The Impact of Information Technology

Contents: Reading, questions and discussion activities about the impact of information technology on our lives.

Time: 2 to 3 periods

Intended use: GCSE Physics, Electronics and Science. Links with work on computers and microelectronics.

Aims:

- To complement and revise prior work on the applications of microelectronics
- To show the wide scope of modern electronic information technology, and to illustrate some of its applications
- To develop an awareness of the impact of information technology on society
- To provide opportunities to practise skills in reading and comprehension, and to encourage willingness to enter into discussion.

Requirements: Students' worksheets No.905.

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Pages 1 and 2 of this unit may be read in school or for homework. This can be followed by small-group discussion prompted either by the discussion points on page 3 or the group analysis exercise on page 4 (or both). The SATIS *General Guide for Teachers* includes some advice about brainstorming (page 61).

The information about IT is very condensed and could usefully be supplemented with other resource material. There is plenty available. Examples are listed below.

Further resources

The Department of Trade and Industry publish a series of leaflets on Information Technology and its applications. They are written primarily for adults, but they contain information that would be of use to students. They are available free from: Department of Trade and Industry, Room 514, 29 Bressenden Place, London SW1E 5BR.

The Department of Trade and Industry has also produced a series of videos about IT. Again, they are intended primarily for adults, but would be of some use in schools. Titles available include:

IT General Introduction	IT in Shops and Banks
IT in the Home	IT — Fibre Optics
IT in the Office	IT — Water
IT in Education	IT — Satellites
IT in Health	IT — the Chip
IT in Work	Introducing IT (a series of four programmes)

All available on free loan from: Central Film Library, Chalfont Grove, Gerrards Cross, Bucks SL9 8TN.

Acknowledgement Figures 1, 3 and 4 supplied by IBM.

THE IMPACT OF INFORMATION TECHNOLOGY

What is IT?

Think of all the different kinds of information that people use daily. Information:

- about things they buy in the shops
- about their money
- about their social lives
- about what's happening in the world (news)
- from their doctor
- learnt in school or college

— and so on.

Information technology (IT) is about the ways this information is used, stored and transferred from one place to another.

Until very recently most information was transferred on paper in the form of books, bills, newspapers, payslips and much more. Today we have *electronic* information technology as well — television, computers, telecommunications and so on — and that is what this unit is about.

Figure 2 shows how three separate technologies have come together in recent years to produce an 'information explosion'.

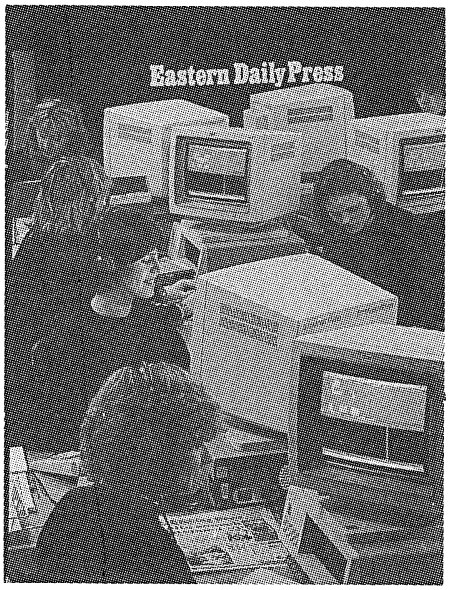

Figure 1 Taking details and entering the text for classified advertisements in a newspaper

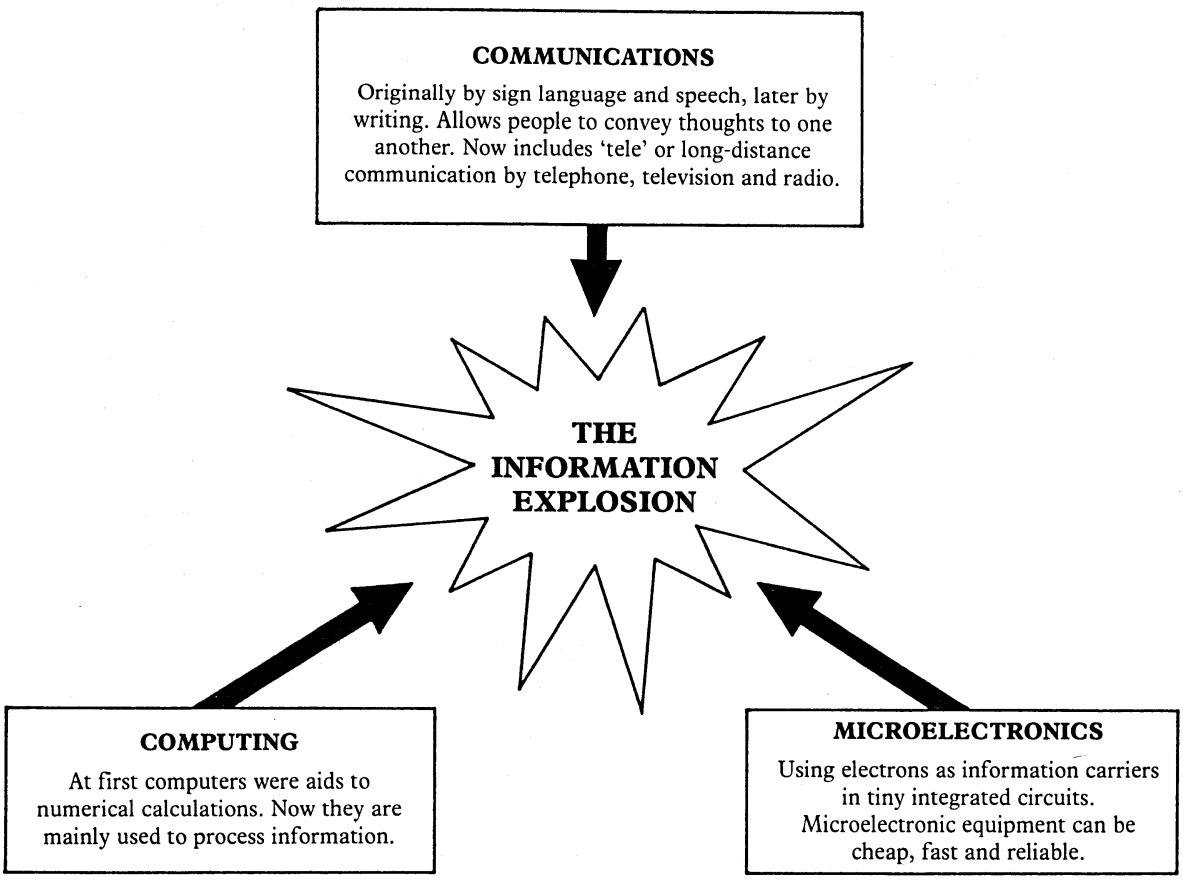

Figure 2 The information explosion

Where is IT having an impact?

Information technology is affecting almost every aspect of life. Here are some examples.

In shops

Automatic bar code readers mean that the person at the check-out does not have to key in the price of each item. The customer gets a more detailed till receipt.

In banks

Automatic cash machines pay out money and also provide up-to-date information about bank accounts.

In industry

Computers can control all the records of stock, accounts, orders, sales and so on. Robots and computer controlled tools can do repetitive and dangerous jobs. One person can now supervise many more machines.

At home

Telephone, television, video, Prestel and Ceefax transfer more and more information in and out of the home. Increasingly it is possible to do banking and shopping from home using IT.

In education

Students have access to much more information in words and pictures with the help of computers, telephones, television and video. Computer aided learning can guide students in their work.

In health care

Computers can be used for record keeping. They are being used in interviews with patients. They can help to find out what is wrong with patients.

On the farm

IT can control conditions inside animal houses and greenhouses. Robot controlled tractors are being developed which can plough without a driver.

Figure 4 Customers can use Nat-West's Stockbroker Service for information on shares and share transactions

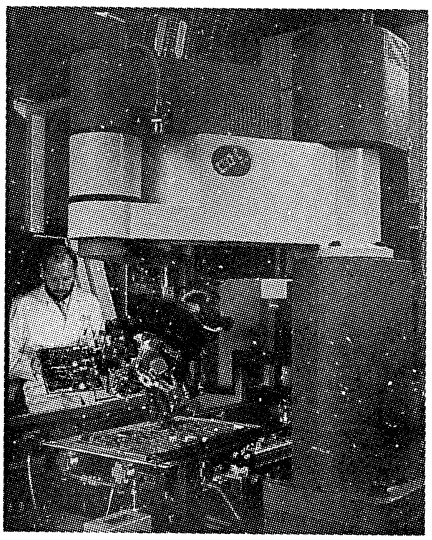

Figure 3 A computer-controlled robot assembling printed circuit boards

Questions

1 *Give examples (from the list on this page, or elsewhere) of the ways IT is changing*
   (a) the way we store *information;*
   (b) the way we transfer *information; and*
   (c) the way we use *information.*

2 *Give some more examples of the applications of IT to add to those listed on this page.*

3 *Describe in more detail the example of IT which you think has had the biggest effect on your life so far.*

Points to discuss about IT

- Here are some reactions to IT. For each one decide whether you

strongly agree/agree/feel neutral/disagree/strongly disagree

(a) 'It won't have much effect on day-to-day life, so we needn't bother too much about it'

(b) 'It will take away people's jobs, so it should be stopped'

(c) 'Society will be completely different by the year 2000 because of information technology, so we should scrap what we are doing now and start again from scratch'

(d) 'Development of information technology can't be avoided so we should accept its advantages, and also try to keep what is best in what we do at present'

(e) 'Information technology is exciting, so we should try as many experiments as we can and develop those which work best'

(f) 'Learning to write on paper is a waste of time because we will soon be able to talk to computers which will record and print out what we say'

(g) 'Information technology will make life inhuman so we shouldn't let it go too far'

(h) 'If Britain doesn't make full use of information technology it will fall behind other countries like Japan and the USA'

(i) 'Information technology is a threat to freedom because it allows authorities such as the police to find out too much about individual people'

- Which jobs will be affected by IT? For each of the jobs below, say what change you think there will be in the number of jobs available.

Choose from:

large increase/increase/no change/decrease/large decrease/ job will disappear

Supermarket checkout operators

Typists	Bank clerks	
Teachers	Nurses	Travel agents
Meter readers	Tractor drivers	Artists
Coal miners	Journalists	Soldiers

- IT may lead to more people working from home. With a telephone, a computer terminal and possibly a video link in their home, people will not need to go to work in an office every day. What do you think are the advantages and disadvantages of working at home in this way?

Group analysis exercise

a Think of an activity like getting off to school in the morning, organising the school sports team lists, making a meal, planning a holiday, painting and papering a room, or helping a blind person around the house.

b Have a brainstorming session, listing any problems within this activity which could be helped or solved by some form of IT. One of the group should write down every suggestion. Don't reject any idea, however wild.

c Decide which ideas are technologically possible. Don't reject for any other reason.

d Make a rough costing of those ideas left. Classify them as low, medium, or high cost.

e Now pick the two or three most promising ideas. Look at these in human terms. Who is better off? Is anyone worse off (noise and the neighbours, for example)? Are there any other likely problems (size, your parents won't like it, etc.)?

f Decide which is the best idea.