

## Computer Hardware

**CPU (Central Processing Unit)** – The brain of the computer.

**RAM (Random Access Memory)** – Short-term memory used for active tasks.

**HDD (Hard Disk Drive)** – Stores files, slower because it has moving parts.

**SSD (Solid State Drive)** – Faster storage with no moving parts.

**Motherboard** – Connects everything together inside the computer.

**Display** – The screen that shows text, images, and videos.

**Graphics Card** – Handles images, videos, and games.

**Sound Card** – Controls sound input and output.

**Power Supply** – Sends electricity to all computer parts.

## Data Storage and Speed

### Data Storage Order:

**Bit < Byte < Kilobyte < Megabyte < Gigabyte < Terabyte < Petabyte < Zettabyte**

**Each level is about 1,024 times larger than the one before it.**

 **Example: 1 KB  $\approx$  1,024 Bytes**

### Speed (Hertz):

**Hertz (Hz) - 1 action per second**

**Kilohertz (kHz) - 1,000 actions per second**

**Megahertz (MHz) - 1,000,000 actions per second**

**Gigahertz (GHz) - 1,000,000,000 actions per second**

## Binary Code

### Binary Code

**Binary is the computer's language of 1s and 0s.**

**Each letter or symbol has an 8-bit binary code.**

**Example: A = 01000001**

**Challenge: Spell CAT and DOG using binary.**

 **Think of binary as the alphabet computers use to "talk."**

#### **BINARY CODE ALPHABET REFERENCE**

1	A	00001	14	N	01110
2	B	00010	15	O	01111
3	C	00011	16	P	10000
4	D	00100	17	Q	10001
5	E	00101	18	R	10010
6	F	00110	19	S	10011
7	G	00111	20	T	10100
8	H	01000	21	U	10101
9	I	01001	22	V	10110
10	J	01010	23	W	10111
11	K	01011	24	X	11000
12	L	01100	25	Y	11001
13	M	01101	26	Z	11010

## IP Address & Networking

### IP Address & Networking

**IP stands for Internet Protocol** – a set of rules for sending and receiving data.

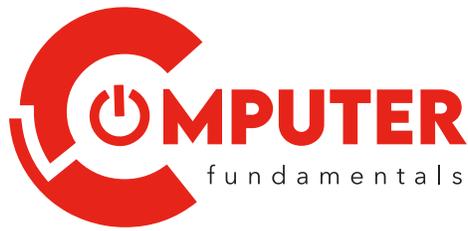
**IP Address** – a unique number that identifies every device on a network.

Example: 192.168.1.1 (used by many home Wi-Fi routers)

**Network** – a group of devices connected to share information, files, or internet access.

**The Internet** – a massive network of smaller networks connected around the world.

💡 Every phone, tablet, or computer has its own IP address – it's like your home address but for your device.



## Key Terms for New Users

**Software** - The programs or apps you use (like Chrome or Word).

**Hardware** - The physical parts of a computer.

**Operating System (OS)** - The main software that controls everything (Windows, macOS, ChromeOS).

**Browser** - App used to visit websites (Chrome, Safari, Edge).

**Wi-Fi** - Wireless connection to the internet.

**Cloud Storage** - Saving files online instead of on your device (Google Drive, Dropbox).