



F10.1 What is a network?

Networks · GCSE · OCR J277 1.3.1, AQA 8525 3.5, Edexcel 1CP2 4.1.1 ·
about 15 min

What this lesson is about

Why networks, LAN, WAN and PAN, client-server and peer-to-peer.

- Why connect computers?
- Client-server and peer-to-peer
- LAN, WAN and PAN
- Who is on the network?

Questions

6 marks in all

1. Which is a characteristic of a LAN? [1 mark]

- ☐ A It covers a small area and the hardware is owned by the organisation
- ☐ B It covers a country and uses rented connections
- ☐ C It always uses wireless connections
- ☐ D It needs the internet to work

Answer: A. A WAN covers a large area and usually uses infrastructure owned by others.

2. What is the biggest WAN? [1 mark]

- ☐ A The internet
- ☐ B A school network
- ☐ C A Bluetooth headset
- ☐ D A home Wi-Fi network

Answer: A. The internet is a network of networks across the world.

3. Which is a disadvantage of a network? [1 mark]

- ☐ A Malware can spread from one computer to others
- ☐ B Files can be shared
- ☐ C Printers can be shared
- ☐ D Backups can be made centrally

Answer: A. The others are advantages.

4. In a client-server network, what does a server do? [1 mark]

- ☐ A Provides a service, such as files or web pages, that clients request
- ☐ B Asks other computers for files
- ☐ C Only connects devices together
- ☐ D Shares its files equally with every other device

Answer: A. Clients request; servers provide.

5. Which is an advantage of peer-to-peer over client-server?

[1 mark]

- ☐ A It is cheap and easy to set up, with no server needed
- ☐ B Backups are made in one place
- ☐ C Security is managed centrally
- ☐ D It is easier to manage as it grows

Answer: A. The others are advantages of client-server.

6. A phone, earbuds and a smartwatch connected by Bluetooth form which kind of network?

[1 mark]

- ☐ A PAN
- ☐ B LAN
- ☐ C WAN
- ☐ D Client-server

Answer: A. A personal area network covers the devices around one person.

The task: roll call

Send `who is on the network?`. Listen for 1.5 seconds and, for each reply, print `found <name>` using the name the reply gives after `here:` . Then print `devices on the network: <n>`, counting the devices you found.

```
# the two lines every program starts with: the commands, then the robot
from bugbot import *
connect()
```

The hint students can ask for: Send the question, then keep checking for messages for a second or so. Each reply carries a name after a label: split it off, print it and collect it. The count is how many you collected.

A solution

```
from bugbot import *
connect()
send("who is on the network?")
found = []
for tick in range(15):
    wait(0.1)
    for sender, text in messages():
        if text.startswith("here: "):
            name = text.split("here: ")[1]
            found.append(name)
            print("found", name)
print("devices on the network:", len(found))
```

Any program that meets the task's checks is marked correct in the simulator; this is one way, not the only way.