

Key Stage 3: Year 7 Computer Science

Overall Curriculum Goals					
<ul style="list-style-type: none"> • To understand how to use The Blue Coat computer network and wider collaborative IT systems <ul style="list-style-type: none"> • To understand the concept of algorithms • To understand that a program is an implementation of an algorithm <ul style="list-style-type: none"> • To understand and implement key programming concepts 					
Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Introduction to the network <ul style="list-style-type: none"> • Logging on changing PWD • Introduction to Files/folders • Network drives and locations • Navigating and uploading to Bloodle • Homework blocks • Email (CC, BB, Attach) • What is the internet? • Internet searches (simple and Boolean) • Downloading and saving files. Staying safe online <ul style="list-style-type: none"> • Dangers • How to report 	Simple programming <ul style="list-style-type: none"> • Concept of hardware and software • BBC Micro: bit (programming) • Intro to Micro: bit • Intro to IDE • Understand imperative programming concept Understand and implement the following concepts: - <ul style="list-style-type: none"> • Strings • Variables • Sequence • Selection • Iteration 	Algorithms and Flow charts <ul style="list-style-type: none"> • Understand the concept of an algorithm • Understand the difference between program and algorithm • Understand the concept of control system • Creating basic real-world algorithms e.g. on paper (getting ready for school, crossing road, making sandwich etc.) • Introduce Flowol software • Creating flowcharts for real life control systems using Flowol software (traffic lights, level crossing, automatic home, etc) 	HTML <ul style="list-style-type: none"> • Introduction to coding • Difference between source code and view • Importance of accuracy • Introduction to HTML page layout and tags. Mini Project <p>Mini Website project – mobile phone types/user needs, class survey, create chart in spreadsheet software. Save as image insert into website.</p>	Algorithms (searching and sorting) <ul style="list-style-type: none"> • Introduction to abstract algorithms • What is an 'abstract algorithm?' • Example of searching in real life • Linear search • Examples of sorting in real life • Insertion sort • Bubble sort Data representation <p>Binary Numbers - conversions</p>	Python Introduction <ul style="list-style-type: none"> • What is a programming language? • Difference between Python and HTML • Python is an interpreted language and what it means • Understand source code and running a program • Intro to IDLE ide • Elegant coding conventions • Concepts covered: - Key concepts of turtle
Key Vocabulary/Concepts/Ideas	Key Vocabulary/Concepts/Ideas	Key Vocabulary/Concepts/Ideas	Key Vocabulary/Concepts/Ideas	Key Vocabulary/Concepts/Ideas	Key Vocabulary/Concepts/Ideas
Network, Folder, Directory, Save, Save As, left click, right click, downloads folder, file extension. Password, username, Bloodle, Upload, Drag and drop, Email, CC, BCC, Attachment, Privacy, Signature, Internet, Boolean (and/or) CEOP Safe Reliable Virus	Blocks IDE Strings Variables Sequence Selection Iteration Input, Output, Logic	Algorithm Flowchart Decision box Input Output Terminators Loop Process Stepwise refinement FLOWOL Control Routine Sub – Routine Repetition	TAGS - Heading, fonts, bold, images, hyperlinks, tables, colours, header, title, bold italic, underline and alignment. Format Styles	Searching Sorting Algorithms Bubble Sort Insertion Sort Linear Binary	Turtle Pen up, pen down, forward, left, right Variable IDLE IDE
CIAG	CIAG	CIAG	CIAG	CIAG	CIAG
	BEBRAS Challenge	Alan Turing Cryptography Competition	Discussions re: web development roles and salaries.		Discussions re: programming careers and salaries.

Key Stage 3: Year 8 Computer Science

Overall Curriculum Goals					
<ul style="list-style-type: none"> Understand cyber security threats, vulnerabilities and counter measures. <ul style="list-style-type: none"> Understand and be able to manipulate images <ul style="list-style-type: none"> Understand the content format model Understand and apply Turing complete programming concepts <ul style="list-style-type: none"> Be aware of cyber security threats and vulnerabilities 					
Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
Cyber security <ul style="list-style-type: none"> Research cyber security / legal ethical or social issue online. Data representation <ul style="list-style-type: none"> Binary numbers Binary shifts Digital images 	Photoshop Skills <ul style="list-style-type: none"> Need to be able to manipulate image files. Files from internet – links to HTML Can be used in range of areas. What is it? What is it used for? Why is it important? Intro to GUI 	HTML website creation <ul style="list-style-type: none"> Pupils create website based on cyber security research earlier in year. Document format model though using CSS alongside HTML. Adding audio & video Hyperlinks Image hyperlinks Defensive programming & validation 	Python Programming <ul style="list-style-type: none"> Development maintenance Using repositories Using bulletin boards Producing maintainable code. Strings Comments Variables & concatenation Inputting data Calculations 	Photoshop Skills <ul style="list-style-type: none"> Creating images for website Understand Size & resolution Scalability Audience Understand image file type Understand transparency 	Python Programming <ul style="list-style-type: none"> String operations Functions Data types Lists Selection Iteration Abstraction
Key Vocabulary/Concepts/Ideas	Key Vocabulary/Concepts/Ideas	Key Vocabulary/Concepts/Ideas	Key Vocabulary/Concepts/Ideas	Key Vocabulary/Concepts/Ideas	Key Vocabulary/Concepts/Ideas
<ul style="list-style-type: none"> Malware Virus Trojan Worm Social engineering – blagging, phishing, pharming, shouldering. Copyright Data Protection 	<ul style="list-style-type: none"> Concept of layers Selection tools Transform controls Text Image file types Introduction to the software. Basic tools and tips - Brightness and contrast, cropping, tone adjustment, colour 	<ul style="list-style-type: none"> DIV's Sections Backgrounds Fonts Colours Tables (un)ordered lists hex colours 	<ul style="list-style-type: none"> Input Output Data types Selection Iteration String handling/operations Comments Syntax validation. 	<ul style="list-style-type: none"> Copyright Format Image Font Resolution PPI Scale Audience Layer Transparency 	<ul style="list-style-type: none"> Lists, index, array, Calculations operator, operand String Function (Argument and Parameter) Return Type Integer Float Boolean For While If, elif, else. Square brackets Syntax Abstraction
CIAG	CIAG	CIAG	CIAG	CIAG	CIAG
	BEBRAS Challenge	NCSC Competition Alan Turing Cryptography Competition	Digital Advantage Girls Who Code	Digital:Her	Discussions re: programming careers and salaries.