Computer Science Curriculum Maps

Key stage 3			Key stage 4	
Year 7	Year 8	Year 9	Year 10	Year 11
Computer Hardware 1. What is a computer? (NC KS3: understand computer hardware) 2. What's -inside-a-Computer (NC KS3: understand the hardware and software components that make up computer systems) 3. How-it-all-works (NC KS3: how they communicate with one another and with other systems) 4. The-CPU (NC KS3: how they communicate with one another and with other systems) 6. Hardware-Revision (NC KS3: how they communicate with one another and with other systems) 7. Hardware Assessment (NC KS3: how they communicate with one	**My Digital World** This unit is also part covered in PSD year 8 Summer 2. 1. What to trust online. (NC KS3: protecting their online identity and privacy) 2. How to search smart. (NC KS3: understand a range of ways to use technology safely) 3. Copyrights & Copy wrongs (NC KS3: understand a range of ways to use technology, respectfully, responsibly) 4. Staying safe online. (NC KS3: protecting their online identity and privacy) 5. Evidencing Cyber Abuse. (NC KS3: recognise inappropriate content, contact and conduct, and know how to report concerns)	**Understanding computers.** 1. Elements of a computer. (NC KS3: understand computer hardware) 2. The CPU. (NC KS3: understand computer hardware) 3. Understanding binary. (NC KS3: understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers) 4. Binary Addition. (NC KS3: understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers) 5. Storage devices (NC KS3: understand the hardware and software components that make up computer systems) 6. Revision and assessment **PYTHON**	**J277 UNIT 1 - Computer systems** • **1.1 Systems architecture** **(NC KS4:** develop and apply their analytic, problem-solving, design, and computational thinking skills) links to ks3 yr7 lesson 3&4 & year 9 lesson 2. • **1.2 Memory and storage** **(NC KS4:** develop and apply their analytic, problem-solving, design, and computational thinking skills) Links to KS3 year 7 lesson 1-6 & year 9 lesson 1,3,4 & 5. • **1.3 Computer networks, connections and protocols** **(NC KS4:** develop and apply their analytic, problem-solving, design,	**J277 Unit 2 - Computational thinking, algorithms and programming** • **2.2 Programming fundamentals** (NC KS4: develop and apply their analytic, problem-solving, design, and computational thinking skills) Links to year 7 topic Kodu. year 8 Topic Scratch & year 9 topic Python. • **2.3 Producing robust programs** (NC KS4: develop and apply their analytic, problem-solving, design, and computational thinking skills) Links to year 7 topic Kodu. year 8 Topic Scratch & year 9 topic Python.

another and with other systems) 8. Dirt and feedback Computer Hardware **Kodu** Interface of KODU (NC KS3: understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming) 9 Creating landscapes (NC KS3: design and develop modular programs that use procedures or functions) 10. Navigation and pathing (NC KS3: design and develop modular programs that use procedures or functions) 11. Clones and creatables (NC KS3: design and develop modular programs that use procedures or functions) 12. Pages and selection 13. Game depth and complexity (NC KS3: design and develop modular	6. Living in a digital society. (NCKS3: understand a range of ways to use technology safely) 7. Internet safety Assessment. **Introduction to Programming with Scratch** 8. Introduction-to programming (NC KS3: design and develop modular programs that use procedures or functions) 9/10. Variables and IF statements (NC KS3: design and develop modular programs that use procedures or functions) 11/12 Variables and operators (NC KS3: design and develop modular programs that use procedures or functions) 13/14 The Scratch calculator (NC KS3: design and develop modular programs that use procedures or functions) 15. Revision	7. INTRO TO PYTHON (NC KS3: at least one of which is textual, to solve a variety of computational problems) 8&9. VARIABLES (NC KS3: at least one of which is textual, to solve a variety of computational problems) 10 Commenting (NC KS3: at least one of which is textual, to solve a variety of computational problems) 11. IF Statements (NC KS3: understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching] 12. While loops (NC KS3: understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching] 13.14 Maths quiz	and computational thinking skills) • **1.4 Network security** (NC KS4: understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to report a range of concerns) Links to KS3 year 8 lesson 3,4 • **1.5 Systems software** (NC KS4: understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to report a range of concerns) Links to KS3year 8 lesson 1,3,4 & 6 • **1.6 Ethical, legal, cultural and environmental impacts of digital technology** (NC KS4: understand how changes in technology affect safety, including new ways to protect their online privacy and	• **2.4 Boolean logic** (NC KS4: develop and apply their analytic, problem-solving, design, and computational thinking skills) Links to year 9 lesson 3,4 & 5 • **2.5 Programming languages and Integrated Development Environments** (NC KS4: develop and apply their analytic, problem-solving, design, and computational thinking skills) Links to year 7 topic Kodu. year 8 Topic Scratch & year 9 topic Python.

programs that use procedures or functions) 14. Game controls and movement. (NC KS3: design and develop modular programs that use procedures or functions) 15. Kodu 1 16. Kodu 2 17. Kodu 3 (NC KS3: design and develop modular programs that use procedures or functions) 18Kodu Assessment	(NC KS3: design and develop modular programs that use procedures or functions) 16 Assessment. (NC KS3: design and develop modular programs that use procedures or functions) 17. FEEDBACK (NC KS3: design and develop modular programs that use procedures or functions)	(NC KS3: understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching] 15. PYTHON assessment (NC KS3: use 2 or more programming languages, at least one of which is textual, to solve a variety of computational problems;) 16. Feedback/DIRT 17. consolidate learning	identity, and how to report a range of concerns) Links to KS3 year 8 Lesson 1 – 6. **J277 Unit 2 - Computational thinking, algorithms and programming** • **2.1 Algorithms** (NC KS4: develop and apply their analytic, problem-solving, design, and computational thinking skills) Links to KS3 year 7 lesson 13. Year 8 lesson 8 – 14, year 9 lessons 7 – 14.	