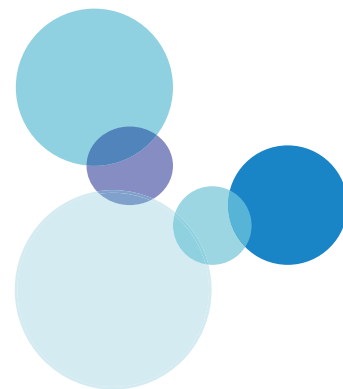


Advantages of networking

Teacher's Notes

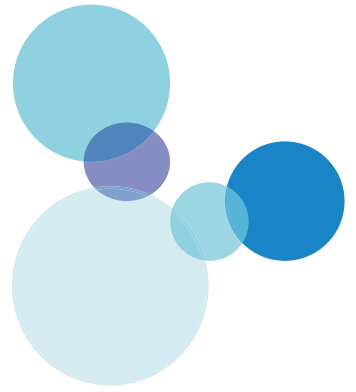


Lesson Plan

Length	60 mins	Specification Link	216/a	
Learning objective	Candidates should be able to: (a) explain the advantages of networking stand-alone computers into a local area network			
Time (min)	Activity	Further Notes		
10	<p>Props: A hard disk drive, CPU and some RAM chips.</p> <p>Show the students the CPU and, as revision, ask them to state its function in the computer.</p> <p>Ask the students where the programs and data are stored when the computer is switched off.</p> <p>Show the students the hard disk drive and ask why it is referred to as a 'secondary storage device'.</p> <p>Show the students the RAM chips and reinforce that program instructions and data being accessed by the CPU are stored here for quick access.</p> <p>Using a projector, display the Interactive Starter Activity.</p>	<p>Processes data according to the instructions provided by the program.</p> <p>The hard disk drive.</p> <p>It is a secondary storage device as programs and data currently being accessed by the CPU are stored in RAM.</p>		
10	Watch the video, pausing to discuss the content.			
5	<p>Discuss the video to assess learning. Ask questions such as:</p> <ul style="list-style-type: none"> • What is meant by a computer network? • What is meant by a local area network? • How do the computers communicate through the network? • What are the advantages to users of networking computers. 	<p>Answers:</p> <p>A computer network is a group of computers and other computing hardware devices, e.g. printers, that are linked together through communication channels.</p> <p>This is a computer network that connects computers in a limited area or on a single site such as a house, school or office building.</p> <p>By cable or Wi-Fi.</p> <p>Can share peripherals such as printers.</p> <p>Can share files.</p> <p>Can communicate by electronic mail.</p> <p>Can work collaboratively.</p> <p>Can share the same Internet connection.</p> <p>Can access work from any computer.</p>		



Time (min)	Activity	Further Notes
15	<p>Worksheet 1</p> <p>Students to complete Worksheet 1 either on paper or on computer. They may need access to the Internet to research some of the questions.</p> <p>Ask individual students for their answers and discuss with the class so that all students will have the correct answers.</p>	<p>Answers provided.</p> <p>Ask students with the correct responses to explain to the class how they arrived at their answers.</p>
10	The students use Interactive Activity 1 .	
	<p>Extension Challenge/Homework</p> <p>Students to complete and submit Worksheet 2 for homework.</p>	
10	<p>Plenary – Class questions</p> <p>To assess learning, revisit the questions that were asked after watching the video.</p>	



WORKSHEET 1 ANSWERS

- 1** (a) Explain what is meant by a 'computer network'.

A computer network is a group of computers and other computing hardware devices, e.g. printers, that are linked together through communication channels, e.g. cables, Wi-Fi.

- (b) Explain what is meant by a 'local area network'.

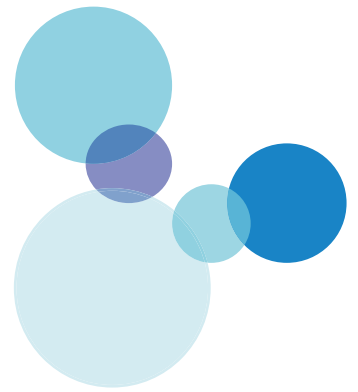
This is a computer network that connects computers in a limited area or on a single site such as a house, school or office building.

- (c) Describe two ways in which the computers can communicate with each other.

They can be physically connected by cables, through which they communicate.

They can communicate by Wi-Fi.

A **wireless access point** (WAP) allows wireless devices to connect to the network. Home routers include built-in WAP functionality.



2

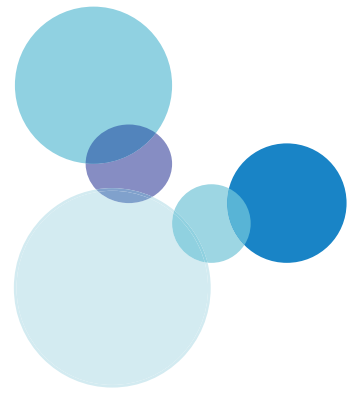
Describe the advantages to the users of creating a computer network rather than all users using stand-alone systems.

- Devices such as printers can be shared and therefore each user does not need their own device connected directly to their computer.
- Files can be shared with other users across the network. You do not have to save them to a storage medium, e.g. CD, DVD, USB memory stick.
- Users can communicate with each other using electronic messaging.
- Users can work collaboratively on the same document.
- Users can share the same Internet connection using a router, which directs traffic to the correct users.
- Users are given greater flexibility and can access their own personal files from any computer on the network.
- If all data is stored centrally, then it is easier to back it up without having to back up each computer individually.
- There is greater security as users can be given user names and passwords. Also the activity of the users can be monitored.
- Software management is easier as it can be installed centrally and then copied to all computers over the network. This also increases security as the installation of illegal software by users can be prevented.
- It is usually cheaper to buy licences for networked software than having to buy a version for each stand-alone computer.

3

Suggest some disadvantages of creating and using a computer network.

- Extra hardware and infrastructure is needed and may be expensive.
- Technical knowledge is needed to set up and manage the network.
- When sharing an Internet connection, some users may use up too much bandwidth and cause problems for other users.
- If data is stored on a central file server and it malfunctions then work cannot be done and files may be lost.
- It can lead to computer viruses spreading more rapidly.
- If all data is stored centrally, then it is more at risk from hackers as they do not have to search for it on all the stand-alone computers.



WORKSHEET 2 ANSWERS

- 1** A small school is considering creating a computer network instead of using stand-alone computers.

Describe three advantages to the school of networking the computers. (6)

Any three of the following:

- It will save money as less peripherals will be needed (1). Devices such as printers can be shared and therefore each user does not need their own device connected directly to their computer (1).
- It will improve communications (1). Users can communicate with each other using electronic messaging (1).
- It will improve working practices (1). Users can work collaboratively on the same document (1).
- It will provide greater flexibility of working (1). Users can access their own personal files from any computer on the network (1).
- It will make it easier to back up data (1). If all data is stored centrally, then it is easier to back it up without having to back up each computer individually (1).
- It will improve data security (1). There is greater security as users can be given user names and passwords. Also the activity of the users can be monitored (1).
- It will make it easier to manage the software (1). Software management is easier as it can be installed centrally and then copied to all computers over the network (1).