able to identify and select key protocols that make up the internet	Topic 2 Year 8- Inside a Computer as it builds on the hardware knowledge to develop understanding about how it operates Topic 4 GCSE Computer Science Paper 1 and Component 3 Learning Aim A which looks in more detail about the intricacies of networking IDEA award Working from Home Worker badge
3	- When a computer performs an action, it breaks it into 4 key functions, this is known as computational thinking - The four computational cornerstones are: Abstraction, Decomposition, Algorithmic Thinking, Pattern Recognition	- You will apply your understanding of each of the cornerstones to a range of problems to develop your ability to think like a computer. - You will use these cornerstones to be able to solve the game Compute it: Toxicode	Year 9 topic 2 Python Programming/GCSE Computer Science Paper 2 where students will take their understanding of the principles of Computational thinking and apply to programming precepts Topic 1 GCSE Paper 1 Computational thinking unit takes basic understanding of the 4 cornerstones and develops into more complex concepts Component 3 Learning Aim D where students will look at the flow of information through flowcharts and data diagrams IDEA award Automation Maker Badge
4	- Staying safe when using the computer is very important and there are several threats that can prevent this and compromise our personal safety. Malware is the most common external threat that can interfere with how our computer operates - Hackers can attack our computers to steal information from a user, but not all hackers are bad.	- You will use your understanding of the range of malware that exists to be able to identify the type and the potential impact of the malware on a personal computer but also to an organisation and how to prevent it - You will be able to identify different types of hackers (white, grey and black hat).	This links to the E-Safety Citizen badge on the iDEA Bronze pathway which is part of the homework tasks Topic 5 GCSE Paper 1 Topic 5 Issues and Impacts and BTEC Digital Information Technology Component 3 Learning aim B Cyber Security where students consider the risks of using a computer IDEA award Cyber Security Citizen Badge
5	Computers use code to run. Block based coding is an entry level programming language that enables a computer to perform actions.	You will use computational thinking skills to programme the computer to undertake a range of actions using block-based coding	Topic 5 and 6 in Year 8 where students are using their programming understanding to develop further into physical computing tasks and using Microbits to perform tasks. IDEA award Game Designer Gamer Badge
6	- Images can be classified as bitmaps or vectors; their composition and production are very different but also recognisable due to their distinct features. - Vector graphics are used by computer-based designers to create a range of images - Different functions when creating vector graphics result in varying levels of complexity and detail	- You will be able to differentiate between a vector and bitmap image by being able to recognise the key features of each - You be able to identify the different functions and actions used when creating vector graphics. - You will use these functions and actions to create a series of vector graphics for a given purpose.	Topic 1 Year 9 Going audio visual where students will build on their understanding of image types to look at resolution and colour depth, factors that influence the detail and complexity of an image. GCSE Paper 1 Topic 2 where students look at image representation on a computer BTEC DIT Component 1 students use vector images to create their user interface IDEA award GIF making maker badge