

I CAN EXPLAIN, APPLY AND EVALUATE
COMPUTER SCIENCE CONCEPTS
CONFIDENTLY IN EXAMS

KS4 GCSE Computer Science



TERM 5 – FINAL REVISION & EXAM PREPARATION

- Full Paper 1 revision
- Full Paper 2 revision
- Walking Talking mocks
- Exam technique

TERM 6 – GCSE EXAMS

- GCSE Paper 1: Computer Systems
- GCSE Paper 2: Computational Thinking & Programming

TERM 3 – ROBUST PROGRAMS & ALGORITHMS

- Validation & sanitisation
- Testing & maintainable code
- Anticipating misuse
- Searching algorithms
- Sorting algorithms:
 - Bubble | Merge | Insertion
- Memory & storage (revisited)

TERM 4 – DATA REPRESENTATION & ARCHITECTURE

- Binary & hexadecimal
- Binary shifts
- Characters, images & sound
- Compression
- CPU performance
- Registers & embedded systems

TERM 1 – SECURITY, ETHICS & PROGRAMMING TOOLS

- Network security threats & prevention
- Operating systems & utility software
- Ethical, cultural, legal & environmental issues
- Programming languages:
 - High-level vs low-level
 - Translators
 - Integrated Development Environments (IDEs)

TERM 2 – PROGRAMMING SKILLS & MOCK EXAMS

- Practical programming:
- Selection & iteration
- Arrays & files
- Subroutines
- SQL & databases
- Full mock exam window
- Paper 1 revision sessions

YEAR 11: Mastery & Exam Success

I UNDERSTAND THE CONTENT
& CAN PROGRAM CONFIDENTLY

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TERM 5 – BIG ISSUES & ALGORITHMS

- Ethical, legal & environmental impacts
- Data protection & computer laws
- Open source vs proprietary software
- Algorithms:
 - Searching
 - Bubble, merge & insertion sort
- System security:
 - Threats & protection

TERM 6 – REVISION & MOCK EXAMS

- Full Paper 1 revision
- Full Paper 2 revision
- Walking Talking mocks
- End-of-year mock exams
- Catch-up & challenge tasks

TERM 3 – INSIDE THE COMPUTER

- CPU and its components
- CPU performance factors
- Registers (PC, MAR, MDR, ACC)
- Embedded systems

TERM 4 – NETWORKS & THE INTERNET

- LAN vs WAN & Network hardware
- Performance factors
- Client-server vs peer-to-peer
- Network topologies
- Protocols & layers
- Packet switching

TERM 1 – HOW COMPUTERS THINK & STORE DATA

- Boolean logic (logic gates & truth tables)
- Computer-related maths
- Memory: RAM, ROM, cache, virtual memory
- Storage: optical, magnetic & solid-state
- Data representation:
 - Binary & hexadecimal
 - Images, sound & compression

TERM 2 – PROGRAMMING BASICS (PYTHON)

- Variables & data types
- Selection (if / else)
- Iteration (for & while loops)
- Arrays (1D & 2D)
- File handling
- Random numbers
- Intro to databases & SQL

YEAR 10: Building Strong Foundations