Unit 15 Spreadsheets and databases

1 Spreadsheet programs

A **In pairs, discuss these questions.**

1 What is a spreadsheet?

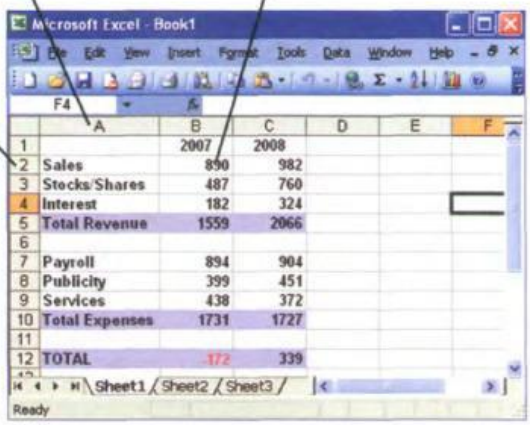
2 What are spreadsheets used for?

B **Look at the worksheet and label a, b and c with *column*, *row* and *cell*. Then answer these questions.**

1 What types of data can be keyed into a cell?

2 What happens if you change the value of a cell?

a ..... b ..... c .....



	A	B	C	D	E	F
1		2007	2008			
2	Sales	890	982			
3	Stocks/Shares	487	760			
4	Interest	182	324			
5	Total Revenue	1559	2066			
6						
7	Payroll	894	904			
8	Publicity	399	451			
9	Services	438	372			
10	Total Expenses	1731	1727			
11						
12	TOTAL	-172	339			

This worksheet shows the income and expenses of a company. Amounts are given in $millions. The terms **worksheet** *and* **spreadsheet** *are often used interchangeably. However, technically, a* **worksheet** *is a collection of cells grouped on a single layer of the file. A* **spreadsheet** *refers to both the computer program that displays data in rows and columns, and to the table which displays numbers in rows and columns.*

C **Listen to Lucy Boyd giving a training course on basic Excel and check your answers to A and B.**

D **Listen again and decide whether these sentences are true or false. Correct the false ones.**

1 A spreadsheet displays information in the form of a table with a lot of columns and rows.

2 In a spreadsheet you can only enter numbers and formulae.

3 You cannot change the width of columns.

4 Spreadsheet programs can generate a variety of charts and graphs.

5 Spreadsheets cannot be used as databases.

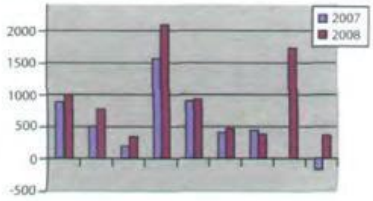
E **Look at the worksheet above and decide whether these sentences are true or false. Correct the false ones.**

1 The value of the cell C12 is the result of applying the formula *C5-C10*.

2 The value of cell B5 is the result of adding the value in cells B2 and B3.

3 If you type the value *800* in C3, the value in cells C5 and C12 will be recalculated.

F **In pairs, discuss the advantages and disadvantages of showing the information above as a graph, rather than as a worksheet.**



Graphic representation of the worksheet above

2 An invoice, a business letter and a fax

A Spreadsheets are also used to generate invoices. Complete the invoice below with words from the box. If you have a spreadsheet program, try to produce a similar invoice.

Quantity	Description	Price	VAT (value added tax)	Product	Grand total	Company

Name: Ruth Atkinson
Address: 38 High Street, Galway
Telephone: 5 742 9165
Date: 16 May 2008

(1) _____
Media Market
Fax: 1 662 2367

(2) _____	(3) _____	(4) _____	(5) _____	
Ulysses Classic	2GB of RAM, 1TB HD	4	850€	3,400€
Flat LCD screen	Colour 19"	4	170€	680€
Portable Ulysses	2GB of RAM, 250GB HD	2	975€	1,950€
D5 database	DBMS, relational database	1	245€	245€
Antidote JP	Anti-virus, anti-spyware	6	60€	360€
Laser printer CQ	2,400 dpi, PostScript	1	230€	230€
			Sub-total	**6,865€**
		(6) _____	(21%)	**1,441€**
		(7) _____		**8,306€**

B Look at this letter which accompanies the invoice. Complete the letter with phrases from the box.

Yours sincerely	I am writing to	Dear Ms Atkinson	We would be grateful if you could
I am enclosing	Please contact us		

16 May 2008

Ruth Atkinson
38 High Street
Galway

(1) _____ ,

(2) _____ confirm that we have sent you four desktop PCs plus screens, two laptops and a laser printer, along with a D5 database, and an anti-virus program for each of the computers. Please allow two weeks for delivery.

(3) _____ two copies of your invoice.

(4) _____ make your payment by cheque or directly to our bank account through the Internet.

We are also delighted to inform you that we are offering our clients an online course called *A paperless office*, free of charge. (5) _____ if you require any further information.

(6) _____ ,

Ian Pegg

C **Imagine you are Ruth Atkinson. When you try to use the laser printer, it gives continuous error messages. You are also having problems installing the database. Write a fax to Media Market to complain. Ask for a new printer and an upgraded version of the database. Look at the *Useful language* box to help you.**

FAX MESSAGE

To: Media Market

Fax: 1 662 2367

From: Ruth Atkinson

Subject: Faulty products

Dear Mr Pegg,

Number of pages: 1

Please call if you experience any transmission problems.

Useful language

I am writing to complain about … *… doesn't work* *I am unable to …*

3 Databases

A **In groups, make a list of as many possible applications for databases as you can think of.**

Example: *Companies use databases to store information about customers, suppliers and their own personnel.*

B **Look at the illustration, which represents a database file. Can you identify a *record* and a *field*?**

C **Read the text on page 76 and check your answers to B.**

A representation of a database file

Databases

A **database** is a collection of related data, and the software used in databases to store, organize and retrieve the data is called the **database management system**, or **DBMS**. However, we often use the word *database* to cover both meanings. A database can manage any type of data, including text, numbers, images, sound, video and hyperlinks (links to websites).

Information is entered into the database via **fields**. Each field holds a separate piece of information, and the fields are grouped together in **records**. Therefore, a record about an employee might consist of several fields which give their name, address, phone number, date of birth, salary and length of employment with the company.

Records are grouped together into **files** which hold large amounts of information. Files can easily be **updated** – you can always change fields, add new records or delete old ones. An electronic database is much faster to consult and update than a card index system and occupies a lot less space. With the right software, you can keep track of stock, sales, market trends, orders and other information that can help your company stay successful.

A database program lets you create an **index** – a list of records ordered according to the content of certain fields. This helps you to **search** the database and **sort** records into numerical or alphabetical order very quickly. Modern databases are **relational** – that is, they are made up of related files: customers and orders, vendors and purchases, students and tutors, etc. Two database files can be related as long as they have a common field. A file of students, for example, could include a field called *Tutor ID* and another file with details of the tutors could include the same field. This key field can be used to relate the two files. Databases like Oracle, DB2 and MySQL can manage these relationships.

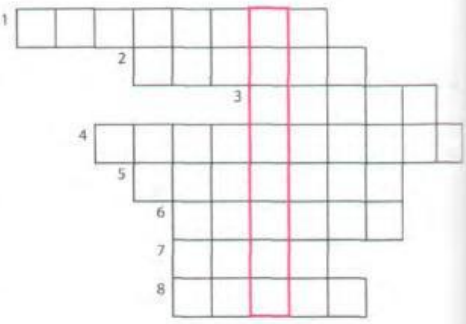
A database **query** function allows you to extract information according to certain conditions or criteria. For example, if a managing director wanted to know all the customers that spend more than €8,000 per month, the program would search on the name field and the money field simultaneously.

The best database packages also include **network** facilities, which can make businesses more productive. For example, managers of different departments can have direct access to a common database. Most aspects of the program can be protected by user-defined passwords and other **security devices**. For example, if you wanted to share an employee's personal details but not their commission, you could protect the commission field.

D Complete these statements about databases using information from the text.

1 A database management system is used to _____.
2 Information is entered into a database via _____.
3 Each field holds _____.
4 *Updating* a file means _____.
5 Some advantages of a database program over a manual filing system are: _____.
6 Access to a common database over a network can be protected by using _____.

E Solve the clues and complete the puzzle.



1 A collection of data stored in a PC in a systematic way.
2 A unit of a database file made up of related fields.
3 A single piece of information in a record.
4 A _____ database maintains separate, related files, but combines data elements from the files for queries and reports.
5 Some companies have several computers sharing a database over a _____.
6 To look for specific information, for example the name of an employee.
7 To classify records into numerical or alphabetical order.
8 A tool that allows you to extract information that meets certain criteria.

F In pairs, discuss what fields you would include in a database for your music collection.

4 Language work: plurals

A Look at the HELP box and then write the plural of these words.

1 client _____
2 key _____
3 query _____
4 businessman _____
5 fax _____
6 salary _____
7 mouse _____
8 virus _____

HELP box

Plurals

- In most cases, we form the plural in English by adding **-s**.

  record → *record**s***

- If a word ends in **-s**, **-sh**, **-x** or **-ch**, we add **-es**.

  address → *address**es***
  index → *index**es***

- If a word ends in a consonant + **y**, the **y** becomes **i** and we add **-es**.

  company → *compan**ies***
  facility → *facilit**ies***

- However, if the **y** follows a vowel, we add only **-s**.

  birthday → *birthday**s***

- There are several irregular plural forms:

  man/woman → ***men/women***
  child → ***children***
  analysis → ***analyses***
  formula → ***formulae*** (or ***formulas***)
  criterion → ***criteria***
  mouse → ***mice***

- The **-s** is pronounced as:

  /s/ after one of these sounds: /p/, /t/, /k/, /f/ or /θ/ (e.g. *amounts, hyperlinks*)

  /ɪz/ after one of these sounds: /s/, /z/, /ʃ/, /tʃ/ or /dʒ/ (e.g. *businesses, devices, images*)

  /z/ in most other cases (e.g. *files, fields, customers, columns*)

B Put the plurals into the correct pronunciation column.

databases	passwords
laptops	graphs
orders	switches
taxes	networks
tables	packages
spreadsheets	systems

/s/	/ɪz/	/z/

5 Software at home and at work

In pairs, find out as much as you can about the software your partner uses at home or at work. Ask about spreadsheet programs, databases, word processors, videoconferencing, business accounting, email, and web browsers. Look at the *Useful language* box to help you.

Now visit www.cambridge.org/elt/ict for an online task.

Useful language

What kind of spreadsheet program do you use?
What do you use it for?
Do you use it at home or at work?
What's your favourite …?
What features do you like most about it?
How do you …?