1 Small networks

A In pairs, discuss these questions.
1 What is a computer network?
2 What are the benefits of using networks?

B Listen to an extract from a lecture on networks and answer these questions.
1 What does LAN stand for?
2 Where are LANs usually located?
3 What is the difference between a wired LAN and a wireless LAN?

C Listen again and label the elements of this LAN.

(1) A ________________ wired and wireless LAN

(2) ________________

(3) ________________

(4) ________________

(5) ________________, (6) ________________

or hub

Internet

Desktop computer

Laptop

PDA

Gaming console

Desktop computer

Desktop computer

Printer

Desktop computer
Networking FAQs

A Look at the FAQs (i–vi) without reading the whole text. In pairs, try to answer as many of the questions as you can.

B Read the whole text and answer these questions.

1. What does PAN stand for?
2. What is a network protocol?
3. How do you log on to an Internet Service Provider?
4. WiMAX is a type of wireless network. What is it used for?
5. What equipment do you need to set up a wireless LAN?
6. What are the advantages and disadvantages of wireless networks?

i How many types of network are there?
Networks are classified according to different criteria:

- **Geographical area**: PANs (Personal Area Networks) typically include a laptop, a mobile phone, and a PDA; LANS cover a building; MANs (Metropolitan Area Networks) cover a campus or a city; WANs (Wide Area Networks) cover a country or a continent.

- **Architecture**: In a client-server network, a computer acts as a server and stores and distributes information to the other nodes, or clients. In a peer-to-peer network, all the computers have the same capabilities — that is, share files and peripherals without requiring a separate server computer.

- **Topology**, or layout: In a bus network, all the computers are connected to a main cable, or bus. In a star network, all data flows through a central hub, a common connection point for the devices in the network. In a ring network, all devices are connected to one another in a continuous loop, or ring.

- **Network protocol**: This is the language, or set of rules, that computers use to communicate with each other. Networks use different protocols. For instance, the Internet uses TCP/IP.

ii How do I install a wired modem router?
A modem router is a device that connects your computer or home LAN to the Internet.

- Plug one end of the phone cord directly into a phone jack, and the other end into the ADSL port on the router.
- Plug one end of the Ethernet cable into your computer’s network port and the other end into an Ethernet port on the router.
- Turn on your computer. To set up, or configure, the router, you’ll need to input some parameters, for example your ISP’s name and phone number.

NOTE: A router has various Ethernet ports, so you can connect various PCs to the router via Ethernet cables. If you already have a hub or switch connecting a LAN, you only need one cable to connect the hub to the router.

iii How do I log on to the Internet Service Provider?
You need to type in your username and password. Once you are online, you can get email, look for information on the Web, look up IT words in dictionaries, try out new software, and sign up for RSS feeds, newsletters, etc. It is important that you remember to log off after using the Internet. An open line increases the risk of viruses, and hackers might break into your computer to steal confidential data.

iv What is wireless networking?
Wired networks are linked by Ethernet cables, phone lines and high-speed fibre optic cables. Wireless networks, however, use electromagnetic waves, such as radio waves, to transmit data. These are the main types of wireless networks:

- **Satellites** – for long distances
- **WiMAX** – for connecting Wi-Fi hotspots
- **Wi-Fi** – for medium-range distances
- **Bluetooth** – for short distances
- **GSM** – for mobile phones

v What do I need to set up a home wireless LAN?
You’ll need computers equipped with a wireless adapter or wireless card, a wireless access point (a wireless router) and a broadband Internet connection.

vi Which is better, a wired or wireless LAN?
Wired LANs are more difficult to install, but they are cheaper, faster and more reliable. Wireless networks let you move, or roam, from one access point to another, but they are less secure and subject to interference.
In pairs, do this network quiz. See which pair can finish first.

1. This network typically consists of two or more local area networks, covering a large geographical area.
   a. LAN  
   b. WAN  
   c. Intranet

2. This type of network does not have a dedicated server; all the computers are independent.
   a. peer-to-peer  
   b. client-server  
   c. Metropolitan Area Network

3. On this topology, all devices are connected to the same circuit, forming a continuous loop.
   a. star  
   b. ring  
   c. bus

4. The language used by computers to communicate with each other on the Internet is called
   a. Ethernet  
   b. ADSL  
   c. TCP/IP

5. Which cables are used to transfer information for the Internet over long distances at high speeds?
   a. telephone lines  
   b. Ethernet cables  
   c. fibre optic cables

6. Which device allows several computers on a local network to share an Internet connection?
   a. an ADSL port  
   b. a router  
   c. an Ethernet port

7. Which device serves as a common connection point for devices in a wireless network?
   a. wireless access point  
   b. wired router  
   c. wireless adapter

8. Bluetooth is a wireless technology that uses radio waves to transmit data over
   a. long distances  
   b. medium-range distances  
   c. short distances (ten metres or less)
3 Language work: phrasal verbs

A Look at the HELP box. Do you have the equivalent of phrasal verbs in your language? How do you say the phrasal verbs in the HELP box?

HELP box

Phrasal verbs
- The meaning of some verbs with particle (often called phrasal verbs) can be easily understood from its two parts.

  Look at the photos.
  A network consists of two or more …
  Separate networks are linked over a public network, the Internet.

- However, many phrasal verbs have an idiomatic meaning, not predictable from the meaning of its parts.

  carry (= transport); carry out (= execute)
  Computers carry out the programs …

- Certain particles have similar meanings, regardless of the verb (on/off, in/out, etc.).

  turn on / switch on (= start the operation of something)
  turn off / switch off (= stop the operation of something)

- Other common phrasal verbs in computing include:

  plug into (= connect)
  Plug one end of the phone cord into the phone jack.

  set up (= establish)
  What do I need to set up a wireless LAN?

  sign up (= register, enrol in a service)
  Once connected, you can sign up for RSS feeds, newsletters, etc.

  try out (= test or use experimentally)
  You can try out new software on their site.

  find out (= learn, discover)
  Search the Web to find out more information about WiMAX.

  take up (= occupy)
  Fibre optic cables take up less space than copper cables.

  make up (= constitute, form)
  Several LANs connected together make up a WAN.

  fill in (= write the necessary information)
  You need to fill in this online form.

- When the verb has a preposition associated with it, the preposition must precede the object:

  You can look for information on the Web. (not look information for)

  Hackers might break into your PC. (not break your PC into)

  When the particle is an adverb, it can precede or follow the direct object:

  You need to type in your username / … type your username in
  You can look up words in a dictionary / … look words up in a dictionary.

  Turn on the computer. / Turn the computer on.

  If the direct object is a pronoun, the particle must follow it:

  You need to type it in. (not type in it)

B Complete these sentences with the correct form of a phrasal verb from the HELP box.

1 To join the club, ___________ this form and send it to our office.
2 The CPU ___________ all the basic operations on the data.
3 Digital music ___________ a lot of space – about 10 MB for every minute of stereo sound.
4 Thousands of networks ___________ the Internet.
5 You can use newsgroups to ___________ about the latest trends, customer needs, etc.
C  Match the questions (1–6) with the answers (a–f).
1  Why was the hacker arrested?
   c  Because he broke into a computer system and stole confidential data.
2  Is it OK to log on to my bank account using public computers in a cybercafé?
   a  Yes, but always remember to log off after you've ended your session.
3  How do I set up an internet connection at home?
   e  You need to install the software for your router. Follow the instructions provided by your ISP, probably in the form of a .pdf file on a CD.
4  Can I download software from your site?
   b  Yes, you can even try the programs out for a period before you buy them!
5  How can I add video to instant messaging?
   d  Simply install this program and plug the webcam into your computer.
6  What do I need to do to sign up for a Yahoo! email account?
   f  You have to create a username and password and then give some personal details.

4  WANs and satellites

A  Prepare a description of the network below to present to the rest of the class. Use PowerPoint if possible. Use the Useful language box, the HELP box on page 143 and the text on pages 141–142 to help you.

B  Present your description to the rest of the class.