

Briefing

This unit looks at two aspects of administration: the use of spreadsheets and databases, and the administration of IT systems. Peripherals are also mentioned. Students practise: talking about spreadsheet formulae, using the past simple to describe past problems; talking about databases, using *by* + *-ing* to state concisely how things are done; describing various system administration tasks; describing the order of events using *while*, *before* and *after*; further vocabulary for peripherals; describing the background to problems, using the past continuous and past simple.

Spreadsheets and formulae

IT staff may be asked to help administration staff who are having problems with spreadsheets and will often find spreadsheets useful in their own work. Only very basic **formulae** are mentioned here, using arithmetical expressions and a **function**. Formulae use **cell** references: spreadsheet **columns** have letters and **rows** have numbers, so, for example, cell D7 is where column D and row 7 meet (see the Course Book for further explanation).

An important function is SUM, which adds up the contents of all the cells referenced in the brackets after it. When a colon is placed between two cell references, a range of cells is specified. Thus =SUM(B1:B4) will add up the contents of cells B1, B2, B3 and B4 in column B. Similarly, SUM(C4:F4) will add the contents of cells C4, D4, E4 and F4 in row 4. Other basic formulae include AVERAGE and COUNT. =AVERAGE(C4:C20) will give the average of all the values in cells C4 to C20. =COUNT(C4:C20) will give the number of items in the same cell range (it will not count empty cells).

If you have not used formulae in a spreadsheet before, it is suggested that you play with some of the formulae from here in a real spreadsheet before teaching this lesson.

Databases

Databases are behind many different applications. For example, email software uses one database to store messages and another one to store email addresses; any website that you register for will store the registration details in a database. Browsers

use databases to store the history of the sites visited, bookmarks, etc.

At the heart of databases are **tables**. The columns of the table are called **fields** and the rows are called **records**. For example, a database containing contact details might have fields for family name, given name, phone number and email address. Each person in the database will have their own record.

Entering data into a large table can be a tricky process. To make it easier, database management software such as Microsoft Access or FileMaker Pro allows the creation of **forms** (see screenshot A on page 30 of the Course Book).

For output, reports are used. These are well-formatted documents, suitable for printing or emailing, which show a selection of the data in the database. For example, the data may be sorted in a particular order such as alphabetical by family name, or it may be filtered so that only selected data, such as only the contact details for people living in a particular city, appears in the report.

Many databases are relational databases. In these, tables are linked so that users do not have to enter the same data multiple times. An example is the student database of an English language college. There might be a table that lists students in each class. But if a student moves to a different class, there will then be two records for the same student (simply moving the student's data to the table for another class will not work because then there would be no record of which class the student was in previously). It is much more efficient to have a separate table for student details. Then the class list table can simply refer to the student details table. For this to work, though, there must be one field in each table which is unique for each student. Otherwise, the database would not be able to keep track of students when, for example, two students have the same family name. The unique field is called the primary key and could be something specially created for the database to use, such as a student number.

A further point to note is that, technically, database software such as Microsoft Access is a database management system (DBMS) and is designed so that relatively inexperienced people can set up and manage a small-scale database without too much specialist knowledge. However, it is not particularly

robust and, for larger applications, more technical approaches are usually used. At this level, setting up and maintaining databases becomes a very technical process akin to programming.

Systems administration

The stereotype of a systems administrator is of someone hidden away in a server room surrounded by technical equipment, only emerging when absolutely necessary. While this is unlikely to be the truth, this does give some flavour of the job. Systems administration is a highly technical job involving responsibility for a company's computers, servers, websites and so on. Duties are wide-ranging and, while they vary from company to company, they generally cover researching, purchasing, setting up, maintaining, updating and dealing with problems with IT equipment. Some of the duties and responsibilities mentioned in the unit are:

- **Deploying software:** in larger companies, rather than going to each computer and individually installing software, updates and operating systems, it is often possible to 'push out' upgrades remotely from the server to all relevant computers at the same time.
- **Networks, network security and websites:** some companies host the websites on their own servers. Where this is the case, the systems administrator is often responsible for ensuring that the website is secure and that it is constantly working (i.e. there is no downtime). This also applies to internal websites for staff use only (intranets) and the company network.
- **User accounts:** Many operating systems have several levels of user account, each of which allows access to different areas of the network and gives different degrees of control over the computer. For example, a guest account allows access to only the least sensitive information and might not even allow the user to create new folders. On the other hand, an administrator account gives a high degree of control over the computer; for example, it usually allows the installation of new software. Companies will often create different types of user account for different types of staff. For instance, accounting staff may have access to financial data that sales staff do not have access to. Access may be read-only or read-write.
- **Setting permissions:** This refers to setting up or adjusting a user account so that permission to access certain places or do certain things is given or denied.

- **Backups:** Systems administrators are usually the people responsible for the company's backup and restore strategies. In many cases, data from all computers will be automatically backed up to a server and also to offsite storage, so that if a disaster hits the building, the data will be safe.
- **Checking logs:** Logs are files created during the operation of software or hardware that tell a technician what is happening. For example, an operating system might add an entry to a log file every time a different user logs on or a fault is detected. Logs can be very useful in troubleshooting problems and also in detecting potential problems before they occur.

Systems administration is a source of plenty of humour: a quick internet search will show up songs and cartoons about it, though they are not necessarily suitable for class!

Peripherals

This section extends the work on hardware from Unit 2 with a focus on peripherals (devices which attach to computers and are controlled by them). Some of the items considered here are:

- **NAS (network attached storage) device:** a set of hard drives in a single box, which is attached to a network in the same way as a computer. Thus, it is accessible from any computer and provides a convenient place to store files accessed by several people, backups and so on.
- **Graphics tablet and stylus:** often used by designers and others who use software such as Photoshop to manipulate objects in images, as it can be more efficient than using a mouse for this purpose.

Business matters

This involves a scenario in which students discuss administration problems and possible solutions designed to bring out some of the vocabulary and grammar from this and earlier units.

Further reading

Use the following keywords to search the internet for websites which give more in-depth information about the topics covered in this unit: spreadsheets, relational database, Microsoft Access, network attached storage.

Teacher's Notes

Warm-up

Go through any information students found in preparation for this unit (for example, on spreadsheets, peripherals or databases).

Spreadsheets and formulae

Speaking

- 1 The discussion questions here, which introduce this section, ask about how people use spreadsheets generally and about students' own experiences with spreadsheets.

Vocabulary

- 2 Students match some basic sums written as words with the equivalent sums in symbols to obtain the basic vocabulary of arithmetic, a necessary step towards being able to say spreadsheet formulae. They then rewrite the sums in a different way, using the words given in brackets and the pattern provided: *8 divided by 2 is 4*.

Point out to students that both ways of saying sums are fine. In addition, we can also say: *If we add 8 and 2, we get 10* as an alternative to item 4, and *8 over 2* as an alternative to *8 divided by 2*. Also point out that the way that some of these sums are written by hand is different from how they are often written on a computer in spreadsheets: / is used instead of ÷ and * (asterisk) is used instead of x .

1 c 2 b; 8 minus 2 is 6. 3 d; 8 times 2 is 16.
4 a; 8 plus 2 is 10.

Speaking

- 3 To practise the language in Activity 2, students write down a number of sums of their choosing, then say them randomly to a partner, who says the answer (or, alternatively, writes down the sum that he/she hears). This could be repeated in a later lesson for review.

Listening

- 4 ▶ 17 Vocabulary to describe spreadsheets is presented here: students listen to a trainer explaining a spreadsheet to a trainee and match words to items on the screenshot of a Microsoft Excel spreadsheet.

Before playing the recording, make sure that students have heard the words in 1–6 so that they can recognise them when they hear them. In particular, draw their attention to the fact that the *c* in *cell* is pronounced /s/. Note that students may encounter *formulas* in place of *formulae*. While some maintain that this usage is incorrect, it does appear to be gaining ground.

1 F 2 E 3 A 4 B 5 C 6 D
The formula adds up some numbers.

Speaking

- 5 This is an information gap activity to practise saying formulae, with Student B's information on page 70.

Extra activity

If your students have some knowledge of spreadsheets, elicit from them other common functions they know in their own language but not in English. Then have them dictate formulae containing these to each other.

Language

The past simple is a grammar point that students at this level will have encountered before. However, many will still be making mistakes, so further accuracy-focused practice is usually needed.

- 6 Students read audio script 17 and identify the tenses used. They also complete a sentence describing when the different tenses are used. This will help them to relate the points made in the Language box to real use of language.

The past simple and present simple are used.
present simple, past simple

Listening

- 7 ▶ 18 One way to introduce this activity is to ask students to describe past problems they have had with a spreadsheet (or, if they have not used spreadsheets before, with other software or hardware). Guide them towards using the correct tense while they describe the problems.

Students now listen to four IT employees describing scenarios involving spreadsheet problems. Each describes both a past action and a present action or situation. While listening, students complete a table to show the past and present actions.

- 2 saved a spreadsheet (in the main folder); can't find it
- 3 designed a spreadsheet; it doesn't work
- 4 typed a date (into a cell); it shows a number (instead)

Speaking

- 8 Students match possible solutions to the problems in the previous activity. They then use this information for roleplays in which they describe the situations but also propose solutions. Students will need to know the meaning of *function*. This is the word in the formulae they have previously seen, such as *SUM*. Other vocabulary items such as *folder* and *right-click* are review from Unit 2.

Before commencing the activity, choose two strong students to model the first conversation, using the example as a starting point.

a 2 c 4 d 3

- 9 This activity brings the language of the section into the real world. Students take turns to describe to a partner an IT problem that happened to them, and the solution. Ideally, this would be a problem with a spreadsheet but if they have had little experience with spreadsheets, any IT problem will do, especially if it relates to the topic of a previous unit.

Further practice is provided by asking students to form new pairs and describe the problem they heard, not the one they themselves described. This will help them focus on both understanding and communicating meaning from the beginning of this activity.

Databases

Speaking

- 1 Students begin by sharing their knowledge of databases. For those who are new to IT, some prompting may be necessary: you could point out that even a popular website such as Facebook stores user information, posts and so on in a database. From there, students will be able to speculate about what other websites might use databases for.

Listening

- 2 ▶ 19 Students match vocabulary relating to databases with three screenshots (a form, a table and a report) from Microsoft Access. To help

them do this, they listen to a database administrator explaining the structure of a company database to a trainee.

1 B 2 C 3 A

- 3 Students listen again, this time to practise listening for more detailed information. They decide which of the three options best describes what the database keeps track of. Before listening, check understanding of the vocabulary in the options: *clients* came up in Unit 1 but *orders*, *stock* and *accounts* might be new.

a

Vocabulary

- 4 Students now read an extract from a database manual and complete gaps with vocabulary provided, which also appear in audio script 19. This activity is best done with students helping each other, that is, in pairs or small groups.

As a further reading activity, students can refer to the audio script on page 75 to check their answers. After feedback, check that students know the meaning of the vocabulary as defined in the manual.

1 objects 2 record 3 fields 4 unique
5 primary key 6 form 7 report 8 retrieve
a record 9 query the database

Speaking

- 5 Students are presented with descriptions of three database tables. In small groups (or pairs if you feel this is more appropriate for your class), they decide which field is an appropriate primary key. The aim of this activity is to practise vocabulary from Activity 4; this is far more important than whether or not they choose primary keys correctly, and monitoring should focus on encouraging use of this vocabulary.

Check first that students know the vocabulary in each description. *Product* is review from Unit 1. An example of a *barcode* can be found on the back of the Course Book. Also, draw their attention to the example.

Good primary keys are:

- 1 Membership number
- 2 Barcode
- 3 Case number/National identity card number

In each case, the reason is that these are the most likely fields to be unique (email address would not be ideal, even though it's unique to each person, because many people have more than one)

6–7 Students now see four more situations. In groups (or pairs for stronger classes or if groups are not appropriate in your context), they choose tables, fields and primary keys for each situation. When finished, they compare their answers with another group and discuss any differences. As with the previous activity, the aim here is practice of the vocabulary.

With stronger classes, an alternative to Activity 7 is for each member of the original group to form a pair with another student; this will result in more practice.

Suggested answers

- 1 tables: patient's details, treatment details
patient details table fields: patient's name, mailing address, telephone number, email address, patient's identity number (primary key).
treatment details table fields: date of treatment, type of treatment, result, follow-up treatment, treatment number (primary key; none of the others are necessarily unique)
- 2 tables: student details, class information, assessment information
student details table fields: student name, student ID (primary key), start date, current class, previous classes, fee paid
class information table fields: name of class (primary key), class members' names, teacher's name, classroom number
assessment information table fields: date and time of assessment (primary key), names of students assessed, results
- 3 tables: airlines, flights
airlines table fields: airline name, airline code (primary key), airline contact details
flights table fields: flight number (primary key), departure airport, destination airport, departure time, number of seats
- 4 tables: players, games
players table fields: player's name, email address, player's identity number (primary key)
games table fields: players' names, game ID number (primary key), time started, time stopped, current score

Language

by + -ing is a useful language point, which should present few challenges to students at this level.

- 8 Students ask and answer questions about how to do several tasks involving databases, using the language from the Language box. An example is provided as a model.

Suggested answers

- 1 You can do that by retrieving a record, querying the database or running a report.
- 2 You can do that by using the 'sum' function (in a formula).
- 3 You can do that by using a primary key.
- 4 You can do that by running a report.

Speaking

- 9 A scenario is provided in which a company's problems are described and possible solutions are mentioned. The scenario also reviews recent vocabulary. Students work in small groups (or in pairs) to discuss possible solutions to the problems, using this section's target language.

Suggested answers

By using OCR, your company will save time on data entry.

By using a database, you only have to enter data once.

By running reports from a database, you won't need to copy and paste data into word processing documents. The data will be ready for printing.

Extra activity

This activity assumes that students have some basic IT experience. Give a list of basic operations common to most software (for example *cut, copy, paste, undo, open, close*). In pairs, students ask and answer questions with *how*, which can be answered using the *by + -ing* structure (for example, 'How do I open a document?' 'By clicking on this button.').

In a later lesson, for review, paired students could say, for example: *By clicking this button, you can open a new document.* The partner then points to the appropriate button on the screen or on a screenshot of the software chosen.

Speaking

- 1 This activity is a little different from other introductions to sections in the book because many students will have little knowledge of the topic (systems administration), thus making it difficult to elicit prior knowledge or experience. Instead, a definition of what a systems administrator does is given and students, in pairs, place some tasks provided in a table according to whether or not they fit the definition. Much of the vocabulary in these tasks is review from earlier units.

If, however, your students have some experience of working in the IT industry, you could begin this section by asking them to tell you (or make lists in pairs or groups) as many tasks a systems administrator might perform as they can. If this does not bring out all of the vocabulary in the box in Activity 1, point students to it and ask them to include appropriate items in their lists.

Students with an intermediate level of knowledge can start off by completing the task in the book, then adding ideas of their own.

A systems administrator's task: deploys new software, looks after network security, sets up user accounts, updates software across an organisation

Not a systems administrator's task: designs databases, works on a help desk, writes software to sell to other companies

- 2 For each item in Activity 1 that is not the task of a systems administrator, students, in the same pairs, choose a job title from page 4.

designs databases: database administrator
works on a help desk: help desk supervisor
writes software to sell to other companies: software developer

Listening

- 3 ▶ 20 Students listen to a systems administrator asking a technician about the status of the company's computer systems. On this first listening, in order to build confidence with it, students are asked just two questions.

No, it isn't. There are several departments.

- 4 On this second listening, students complete a table listing tasks, some of which appeared in Activity 1. The table has columns to be ticked to indicate whether the task worked fine, a problem was found or whether it was not mentioned. Students are also asked whether there were any big problems. Before listening, give them time to read the table. They can check their answers by looking at the audio script on page 75.

1 Worked fine
2 Not mentioned
3 Worked fine
4 Problem found
5 Worked fine
6 Problem found
7 Problem found
No, there weren't any big problems.

Vocabulary

- 5 In pairs, students match words from the table in Activity 4 with their meanings.

1 reset 2 deploy 3 permissions 4 logs

- 6 If feasible in your classroom, combine pairs from the previous activity to make groups of four; otherwise, continue in pairs. Ask students to complete collocations that they heard in the audio. Some may be able to do this from prior knowledge and others may have an impression of which ones fit together from the audio.

1 smoothly 2 crash 3 running again
4 out of 5 out 6 smoothly

Language

As in the previous section, gerunds are the language focus here but this time they are used in conjunction with time words: *while*, *before* and *after*. An alternative is also provided, using a subject and the present simple form of the verb.

Make sure students are aware that punctuation is important with these words: the commas in the examples cannot be substituted with full stops, which is a common mistake. Also make sure that, in the second example, students realise that what happens in the second clause (*back everything up*) occurs earlier than the clause with *before* (*Before you reinstall the OS*). *OS* in these examples stands for *Operating System*.

- 7 Students use the prompts to write sentences with *while*, *before* and *after*. They will have to work out which action occurs first or whether they occur simultaneously in order to decide which word to use. Ask students to write both possible answers for those prompts that can take either a gerund or subject + verb after the conjunction.

- 1 While you install/While installing an operating system, the computer may reboot several times.
- 2 Before you deploy/Before deploying major software upgrades, (you need/have to) train the users.
- 3 After you replace/After replacing the hard drive, everything will go smoothly.
- 4 After someone forgets a password, (you need/have to) reset it.

Listening

- 8 ▶ 21 Students listen to five extracts from conversations and write the action that should happen first in each case. The aim here is to develop awareness of the effect of the time conjunction on the order of events; the events do not necessarily occur in the order they are heard.

- 2 partition the hard drive
- 3 check (your/the) schedule
- 4 get access to (your/the) machine
- 5 ask (them) if it's OK/ask for permission

Pronunciation

- 9 Students mark the intonation of the five extracts from conversations in the previous activity on the audio script.

- 1 Dalya, before you close the database, could you email me a report on last month's sales? ↗
- 2 After partitioning the hard drive, could you run a memory check? ↗
- 3 Yoshi, check your schedule before you re-install the operating system. ↘
- 4 After I get access to your machine, you'll see the cursor moving around the screen. ↘
- 5 Before remote accessing anyone's computer, you should always ask them if it's OK. ↘

Intonation generally rises at the end of *yes/no* questions and falls at the end of statements.

Speaking

- 10 In pairs, students use prompts to produce instructions for their partner. Make sure they are aware that there may be several ways to respond to each prompt. They will have to think logically about which action comes first.

Suggested answers

- 1 Before you finish work for the day, could you check the logs?/After you check the logs, you can finish work for the day.
- 2 After you start work tomorrow, please check out the database problem.
- 3 While you're in the server room, could you check the network cables?
- 4 After the new designer arrives, could you set permissions on his computer?

- 11 Students use further prompts to state some precautions to do with systems administration. Giving precautions is a useful function for *before* + clause/gerund.

Suggested answers

- 1 Before upgrading some software, check that no one is using it!
- 2 Before remote accessing someone's computer, you should ask their permission/let them know what you're doing.
- 3 Before switching off a server with users' computers networked to it, check that they're not using the network/accessing the server.
- 4 Before deploying new software, give the users training with it.

Writing

- 12 Using the prompts provided, students write an email explaining a basic procedure. This is another useful function that utilises this section's language point.

Extra activity

For students already working in or studying IT, ask them to write an email giving a procedure related to their work or recent studies. The email should incorporate language from the Language box.

Peripherals

Speaking

- 1 Explain that a peripheral is a device that plugs into a computer, such as a printer or a screen. Then, with books closed, ask pairs of students to list as many peripherals as they can. They will remember some from Unit 2. They may be able to think of more. If they think of something in their own language but do not know the English word, encourage them to explain it to you in English and supply the word to them.

An alternative introduction is to ask students to discuss these questions in pairs or small groups:

- 1 *What kinds of peripherals have you used most recently?*
- 2 *What's the most unusual peripheral device you've heard of?*

Either activity could become a competition by giving a time limit for the pairs/groups to produce their lists and, when finished, see who has the longest list.

Vocabulary

- 2 In pairs, students match photos of peripherals to descriptions of what the peripherals do. Note that all-in-one devices are also referred to as multifunction devices (MFD) and multifunction printers, and that these also come in sizes that will fit on a desk (i.e. smaller than the one illustrated).

A 1 B 5 C 7 D 2 E 4 F 3 G 8 H 6

- 3 In the same pairs, students decide whether the devices in Activity 2 are output devices, input devices, both or neither, writing *I* or *O* as appropriate next to each.

1 neither 2 I 3 I 4 I 5 I, O 6 O 7 I, O 8 O

Listening

- 4 ▶ 22 Students listen to an assistant systems administrator explaining a problem to his manager and complete the table. Explain that *in progress* means *happening*.

The accountant *was trying* to save a spreadsheet to the NAS device.

- 1 got an error message
- 2 couldn't connect to it (from anywhere)
- 3 maybe a problem with the network cable

Language

The past continuous and past simple are contrasted here. The second point in the Language box, about interrupted actions, should be emphasised as this is the point practised in later activities.

Speaking

- 5 Students use the prompts provided to explain problems to their partner. Before beginning the activity, choose two students and elicit a conversation similar to this:
A: *Albert, I've got a problem. Could you help me?*
B: *Sure, what's the matter?*
A: *Well, the printer's jammed. This morning I was printing a report when it stopped suddenly. Half of the report didn't print properly.*
With less confident students, it will help to put this conversation on the board as a model.

Writing

- 6 For further consolidation of the language point, students write an email to a company IT support office explaining a problem of their choice from Activity 5. If your students need more practice, you could ask them to write more than one email, for homework or in a later lesson.

Business matters

In this section students discuss and propose solutions to some IT problems related to the unit topics. They go on to write an email summarising the problems and solutions.

Speaking

- 1 First, students read the scenario. Then, in small groups, they choose four of the problems mentioned and complete a log with those problems and the actions taken. If your students are knowledgeable about IT, instead of reading the scenario, they can simply choose four problems that are relevant to their work or study, though, ideally, they would have some relevance to this unit.

Writing

- 2 Students now work individually and write solutions to the problems chosen in Activity 1 in the log provided (for space reasons, it may be better for them to use a copy of the log in their own notebooks). This forms the basis for discussion in the next activity.

Speaking

- 3 Students explain the problems from the 'action taken' column in their logs, using language from earlier in this unit.

Writing

- 4 Students write an email to the systems administrator as requested in the scenario in Activity 1, explaining the problems they encountered and how they solved them.

Preparing for the next unit

In preparation for **Unit 5**, ask students to think about an electronic gadget or item of IT equipment they have purchased recently, then make some notes about other options they considered at the time of purchase and the reasons for making their choice.