



Planning & system installation

IB Computer Science



*Content developed by
Dartford Grammar School
Computer Science Department*



HL Topics 1-7, D1-4



1: System design



2: Computer Organisation



3: Networks



4: Computational thinking



5: Abstract data structures



6: Resource management



7: Control



D: OOP

HL & SL 3 Overview

Network fundamentals

- 3.1.1 Identify different types of networks
- 3.1.2 Outline the importance of standards in the construction of networks
- 3.1.3 Describe how communication over networks is broken down into different layers
- 3.1.4 Identify the technologies required to provide a VPN
- 3.1.5 Evaluate the use of a VPN

Data transmission

- 3.1.6 Define the terms: protocol, data packet
- 3.1.7 Explain why protocols are necessary
- 3.1.8 Explain why the speed of data transmission across a network can vary
- 3.1.9 Explain why compression of data is often necessary when transmitting across a network
- 3.1.10 Outline the characteristics of different transmission media
- 3.1.11 Explain how data is transmitted by packet switching

Wireless networking

- 3.1.12 Outline the advantages and disadvantages of wireless networks
- 3.1.13 Describe the hardware and software components of a wireless network
- 3.1.14 Describe the characteristics of wireless networks
- 3.1.15 Describe the different methods of network security
- 3.1.16 Evaluate the advantages and disadvantages of each method of network security



1: System design

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5: Abstract data structures

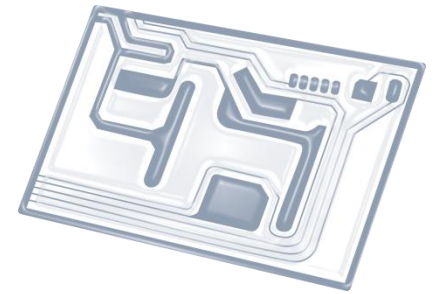
6: Resource management



7: Control

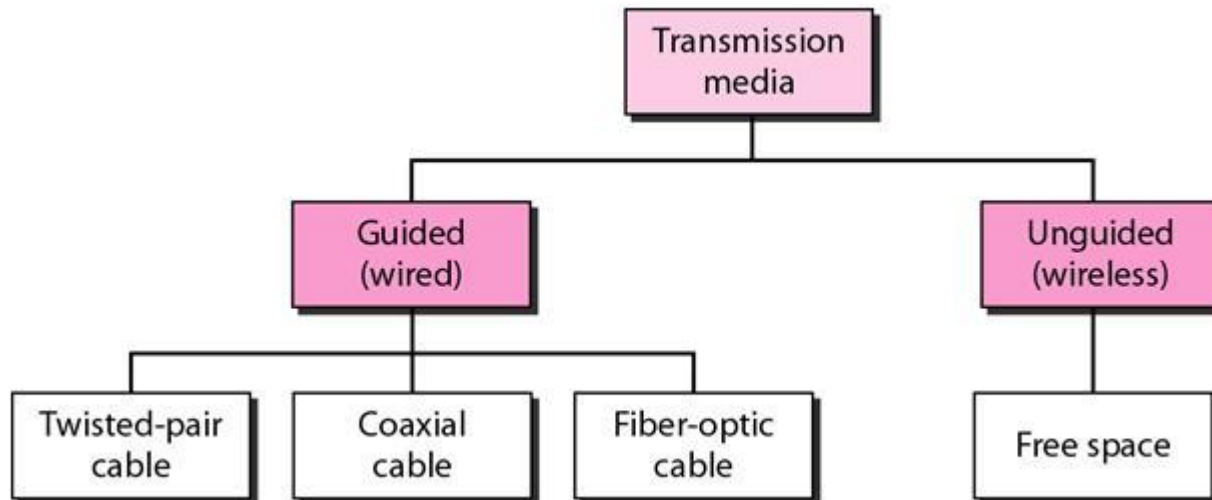
D: OOP



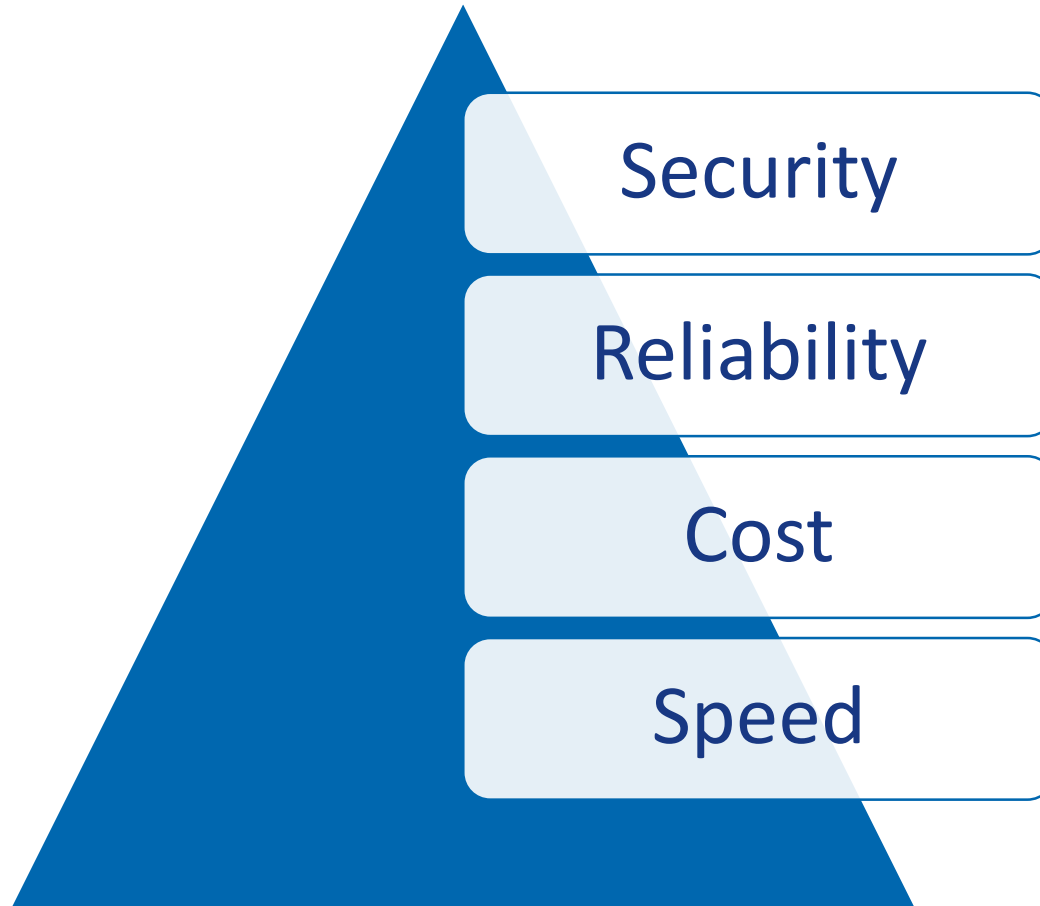


Topic 3.1.10

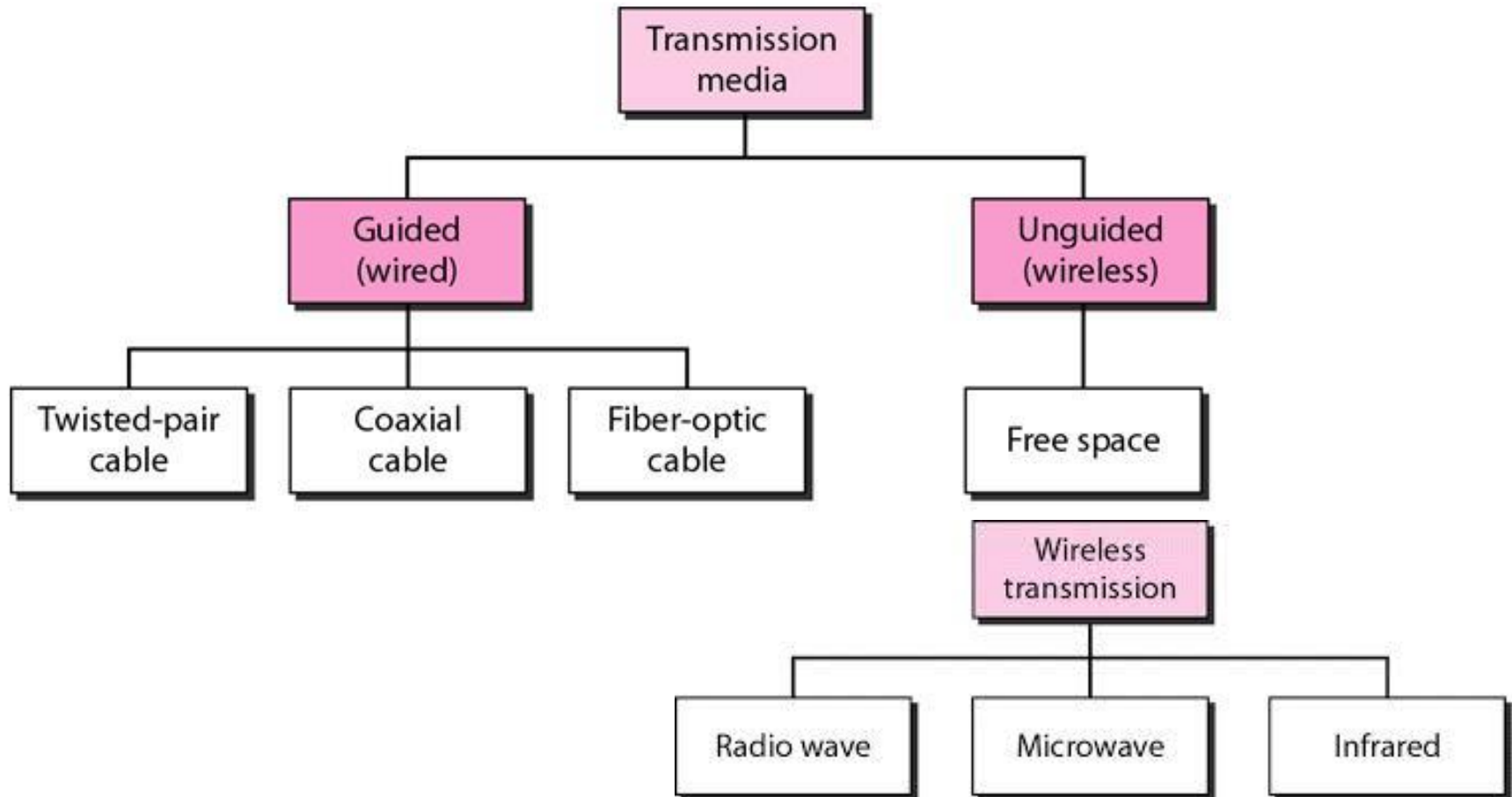
Outline the **characteristics** of different **transmission media**



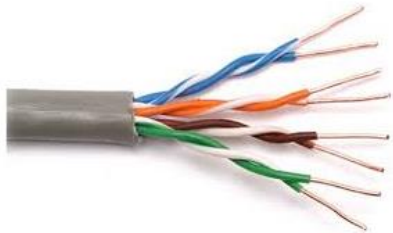
Characteristics of media



Types of media



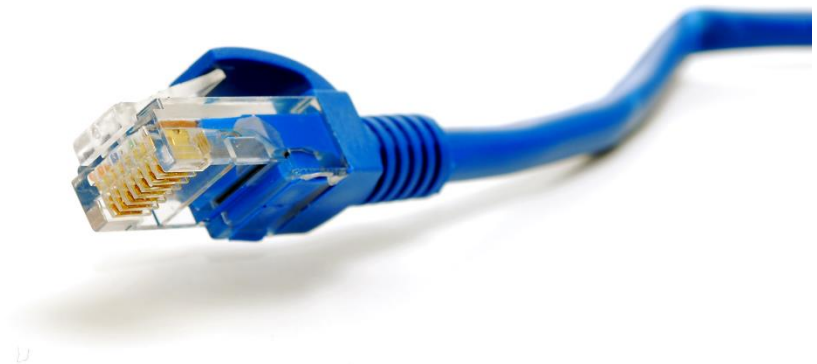
UTP – Unshielded Twisted Pair



UTP Cable



STP Cable



Security

- OK security, if encrypted

Reliability

- Susceptable to EMI

Cost

- <£1 per meter

Speed

- 100Mbps – 1 Gbps

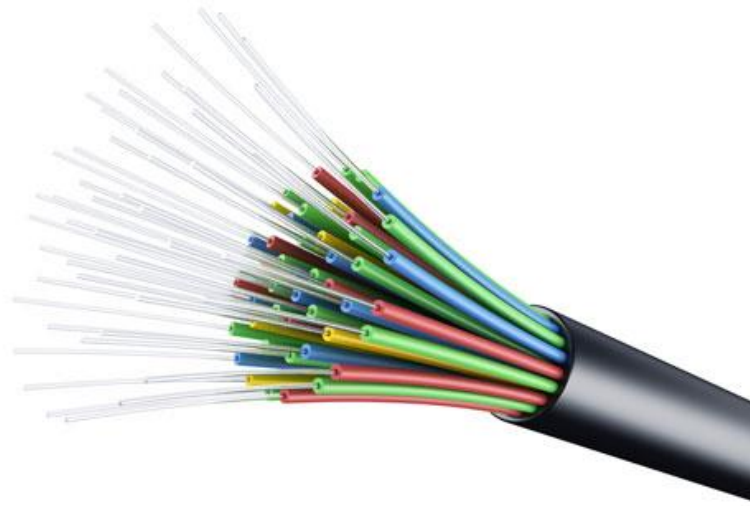
Co-axial (metal)

COAXIAL CABLE



| | |
|-------------|-----------------------------|
| Security | • OK security, if encrypted |
| Reliability | • Susceptable to EMI |
| Cost | • <£0.25 per meter |
| Speed | • 10 - 100Mbps |

Fibre-optic (glass)



Security

- Very secure, difficult to break in

Reliability

- Generally fragile

Cost

- £2-£8 per meter

Speed

- 5 – 100 Gbps

Ties in with:

Wireless connections 3.1.13-3.1.15

