

# Paper 1 | GCSE Computer Science | **Networks** | Required knowledge

## Wired & Wireless networks

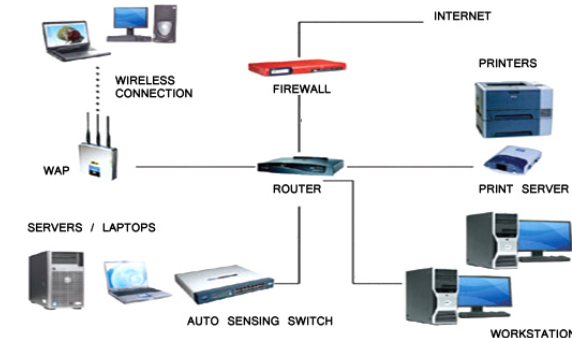
- **Types of network**
  - Local Area Network [LAN]
  - Wide Area Network [WAN]
- **Factors that affect the performance of networks:**
  - Bandwidth
  - Latency
  - Error rate
  - Transmission media
- **Different roles of computers in a network:**
  - Client-server network
  - Peer-to-peer network
- **Hardware needed to connect standalone computers into a Local Area Network:**
  - Wireless Access Points
  - Router
  - Switch
  - Network Interface Card (NIC)
  - Transmission Media
- **The Internet**
  - Definition
  - Domain Name Server [DNS]
  - Web hosting
    - Benefits / Drawbacks
  - The cloud
    - Benefits / Drawbacks
  - Virtual networks

## Network topologies, protocols & layers

- **Topologies**
  - Star
  - Mesh
  - Bus / Ring – why are these no longer used?
- **Wi-Fi:**
  - Frequency & channels
  - Encryption
- **Ethernet**
  - Definition
- **IP addressing & MAC addressing**
- **Protocols:**
  - Transmission Control Protocol / Internet Protocol [TCP/IP]
  - Hyper Text Transfer Protocol [HTTP]
  - Hyper Text Transfer Protocol Secure [HTTPS]
  - File Transfer Protocol [FTP]
  - Post Office Protocol [POP]
  - Internet Message Access Protocol [IMAP]
  - Simple Mail Transfer Protocol [SMTP]
- **The concept of layers**
  - TCP/IP stack
- **Packet Switching**
  - What is a packet?
  - How are packets sent around a network?



TCP/IP model	Protocols and services	OSI model
Application	HTTP, FTP, Telnet, NTP, DHCP, PING	Application
Transport	TCP, UDP	Presentation
Network	IP, ARP, ICMP, IGMP	Session
Network Interface	Ethernet	Transport
		Network
		Data Link
		Physical



It is your responsibility to make sure you regularly revisit this knowledge outside of class.