

Computer Science Vocabulary for Key Stage 3

Computational Thinking

- Decomposition: Breaking a problem into smaller parts.
- Pattern Recognition: Finding similarities in problems.
- Abstraction: Focusing on important details only.
- Evaluation: Checking how well a solution works.
- Generalisation: Using an existing Algorithm to solve similar problems.
- Algorithm: A set of step-by-step instructions to solve a problem.
- Decomposition: Breaking a problem into smaller parts.
- Flowchart: A diagram that shows the steps in a process.
- Pseudocode: A way to plan code using plain language.
- Debugging: Finding and fixing errors in code.
- Iteration: Repeating a process to get closer to a solution.
- Optimisation: Making a solution as effective as possible.

Programming & Logic

- Algorithm: A set of step-by-step instructions to solve a problem.
- Code: Instructions written in a programming language.
- Debugging: Finding and fixing errors in code.
- Variable: A value that can change in a program.
- Loop: Repeating a set of instructions.
- Condition: A rule that decides what happens next (e.g., if statements).
- Boolean: A data type with only two values: true or false.

Data & Information

- Data: Raw facts and figures.
- Information: Data that has been processed and is meaningful.
- Database: A structured way to store and manage data.
- Spreadsheet: A program for organizing numbers and data in tables.

Block-Based Programming

- Sprite: A character or object in a block-based program.
- Script: A set of blocks that control a sprite.
- Event: Something that triggers code to run (e.g., “when clicked”).
- Broadcast: Sending a message to trigger other scripts.
- Costume: Different appearances for a sprite.
- Backdrop: The background of the stage or scene.
- Motion Block: Moves a sprite.
- Looks Block: Changes how a sprite appears.
- Control Block: Manages the flow of the program (e.g., loops, waits).
- Sensing Block: Detects things like touching or mouse position.

Python Programming

- Syntax: The rules for writing code correctly.
- Function/Subprogram: A block of code that performs a task and can be reused.
- Loop (for/while): Repeats a block of code multiple times.
- Selection (If) Statement: A condition that decides what code runs.
- List: A collection of items stored in one variable.
- String: Text data in programming.
- Integer: A whole number.
- Float: A number with a decimal point.
- Import: Bringing in code from another file or library.
- Indentation: Spaces at the beginning of a line to show code structure.

Hardware & Software

- Hardware: The physical parts of a computer (e.g., keyboard, monitor).
- Software: The programs and operating systems that run on a computer.
- Input Device: A device used to enter data (e.g., mouse, keyboard).
- Output Device: A device that shows results (e.g., screen, printer).
- CPU (Central Processing Unit): The brain of the computer that processes instructions.
- RAM (Random Access Memory): Temporary memory used while programs are running.
- Storage: Where data is saved (e.g., hard drive, USB stick).

SketchUp & CAD

- CAD: Computer Aided Design
- 3D Model: A digital representation of a three-dimensional object.
- Orbit: Rotating the view around a 3D model.
- Push/Pull Tool: Used to make shapes 3D by pulling or pushing surfaces.
- Component: A reusable object in a model.
- Group: A collection of objects treated as one.
- Scale Tool: Changes the size of an object.
- Axis: The red, green, and blue lines that guide 3D space.
- Measurement Box: Shows dimensions and allows precise input.
- Face: A flat surface on a 3D shape.
- Edge: A line where two faces meet or A line between two Vertex.
- Vertex: A point on a 3D shape

Animation & Video Editing

- Frame: A single image in a sequence of animation or video.
- Timeline: A visual representation of time in video editing software.
- Keyframe: A frame where a change happens in animation (e.g., position, size).
- Transition: An effect that moves from one scene or clip to another.
- Rendering: The process of generating the final video or animation.
- Storyboard: A sequence of drawings that show the scenes in an animation or video.
- Layer: A level in editing where different elements (text, images, effects) are placed.
- Clip: A short piece of video or audio.
- Cut: A basic editing technique to remove or split parts of a video.
- Export: Saving the final version of a video in a specific format.

Digital Literacy and E-safety

- Word Processor: A program for writing and editing text documents (e.g., Microsoft Word).
- Spreadsheet: A program for organizing numbers and data in tables (e.g., Microsoft Excel).
- Presentation Software: A program for creating slideshows (e.g., Microsoft PowerPoint).
- Email: A way to send messages electronically (e.g., Outlook).
- Cloud Storage: Saving files online so they can be accessed from anywhere (e.g., OneDrive).
- Collaboration: Working together on a document or project.
- Template: A pre-designed layout for a document.
- Formatting: Changing the appearance of text or objects in a document.
- Shortcut: A quick way to perform a task (e.g., Ctrl+C to copy).
- Attachment: A file sent with an email.
- Internet: A global network that connects computers.
- Browser: A program used to access the internet (e.g., Chrome, Firefox).
- URL: The address of a web page.
- Cybersecurity: Protecting computers and data from attacks.
- Password: A secret word or phrase to access something securely.
- Phishing: A scam to trick people into giving personal information.
- Cyberbullying: Bullying that happens online.
- Privacy Settings: Controls that help you manage who sees your information online.
- Digital Footprint: The information about you that exists on the internet.
- Two-Factor Authentication: A security process that requires two forms of identification.
- Malware: Software designed to harm your computer.
- Phishing: A scam to trick people into giving personal information.
- Firewall: A system that helps protect your computer from attacks.
- Encryption: A way to protect information by changing it into a code.
- Social Engineering: Tricking people into giving up information.
- Safe Browsing: Practices that help you stay safe online.

Number Systems

- Binary (Base 2): A number system that uses only two digits: 0 and 1. Computers use binary to represent all data.
- Bit: Short for 'binary digit'; the smallest unit of data in a computer.
- Byte: A group of 8 bits. Often used to represent a single character.
- Nibble: A group of 4 bits. Half of a byte.
- Decimal (Base 10): The standard number system we use every day, using digits 0–9.
- Hexadecimal (Base 16): A number system using digits 0–9 and letters A–F. Often used in computing to represent binary in a shorter form.
- Place Value: The value of a digit depending on its position in a number.
- Convert: Changing a number from one base to another (e.g., binary to decimal).
- Overflow Error: When a calculation produces a result too large for the number of bits available.

Images in Computing

- Pixel: The smallest unit of a digital image. Short for 'picture element.'
- Resolution: The number of pixels in an image (e.g., 1920×1080). Higher resolution means more detail.
- Bitmap: An image made up of pixels, where each pixel has a specific color.
- Vector Image: An image made using shapes and lines, which can be resized without losing quality.
- Colour Depth: The number of bits used to represent the color of a single pixel.
- File Size: The amount of storage space an image takes up, affected by resolution and color depth.
- Compression: Reducing the file size of an image (or sound) by removing unnecessary data.
- Lossy Compression: Reduces file size by removing some data permanently (e.g., JPEG).
- Lossless Compression: Reduces file size without losing any data (e.g., PNG).

Sound in Computing

- Sample: A measurement of sound at a specific point in time.
- Sample Rate: The number of samples taken per second, measured in Hertz (Hz).
- Bit Depth: The number of bits used to store each sample. Higher bit depth means better sound quality.
- Waveform: A visual representation of a sound wave.
- Amplitude: The height of the wave, which determines volume.
- Frequency: How fast the wave oscillates, which determines pitch.
- MP3: A common audio file format that uses lossy compression.
- WAV: An audio file format that uses little or no compression, often higher quality.
- Codec: A program or device that compresses or decompresses digital media.