



# Ways of Presenting Your Data

There are various ways that we can present computer output. We can present the data:

- as a screen display
- as hard copy, i.e. as printouts on paper (text, pictures, graphs, charts)
- with multimedia presentations (sound, text, pictures, graphs and charts)
- using virtual reality
- using sound.

## Hard copy

Printed information is still the main form of computer output. It is used because everybody is a 'subscriber' to the system. We all have letter boxes and know the various processes involved in sending mail. Paper's universal use and acceptability makes it a very difficult system to replace. Nevertheless, there are some disadvantages with paper. With electronic mail, messages can be created, sent and read completely on computers without ever being printed on paper. Many people think that the mail service will never be replaced, but others think that electronic mail will soon replace it. What do you think?

Hard copy (printouts on paper) may gradually be replaced and the reasons for this are:

- 1 paper is expensive to buy and to store
- 2 the use of paper encourages people to photocopy it so that they don't lose it
- 3 many bills, invoices, etc. are preprinted and this is expensive
- 4 the use of paper is not environmentally friendly
- 5 moving paper around an organisation takes time.

There are, however, some advantages:

- 1 with legal documents, it is hard to prove that an electronic letter has been received and seen

- 2 everyone is able to use a paper based system
- 3 paper is easier to read than a computer screen
- 4 it is easier to flick back and forth in a paper document
- 5 paper can be read on the move and in circumstances where a computer might not be available.

## QUESTIONS

Produce a diagram, using a combination of graphics and text, which could be used to describe the steps involved in producing and then posting a letter. Assume that the letter has been created on a computer and printed out using a printer.

## Presentation graphics

Graphics consist of a combination of diagrams, text and charts which are used to make a visual impact when people see them. Graphics may be presented as slides, transparencies to be used with overhead projectors, paper or even as computer displays. Salespersons frequently use screens to display their products or services to potential customers. Some of them now use multimedia.

## Multimedia

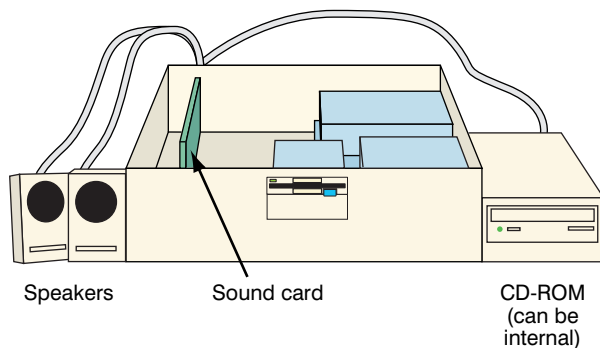
'Multimedia' is the mixture of text and graphics with motion and sound, including video, audio, animation and photographs. Multimedia is interactive which means that the user can decide on different routes through the software. The images may be controlled either using a mouse or a keyboard. Multimedia is ideal for learning new things because you can control the program

to work as slowly or as quickly as you like and it will not tell you off if you get things wrong. In a way, multimedia software can be an ideal teacher. Learning boring topics can be made fun using multimedia. For instance you can learn about decimal points via an adventure called 'Who stole the decimal point?'

A multimedia system consists of an ordinary PC which has several additional devices attached to it. These extra devices typically include a CD-ROM drive or DVD drive, a sound board and speakers. Figure 11.1 shows the arrangement.

### Computer aided learning (CAL)

Computers can interact with pupils to enhance the learning process. The development of multimedia has led to a huge growth in the use of computers as an educational tool in the classroom. Computer aided learning can be used to instruct pupils and then test them on what they have learnt.



**Figure 11.1** *The components of a multimedia system*

### Producing multimedia software

You will have seen the wonderful displays, video clips and sounds provided by multimedia software, but how are these packages written? As you can imagine, a lot of equipment is needed to produce really good software. You can prepare your own multimedia software if you have a multimedia authoring package.

### Using an encyclopaedia on CD-ROM

The beauty of encyclopaedias on CD-ROM is the small amount of space that they take up. For instance the paper based Grolier Encyclopaedia consists of 21 volumes. The multimedia version occupies a single CD-ROM. It is very quick to search for references, as well. For example, to search for information on 'computers' you simply type in the word and lists of articles that mention computers are displayed on the screen. You can then use your mouse to highlight each article you want to read. If you want a printout of the article then this is easily done.

You are not just restricted to text either. You can look at video clips, with speech, of historic moments such as man's landing on the moon. You can also see animations showing how things work, such as the human heart or the internal combustion engine. Pictures are also included which may be printed out and used to illustrate your project work.

### CD-ROM

Without the technology of CD-ROM, multimedia would be impossible because of the large storage capacity needed for photographs, animation and video clips. There are many useful features of CD-ROMs:

- 1 they are easy to handle and more durable
- 2 they can be used for multimedia presentations
- 3 a single CD-ROM can hold around 650 MB of data; hundreds of floppy disks would be needed to store the same amount of data
- 4 they are environmentally friendly; Friends of the Earth estimate that a single CD-ROM full of text can save up to 15 trees worth of paper
- 5 they can store text, sound, graphics and video.

### Sound

One feature of a multimedia system is the use of speakers. A special sound card contains

chips and other circuitry that enable a computer to produce high quality sound. You can then feed the sound through speakers or headphones so that you can play games, look at and hear a variety of information on CD-ROM or just listen to your favourite music on an ordinary CD. Figure 11.1 shows the components of a multimedia system.

## MIDI

MIDI stands for musical instrument digital interface. Software and hardware that are designed to MIDI standards are able to send electronic messages to MIDI devices such as keyboards, musical synthesisers and drum machines. You can also use MIDI systems to control specialised devices such as theatrical lighting. An organised series of MIDI commands is called a sequence.

Suppose we connect a keyboard to a computer using a special MIDI interface. The frequency, pitch and other musical information is converted to digital information which can be read by the computer. Music played on the keyboard can therefore be stored on the computer, and because the computer is able to produce digital signals it can send signals back to the keyboard.

## Virtual reality

You may have seen pictures of children wearing headsets and gloves wired up to a computer and wondered what they are. This is the world of virtual reality.

A lot of research in virtual reality is directed towards military uses. Virtual reality can be used to recreate a terrain where fighting is likely to take place. To a soldier wearing a headset and gloves the battle situation can be as near to the real thing as possible.

Many other uses for virtual reality systems are being developed. One example is possible use for simulating traffic accidents for use in court. If a witness says that they saw an accident then the court can be shown exactly what the witness would have seen from a particular position on the road.

Figure 11.2 shows the headset and gloves in a virtual reality system.

Figure 11.2 Part of a virtual reality system



## TEST YOURSELF

Using the words in the list below, copy out and complete sentences A to F, underlining the words you have inserted. The words may be used more than once.

hard copy    electronic mail    multimedia  
transparency    sound card    posted

**A** Output from a computer on paper is often referred to as \_\_\_\_\_.

**B** Printouts have the advantage that they can be \_\_\_\_\_.

**C** The service that involves passing electronic messages from one computer to another is called \_\_\_\_\_.

**D** Graphics may be produced using a computer and then printed out on a \_\_\_\_\_ to be viewed using an overhead projector.

**E** A mixture of text and graphics with motion and sound is an example of \_\_\_\_\_.

**F** To use multimedia on a PC you need to insert a special circuit board called a \_\_\_\_\_ in order to produce sound.

### Things to do

**1** Friends of your family have young children and already have a computer with a large amount of memory and a large hard disk drive.

The friends have heard about multimedia and think that it may be able to help their children with their schooling. In particular they would like to use a couple of encyclopaedias to help the children do project work.

- What additional equipment would they need to add to their computer to make it able to be used for multimedia?
- They do not know much about multimedia. Write a short paragraph explaining briefly what its capabilities are.
- Give three features of an encyclopaedia held on CD-ROM that would help the children with their project work.
- Recommend a couple of titles of encyclopaedias that might be of use to the family.

**2** Presentations are often used in businesses to sell companies' products.

- Explain what a presentation is.
- What equipment could be used in such a presentation?
- Presentation packages are available that produce slides and overhead projector transparencies. Give the name of a package that you could use for a presentation and give some idea of the features it has.

**3** Output from computers can be presented in many different ways.

- Software to log data in a science laboratory can present data on a screen or as hard copy. State one advantage and one disadvantage of these two methods.
- In publishing systems, it is necessary to combine text and various forms of graphics.
  - Why is it often necessary to import graphics files into a DTP package?
  - Why is it becoming increasingly easy to do this?

(NEAB/WJEC Option Q)