Communications Systems

STARTER **1** Carry out a survey of mobile phone use amongst your classmates. Find out:

1 How many have mobile phones.
2 What they use them for.
3 What makes they have.
4 How often they use them per day.
5 What additional features their phones have, e.g.
   phone book
   messages
   calls register
   games
   calculator
   alarm call

2 Study these examples of abbreviations used in mobile phone text messages. Try to guess the meaning of the other abbreviations.

1	ATB	*All the best*
2	BCN U	*Be seeing you*
3	CU	*See you*
4	CU L8R	
5	Luv	
6	Msg	
7	NE	*Any*
8	NE1	
9	N01	
10	PPL	
11	RUOK	
12	THNQ	
13	Wknd	
14	4	

READING **3** What do these abbreviations mean? Use the Glossary to help if necessary.

GPRS   Wap
HTML   WML
SMS   XML

4 Study this diagram. Find the answers to these questions.

1 What is the predicted Wap phone use by 2005?
2 What developments have made this technology possible?
3 How can you access a favourite website easily?
4 How can one time slot be shared by many users?
5 What peripheral can be attached to some phones?
6 Why cannot Wap phones access all websites?

Fig 1
Wap phone

What is Wap? Wap stands for 'wireless application protocol' which allows users to send emails and access information from the Internet on a mobile phone. This has been made possible by technological advances in 'bandwidths', the amount of data that can be received or sent within a fraction of a second. This means that it can be used for many more purposes than were previously imagined, including video transmission.

Spread Some analysts reckon that Wap phones will overtake PCs as the most common way of surfing the Internet, although PCs will still be used for more complex applications such as spreadsheets and video players.

Lifespan Some industry experts believe that Wap will have a limited lifespan and will quickly be replaced by more sophisticated technology, such as General Packet Radio Service (GPRS) and the Universal Mobile Telecommunications System (UMTS). GPRS increases the bandwith still further and allows you to send up to ten times more information than Wap technology. However, users will still be limited by the size and resolution of the screen on which the data is received. One analyst, Jakob Nielsen, advises companies to forget Wap and plan, instead, for the next generation of phones. He believes that mobile phones are going to become more like palmtop computers.

SMS (Short Message Service) allows the phone to predict likely words from the keystrokes entered with up to 10,000 pre-programmed words which it recognises.

Websites and email addresses have to be keyed in via the numbers, though frequent addresses can be stored in the memory and accessed with a key stroke.
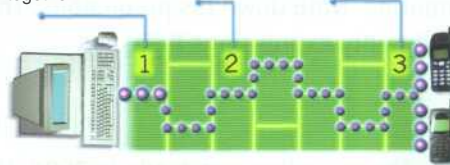
ERICSSON
NETWORK
15/10/01
5 : 49 PM
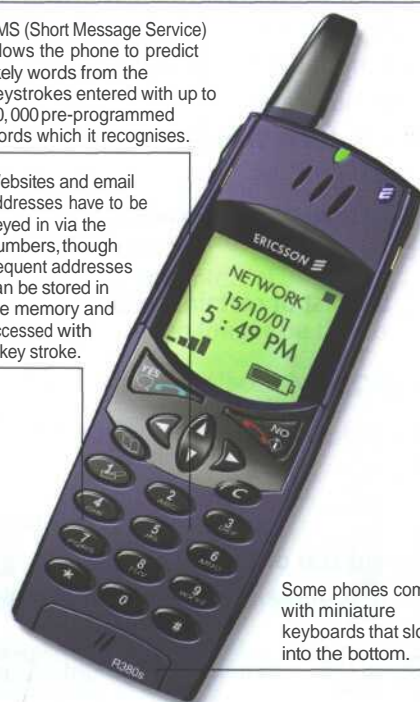
Some phones come with miniature keyboards that slot into the bottom.

HOW DATA IS SENT

Data, cut into packets, is sent in sequence to the receiver, which builds them back together.

One time slot can be shared at the same time by many users.

The user is always on-line but is only charged for the amount of data transmitted.

1 2 3

Language A Wap phone cannot dial into every website. The language of the Web is HTML - hypertext markup language. Wap operates on WML - wireless markup language, so Wap phones can only read pages written in WML. Because the screen on a Wap phone is so small that you are unable to read a normal webpage, WML pages tend to consist of small chunks of information. Soon, however, most webpages will be written in XML - extensible markup language. This can be programmed to ensure that every phone or PC receives transmissions in the language it understands.

Internet Wap allows you to deliver online services to a handheld computer. People are also expected to use Waps to access online news and financial services, sports scores and entertainment information, most of which you should be able to reach by scrolling down a set menu bar. You will also be able to book tickets by Wap.

Email Sending emails is likely to be the application that is used most often, as people will be able to pick up messages at any time from anywhere in the world.

Games Gambling and games, some of which can be downloaded, are also expected to be popular with users. But you can, of course, use the Wap to make regular phone calls.

LANGUAGE WORK   **5**   **Predictions 1: certainty expressions** Rank these predictions according to how certain the speakers are. Put the most certain at the top of your list and the least certain at the bottom. Some predictions can have equal ranking.

a   Wap phones will revolutionise the way we communicate.
b   Wap phones may revolutionise the way we communicate.
c   It's likely Wap phones will revolutionise the way we communicate.
d   It's unlikely Wap phones will revolutionise the way we communicate.
e   It's expected Wap phones will revolutionise the way we communicate.
f   It's probable Wap phones will revolutionise the way we communicate.
g   It's possible Wap phones will revolutionise the way we communicate.
h   Wap phones will certainly revolutionise the way we communicate.

Study this list of certainty expressions:

MORE CERTAIN / LESS	Verbs	Adverbs	Adjectives
	will, will not	certainly	certain
		likely, unlikely	expected
		probably	probable
	could, may, might	possibly	possible

6   🎧   Listen to this expert talking about future developments in computing. Note down his predictions. Then listen again and note the certainty expressions he uses.

7   The recording was made in 2000. Has the situation changed today? Discuss in groups.

8 Make statements about these predictions for the next five years. Use the certainty expressions above. For example:

All school children in my country will have mobile phones.
I think it's unlikely that all school children will have mobile phones but it's probable that many of the older pupils will have them.

1 ATM machines will use iris recognition rather than PIN numbers. You will get access to your account by looking at the machine.

2 People will vote in elections online.

3 Taxis will be robot-controlled.

4 TV journalists will be able to transmit what they see by using sensors in their optic nerves.

5 There will be more robots than people in developed countries.

6 Most computers will be voice-controlled.

7 Mobile phones will replace computers as the commonest way to access the Internet.

8 English will no longer be the commonest language for websites.

9 Email will be replaced by a voice-based system.

10 Computers will become more powerful.

PROBLEM-SOLVING **9** Try to write these two text message poems in standard English. Compare your versions with others in your group.

txtin iz messin,

mi headn'me englis,

try2riteessays,

they all come out txtis.

gran not plsed w/letters

shes getn,

swears i wrote better

b4comin2uni.

& she's african.

Hetty Hughes

14: a txt msg pom,

his is r bunsn brnr bl%,

his hair lyk fe filings

w/ac/dc going thru.

I sit by him in kemistry,

it splits my @oms

wen he :-)s @ me.

Julia Bird, Poetry Book Society

11   Together work out where to add these forms of communication to your diagram.

pagers
MOOs

WRITING   **12**   **The Global Positioning System** Link each set of sentences to make one sentence. You may omit, change or add words as required. Then form your sentences into two paragraphs to make a description of how the GPS works and its uses.

1   The GPS was developed by the US military.

   It was designed to pinpoint locations.

   The locations could be anywhere in the world.

2   It consists of 24 earth-orbiting satellites.

   The satellites are 17,000 kms. above the earth.

3   Each satellite broadcasts a coded radio signal.

   The signal indicates the time and the satellite's exact position.

4   The satellites have atomic clocks.

   The clocks are accurate to one second every 70,000 years.

5   A GPS receiver contains a microprocessor.

   The microprocessor compares signals.

   The signals are from at least three satellites.

   The microprocessor calculates the latitude, longitude and altitude of the receiver.
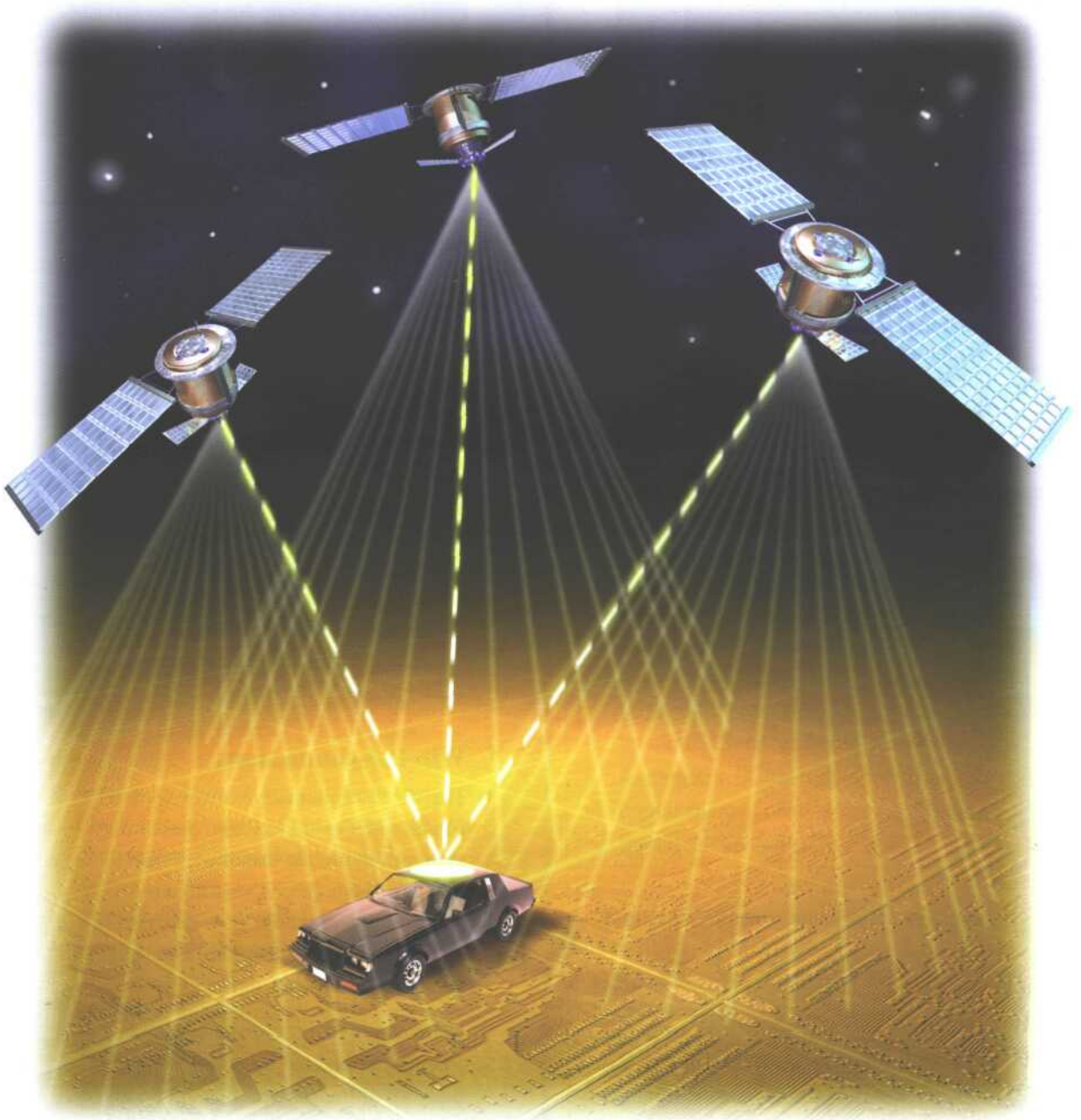
6　GPS has many uses apart from military uses.

GPS can be used for orienting hikers.

GPS can be used for aiding the navigation of ships.

GPS can be used for tracking trucks and buses.

GPS can be used for locating stolen cars.

A **Find the answers to these questions in the following text.**

1   How many channels does an ISDN system commonly use?

2   What types of wireless systems are named in the text?

3   What do PCs connected to a satellite system use to send data?

4   What types of cables are used in cable network systems?

5   What may need to be upgraded when using a shielded DSL system?

6   Compared to the downstream bandwidth, the upstream bandwidth in an ADSL line is:
    a   larger
    b   smaller
    c   the same

7   Which type of broadband service is the cheapest?

Broadband Communications

Integrated Services Digital Network (ISDN)

ISDN services can be carried over existing telephone network infrastructure to terminal adapters (TAs) in the client machine. A common ISDN interface
5 standard has a digital communications line consisting of three independent channels: two Bearer (B) channels, each at 64Kbit/s, and one Data (D) channel at 16Kbit/s. The D channel is used to carry
10 signalling and supervisory information to the network, while the B channels carry the data and can be linked to provide a 128Kbit/s data channel.

Wireless connections

15 The wireless alternatives come in two forms: satellite and cellular. Satellite systems require the use of a modem to maintain the upload. Downstream bandwidth is provided via a dedicated
20 satellite dish, connector hardware and proprietary software.

Cellular systems use assigned radio frequencies and are based around a network of transmitters that are arranged
25 in a cellular network, much like cellular mobile phone systems.

The cable alternative

Cable companies can also offer affordable broadband services over copper coaxial
30 or fibre infrastructure networks. The

connection is shared by several customers on a branch, so actual connection rates are variable, unlike ISDN and DSL.

Digital Subscriber Line (DSL)

35 DSL technology capitalises on the existing network of copper infrastructure, but allows digital signals to be carried rather than analogue. It allows the full bandwidth of the copper twisted-pair
40 telephone cabling to be utilised.

With splitter-based services, the DSL signal is pulled out from the phone line as it enters your premises and is wired separately to a DSL modem. This
45 involves additional hardware and installation by the service provider at the customer site. The shielded option involves no installation, but the telephone company's equipment and some of your
50 equipment might need upgrading.

With Asymmetric Digital Subscriber Line (ADSL), most of the duplex bandwidth is devoted to the downstream direction, with only a small proportion of
55 bandwidth being available for upstream. Much Internet traffic through the client's connection, such as Web browsing, downloads and video streaming, needs high downstream bandwidth, but user
60 requests and responses are less significant and therefore require less on the upstream. In addition, a small proportion of the downstream bandwidth can be devoted to voice rather than data,
65 allowing you to hold phone conversations without requiring a separate line.

DSL-based services are a very low-cost option when compared to other solutions offering similar bandwidth, so they can
70 be made available to the customer at extremely competitive prices.

B Re-read the text to find the answers to these questions.

1 Match the terms in Table A with the statements in Table B.

Table A

a ISDN
b TA
c Data channel
d Bearer channel
e DSL
f Splitter-based services
g ADSL

Table B

i DSL system that separates the digital signals from the analogue signals
ii Digital channel used to carry ISDN signalling and supervisory information to the network
iii Device installed on a PC to allow it to receive ISDN signals
iv Integrated Services Digital Network
v Asymmetric Digital Subscriber Line
vi Digital channel used to carry ISDN data
vii Digital Subscriber Line

2 Mark the following statements as True or False:
a ISDN can only operate over a special digital telephone line.
b Two ISDN channels can be combined to give the user double the bandwidth.
c Computers connected to a satellite system do not need a modem.
d Cellular networks work in a similar way to mobile phone systems.
e DSL systems require a special digital telephone line.
f DSL systems use analogue signals.
g You need a separate line to hold normal phone conversations on an ADSL system.