

Year 10 Computer Science

Below are the topic areas covered over this academic year. Please use the resources to help improve and embed the learning you have completed in school.

Paper 1 Resources

Autumn Term – Topic 1	
Topic Area	Resources
Abstraction and Decomposition	<ol style="list-style-type: none"> 1. https://student.craigndave.org/videos/gcse-edexcel-topic-1a-abstraction 2. https://student.craigndave.org/videos/gcse-edexcel-topic-1a-decomposition
Subprograms	<ol style="list-style-type: none"> 3. https://student.craigndave.org/videos/gcse-edexcel-topic-1a-introduction-to-subprograms
Flowcharts and Pseudocode	<ol style="list-style-type: none"> 4. 5. EDEXCEL GCSE (1CP2) How to produce algorithms (youtube.com)
Algorithms – Sequence, Selection, Repetition and Iteration	<ol style="list-style-type: none"> 5. https://student.craigndave.org/videos/gcse-edexcel-topic-1a-inputs-processes-and-outputs 6. https://student.craigndave.org/videos/gcse-edexcel-topic-1a-how-to-produce-algorithms
Variables, Constants	<ol style="list-style-type: none"> 7. https://student.craigndave.org/videos/gcse-edexcel-topic-1a-introduction-to-programming-concepts
Data Structures and Arrays	<ol style="list-style-type: none"> 8. https://student.craigndave.org/videos/gcse-edexcel-topic-1a-data-structures-and-arrays
Arithmetic, Relational and Logical operators	<ol style="list-style-type: none"> 9. https://student.craigndave.org/videos/gcse-edexcel-topic-1a-the-common-arithmetic-and-comparison-operators 10. https://student.craigndave.org/videos/gcse-edexcel-topic-1a-the-common-boolean-operators
Trace Tables	<ol style="list-style-type: none"> 11. https://student.craigndave.org/videos/gcse-edexcel-topic-1a-using-trace-tables-to-determine-the-purpose-of-algorithms
Syntax, Logic and Runtime Errors	<ol style="list-style-type: none"> 12. https://student.craigndave.org/videos/gcse-edexcel-topic-1a-identifying-errors-and-suggesting-fixes
Bubble and Merge Sort	<ol style="list-style-type: none"> 13. https://student.craigndave.org/videos/gcse-edexcel-topic-1a-bubble-sort 14. https://student.craigndave.org/videos/gcse-edexcel-topic-1a-merge-sort
Linear and Binary Search	<ol style="list-style-type: none"> 15. https://student.craigndave.org/videos/gcse-edexcel-topic-1a-linear-search 16. https://student.craigndave.org/videos/gcse-edexcel-topic-1a-binary-search
Algorithm Efficiency	<ol style="list-style-type: none"> 17. 16. Pearson Edexcel GCSE (1CP2) Topic 1A Algorithm efficiency – Craig 'n' Dave knowledge video index (craigndave.org)
Apply Logical Operators in Truth Tables	<ol style="list-style-type: none"> 18. 19. EDEXCEL GCSE (1CP2) Applying logical operators in truth tables to solve problems (youtube.com)

Spring Term – Data Representation	
Topic Area	Resources
Bit patterns	19. https://student.craigndave.org/videos/gcse-edexcel-topic-2a-bit-patterns
Number Bases	20. https://student.craigndave.org/videos/gcse-edexcel-topic-2a-number-bases
Signed integers - Two's Complement	21. https://student.craigndave.org/videos/gcse-edexcel-topic-2a-signed-integers-using-twos-complement
Binary – Denary Conversions	22. https://student.craigndave.org/videos/gcse-edexcel-topic-2a-converting-between-denary-and-8-bit-binary
Binary Addition	23. https://student.craigndave.org/videos/gcse-edexcel-topic-2a-adding-two-8-bit-binary-integers
Binary Shifts	24. https://student.craigndave.org/videos/gcse-edexcel-topic-2a-binary-shifts
Hexadecimal	25. https://student.craigndave.org/videos/gcse-edexcel-topic-2a-converting-between-denary-and-2-digit-hexadecimal 26. https://student.craigndave.org/videos/gcse-edexcel-topic-2a-why-hexadecimal-is-used-in-computer-science
ASCII	27. https://student.craigndave.org/videos/gcse-edexcel-topic-2b-representing-characters-and-character-sets
Bitmap Images	28. https://student.craigndave.org/videos/gcse-edexcel-topic-2b-representing-images
Sound Representation	29. https://student.craigndave.org/videos/gcse-edexcel-topic-2b-representing-sound
Data Storage	30. https://student.craigndave.org/videos/gcse-edexcel-topic-2b-the-units-of-data-storage
Compression	31. https://student.craigndave.org/videos/gcse-edexcel-topic-2b-compression

Summer Term – Topic 3	
Topic Area	Resources
Common CPU Components	32. https://student.craigndave.org/videos/gcse-edexcel-topic-3a-common-cpu-components-and-their-function
Von Neuman Architecture	33. https://student.craigndave.org/videos/gcse-edexcel-topic-3a-von-neumann-architecture
FDE Cycle	34. https://student.craigndave.org/videos/gcse-edexcel-topic-3a-the-fetch-execute-cycle
Secondary Storage	35. https://student.craigndave.org/videos/gcse-edexcel-topic-3a-common-types-of-storage 36. https://student.craigndave.org/videos/gcse-edexcel-topic-3a-the-need-for-secondary-storage
Embedded Systems	37. https://student.craigndave.org/videos/gcse-edexcel-topic-3a-embedded-systems
Internet of Things	38. https://student.craigndave.org/videos/gcse-edexcel-topic-3a-the-internet-of-things

Purpose and Functionality of Operating Systems	39. https://student.craigndave.org/videos/gcse-edexcel-topic-3b-the-purpose-and-functionality-of-operating-systems
Operating Systems	40. https://student.craigndave.org/videos/gcse-edexcel-topic-3b-operating-systems-part-1 41. https://student.craigndave.org/videos/gcse-edexcel-topic-3b-operating-systems-part-2
Utility Software	42. https://student.craigndave.org/videos/gcse-edexcel-topic-3b-utility-software
Robust Software	43. https://student.craigndave.org/videos/gcse-edexcel-topic-3b-importance-of-robust-software
Different Languages – High and Low Level	44. https://student.craigndave.org/videos/gcse-edexcel-topic-3b-characteristics-and-purpose-of-different-levels-of-programming-language
Compilers and Interpreters	45. https://student.craigndave.org/videos/gcse-edexcel-topic-3b-characteristics-of-compilers-and-interpreters

Below are the topic areas covered over this academic year. Please use the resources to help improve and embed the learning you have completed in school.

Paper 2 Resources – Programming

Autumn – Summer Term	
Topic Area	Resources
Abstraction and Decomposition	https://student.craigndave.org/videos/gcse-edexcel-topic-6a-using-abstraction-decomposition-to-solve-problems
Algorithmic Thinking	https://student.craigndave.org/videos/gcse-edexcel-topic-6a-algorithmic-thinking
Producing Algorithms using pseudocode and flowcharts	https://student.craigndave.org/videos/gcse-edexcel-topic-6a-how-to-product-algorithms-using-pseudocode-and-flow-diagrams
Syntax and Logic Errors	https://student.craigndave.org/videos/gcse-edexcel-topic-6a-how-to-identify-syntax-and-logic-errors
Is your program efficient?	https://student.craigndave.org/videos/gcse-edexcel-topic-6a-evaluating-a-programs-fitness-for-purpose-and-efficiency
Data Types	https://student.craigndave.org/videos/gcse-edexcel-topic-6b-the-use-of-data-types-and-casting
Variables and Constant	https://student.craigndave.org/videos/gcse-edexcel-topic-6b-the-use-of-variables-constants-and-assignments
Three basic constructs	https://student.craigndave.org/videos/gcse-edexcel-topic-6b-the-use-of-the-three-basic-programming-constructs
1 and 2-Dimensional Array	https://student.craigndave.org/videos/gcse-edexcel-topic-6b-using-one-and-two-dimensional-structured-data-types
Basic String Manipulation	https://student.craigndave.org/videos/gcse-edexcel-topic-6b-the-use-of-basic-string-manipulation https://student.craigndave.org/videos/gcse-edexcel-topic-6b-formatting-and-customising-string-output
Output	https://student.craigndave.org/videos/gcse-edexcel-topic-6b-user-input-and-display-output

Basic File Handling	https://student.craigndave.org/videos/gcse-edexcel-topic-6b-the-user-of-basic-file-handling-operations
Data Validation	https://student.craigndave.org/videos/gcse-edexcel-topic-6b-data-validation
Authentication Routines	https://student.craigndave.org/videos/gcse-edexcel-topic-6b-simple-authentication-routines
Arithmetic/Logic Operators	https://student.craigndave.org/videos/gcse-edexcel-topic-6b-using-arithmetic-comparison-and-logic-operators-in-programs
Subprograms	https://student.craigndave.org/videos/gcse-edexcel-topic-6b-how-to-use-pre-existing-and-user-devised-subprograms
Math and Time Module	https://student.craigndave.org/videos/gcse-edexcel-topic-6b-the-math-and-time-module
Python Turtle	https://student.craigndave.org/videos/gcse-edexcel-topic-6b-the-turtle-module
Local and Global Variables	https://student.craigndave.org/videos/gcse-edexcel-topic-6b-local-and-global-variables