

## Key Stage 3: Year 7 Computer Science

Overall Curriculum Goals			
<ul style="list-style-type: none"> <li>To understand how to use computer network and wider collaborative IT systems at Brian Clarke, safely. <ul style="list-style-type: none"> <li>To understand the concept of building programs for given scenarios</li> <li>To understand the concept of algorithms and instructions/events/actions <ul style="list-style-type: none"> <li>To understand how to manipulate and edit digital images</li> </ul> </li> </ul> </li> </ul>			
Topic 1 (8)	Topic 2 (8)	Topic 3 (8)	Topic 4 (8)
<b>Introduction to the network</b> <ul style="list-style-type: none"> <li>Logging onto the network</li> <li>Setting and changing passwords</li> <li>Creating folders and structuring home drives</li> <li>Accessing, sending, and receiving emails (with attachments)</li> <li>Accessing SharePoint and downloading resources</li> <li>Checking homework on TEAMS (TBC)</li> <li>iDEA Award (Homework – Bronze Award)</li> </ul> <b>Staying safe online</b> <ul style="list-style-type: none"> <li>Online Safety</li> <li>Catfishing</li> <li>CEOP</li> </ul>	<b>Basic Programming using Kodu</b> <ul style="list-style-type: none"> <li>Creating a world</li> <li>Events and Actions</li> <li>Variables</li> <li>Using selection statements</li> <li>Creating paths</li> </ul> <p>Two lessons during this topic to be utilised for BEBRAS:</p> <p>Lesson 1 – Practice using previous years tasks</p> <p>Lesson 2 – Actual BEBRAS entry</p>	<b>Advanced Programming using Python</b> <ul style="list-style-type: none"> <li>Difference between Python and KODU</li> <li>Turtle Graphics</li> <li>Outputs</li> <li>Variables</li> <li>Inputs</li> <li>Data Types</li> <li>Simple Selection</li> </ul>	<b>Digital Graphics using PhotoPea</b> <ul style="list-style-type: none"> <li>Concept of layers</li> <li>Adjustments – Brightness and Contrast, Hue and Saturation</li> <li>Tools – Brush, Eraser, Quick Selection, Spot Healing, Patch, Clone Stamp, Paint Bucket, Shape, Text</li> <li>Applying skills to a client brief</li> </ul>
Key Vocabulary/Concepts/Ideas	Key Vocabulary/Concepts/Ideas	Key Vocabulary/Concepts/Ideas	Key Vocabulary/Concepts/Ideas
Network Username Password Unique File Folder Structure Email Email Attachment Grooming Digital Footprint CEOP	Event Action Terrain / World Selection Loop / Repetition Variable	Editor Shell Syntax Turtle Library and Commands Output / Print Input String Integer Float Variable Selection	Layers Brightness Tools Brush Eraser Quick Selection Spot Healing Patch Clone Stamp Paint Bucket Shape Text
CIAG	CIAG	CIAG	CIAG
	<b>BEBRAS Challenge (November)</b>	Programming Skills – Applications to jobs in all areas of computing and jobs that don't involve computers (Gatsby Benchmark 4)	<b>Alan Turing Cryptography Competition</b>
Homework			
Students will complete their bronze award on iDEA. Point targets will be set each HT, equating to the final 250 required.			

## Key Stage 3: Year 8 Computer Science

Overall Curriculum Goals			
<ul style="list-style-type: none"> <li>Understand cyber security threats, risks, and vulnerabilities. <ul style="list-style-type: none"> <li>Understand how to develop a website using HTML code.</li> </ul> </li> <li>Develop programming skills in Python, becoming more familiar with advanced syntax. <ul style="list-style-type: none"> <li>Understand different pieces of internal and external hardware</li> </ul> </li> </ul>			
Topic 1 (8)	Topic 2 (8)	Topic 3 (8)	Topic 4 (8)
<b>Cyber /Cyber security</b> <ul style="list-style-type: none"> <li>Introduction to cyber and cyber security issues</li> <li>Cyber crime</li> <li>Cyber in sport</li> <li>Data analysis</li> <li>Use of AI and bots</li> <li>Hacking</li> </ul>	<b>HTML website creation</b> <p>Pupils create website based on cyber security research in previous topic</p> <ul style="list-style-type: none"> <li>Creating the HTML skeleton</li> <li>Adding headings and paragraphs</li> <li>Formatting Text</li> <li>Changing backgrounds</li> <li>Adding Images</li> <li>Adding Hyperlinks</li> <li>Creating Tables</li> <li>Using Style Tags</li> <li>Structuring Code</li> </ul> <p>Students will also complete a lesson on Microsoft Excel where they will look at how to create graphs based on data. This will be done after the lesson on tables.</p> <p>Two lessons during this topic to be utilised for BEBRAS: Lesson 1 – Practice using previous years tasks. Lesson 2 – Actual BEBRAS entry</p>	<b>Developing Programming Skills using Python</b> <ul style="list-style-type: none"> <li>Recap of skills covered in Year 7</li> <li>Loops (count-controlled and condition controlled)</li> <li>Lists</li> <li>Functions</li> <li>Dictionaries</li> <li>Random Library</li> <li>Application to a client brief / task</li> </ul>	<b>Hardware</b> <ul style="list-style-type: none"> <li>Advancements in Technology</li> <li>The CPU</li> <li>Job role of the CPU</li> <li>RAM and ROM</li> <li>Input and Output Devices</li> <li>Internal Hardware (HDD, Heat Sink, Graphics Card)</li> <li>Accessibility of Devices</li> </ul>
Key Vocabulary/Concepts/Ideas	Key Vocabulary/Concepts/Ideas	Key Vocabulary/Concepts/Ideas	Key Vocabulary/Concepts/Ideas
Cyber Cybernetics Data Set Sort (Excel) Filter (Excel) Open-Source Intelligence Data Analysis Bot Artificial Intelligence Hacking	HTML Tags Formatting Gradient Style Structure Graphical Representation	Repetition / Loop / Iteration Count-controlled Condition-controlled List / Array Index Element Function Parameter Dictionary Library	CPU Clock Speed Number of Core Cache Memory RAM ROM Volatile Input Device Output Device Internal Hardware External Hardware Fin (Heat Sink) FPS
CIAG	CIAG	CIAG	CIAG
Cybernetics and Data - Careers in Cyber and data analysis across different industries (Gatsby Benchmark 4)	BEBRAS Challenge Discussions re: web development roles - (Gatsby Benchmark 6) Cyber First Trailblazer Day Trip – Applications to jobs in data encryption and cyber security (Gatsby Benchmarks 4, 5 & 6) Alan Turing Cryptography Competition NCSC Cyber Competition – Exposure to cryptography roles - (Gatsby Benchmarks 4 & 6)		Digital Advantage Girls Who Code
Homework			
Students will complete the first 200 points of their silver award on iDEA. Point targets will be set each HT, equating to the 200 required.			

