



Curriculum Overview: Pearson Edexcel Computing GCSE Topic 1, Computational Thinking, Topic 2 Data and Topic 3 Computers. Year Group 10

What your child will learn each half term

This overview shows the key topics, skills, and knowledge your child will be learning in **Computing in Year 10**. It helps families understand what's being taught, how it builds on previous learning, and how you can support your child at home.

- **What we are learning:** The topic or focus for the half term.
- **Key knowledge & skills:** What students should understand and be able to do.
- **How we assess learning:** knowledge checks, practical tasks, written responses and formal assessments.
- **Key words to know:** Vocabulary students will learn and use.

In Year 10 we will cover the whole of Topic 1, Topic 2 and Topic 3T. Topics 4 and 5 will be included on the Year 11 document.

Half term	What we are learning	Key knowledge	Key skills	How we will assess learning in this unit	Homework
HT 1 – 2 (Sept – Dec) Topic 1 Computational Thinking Topic 6 Problem Solving with programming (This topic will be delivered throughout year 10)	Students are expected to develop a set of computational thinking skills that enable them to design, implement and analyse algorithms for solving problems. Learning to program is a core component of a computer science course. Students should be competent at designing, reading, writing and debugging programs. They must be able to apply their skills to solve real problems and produce readable, robust programs.	Decomposition and Abstraction Algorithms Truth Tables	Using computing key terms to support written answers Learning Python basics to support computational thinking Predicting outcomes of algorithms	Knowledge check on retrieval activities in class and Team Quizzes Short written tasks on explain questions in class and the end of unit assessment Coding tasks to be completed in lessons and as homework	Teams quizzes to build key term confidence Revision for the end of unit assessment – supported by lesson resources on Teams Coding challenges
Key vocabulary for this unit Abstraction, Decomposition, Subprogram, Algorithm, Flowchart, Pseudocode, Sequence, Selection, Count-controlled repetition, Condition-controlled repetition, Processes, Outputs, Variables, Constants, 1D data structure, 2D data structure, Strings, Records, Arrays, Mathematical Operators, Comparison Operators, Logical Operators, Trace table, Syntax error, Logic error, Runtime error, Bubble and Merge sort, Linear and Binary search, Algorithm efficiency, Truth table.					

Half term	What we are learning	Key knowledge	Key skills	How we will assess learning in this unit	Homework
HT 3-4 (Jan – March) Topic 2 Data Topic 6 Problem Solving with programming (This topic will be delivered throughout year 10)	Computers use binary to represent different types of data. Students are expected to learn how different types of data are represented in a computer.	Binary numbers, Hexadecimals, Two's complement numbers, binary addition. Data representation (sound and images) Data storage and compression	Using binary number system effectively to answer exam questions Analysing problems and applying principles of binary to answer	Knowledge check on retrieval activities in class and Team Quizzes Short written tasks on explain questions in class and the end of unit (EOU) assessment Coding tasks to be completed in lessons and as homework	Teams quizzes to build key term confidence Revision for the EOU assessment – supported by lesson resources on Teams Coding challenges
Key vocabulary for this unit: Base 2, Binary pattern, Unsigned Integer, Signed Integer, Two's Complement, Base 10, Denary, Binary Shift, Arithmetic Shift, Overflow, Base 16, Hexadecimal, 7-bit ASCII, Bitmap, Pixel, Colour Depth, Analogue Sound, Amplitude, Sample Rate, Bit Depth, Sample Interval, Bit, Nibble, Byte, Kibibyte, Mebibyte, Gibibyte, Tebibyte, Data Compression, Lossless Compression, Lossy Compression.					

Half term	What we are learning	Key knowledge	Key skills	How we will assess learning in this unit	Homework
HT 5-6 (April – June) Topic 3 Computers	Students must be familiar with the hardware and software components that make up a computer system.	Common hardware components in a computer system (CPU, RAM) Secondary storage Embedded Systems Software including Operating Systems, Utility software and malware protection. Programming languages	Analyse and Discuss written technique Using computing key terms to support written answers Writing in context	Knowledge check on retrieval activities in class and Team Quizzes Short written tasks on explain questions in class and the end of unit (EOU) assessment Coding tasks to be completed in lessons and as homework	Teams quizzes to build key term confidence Revision for the EOU assessment – supported by lesson resources on Teams Coding challenges Revision for EOY mock exam.
Key vocabulary for this unit : Von Neumann architecture, RAM, CPU, Control unit, ALU, Register, Clock, Address bus, Data bus, Control bus, Fetch-Decode-Execute cycle, Secondary storage, Magnetic storage, Optical storage, Solid-state storage, Embedded system, Operating system, File management, Process management, Peripheral management, User management, Robust software, Utility software, File repair, Backup, Data compression, Disc defragmentation, Anti-malware, Low-level language, High-level language, Interpreter, Compiler, Translator, Machine code					

