

Reading (Note and table completion)

► COURSEBOOK pages 8–9 and 18–19



Before you read

- 1a Read the title of the reading passage. What information do you think the passage will contain?
- 1 how the monarch butterfly solves problems
 - 2 threats to the monarch butterfly's survival
- b Read the passage. Was your answer to the question in Exercise 1a correct?
- 2 Consider the words in *italics* in the reading passage: *migration*, *navigational*, *genetic*, *compass*. If you don't know the meaning, try to guess it, then check in your dictionary.

Predict language; Scan for information

- 3a Read around the gaps in the test task in Exercise 4. What class of word (noun, adjective, verb, etc.) are you looking for?
- 1 a noun/adjective
 - 2 _____
 - 3 _____
 - 4 _____
 - 5 _____
 - 6 _____

- b Find words/phrases in the reading passage that correspond to the following sub-headings in the notes in Exercise 4.

- 1 Habitats _____
- 2 Reasons for migration _____
- 3 Scientific interest _____
- 4 New findings _____

Test practice

- 4 Read the strategy and complete the test tasks.

TEST STRATEGY

In note- and table-completion tasks, the information may not follow the same order as the information in the reading passage.

Questions 1–6

Complete the notes below.

Choose **NO MORE THAN TWO WORDS** from the passage for each answer.

Monarch Butterflies

Habitats

Summer – eastern US and south-eastern Canada

Winter – central Mexico

The monarch's dependence on wintering in a 1 _____ → highly endangered.

Reasons for migration

Southwards → to escape 2 _____

Northwards → to lay eggs near 3 _____

Scientific interest

Individuals live for less than one year, so cannot 4 _____ a route.

The butterflies' 5 _____ skills seem to be genetic.

New findings

Scientists have discovered how the butterflies determine 6 _____ while flying.

► HELP

- 1 The missing word must be an adjective or a countable noun beginning with a consonant.

Inside the brain of the monarch butterfly

The annual *migration* of monarch butterflies is considered to be one of the most remarkable natural phenomena on the planet. The insects are typically found in the eastern US and south-eastern Canada, where they spend the summer months before flying south to a single spot in central Mexico (on top of the Michoacán Mountains) for the winter. The journey can involve travelling up to 3,000 miles. At these wintering sites they cluster on top of trees in their millions, and the air is full of the sound of their wings. Their reliance on this single spot to spend the winter has led to the monarch butterfly being rated as one of the most endangered creatures in the world.

Monarch butterflies migrate for two reasons. Firstly, they cannot withstand the freezing temperatures in northern and central climates. Secondly, the milkweed plants, which are the food that their larvae prefer, do not grow in their overwintering sites, so the spring generation must fly back northwards to lay their eggs in places where the plants are plentiful.

This ability to continue travelling in the same direction to the same spot year after year has been the subject of scientific interest for decades. The butterflies have a relatively short lifespan: individuals live between two and eight months. Some butterflies make the whole trip, but others lay eggs and die on the way, leaving offspring to complete the journey. It follows from this that the butterflies do not learn their route; instead their *navigational* abilities appear to be part of a *genetic* programme that enables them to make the journey. Their migration is repeated instinctively by generations, and has continued even as monarch numbers have plummeted due to loss of their main food source.

Now at last, scientists believe they have cracked the secret of how the monarch butterfly's brain works to establish the direction of flight during migration. It is hoped this discovery will help scientists understand how they navigate and locate their food.

Dr Eli Shlizerman, lead author of the study, joined with colleagues at the University of Michigan and the University of Massachusetts to show how the monarch's internal *compass* works. Dr Shlizerman, who is an assistant professor at the University of Washington in the

US, said: "Their brain, which contains a compass, integrates two pieces of information – the time of day and the sun's position on the horizon – to find the southerly direction. We wanted to understand how the monarch is processing these different types of information to yield this constant behaviour – flying south-west each autumn."

Monarchs use their large, complex eyes to monitor where the sun is in the sky, but this information alone is not enough to determine direction. Each butterfly must combine that information with the time of day to know where to go. Like most animals, including humans, monarchs possess an internal clock based on the rhythmic expression of key genes. This clock maintains a daily pattern of physiology and behaviour and in the monarch butterfly, it is centred in the antennae.

Dr Shlizerman added: "We created a computer model that incorporated this information – how the antennae and eyes send this information to the brain. Our goal was to model what type of control mechanism would be at work within the brain, and then asked whether our model could guarantee sustained navigation in the south-westerly direction."

Their model also shows that when they make a mistake, monarchs do not simply make the shortest turn to get back on route. The model includes a unique feature – a 'separation point' that controls whether the monarch turns right or left to make a course correction.

Dr Shlizerman explained: "The location of this point in the monarch butterfly's visual field changes throughout the day, and our model predicts that the monarch will not cross this point when it makes a course correction. In experiments with living monarchs at different times of the day, it is evident that there are occasions where their turns in course corrections are unusually long, slow, or meandering. These could be cases where they can't do a shorter turn, because that would require crossing the separation point. And when that happens, their compass points north-east instead of south-west. It's a simple, robust system to explain how these butterflies – generation after generation – make this remarkable migration."

Questions 7–10

Complete the table below.

Choose **NO MORE THAN TWO WORDS AND/OR A NUMBER** from the passage for each answer.

How the monarch butterfly finds its way

Part of the body	Characteristics	Function
eyes	big and 7 _____	check the position of the 8 _____
9 _____	contain the internal clock	register the time of day
brain	has a 10 _____	combines two pieces of information

EXPERT LANGUAGE

Function is a very common word in written English, especially academic English. The noun and the verb have the same form, while the adjective is *functional*.

Task analysis

5 Answer the questions.

- 1 Do any of your answers contain more than two words?
- 2 Have you copied all the words correctly?
- 3 Do the words you have written fit the notes/table grammatically?

Vocabulary

➤ COURSEBOOK pages 10 and 16

The language of learning

1 Choose the correct option in *italics* to complete the sentences.

- The most effective way to *gain* / *acquire* a new language is to spend time in the country where it is spoken.
- Monarch butterflies have the *method* / *capacity* to steer an accurate course for thousands of miles.
- Getting a large number of people to *retain* / *focus* on the same problem can be an effective way of arriving at a solution.
- Developing new medical treatments and bringing them to market can be a lengthy *method* / *process*.
- The easy availability of reference materials means it is unnecessary for people to *retain* / *process* a large number of facts.
- Behavioural training typically involves changing a person's normal *capacity* / *reaction* in a given situation.
- During a training course, keeping a diary can help trainees to maintain *reaction* / *focus*.
- One effective training *process* / *method* involves getting trainees to teach other people.
- During medical training, doctors rehearse the *process* / *capacity* of handing patients over to new staff at the end of the day.
- Recent *research* / *focus* has provided new evidence about the monarch butterfly's brain.

2 Complete the sentences below, using your own opinions and experience.

- I find that the best method of retaining new English vocabulary is to _____.
- It's difficult to focus on my work if _____.
- When I have to process a lot of new information, my usual reaction is to _____.
- I recently read a newspaper article about research into _____.
- My capacity for _____ is improving.
- I have acquired quite a lot of knowledge about _____ through _____.

Collocations

3a Underline the word on the left which collocates best with the word/phrase in bold.

- | | | | |
|---------------|-----------|------------|--------------|
| 1 demonstrate | establish | express | intelligence |
| 2 get | acquire | obtain | a skill |
| 3 process | deal | stir | information |
| 4 apply | collect | focus | attention |
| 5 conduct | make | accomplish | research |
| 6 activate | initiate | trigger | a reaction |

b Complete the sentences with a phrase from Exercise 3a.

- A lot of practice is necessary when attempting to _____ such as skiing.
- Although humans often regard themselves as a superior species, a lot of animals _____.
- Modern scanning technology has increased scientists' capacity to _____ on the human brain.
- Research has shown that individuals _____ in a variety of ways, so teachers need to vary their methods accordingly.
- Images of peaceful, rural landscapes appear to _____ in most individuals.
- It is difficult to _____ on a task when there are too many visual or auditory distractions.

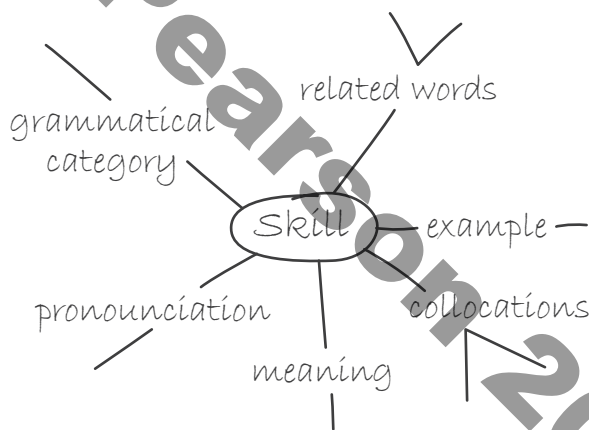
Describe trends

4 Do you agree or disagree with the following statements?

- The cost of course materials has gradually increased.
- Tuition fees have risen steadily over the last few years.
- The price of computers has fallen slightly in the last year or two.
- Many students find that their concentration levels fluctuate over the course of a day.
- Owing to new technology, our understanding of the human brain has risen sharply in the last two decades.

Dictionary skills

5 Complete the spidergram below. Use a dictionary to help you if necessary.



6 Choose another word from Exercise 3a and produce a spidergram.

7a Which of the following ways of recording new vocabulary do you use?

- add it to an unordered list
- create a spidergram
- include it under a topic heading
- add it to an alphabetical list

b Which way works best for you? Why?

Language development

> COURSEBOOK page 13, EXPERT GRAMMAR page 176

Synonyms

- 1a Complete the sentences with the phrases below. Add a pronoun if necessary.

talk through up-to-date top up get in

- If you can't find the book you are looking for, the bookshop assistant can _____ for you.
- If you move house, you should make sure that the library has your _____ address.
- If the online application form isn't clear, ring up and someone will _____ it.
- If the print on your photocopies looks faded, you probably need to _____ the ink.

- b Rewrite the sentences in Exercise 1a using the words below. Add a preposition if necessary.

refill explain current order

- _____
- _____
- _____
- _____

Prefixes

- 2a Match the prefixes (1–6) with their meanings (A–E). Two have a similar meaning.

- | | |
|----------|-------------|
| 1 inter- | A not/no |
| 2 un- | B make |
| 3 en- | C bad/wrong |
| 4 in- | D again |
| 5 mis- | E between |
| 6 re- | |

- b Complete the sentences with the word in brackets and the correct prefix from Exercise 2a.

- Many new head teachers decide to _____ (organise) the staffing structure in order to improve a school's performance.
- Unfortunately, it appears _____ (likely) that all of the UN goals for children's education will be met.
- The collection of data on a massive scale will _____ (able) scientists to understand how certain diseases spread.
- _____ (national) cooperation is essential for addressing issues such as universal internet access.
- For people living in remote rural areas, higher education is often _____ (accessible).
- Some user manuals are _____ (informative) because they lack detailed diagrams.
- According to analysts, the main cause of student debt is financial _____ (management).

- 3 Complete the text with the words below. There is one extra word which you do not need.

access enable inadequate informative
international likelihood management reorganisation

Conference in Seattle

A major 1 _____ conference will take place in Seattle this August. The theme of the conference is financial 2 _____. Thanks to a 3 _____ of IT resources, participants at this year's event will be able to attend either in person or by video link. This will 4 _____ busy executives to avoid spending time travelling long distances. Last year, approximately 1,200 people attended the conference, and this year there is every 5 _____ that attendance will exceed this figure. Disability 6 _____ and catering facilities, both of which were felt to be 7 _____ at last year's conference, have been given special attention.

Word formation

- 4a Complete the sentences with the correct form of the words below.

digit easy law value vary

- _____ technology has made it possible to collect and store huge amounts of information.
- Data on a large scale ('big data') is _____ for both governments and private organisations.
- Data is routinely collected from a wide _____ of sources.
- Retail companies can _____ collect data about customers who shop on the internet.
- In some countries there are _____ constraints on the storage of personal information.

Expert language

The prefix *in-* usually makes an adjective negative (e.g. *inadequate*), but in the case of *valuable* it strengthens the meaning.

- b Complete the text below with the correct form of the words in Exercise 4a.

Safer cycling

Urban planners in cities around the world may soon buy data in 1 _____ form from a cycling website, to find out where and when people ride. Although it is still 2 _____ to pass on personal information without consent, now the owners of the website are hoping that they can use the popularity of 'big data' to license anonymous information on a 3 _____ of cycling-related topics. Then they can supply the information to city planners who will find it 4 _____ when trying to create a safer infrastructure for cyclists.

Writing (Task 1)

> COURSEBOOK page 14, EXPERT WRITING page 191

Understand the task

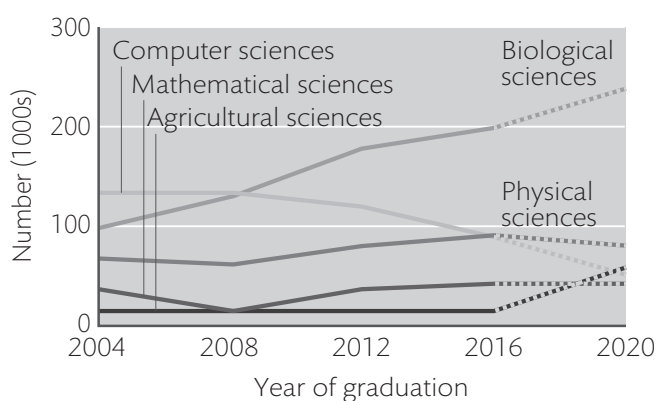
1a Read the writing task. Underline the parts of the task which tell us

- 1 the place indicated (definite or vague).
- 2 the unit of measurement.
- 3 the date range (which figures are definite and which are predicted?).
- 4 the main focus of comparisons.

The graph below shows the number of students graduating in different science subject areas in one country between 2004 and 2016 (and predicted figures for 2020).

Summarise the information by selecting and reporting the main features, and make comparisons where relevant.

Write at least 150 words.



b Look at the graph in detail and answer the questions.

- 1 How many different subject areas are shown?
- 2 Which area shows the biggest increase?
- 3 Which shows the biggest decline?
- 4 Which areas remain relatively steady?
- 5 Which area is predicted to rise significantly in future?
- 6 What is the main message you take from the graph?

Structure your answer

- 2** Number A–D in the correct order to make a suitable structure for writing about the graph in Exercise 1b.
- A Explanation of most important features (with data).
 - B Overview (summarising the overall message of the graph).
 - C Explanation of other important features (with data).
 - D Introductory sentences (what the graph shows, how it is measured).

Summarise features

3a Look at the writing task in Exercise 4a. Read the sentences below which come from sample answers to this task. Which one do you think gives an effective overview?

- 1 The graph shows five different types of courses at a given adult education college and the number of students on them.
- 2 The graph shows significant variation in the number of students on different courses in one adult education college over 30 years, including the predicted figures for 2025.

b Which of the following sentences describe a trend and which describe a detail?

- 1 In 1985 this group was only the third most popular but by 2015 it had risen to first position.
- 2 The most striking change was in the popularity of Employability courses.
- 3 In contrast the number of adults studying languages declined significantly.
- 4 The number rose from 500 to 650 students with this figure set to rise to 800 by 2025.

Test practice

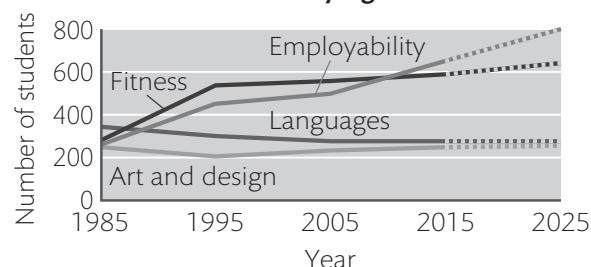
4a Look at the task below and identify the topic and categories. Make a plan for your writing following the structure in Exercise 2.

- b** Write your answer in not less than 150 words. Remember to include an introductory sentence, an explanation of features with data and an overview.

The graph below shows the number of students studying different subject areas in one adult education college between 1985 and 2015 (and predicted figures for 2025).

Summarise the information by selecting and reporting the main features, and make comparisons where relevant.

Numbers of students studying different courses



Listening (Section 2)

> COURSEBOOK pages 12 and 15

Before you listen

- 1 Skim the test task questions (1–4) in Exercise 3. What do you think the topic of the listening will be?

Predict alternative language

- 2a Look at the test task in Exercise 3. The basic elements of question 1 are shown below. Think of alternative ways of expressing the points in options A–C.

Q: Question about the history of the college

- A combining two institutions
- B changed courses over 20 years
- C not the same location

- b Read an extract from the audio script and answer question 1 in the test task.

'We've been on this current site for only 20 years, but we started in London, opening our doors to students in 1857. A decision was made to make the change when student numbers on all our courses grew considerably.'


Test practice

- 3  1.1 Complete the test task.

Questions 1–4.

Choose the correct letter, A, B or C.

- 1 What does Andy say about the history of the college?
 - A It was formed by combining two older institutions.
 - B It has changed its courses a lot over the last 20 years.
 - C It has not always been in its present location.
- 2 What mode of study is increasing in popularity at the college?
 - A part-time study B distance learning
 - C sandwich courses
- 3 Students say the best thing about studying at the college is
 - A the high standard of teaching.
 - B the range and availability of resources.
 - C the good rates of employment on graduation.
- 4 Which building on campus will soon be redeveloped?
 - A the library B the sports complex
 - C the student support hub

- 4a Now look at the second part of the test task (questions 5–10). What is the main difference between questions 1–4 and questions 5–10?
- b Underline key words in the questions. Think of alternative ways of saying these.
- c  1.2 Listen to the second part of the talk and complete the test task.

Questions 5–6

Choose **TWO** letters A–E.

Which **TWO** things does Andy say about campus accommodation?

- A students can reserve a specific room
- B students usually live on campus in their final year
- C students can't choose who to share with
- D students all have access to kitchen facilities
- E students live in small 'village houses'

Questions 7–8

Choose **TWO** letters A–E.

Which **TWO** things does Andy say about ways of getting to the college?

- A the bus service runs until late at night
- B students are able to get special rates on bus tickets
- C the train station is 10 minutes' walk away
- D taking a taxi can be relatively cheap
- E there is a special cycle route from the city centre

Questions 9–10

Choose **TWO** letters A–E.

Which **TWO** things does the speaker say many people forget to include in their application?

- A a recent, passport-sized photograph
- B a scanned copy of their certificates
- C how they'd prefer to be contacted
- D an up-to-date telephone number
- E all parts of their name

TEST STRATEGY

For multiple-choice questions, avoid selecting a letter simply because one of the words heard in the audio appears in the option. This kind of word matching is deliberately put into wrong options as a distractor. Sometimes all the key words in the options are heard in the audio but you must understand exactly what point is being made before you choose your option.

Language development

> COURSEBOOK page 16, EXPERT GRAMMAR page 176

Tense review

- 1 Match the underlined verbs in the sentences (1–8) with the tenses (A–H).

- 1 The actress was training as a dancer when she was offered a role in a stage play.
- 2 Workforce training has evolved, and is no longer based on traditional lectures.
- 3 The trainees felt that they'd learnt a lot of new strategies by the end of the course.
- 4 The tutor's going to give the group a task to complete before the next training session.
- 5 An occupational psychologist is helping the company to improve their recruitment procedures.
- 6 They'll introduce new selection procedures based on the advice of a consultant.
- 7 While junior staff attended a training course, their colleagues dealt with phone calls.
- 8 One of the most popular forms of training across all fields involves role play.

- | | |
|----------------------|-------------------------------|
| A present simple | E past continuous |
| B present continuous | F past perfect |
| C present perfect | G future with <i>will</i> |
| D past simple | H future with <i>going to</i> |

- 2 Rewrite the sentence below by changing the verb form to match the tense in brackets.

I study Spanish.

- 1 I am studying Spanish. (present continuous)
- 2 _____ (past perfect)
- 3 _____ (future with *going to*)
- 4 _____ (past simple)
- 5 _____ (future with *will*)
- 6 _____ (present perfect)
- 7 _____ (past continuous)

- 3 Complete the text with the correct form of the verbs below. Make any other necessary changes.

appear become fall find get paint see (x2) talk



Good morning everyone. The subject of my lecture today is urban wildlife. We 1 _____ used to hearing bad news about wildlife – how numbers 2 _____ and species are becoming endangered and so on. But I'm going to tell you about some research findings which 3 _____ a very positive picture! Because what scientists 4 _____ is that wildlife in our cities is actually increasing.

Now, just a few years ago, if you 5 _____ an eagle on your way to the office, you would have been extremely surprised. But now, animals that we normally regard as belonging in the countryside 6 _____ in our cities. You might even 7 _____ a badger or a fox in your garden. In fact, our cities now 8 _____ the perfect natural habitat for a variety of mammals and birds. And I 9 _____ first about some of the reasons for this development.

Vocabulary

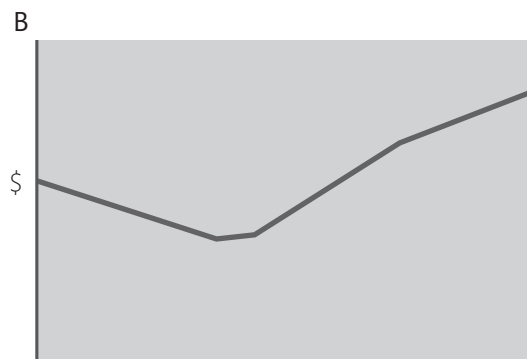
Describe trends

4 Match the descriptions (1–4) with the graphs (A–F). There are two extra graphs.

- 1 Spending climbed in the first three months, and then dropped again. It then remained more or less stable until October, when it soared.
- 2 Over the first six months of the year spending decreased slightly, after which it went up.
- 3 Spending increased slightly from January to June, and then it remained constant. In October it plummeted.
- 4 In the first few months spending declined, and then in June it grew. From August on it remained constant.



Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec



Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec



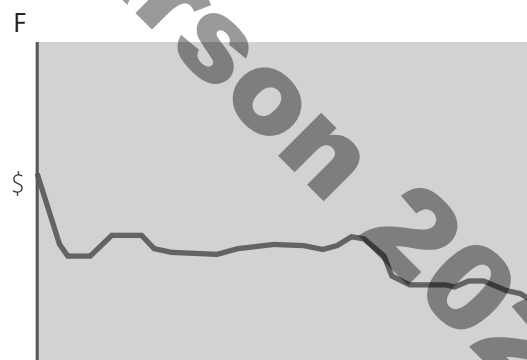
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec



Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec



Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec



Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

TEST STRATEGY

In the first part of the Academic Writing paper you may have to describe trends shown on a graph or a bar chart. Try to vary the verbs you use to describe increases and decreases.

5 Describe how you might respond to the following situations.

- 1 Your daily expenses increase.
- 2 The price of plane tickets plummets.
- 3 The quality of service at your favourite shop declines.

Speaking (Part 1)

> COURSEBOOK page 17

Vocabulary development**1a** Complete the table.


Noun	Verb	Adjective
ambition	X	1 _____
dedication	2 _____	3 _____
demand	4 _____	5 _____
X	dishearten	6 _____
7 _____	inspire	8 _____
9 _____	X	talented

b Complete the sentences with the correct form of the words from Exercise 1a.

- I like watching really _____ dancers perform.
- I'm learning to play the piano but I'm not very _____. I just do it for enjoyment. I don't want to win any prizes or anything.
- I've got a qualification in karate, but I wouldn't want to do it professionally – it's too _____.
- I was _____ to do a drama course after watching a musical called *Mamma Mia!*
- I like gymnastics, but I'm not _____ enough to practise regularly.
- When you've practised a lot and then you don't perform very well, you feel _____.

2 Match the questions about skills (1–6) with the answers (A–F).


- What are you quite good at doing?
 - How long have you been doing it?
 - Where do you usually do this activity?
 - What kind of training did you have for this skill?
 - How often do you practise?
 - How will this activity benefit you in future?
- A Well, I've joined a dance group and we meet at weekends, so once a week usually.
- B Oh, I'm not sure exactly ... but I've probably been dancing for around eight years now. I started when I was 15.
- C Well, it keeps me fit and active, because it's quite fast, so I expect it's good for my health. And I've made new friends, so it'll be good for my social life too.
- D I think I'm quite good at dancing. I really enjoy it – in fact it's one of my favourite activities.
- E I started going to a dance class in the evenings, but it was only two hours a week, and only in the winter. I did that for a year.
- F I go to a small town about 15km away, and it's in the community hall there. It's a big room and it's very light and attractive.

- 3  **1.3** Close your book and listen to the questions in Exercise 2. Answer them yourself.

TEST STRATEGY

In the Speaking exam, pay special attention to the tense of the verb in the question.

Test practice

- 4  **1.4** Listen and answer the questions about studying English. Record your answers if possible.

- How long have you been studying English?
- How old were you when you started studying English?
- Where do you usually study English?
- Do you enjoy studying English?
- Which do you find easier, reading in English or listening to English?
- How will taking the IELTS test benefit you in future?

Assess and improve

- 5 Listen to your recordings in Exercise 4 and answer the questions.
- Were you able to use verb tenses correctly?
 - If not, which tense do you need to practise using?



Writing (Task 1)

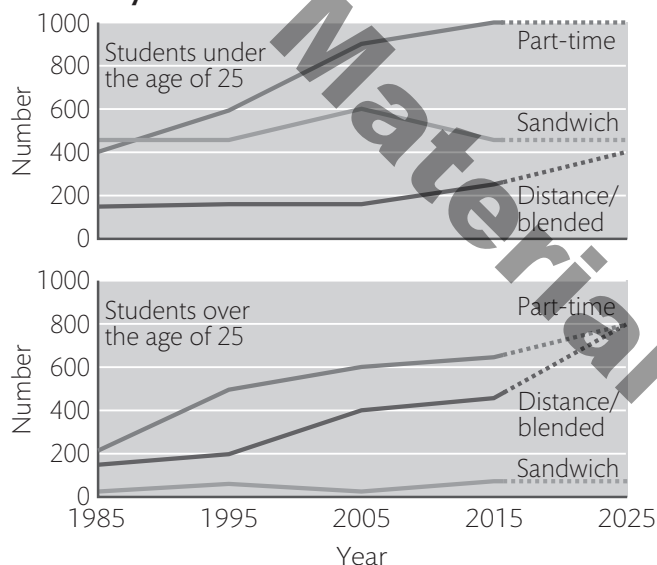
► **COURSEBOOK** pages 20–21, **EXPERT WRITING** page 191

Understand the task

1 Look at the charts below and answer the questions.

- 1 What is the key information represented in the graphs?
- 2 Which age group does the first graph refer to? And the second?
- 3 Is the location vague or specific?
- 3 What is the unit of measurement?
- 4 What time period is covered? Which period is predicted?

Numbers of 'non-traditional' students in one university: under-25s and over-25s

**Plan the task**

2a Write an introductory sentence to describe what the two graphs in Exercise 1 show.

b Reorder the following sections from a sample answer to form a coherent description.

- A** The number of under-25s taking sandwich courses has fluctuated over this period: this mode started as the most popular in 1985, rising to a peak of 600 in 2005 before declining back to 450 in 2015. For over-25s, numbers for all three non-traditional modes have increased.
- B** For younger students, the biggest increase is in figures for part-time study, which rose from 400 in 1985 to 1,000 in 2015.
- C** There was also a marked increase in mature students studying part time, rising from 200 in 1985 to 620 in 2015. The difference is that this mode is predicted to increase slightly in popularity (800 by 2025) for older students whereas figures for younger part-timers are set to remain steady.

c Write an overview sentence which summarises the key message(s) of the graphs.

Language and content

3a Which verb forms should be used for predictions?

b To avoid repeating words, what alternative expressions could be used for the following words?

- | | |
|---------------------|--------|
| 1 students under 25 | 4 rise |
| 2 students over 25 | 5 fall |
| 3 predict | |

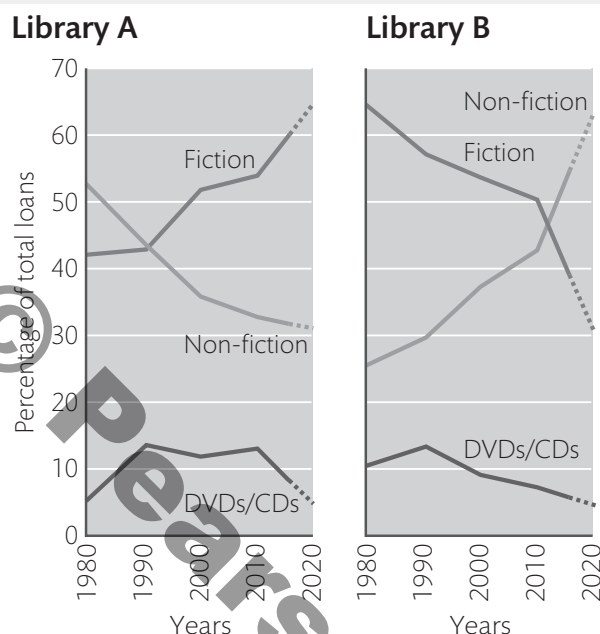
Write your report

4 Look at the writing task below. Plan and write your answer, using ideas from Exercises 1–3.

The graphs below show the percentage of loans in different categories, in two libraries between 1980 and 2010, with predicted figures for 2020.

Summarise the information by selecting and reporting the main features, and make comparisons where relevant.

You should write at least 150 words.

**Assess and improve**

5 When you have finished, leave your answer and return to it after several hours. Check your writing and answer the questions.

- 1 Does your answer have an introductory sentence? Is it accurate?
- 2 Does it contain an overview? (This can be either near the beginning or at the end.)
- 3 Are key comparisons identified? Do you think they are the most important points revealed by the graphs?
- 4 Is any important information missing?