W+estbourne Academy Curriculum Planning Document

Subject: Computing Year: 7

Timescale	Autumn		Spring		Summer	
Prior Learning (from KS2/3)		7.1 – Computational Thinking 7.5 – Flowcharts and Pseudocode	7.1 - Computational Thinking 7.2 – Coding in Scratch	7.1 - Computational Thinking 7.2 – Coding in Scratch	7.1 - Computational Thinking 7.2 – Coding in Scratch 7.3 – Binary Bits & Bobs	7.1 - Computational Thinking 7.3 – Binary Bits & Bobs 7.4 – Hardware Guide 7.5 – Flowcharts & Pseudocode
Unit Title	**1. Introduction to KS3 Computing**	**2. Coding in Scratch**	**3. Binary Bits and Bobs**	**4. Hardware Guide**	**5. Flowcharts and Pseudocode**	**6. Micro:Bit Madness**
Key knowledge (5-10 points)	1. What is a strong password? 2. How do I search efficiently? 3. How do I use email 4. How do I access resources on a network? 5. Touch Typing 6. What is Computational Thinking?	1. What is programming? 2. What are functions? 3. What are variables? 4. What are loops? 5. What is selection? 6. Where are conditionals used in programming? 7. What are program constructs? 8. What are lists in programming and why are they used?	1. Units of measurement 2. The Binary number system 3. How does binary store images? 4. How does Binary store text and characters? 5. How does Binary store sound?	1. What is a computer? 2. What are input devices & why are they needed? 3. What are output devices & why are they needed? 4. What are processing devices & what do they do? 5. How does the inside of a computer work? 6. What are storage & memory & which ones should you use when	1. What is an algorithm? 2. What do flowchart symbols mean? 3. What is Pseudocode? 4. What are trace tables 5. What are data types 6. Links between flowcharts and pseudocode 7. Links between flowcharts, pseudocode and programs	1. Understand what compiling is 2. Understand how hardware and software work together 3. Know what an accelerometer is 4. Develop understanding of variables, inputs, outputs 5. Understand why computers use a random function
Key skills (optional)	• Setting up & using usernames and passwords • Setting up & using email • Using the internet • Using the network	• Using a graphic editor to create a sprite • Block based programming • Evaluating a program	• Binary conversion • Binary addition • Pixel Art • Encryption/Decryption	• Research skills • Using DTP • Using Multimedia • Summarising	• Design a flowchart …using sequence • …using selection • …using input/output • …using repetition	• Program a Micro:Bit …using sequence • …using selection • …using input/output • ,,,using random
Key terminology	*Computational thinking, user name, strong password, email, subject, signature, mail boxes, CC and BCC, network, drive, touch type*	*Instruction, variable, sequence, programming, movement, control, command, scratch, sprite, process, condition, loop, function, iteration*		*Computer, device, input, output, processing, CPU, RAM, ROM, storage, tracker ball, printer, OCMR, Motherboard, Hard Drive, SSD*	*Algorithm, flowchart, selection, condition, pseudocode, input, output, trace, iteration, sequence, variable, data type, string, integer, real, Boolean*	*Micro:Bit, input, output, accelerometer, Hex, Compiler, Assembler, Flash, Random, Sequence, Selection, Iteration, Bit Map*
Assessment (methods to assess)	• Baseline test at start of unit • Bebras Test end of unit /100	• End of unit assessment as a Google Form /30	• End of unit assessment as a Google Form /17	• End of unit assessment as a Google Form /27	• End of unit assessment as a written test /50	End of unit assessment as a written test /20
Links to other units in KS3/4.	8.2 Problem Solving 9.1 Problem Solving 9.2 Python KS4 2.1 Algorithms KS4 2.2 Programming ***This also underpins every other unit taught in KS3 & KS4***	7.5 Flowcharts & Algorithms 9.2 Python KS4 2.1 Algorithms KS4 2.2 Programming	KS4 1.2 Memory & Storage	KS4 1.1 System Architecture KS4 1.2 Memory & Storage	9.2 Python KS4 2.1 Algorithms KS4 2.2 Programming KS4 2.3 Robust Programs	9.3 Python KS4 1.1. System Architecture KS4 1.5 System Software KS4 2.2. Programming KS4 2.5 Programming Languages

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Unit Title	**1. Digital World**	**2. Problem Solving**	**3. HTML**	**4. Web Design**	**5. Back to the Future**	**6. Digital Graphics**
Key knowledge (5-10 points)	1. Know how to judge whether you can trust online content 2. Know how search engines work 3. Know about copyright law 4. Know about online threats 5. Know about cyber abused and how to handle it	1. Why is Computational Thinking important? 2. How do computers search for information? 3. How do computers sort information? 4. How do computers deal with logic? 5. How can you use Computational Thinking in the real world (escape room challenge)?	1. What is HTML? 2. How do you add & organise content on a web page? 3. What is the difference between a Tag and an Attribute? 4. What is the difference between a browser and a search engine? 5. What is the difference between an ISP and a Web Host?	1. What is Target Audience? 2. What are the key elements of a Master Page? 3. How do you write to persuade? 4. What is a hotspot image? 5. How can you add multimedia and interactive content to a web page? 6. Compare using HTML and WTYIWYG	Recognise the contributions of Computing Science pioneers… 1. Alan Turing 2. George Boole 3. Charles Babbage 4. Tim Berners Lee 5. Sergi Brin & Larry Page 6. Jeff Bezos 7. Hedy Lamarr	1. Identify different Types of Digital Graphic 2. Compare different file formats 3. Why and how are digital graphics used? 4. Identify the properties of digital graphics 5. Consider how purpose / audience influence digital graphics
Key skills (optional)	• Analyse websites for truth and reliability • Search web content efficiently • Mind mapping	• Problem solve using aspects of Computational Thinking, Sorting, Searching	• Adding content in a web page: -Text, Images, Tables, Controlling , Hyperlinks	• Use a web author • Create a web structure • Create a master page • Add content	• Problem Solving • Web Design • Web Searching • Code Breaking	Within a graphics package … • Layering • Applying Masks • Create Opie Images
Key terminology	*Evaluate, Trustworthiness Bias, Reliability, Boolean operator, Copyright, Plagiarism, Cyberbullying Malware, Addiction, Phishing*	*Algorithm, Complex problem, Linear Search, Binary Search, Bubble Sort, Insertion Sort, Boolean logic, Logic gates*	*HTML, web page, web site, align, hyperlink, image, font, body, head, tag, attribute, title, heading, face, size, , internet, table, , italics, browser*	*Target Audience, Navigation Bar, Navigation Button, Banner, Interactive, Hotspot, Site Map, Logo, WYSIWYG, Master Page*		Graphic, raster, bitmap, vector, tiff, gif, jpg, png, bmp, resolutions, pixels, dimensions, compression, mask, layer, crop, rotate, scale
Assessment (methods to assess)	• End of unit assessment as a Google Form /15	• Bebras Test end of unit /100	• End of unit assessment as a Google Form /22	• End of unit assessment as a Google Form /20	• End of unit assessment as a Google Form /40	End of unit assessment as a Google Form /30
Links to other units in KS3/4.	8.3 HTML 8.4 Web Design 9.3 Ready Player One KS4 1.4 Network Security KS4 1.6 Ethical, legal, cultural and environmental impacts of digital technology	9.2 Computational Thinking 9.1 Python Programming KS4 2.1 Algorithms KS4 2.2 Programming	8.4 Web Design KS4 1.3 Networking KS4 2.2 Programming	KS4 1.3 Networks KS4 R081 Pre Production Skills KS4 R085 Create a website KS4 R087 Create a Multimedia Product	9.3 Ready Player One KS4 2.1 Algorithms KS4 1.3 Networking KS4 2.4 Boolean Logic .	KS4 R082 Creating Digital Graphics

WESTBOURNE ACADEMY

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Subject: Computing Year: 9

Timescale	Autumn		Spring		Summer	
Prior Learning (from KS2/3)	7.2 – Programming in Scratch 8.3 - HTML	7.2 – Computational Thinking 8.2 – Problem Solving 7.5 – Flowcharts & Pseudocode 8.3 – HTML 9.1 - Python	8.1 – Digital World 8.5 Digital Graphics	8.4 – Web Design 8.6 – Digital Graphics	8.4 – Web Design 8.6 – Digital Graphics	7.1 – Computational Thinking 7.5 – Flowcharts and Pseudocode 8.2 – Problem Solving
Unit Title	**1. Python**	**2. Problem solving in Python**	**3. Ready Player One**	**4. Research & Plan IMPs**	**5. Create Interactive Multimedia Products**	**6. Project Work**
Key knowledge (5-10 points)	1. What is a text-based programming language? 2. Inputs and Outputs 3. Variables and sequencing 4. Selection and conditions 5. Loops and iteration 6. Library functions including random 7. What is robust programming	1. Flowcharts and Pseudocode revisited 2. Use sequencing in Python to create solutions to real world problems 3. Use selection in Python to create solutions to real world problems 4. Use iteration in Python to create solutions to real world problems 5. Create solutions to improve the usefulness of programs in Pythin	1. What is Virtual Reality? 2. What are the provisions of GDPR? 3. What are the implications of Copyright and Plagiarism? 4. What is the true cost of a mobile phone? 5. The ethical dilemma of Driverless Cars 6. Are video games good or bad? 7. Is social media good or bad	1. What are IMPs 2. What are the common features of IMPs? 3. What is included in pre-production documents? 4. What is a client brief? 5. How do you analyse Target Audience? 6. What is a mood board & why is it used? 7. What is a visualisation diagram and why is it used?	1. What is a Master page? 2. What are the features of a home page? 3. What kind of language is used in an IMP? 4. What is a hotspot image? 5. How do you design for a Target audience?	
Key skills (optional)	• Use a written language to program simple algorithms • Start to use program constructs to develop more complex programs	• Problem solve using Python and aspects of Computational Thinking	• Internet research, summarising and justification	• Research IMPS & features • Interpret a client brief • Analyse target audience • Design mood boards/visual diagrams	• Creating a web site structure • Creating a master page • Adding simple content • Adding complex content • Reviewing a product	•
Key terminology	*Python, program, instruction, code, sequence, selection, iteration, variable, loop, arithmetic operator, logical operator,*	*Computational thinking, Decomposition, Abstraction, Algorithmic thinking, Pattern recognition, Algorithm, Complex problem, Solution*	*Ethical, moral, environmental impact, social media, virtual / immersive platforms, GDPR, copyright, plagiarism,*	*Target Audience, Interactive, storyboard, Site Map, Logo, WYSIWYG, moodboard Client brief, multimedia, buttons, bars, banners*	Master Page, Web Site structure, Banners, Bars, Buttons, House Style, Multimedia content, success criteria, impact, attributes	
Assessment (methods to assess)	• End of unit assessment as a Google Form /20	• Bebras Test end of unit /100	• End of unit assessment as a Google Form /20	• End of unit assessment as a Google Form /20	• End of unit assessment as a Google Form /20	

Links to other units in KS3/4.	9.2 Problem solving in Python KS4 2.1 Algorithms KS4 2,.2 Programming	KS4 2.1 Algorithms KS4 2.2 Programming	KS4 1.3 Networking KS4 R081 Pre Production Skills KS4 1.6 Ethical, legal, cultural and environmental impacts of digital technology	9.5 Create Interactive Multimedia Products KS4 R085 Create a website KS4 R087 Create a Multimedia Product	KS4 R085 Create a website KS4 R087 Create a Multimedia Product	