

High Tunstall College of Science Curriculum Intent

Topic:	Principles of Computer Science	Year:	10	Half Term:	6
	Topic 4: Networks				
	Networks				

	Progress		
Key Ideas	R	Α	G
I can give reasons why computers are connected on a network			
I can differentiate between a LAN and a WAN			
I can categorise tasks according to the type of network required to carry them out			
I can explain the benefits to organisations of a WAN			
I can explain why protocols are needed on a network			
I can describe the purpose of an IP address			
I can define the meanings of the terms 'bandwidth' and 'latency'			
I can explain how bandwidth and latency affect the performance of a network			
I can use bits per second (bps) to describe network speed			
I can construct expressions involving file sizes, transmission rates and times			
I can differentiate between wired and wireless connectivity			
I can explain how data is transmitted along copper and fibre-optic cables			
I can compare the performance of copper and fibre-optic cables and give examples of their use			
I can describe how high-speed broadband is delivered			
I can describe how devices are connected on a wireless network			
I can compare the performance of wired and wireless LANs and give examples of situations where one is preferable to the other			
I can summarise the characteristics of Wi-Fi, Bluetooth®, RFiD, Zigbee and NFC and give examples of their use			
I can define the term 'topology'			
I can describe the characteristics of bus, star and mesh network topologies			
I can draw and label a diagram of each topology			
I can match descriptions to network topologies			
I can recognise the role of components that make up the internet (backbone, POP, NAP, router)			

Lesson	Learning Focus	Assessment	Key words
1 (P31)	Give reasons why computers are connected on a network	Evidence in Teams End of topic assessment	Connection, Encryption, Internet, Internet Protocol (IP)
	Differentiate between a LAN and a WAN		Address, Local Area Network (LAN), Network, Protocols,
	Categorise tasks according to the type of network required to carry them out		Stand-alone, Virtual Private Network (VPN), Wide Area Network (WAN)
	Explain the benefits to organisations of a WAN		
	Explain why protocols are needed on a network		

	Describe the purpose of an IP address		
2 (P32)	Define the meanings of the terms 'bandwidth' and 'latency' Explain how bandwidth and latency affect the performance of a network Use bits per second (bps) to describe network speed Construct expressions involving file sizes, transmission rates and times	Evidence in Teams End of topic assessment	Bandwidth, Bits Per Second (bps), Download, Expression, Latency, Network speed, Ping, Transmission, Upload
3 (P33)	Differentiate between wired and wireless connectivity Explain how data is transmitted along copper and fibre- optic cables Compare the performance of copper and fibre-optic cables and give examples of their use Describe how high-speed broadband is delivered	Evidence in Teams End of topic assessment	Bandwidth, Broadband, Cables, Fibre to the Cabinet (FttC), Fibre to the Premises (FttP), Transmission, Wired, Wireless
4 (P34)	Describe how devices are connected on a wireless network Compare the performance of wired and wireless LANs and give examples of situations where one is preferable to the other Summarise the characteristics of Wi-Fi, Bluetooth , RFiD, Zigbee and NFC and give examples of their use	Evidence in Teams End of topic assessment	Bluetooth, Broadband router, Microwaves, Near Field Communication (NFC), Radio Frequency Identification (RFID), Radio waves, Wi-Fi, Wireless Access Point (WAP), Wireless Local Area Network (WLAN)
5 (P35)	Define the term 'topology' Describe the characteristics of bus, star and mesh network topologies Draw and label a diagram of each topology Match descriptions to network topologies Recognise the role of components that make up the internet (backbone, POP, NAP, router)	Evidence in Teams End of topic assessment	Backbone, Bus, Internet Service Provider (ISP), Mesh, Network, Network Access Points (NAPs), Point of Presence, Star, Topology,
6 (P36)	Revision lesson All of the above	Evidence in Teams End of topic assessment	All of the above
7 (P36)	End of topic Assessment	End of topic assessment	All of the above
8 (P36)	Assessment feedback lesson	Evidence in Teams	All of the above