

Year 8 – Key Terms

Half Term 1 – Computer Hardware

Key Term	Definition
Hardware	The physical parts of a computer you can touch, like the keyboard or monitor.
Software	The programs and instructions that tell the computer what to do.
Input Device	A device that sends data into the computer (e.g. keyboard, mouse).
Output Device	A device that shows or gives out information from the computer (e.g. screen, printer).
CPU (Central Processing Unit)	The brain of the computer that carries out instructions.
RAM (Random Access Memory)	Temporary memory that stores data while the computer is on.
ROM (Read Only Memory)	Permanent memory that stores important startup instructions.
Fetch-Decode-Execute Cycle	The process the CPU uses to run instructions: get them, understand them, do them.
Clock Speed	How fast the CPU works, measured in Hertz (Hz).
Gigahertz (GHz)	A billion cycles per second – shows how fast a CPU is.
Binary	A number system using only 0s and 1s, used by computers.
Denary	The number system we use every day, based on 10 digits (0–9).
Bit	The smallest piece of data in a computer – either a 0 or a 1.
Byte	A group of 8 bits.
Overflow	When the result of a binary addition is too big to fit in the available number of bits.
Storage Device	A device that saves data for later use (e.g. hard drive, USB stick).
Capacity	How much data a device can hold.
Megabyte (MB)	About 1,000 kilobytes.
Gigabyte (GB)	About 1,000 megabytes.
Terabyte (TB)	About 1,000 gigabytes.
Optical Media	Storage that uses light (lasers) to read/write data (e.g. CDs, DVDs).
Pits and Lands	Tiny bumps and flat areas on a CD that represent 0s and 1s.
Laser	A beam of light used to read or write data on a CD.

Half Term 2 - Python

Key Term	Definition
Python	A high-level, interpreted programming language known for its readability and simplicity, widely used for web development, automation, data analysis, and more.
Output	Information that a program sends out, typically displayed to the user using functions like <code>print()</code> in Python.
Input	Data received by the program from the user, often using the <code>input()</code> function in Python.
Variable	A named storage location in a program that holds a value which can change during program execution.
Data Type	The classification of data items, such as integers (<code>int</code>), float, strings (<code>str</code>), and boolean (<code>bool</code>).
Sequencing	The order in which instructions are executed in a program, from top to bottom.
Selection	A programming concept where decisions are made using conditional statements like <code>if</code> , <code>elif</code> , and <code>else</code> .
Iteration (Loops)	The process of repeating a set of instructions using loops such as <code>for</code> and <code>while</code> in Python.
Flowchart	A diagram that represents the flow of a program using symbols to show processes, decisions, and the sequence of steps.

Half Term 3 – Data Representation

Key Term	Definition
Bitmap Graphic	An image made up of pixels arranged in a grid, where each pixel has a specific color value.
Pixel	The smallest unit of a digital image or display, often represented as a tiny square of color.
Resolution	The number of pixels in an image, typically described in width × height (e.g., 1920×1080); higher resolution means more detail.
File Format	A standard way that information is encoded for storage in a computer file (e.g., JPEG, PNG, SVG).
Vector Graphic	An image created using paths, points, lines, and shapes based on mathematical expressions, allowing it to scale without losing quality.
Anchor Point	A point used in vector graphics to define the start or end of a path or shape
Path	A line or curve defined by anchor points in a vector graphic.
Compression	The process of reducing the file size of data, which can be lossy (some data lost) or lossless (no data lost).
Analogue Sound	A continuous sound wave that represents real-world audio, such as a voice or music.
Digital Sound	A representation of sound using binary data, created by sampling the analogue signal at regular intervals.
Sampling Rate	The number of samples of audio carried per second, measured in Hz (e.g., 44,100 Hz); higher rates capture more detail.

Half Term 4 – Computer Networks

Key Term	Definition
Network	A group of interconnected computers and devices that can share resources and information.
LAN (Local Area Network)	A network that connects computers within a limited area such as a home, school, or office building.
WAN (Wide Area Network)	A network that spans a large geographical area, often connecting multiple LANs, such as the Internet.
Network Devices	Hardware used to connect computers and other devices in a network, such as routers, switches, and hubs.
Router	A device that forwards data packets between computer networks, directing traffic on the Internet.
Switch	A device that connects devices within a LAN and uses MAC addresses to forward data to the correct destination.
URL (Uniform Resource Locator)	The address used to access resources on the Internet, such as websites (e.g., https://example.com).
Domain Name	A human-readable address used to identify a website which maps to an IP address (e.g., google.com).
Topology	The physical or logical layout of a network, showing how devices are connected.
Bus Topology	A network setup where all devices are connected to a single central cable.
Ring Topology	A network configuration where each device is connected to two others, forming a circular data path.
Star Topology	A network where all devices are connected to a central hub or switch.
Data Packet	A unit of data sent across a network, containing both the payload (actual data) and control information.
Internet	A global network of interconnected computers that communicate using standardised protocols.

Half Term 5 – Spreadsheets

Key Term	Definition
Formula	A mathematical expression used in a spreadsheet to perform calculations or operations on data, starting with an equals sign (e.g., =A1+B1).
Cell Formatting	Customise the appearance of spreadsheet cells using borders, fonts, and styles to improve readability and presentation.
SUM Function	A spreadsheet function used to add together a range of numbers. For example, =SUM(A1:A5) adds the values in cells A1 through A5.
MAX Function	A spreadsheet function that returns the largest value in a selected range of cells.
MIN Function	A spreadsheet function that returns the smallest value in a selected range of cells.
IF Statement	A logical function that displays different results based on whether a condition is true or false.
Sorting Data	Organising spreadsheet data in a specific order, such as alphabetically (A-Z) or numerically.
Conditional Formatting	Automatically changing the appearance of cells based on their values (e.g., highlighting cells above a certain number).
COUNTIF Function	A function that counts the number of cells in a range that meet a specific condition.
Absolute Cell Reference	A cell reference that remains constant when copied (e.g., \$A\$1).

Half Term 6 - Blender

Key Term	Definition
3D Modeling	The process of creating a three-dimensional representation of an object using vertices, edges, and faces.
Mesh	A collection of vertices, edges, and faces that defines the shape of a 3D object in Blender.
Modifier	A non-destructive operation that alters the geometry of an object (e.g., Subdivision Surface, Mirror, Boolean).
Keyframe	A frame in the timeline where a specific value (like position, rotation, or scale) is recorded for animation.
Timeline	The interface in Blender where you manage and view keyframes and animation sequences.
Texture	A 2D image applied to the surface of a 3D model to give it colour, detail, or patterns.
Material	A set of properties that define how a surface looks, including colour, reflectivity, and texture.
Shader	A program or node setup that defines how light interacts with a surface in Blender.
Render	The process of generating a final image or animation from a 3D scene.
Viewport	The interactive window in Blender where you view and manipulate your 3D scene.