Computing scheme of work, Years 7 to 11

Made by DNEP Education · the same schemes teachers get in the DNEP Lesson Planner

How the scheme works

- Programming every year: Scratch then Python in Year 7, Python built on in Years 8 and 9, and a weekly Python strand at GCSE.
- Years 7 to 9 have one scheme each that suits every exam board. Years 10 and 11 have one scheme per board: OCR J277, AQA 8525 and Pearson Edexcel 1CP2, with theory in specification order.
- 38 teaching weeks a year, split 7, 6, 6, 5, 7, 7 across the half terms. At KS3 a week is one lesson; at GCSE a week is about three lessons.
- All GCSE content is finished by Year 11 Spring 1, leaving the rest of the year for revision and exams.

Year 7 · Computing (every board)

Half term	Weeks	Topic
Autumn 1	1	**Intro:** Logins, file management and expectations
	2	**E-Safety:** Online identity, privacy and passwords
	3	**E-Safety:** Cyberbullying and reporting concerns
	4	**E-Safety:** Grooming, sexting and safe contact
	5	**E-Safety:** Phishing, scams and trustworthy information
	6	**Computational Thinking:** Algorithms, decomposition and abstraction
	7	**Computational Thinking:** Flowcharts and sequence
Autumn 2	8	**Scratch:** Sprites, costumes and sequence
	9	**Scratch:** Animation and loops
	10	**Scratch:** Variables
	11	**Scratch:** Selection and events
	12	**Scratch:** Make your own 2D game
	13	**Assessment:** Autumn assessment and review
Spring 1	14	**Computer Components & Binary:** Input, output and storage devices
	15	**Computer Components & Binary:** Hardware, software and the CPU
	16–17	**Computer Components & Binary:** Introduction to binary
	18	**Computer Components & Binary:** Binary addition
	19	**Computer Components & Binary:** Logic gates: AND, OR, NOT
Spring 2	20	**Python Programming:** Interface, output and calculations
	21	**Python Programming:** Input and variables
	22	**Python Programming:** Data types, casting and comments
	23	**Python Programming:** Selection (if, elif, else)
	24	**Assessment:** Spring assessment and review
Summer 1	25	**Python Programming:** Boolean conditions and nested selection
	26	**Python Programming:** Mini project: quiz program
	27	**Spreadsheets:** Formulas and cell references

Half term	Weeks	Topic
	28	**Spreadsheets:** Functions, sorting and charts
	29	**Spreadsheets:** Modelling data for a user
	30	**Artificial Intelligence:** What AI is and how it learns
	31	**Artificial Intelligence:** Risks, bias and responsible use of AI
Summer 2	32	**Photoshop:** Tools, selections and layers
	33	**Photoshop:** Adjustments
	34–35	**Photoshop:** Space Wars poster for an audience
	36	**Python Programming:** Tracing and debugging
	37	**Assessment:** End-of-year assessment
	38	**Assessment:** Feedback and improvement

Year 8 · Computing (every board)

Half term	Weeks	Topic
Autumn 1	1	**Intro:** Expectations, logins and iTECHs
	2	**Computer Crime & Cyber Security:** Cyber crime and the Computer Misuse Act
	3	**Computer Crime & Cyber Security:** Hacking and malware
	4	**Computer Crime & Cyber Security:** Social engineering
	5	**Computer Crime & Cyber Security:** Protecting accounts and systems
	6	**Computer Crime & Cyber Security:** Copyright, plagiarism and licences
	7	**Computer Crime & Cyber Security:** Health, safety and digital wellbeing
Autumn 2	8	**Python Programming:** Recap: variables and selection
	9	**Python Programming:** For loops
	10	**Python Programming:** While loops
	11	**Python Programming:** Random numbers
	12	**Python Programming:** Validation and verification
	13	**Assessment:** Autumn assessment and review
Spring 1	14	**Computational Thinking:** Boolean expressions and truth tables
	15	**Computational Thinking:** Abstraction and decomposition
	16–17	**Computational Thinking:** Searching: linear and binary
	18–19	**Computational Thinking:** Sorting: bubble and merge
Spring 2	20–21	**Python Programming:** Lists
	22	**Python Programming:** Linear search with lists
	23	**Python Programming:** Mini project: lists and random
	24	**Assessment:** Spring assessment and review
Summer 1	25	**FlowOI:** Flowcharts and control
	26	**FlowOI:** Sensors, decisions and feedback
	27	**Recapping AI:** How AI learns from data
	28	**Recapping AI:** AI at school and in society

Half term	Weeks	Topic
	29	**Developing for the Web:** HTML structure and tags
	30	**Developing for the Web:** Styling with CSS
	31	**Developing for the Web:** Links, images and search engines
Summer 2	32	**Photopea & Canva:** Logo design
	33–34	**Photopea & Canva:** Poster for an audience
	35–36	**Python Programming:** Project: guessing game with loops and lists
	37	**Assessment:** End-of-year assessment
	38	**Assessment:** Feedback and improvement

Year 9 · Computing (every board)

Half term	Weeks	Topic
Autumn 1	1	**Intro:** Expectations, logins and iTECHs
	2	**Computer Fundamentals:** The CPU and the fetch-decode-execute cycle
	3	**Computer Fundamentals:** Memory and storage
	4	**Computer Fundamentals:** Binary recap and hexadecimal
	5	**Computer Fundamentals:** Characters: ASCII and Unicode
	6	**Computer Fundamentals:** Images
	7	**Computer Fundamentals:** Sound
Autumn 2	8	**Python Programming:** Recap: loops and lists
	9	**Python Programming:** String handling
	10–11	**Python Programming:** Procedures and functions
	12	**Python Programming:** Reading and writing text files
	13	**Assessment:** Autumn assessment and review
Spring 1	14	**Fundamentals of the Internet:** The internet and the World Wide Web
	15	**Fundamentals of the Internet:** LAN, WAN and connectivity
	16	**Fundamentals of the Internet:** Topologies
	17	**Fundamentals of the Internet:** Client-server and peer-to-peer
	18	**Fundamentals of the Internet:** Protocols and packets
	19	**Fundamentals of the Internet:** Encryption
Spring 2	20	**Python Programming:** Project: decompose and design
	21–22	**Python Programming:** Project: build with functions and lists
	23	**Python Programming:** Project: test and evaluate
	24	**Assessment:** Spring assessment and review
Summer 1	25	**Health & Fitness Website Project:** Research, audience and Gantt chart
	26	**Health & Fitness Website Project:** Wireframes and mood board
	27	**Health & Fitness Website Project:** Build pages in HTML
	28	**Health & Fitness Website Project:** CSS styling and logo
	29–30	**Health & Fitness Website Project:** Interactive features in JavaScript

Half term	Weeks	Topic
	31	**Health & Fitness Website Project:** Testing, feedback and review
Summer 2	32	**E-Safety Recap:** Modern e-safety and digital footprint
	33	**E-Safety Recap:** AI safety, deepfakes and misinformation
	34	**E-Safety Recap:** Law, ethics and the environment
	35	**Python Programming:** Searching and sorting in code
	36	**Python Programming:** Validation and testing
	37	**Assessment:** End-of-year assessment
	38	**Assessment:** Feedback and GCSE preview

Year 10 · Computer Science · OCR J277

Half term	Weeks	Topic
Autumn 1	1–2	Architecture of the CPU (1.1.1)
	3	CPU performance (1.1.2)
	4	Embedded systems (1.1.3)
	5	Programming: variables, constants, operators and data types (2.2.1, 2.2.2)
	6	Programming: inputs, outputs and sequence (2.2.1)
	7	Programming: selection (2.2.1)
Autumn 2	8	Primary storage (memory) (1.2.1)
	9	Secondary storage (1.2.2)
	10	Units (1.2.3)
	11–12	Programming: iteration (count- and condition-controlled) (2.2.1)
	13	Autumn assessment (1.1–1.2, 2.2)
Spring 1	14–15	Data storage: numbers, binary, hex, addition and shifts (1.2.4)
	16	Data storage: characters (1.2.4)
	17	Data storage: images and sound (1.2.4)
	18	Compression (1.2.5)
	19	Programming: string handling (2.2.3)
Spring 2	20–21	Networks and topologies (1.3.1)
	22–23	Programming: 1D and 2D arrays (2.2.3)
	24	Spring assessment (1.2–1.3, 2.2)
Summer 1	25–26	Wired and wireless networks, protocols and layers (1.3.2)
	27	Threats to computer systems and networks (1.4.1)
	28	Identifying and preventing vulnerabilities (1.4.2)
	29–30	Programming: sub programs (procedures and functions) (2.2.3)
	31	Programming: random numbers and file handling (2.2.3)
Summer 2	32	Operating systems (1.5.1)
	33	Utility software (1.5.2)
	34–35	Ethical, legal, cultural and environmental impact (1.6.1)

Half term	Weeks	Topic
	36	Programming: records and SQL (2.2.3)
	37	Practical programming project (2.2, 2.3)
	38	End-of-Year 10 exam (Component 1, 2.2)

Year 11 · Computer Science · OCR J277

Half term	Weeks	Topic
Autumn 1	1	Computational thinking (2.1.1)
	2–3	Designing algorithms: ERL, pseudocode and flowcharts (2.1.2)
	4	Trace tables and refining algorithms (2.1.2)
	5	Searching algorithms: linear and binary (2.1.3)
	6–7	Sorting algorithms: bubble, merge and insertion (2.1.3)
Autumn 2	8	Programming: ERL fluency and Section B practice (2.2)
	9	Defensive design (2.3.1)
	10	Testing (2.3.2)
	11–12	Practical programming project (2.2, 2.3)
	13	Mock exams (J277/01, J277/02)
Spring 1	14–15	Boolean logic (2.4.1)
	16	Languages and translators (2.5.1)
	17	The Integrated Development Environment (2.5.2)
	18	Mock feedback and programming consolidation (2.2)
	19	Paper 2 Section B timed practice (2.1–2.3)
Spring 2	20	Revision: systems architecture, memory and storage (1.1–1.2)
	21	Revision: networks and network security (1.3–1.4)
	22	Revision: systems software and impacts (1.5–1.6)
	23	Revision: Paper 2 Section A algorithms (2.1, 2.4, 2.5)
	24	Revision: Paper 2 Section B programming (2.2–2.3)
Summer 1	25–26	Paper 1 past papers (J277/01)
	27–28	Paper 2 past papers (J277/02)
	29	Targeted gaps (All)
	30–31	Exam period begins (All)
Summer 2	32–38	GCSE exam period and study leave (All)

Year 10 · Computer Science · AQA 8525

Half term	Weeks	Topic
Autumn 1	1–2	Representing algorithms: decomposition, abstraction, pseudocode, flowcharts (3.1.1)
	3	Data types (3.2.1)
	4	Variables, arithmetic and relational operators, input/output (3.2.2–3.2.4, 3.2.7)
	5	Selection and Boolean operations (3.2.2, 3.2.5)

Half term	Weeks	Topic
	6–7	Iteration (3.2.2)
Autumn 2	8	Efficiency of algorithms (3.1.2)
	9	Searching algorithms (3.1.3)
	10–11	Data structures: 1D and 2D arrays (3.2.6)
	12	Data structures: records (3.2.6)
	13	Autumn assessment (3.1–3.2)
Spring 1	14–15	Sorting algorithms (3.1.4)
	16	String handling operations (3.2.8)
	17	Random number generation (3.2.9)
	18–19	Structured programming and subroutines (3.2.10)
Spring 2	20–21	Robust and secure programming: validation, authentication, testing (3.2.11)
	22–23	Number bases and converting between them (3.3.1–3.3.2)
	24	Spring assessment (3.1–3.3)
Summer 1	25	Units of information and binary arithmetic (3.3.3–3.3.4)
	26	Character encoding (3.3.5)
	27	Representing images (3.3.6)
	28	Representing sound (3.3.7)
	29–30	Data compression: Huffman coding and RLE (3.3.8)
	31	Programming practice: strings, subroutines and files (3.2)
Summer 2	32	Hardware, software and software classification (3.4.1, 3.4.3)
	33–34	Boolean logic: gates, XOR and circuits (3.4.2)
	35	Programming languages and translators (3.4.4)
	36–37	Practical programming project (3.2)
	38	End-of-Year 10 exam (3.1–3.4)

Year 11 · Computer Science · AQA 8525

Half term	Weeks	Topic
Autumn 1	1–2	Systems architecture: CPU and fetch-execute (3.4.5)
	3	Systems architecture: memory and secondary storage (3.4.5)
	4	Networks: types, wired and wireless (3.5)
	5	Networks: protocols and the TCP/IP model (3.5)
	6	Networks: topologies and network security (3.5)
	7	Paper 1 programming practice (3.1–3.2)
Autumn 2	8	Cyber security fundamentals and social engineering (3.6.1, 3.6.2.1)
	9	Malicious code (3.6.2.2)
	10	Detecting and preventing threats (3.6.3)
	11	Relational databases (3.7.1)
	12–13	SQL: retrieve, insert, edit and delete (3.7.2)

Half term	Weeks	Topic
Spring 1	14–15	Ethical, legal and environmental impacts and privacy (3.8)
	16	Mock exams (Papers 1 and 2)
	17	Mock feedback (All)
	18–19	Paper 1 timed programming practice (3.1–3.2)
Spring 2	20	Revision: algorithms (3.1)
	21	Revision: programming (3.2)
	22	Revision: data representation (3.3)
	23	Revision: computer systems and networks (3.4–3.5)
	24	Revision: cyber security, SQL and ethics (3.6–3.8)
Summer 1	25–26	Paper 1 past papers (Paper 1)
	27–28	Paper 2 past papers (Paper 2)
	29	Targeted gaps (All)
	30–31	Exam period begins (All)
Summer 2	32–38	GCSE exam period and study leave (All)

Year 10 · Computer Science · Pearson Edexcel 1CP2

Half term	Weeks	Topic
Autumn 1	1	Decomposition and abstraction (1.1)
	2	Algorithms: sequence, selection, iteration; flowcharts and pseudocode (1.2)
	3	Python: variables, operators, input and output (6.1, 6.4, 6.5)
	4	Python: data types (6.3)
	5	Python: selection (6.2)
	6–7	Python: iteration (6.2)
Autumn 2	8	Trace tables and error types (1.2)
	9	Searching: linear and binary (1.2)
	10–11	Python: 1D and 2D lists (6.3)
	12	Truth tables (1.3)
	13	Autumn assessment (1, 6)
Spring 1	14–15	Sorting (bubble and merge) and efficiency (1.2)
	16–17	Binary: unsigned, two's complement and conversion (2.1)
	18	Binary addition, shifts, overflow and hexadecimal (2.1)
	19	Python: string manipulation (6.3)
Spring 2	20–21	Python: subprograms, functions, procedures, local and global (6.6)
	22–23	Data representation: ASCII, bitmaps, sound and limits (2.2)
	24	Spring assessment (1–2, 6)
Summer 1	25	Data storage and compression (2.3)
	26–27	Hardware: von Neumann, fetch-decode-execute, buses (3.1)
	28	Secondary storage and embedded systems (3.1)

Half term	Weeks	Topic
	29	Software: operating systems and utilities (3.2)
	30	Python: CSV text files (6.4)
	31	Python: validation and authentication (6.4)
Summer 2	32	Robust software, audit trails and code reviews (3.2)
	33	Programming languages: low/high level, interpreters, compilers (3.3)
	34–35	Python project: design and build (6.1–6.6)
	36	Python project: test and refine (6.1)
	37	End-of-Year 10 exam with on-screen Paper 2 (1–3, 6)
	38	Exam debrief (All)

Year 11 · Computer Science · Pearson Edexcel 1CP2

Half term	Weeks	Topic
Autumn 1	1–2	Networks: LAN, WAN, the internet, wired and wireless (4.1)
	3–4	Networks: speed, protocols, TCP/IP layers and topologies (4.1)
	5	Network security (4.2)
	6	Python: 2D lists and nested loops (6.2, 6.3)
	7	Python: on-screen practice with the PLS (6)
Autumn 2	8	Environmental issues (5.1)
	9–10	Ethical and legal: personal data, AI and robotics, IP (5.2)
	11	Cybersecurity (5.3)
	12	Python: on-screen practice with the PLS (6)
	13	Mock exams (Papers 1 and 2)
Spring 1	14	Mock feedback (All)
	15–16	Python: problem-solving consolidation (6)
	17	Revisit: computational thinking and data (1–2)
	18	Revisit: computers, networks and impact (3–5)
	19	Timed on-screen Paper 2 (6)
Spring 2	20	Revision: computational thinking (1)
	21	Revision: data (2)
	22	Revision: computers (3)
	23	Revision: networks, issues and impact (4–5)
	24	Revision: on-screen Python (6)
Summer 1	25–26	Paper 1 past papers (1CP2/01)
	27–28	Paper 2 on-screen past papers (1CP2/02)
	29	Targeted gaps (All)
	30–31	Exam period begins (All)
Summer 2	32–38	GCSE exam period and study leave (All)