

## Reading module (1 hour)

### About the Reading module

The Reading module has three reading passages on academic topics of general interest. There are forty questions, and a variety of task types. Each question is worth one mark, so you should aim to spend about the same amount of time on each part.

### READING PASSAGE 1

You should spend about 20 minutes on **Questions 1–13**, which are based on Reading Passage 1 on pages 18–19.

### Strategy

#### Finding out what the text is about

In order to locate the answers to the questions, and also to follow the writer's main argument, it is useful to spend a short time getting an overview of the text.

- 1 Read the title and subtitle of Reading Passage 1 on page 18 and look quickly through Paragraph 1. Which phrase has a similar meaning to *snow-maker*? Why is this device needed?

### Strategy

#### Task: Matching paragraph headings

Often it is useful to skim quickly through the entire text to get a better idea of the content. However, here the first task (matching headings to paragraphs) will help you to do this. You have to choose the heading which best summarises the paragraph.

- 1 Read the first paragraph carefully, then look through the list of headings. The answer (v) has been given as an example. In Paragraph A, underline the part of the text that refers to a) the problem and b) the solution.
- 2 Why is heading iii not the correct heading for Paragraph A?
- 3 Read Paragraph B and look at the example heading (x). Why is this a better answer than heading ix?

Now do Questions 1–5. Look down the list of headings and choose the one that you think matches best. You need to find a heading that summarises or paraphrases the overall meaning of the paragraph.

Questions 1–5

Reading Passage 1 has seven paragraphs **A–G**.

Choose the correct heading for each paragraph from the list of headings below.

Write the correct number (**i–x**) in boxes 1–5 on your answer sheet.

**List of headings**

- i** Considering ecological costs
- ii** Modifications to the design of the snow gun
- iii** The need for different varieties of snow
- iv** Local concern over environmental issues
- v** A problem and a solution
- vi** Applications beyond the ski slopes
- vii** Converting wet snow to dry snow
- viii** New method for calculating modifications
- ix** Artificial process, natural product
- x** Snow formation in nature

<i>Example</i>	<i>Answer</i>
Paragraph <b>A</b>	v
Paragraph <b>B</b>	x

1 Paragraph **C**

2 Paragraph **D**

3 Paragraph **E**

4 Paragraph **F**

5 Paragraph **G**

# Snow-makers

*Skiing is big business nowadays. But what can ski resort owners do if the snow doesn't come?*

- A** In the early to mid twentieth century, with the growing popularity of skiing, ski slopes became extremely profitable businesses. But ski resort owners were completely dependent on the weather; if it didn't snow, or didn't snow enough, they had to close everything down. Fortunately, a device called the snow gun can now provide snow whenever it is needed. These days such machines are standard equipment in the vast majority of ski resorts around the world, making it possible for many resorts to stay open four months or more a year.
- B** Snow formed by natural weather systems comes from water vapour in the atmosphere. The water vapour condenses into droplets, forming clouds. If the temperature is sufficiently low, the water droplets freeze into tiny ice crystals. More water particles then condense onto the crystal and join with it to form a snowflake. As the snowflake grows heavier, it falls towards the Earth.
- C** The snow gun works very differently from a natural weather system, but it accomplishes exactly the same thing. The device basically works by combining water and air. Two different hoses are attached to the gun, one leading from a water pumping station which pumps water up from a lake or reservoir, and the other leading from an air compressor. When the compressed air passes through the hose into the gun, it atomises the water – that is, it disrupts the stream so that the water splits up into tiny droplets. The droplets are then blown out of the gun and if the outside temperature is below 0°C, ice crystals will form, and will then make snowflakes in the same way as natural snow.
- D** Snow-makers often talk about dry snow and wet snow. Dry snow has a relatively low amount of water, so it is very light and powdery. This type of snow is excellent for skiing because skis glide over it easily without getting stuck in wet slush. One of the advantages of using a snow-maker is that this powdery snow can be produced to give the ski slopes a level surface. However, on slopes which receive heavy use, resort owners also use denser, wet snow underneath the dry snow. Many resorts build up the snow depth this way once or twice a year, and then regularly coat the trails with a layer of dry snow throughout the winter.



- E** The wetness of snow is dependent on the temperature and humidity outside, as well as the size of the water droplets launched by the gun. Snow-makers have to adjust the proportions of water and air in their snow guns to get the perfect snow consistency for the outdoor weather conditions. Many ski slopes now do this with a central computer system that is connected to weather-reading stations all over the slope.
- F** But man-made snow makes heavy demands on the environment. It takes about 275,000 litres of water to create a blanket of snow covering a 60 x 60 metre area. Most resorts pump water from one or more reservoirs located in low-lying areas. The run-off water from the slopes feeds back into these reservoirs, so the resort can actually use the same water over and over again. However, considerable amounts of energy are needed to run the large air-compressing pumps, and the diesel engines which run them also cause air pollution.
- G** Because of the expense of making snow, ski resorts have to balance the cost of running the machines with the benefits of extending the ski season, making sure they only make snow when it is really needed, and when it will bring the maximum amount of profit in return for the investment. But man-made snow has a number of other uses as well. A layer of snow keeps a lot of the Earth's heat from escaping into the atmosphere, so farmers often use man-made snow to provide insulation for winter crops. Snow-making machines have played a big part in many movie productions. Movie producers often take several months to shoot scenes that cover just a few days. If the movie takes place in a snowy setting, the set decorators have to get the right amount of snow for each day of shooting either by adding man-made snow or melting natural snow. And another important application of man-made snow is its use in the tests that aircraft must undergo in order to ensure that they can function safely in extreme conditions.

## Strategy

### Task: Diagram labelling

Passages which describe mechanical devices or processes may include a diagram labelling task.

- 1 Look at the diagram below. What does it illustrate? How do you know?
- 2 Which paragraph in the passage explains how this device works? (Use the heading matching task to help you).

Read the paragraph carefully and study the diagram at the same time. Some labels are already given. Use these to help you.

- 3 On which side of the diagram does the process begin – left or right?
- 4 How many words can you write for each answer?

Now do Questions 6–8. Be careful to copy the words you need accurately from the passage.

Questions 6–8

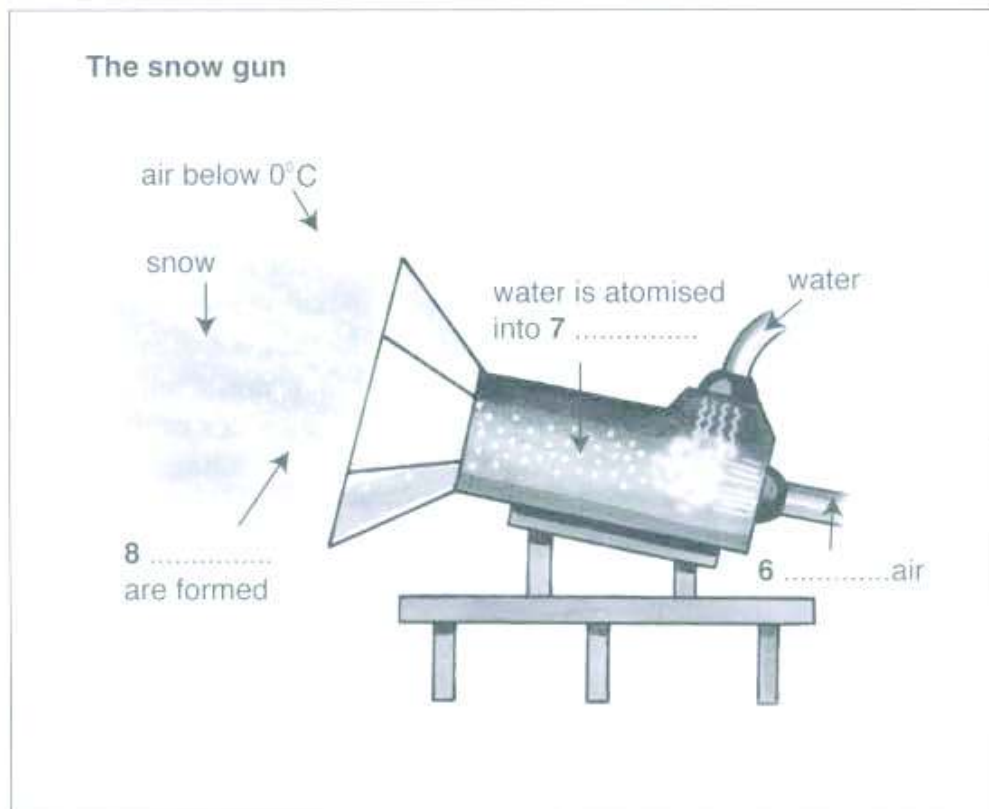
Label the diagram below.

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

Write your answers in boxes 6–8 on your answer sheet.

### Tip Strip

- Questions 6–8: in questions on the reading paper where you have to choose words from the passage, use the words in exactly the same form in which they appear. Do not change them in any way.



## Strategy

### Task: Sentence completion

In sentence completion tasks, the sentences focus on key information from part or all of the passage. The answers will be in the same order as the information in the text. Questions 9–13 below focus on just one part of the passage.

- 1 Look at Question 9 and underline the key words. Scan quickly through the passage to find a paragraph with this information.
- 2 You need to find information about wet snow. Look through the paragraph for this. What expressions in the paragraph have a similar meaning to *busy slopes* and *increase*?

Now do Questions 10–13 in the same way. When you find the answer to each question, write the number of the question beside it in the margin of the text.

### Questions 9–13

Complete the sentences below.

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

Write your answers in boxes 9–13 on your answer sheet.

- 9 Dry snow is used to give slopes a level surface, while wet snow is used to increase the ..... on busy slopes.
- 10 To calculate the required snow consistency, the ..... and ..... of the atmosphere must first be measured.
- 11 The machinery used in the process of making the snow consumes a lot of ....., which is damaging to the environment.
- 12 Artificial snow is used in agriculture as a type of ..... for plants in cold conditions.
- 13 Artificial snow may also be used in carrying out safety checks on .....

### Tip Strip

- If you cannot find one answer, go on and do the next one, then look back later.
- The word or words you add must be in exactly the same form as in the passage.
- In the exam you must enter your answers on the separate answer sheet during the 60 minutes allowed for the module.
- You can either write your answers directly onto the answer sheet, or transfer them later – but leave plenty of time for this.



Questions 14–26

You should spend about 20 minutes on Questions 14–26, which are based on Reading Passage 2 below.

Strategy

Finding out what the text is about

- 1 The title of this text asks a question. In which paragraph, the first or the last, would you expect to find a) the answer to the question b) an expansion of the question? Look at Paragraphs A and G to check your answer.
- 2 Is this text a) mainly about tigers b) about animals in general? Scan quickly through the text, looking for animal names, to find the answer.

## Why are so few tigers man-eaters?

- A** As you leave the Bandhavgarh National Park in central India, there is a notice which shows a huge, placid tiger. The notice says, 'You may not have seen me, but I have seen you.' There are more than a billion people in India and Indian tigers probably see humans every single day of their lives. Tigers can and do kill almost anything they meet in the jungle – they will even attack elephants and rhino. Surely, then, it is a little strange that attacks on humans are not more frequent.
- B** Some people might argue that these attacks were in fact common in the past. British writers of adventure stories, such as Jim Corbett, gave the impression that village life in India in the early years of the twentieth century involved a state of constant siege by man-eating tigers. But they may have overstated the terror spread by tigers. There were also far more tigers around in those days (probably 60,000 in the subcontinent, compared to just 3000 today). So in proportion, attacks appear to have been as rare then as they are today.
- C** It is widely assumed that the constraint is fear; but what exactly are tigers afraid of? Can they really know that we may be even better armed than they are? Surely not. Has the species programmed the experiences of all tigers with humans into its genes to be inherited as instinct? Perhaps. But I think the explanation may be more simple and, in a way, more intriguing.
- D** Since the growth of ethology<sup>1</sup> in the 1950s, we have tried to understand animal behaviour from the animal's point of view. Until the first elegant experiments by pioneers in the field, such as Konrad Lorenz, naturalists wrote about animals as if they were slightly less intelligent humans. Jim Corbett's breathless accounts of his duels with man-eaters in truth tell us more about Jim Corbett than they do about the animals. The principle of ethology, on the other hand, requires us to attempt to think in the same way as the animal we are studying thinks, and to observe every tiny detail of its behaviour without imposing our own human significances on its actions.
- E** I suspect that a tiger's fear of humans lies not in some preprogrammed ancestral logic but in the way he actually perceives us visually. If you try to think like a tiger, a human in a car might appear just to be part of the car, and because tigers don't eat cars the human is safe – unless the car is menacing the tiger or its cubs, in which case a brave or enraged tiger may charge. A human on foot is a different sort of puzzle. Imagine a tiger sees a man who is 1.8m tall. A tiger is less than 1m tall but he may be up to 3m long from head to tail. So when a tiger sees the man face on, it might not be unreasonable for him to assume that the man is 6m long. If he met a deer of this size, he might attack the animal by leaping on its back, but when he looks behind the man, he can't see a back. From the front the man is huge, but looked at from the side he all but disappears. This must be very disconcerting. A hunter has to be confident that it can tackle its prey, and no one is confident when they are disconcerted. This is especially true of a solitary hunter such as the tiger and



may explain why lions – particularly young lionesses who tend to encourage one another to take risks – are more dangerous than tigers.

- F** If the theory that a tiger is disconcerted to find that a standing human is both very big and yet somehow invisible is correct, the opposite

should be true of a squatting human. A squatting human is half the size and presents twice the spread of back, and more closely resembles a medium-sized deer. If tigers were simply frightened of all humans, then a squatting person would be no more attractive as a target than a standing one. This, however, appears not to be the case. Many incidents of attacks on people involve villagers squatting or bending over to cut grass for fodder or building material.

- G** The fact that humans stand upright may therefore not just be something that distinguishes them from nearly all other species, but also a factor that helped them to survive in a dangerous and unpredictable environment.

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<sup>1</sup> **ethology** – the branch of zoology that studies the behaviour of animals in their natural habitats



## Strategy

### Task: Locating information in paragraphs

In Reading Passage 1, you matched headings to paragraphs in order to reflect the main idea of each paragraph. In the task below you have to look in more detail at the different types of information given in paragraphs – e.g. explanations, reasons, examples or problems.

- 1 Read through Paragraph A. Which sentence has a parallel meaning to *tiger attacks on humans might be expected to happen more often than they do* in Question 15?
- 2 Question 15 asks you to find a *reason*. Does Paragraph A give a reason for expecting tiger attacks on humans to be frequent? If so, what is it?
- 3 Now look through the rest of the text and answer Questions 14–18. Remember to check that you have the right type of information in each case. Mark the question numbers in the text.

Questions 14–18

Reading Passage 2 has seven paragraphs labelled **A–G**.

Which paragraph contains the following information?

Write the correct letter **A–G** in boxes 14–18 on your answer sheet.

- 14 a rejected explanation of why tiger attacks on humans are rare
- 15 a reason why tiger attacks on humans might be expected to happen more often than they do
- 16 examples of situations in which humans are more likely to be attacked by tigers
- 17 a claim about the relative frequency of tiger attacks on humans
- 18 an explanation of tiger behaviour based on the principles of ethology

### Tip Strip

- Read the text one paragraph at a time, thinking about the main types of information it contains and looking through the items for any that match the information in the paragraph. (Some paragraphs may have no matching information.)

## Strategy

### True / False / Not Given

These questions focus on factual information. The questions follow the order of information in the passage and may cover one section of the passage, or the whole passage.

- 1 Look at Question 19 and underline the key words. (Proper nouns such as those referring to people and places are often useful key words as these will be the same in the text.)
- 2 Scan quickly from the beginning of the text to locate the section you need. Read this section of the text carefully and decide if the statement is **True** (there is information in the text to tell you that these tigers *are* a protected species), **False** (there is information that they *are not* a protected species) or **Not Given** (there is **no** information about their status as a protected species).

Mark the section of the text where you found the answer, then continue with the other questions. If you can't find the answer to one question, leave it and come back to it later.

### Questions 19–23

Do the following statements agree with the information given in Reading Passage 2?

In boxes 19–23 on your answer sheet write

**TRUE** if the statement agrees with the information  
**FALSE** if the statement contradicts the information  
**NOT GIVEN** if there is no information on this

- 19 Tigers in the Bandhavgarh National Park are a protected species.
- 20 Some writers of fiction have exaggerated the danger of tigers to man.
- 21 The fear of humans may be passed down in a tiger's genes.
- 22 Konrad Lorenz claimed that some animals are more intelligent than humans.
- 23 Ethology involves applying principles of human behaviour to animals.

## Strategy

### Task: Multiple-choice questions

These may focus on main ideas, details or the writer's opinion. The questions follow the order of information in the passage and may cover one section of the passage, or the whole passage.

- 1 Look at Question 24. What are the key words in the question? Scan the text to find a paragraph with related key words (these may be the same words, or synonyms). Read that part of the text carefully.
- 2 Check each possible answer. For Question 24, **A** and **D** are both incorrect. Which answer (A or D) gives information that is contradicted by the passage? Which answer gives information that is not stated in the passage?

### Questions 24–26

Choose the correct answer, **A**, **B**, **C** or **D**.

Write your answers in boxes 24–26 on your answer sheet.

### Tip Strip

- Questions 24–26 all focus on reasons. Check that the answer you choose is not only correct according to the passage, but also gives an appropriate reason or explanation to answer the question or complete the sentence.
- Writing question numbers next to the part of the text they relate to may help you to find parts of the text that you need later on.

- 24 Why do tigers rarely attack people in cars?
- A They have learned that cars are not dangerous.
  - B They realise that people in cars cannot be harmed.
  - C They do not think people in cars are living creatures.
  - D They do not want to put their cubs at risk.
- 25 The writer says that tigers rarely attack a man who is standing up because
- A they are afraid of the man's height.
  - B they are confused by the man's shape.
  - C they are puzzled by the man's lack of movement.
  - D they are unable to look at the man directly.
- 26 A human is more vulnerable to tiger attack when squatting because
- A he may be unaware of the tiger's approach.
  - B he cannot easily move his head to see behind him.
  - C his head becomes a better target for the tiger.
  - D his back appears longer in relation to his height.



### Strategy

#### Finding out what the text is about

- 1 The title of the text below does not give you the main topic, but does suggest that it is to do with medicine. Look at the subtitle and underline a phrase which gives you the main topic of the text.
- 2 How do you expect this text to be organised: a) a problem and a solution b) a chronological account c) good points and bad points? Skim quickly through the text, looking at the opening to each paragraph only, to check.

# Keep taking the tablets

*The history of aspirin is a product of a rollercoaster ride through time, of accidental discoveries, intuitive reasoning and intense corporate rivalry*

In the opening pages of *Aspirin: The Remarkable Story of a Wonder Drug*, Diarmuid Jeffrey describes this little white pill as 'one of the most amazing creations in medical history, a drug so astonishingly versatile that it can relieve headache, ease your aching limbs, lower your temperature and treat some of the deadliest human diseases'.

Its properties have been known for thousands of years. Ancient Egyptian physicians used extracts from the willow tree as an analgesic, or pain killer. Centuries later the Greek physician Hippocrates recommended the bark of the willow tree as a remedy for the pains of childbirth and as a fever reducer. But it wasn't until the eighteenth and nineteenth centuries that salicylates – the chemical found in the willow tree – became the subject of serious scientific investigation. The race was on to identify the active ingredient and to replicate it synthetically. At the end of the nineteenth century a German company, Friedrich Bayer & Co, succeeded in creating a relatively safe and very effective chemical compound, acetylsalicylic acid, which was renamed aspirin.

The late nineteenth century was a fertile period for experimentation, partly because of the hunger among scientists to answer some of the great scientific questions, but also because those questions were within their means to answer. One scientist in a laboratory with some chemicals and a test tube could make significant breakthroughs—whereas today, in order to map the human genome for instance, one needs 'an army of researchers,

a bank of computers and millions and millions of dollars'.

But an understanding of the nature of science and scientific inquiry is not enough on its own to explain how society innovates. In the nineteenth century, scientific advance was closely linked to the industrial revolution. This was a period when people frequently had the means, motive and determination to take an idea and turn it into reality. In the case of aspirin that happened piecemeal – a series of minor, often unrelated advances, fertilised by the century's broader economic, medical and scientific developments, that led to one big final breakthrough.

The link between big money and pharmaceutical innovation is also a significant one. Aspirin's continued shelf life was ensured because for the first 70 years of its life, huge amounts of money were put into promoting it as an ordinary everyday analgesic. In the 1970s other analgesics, such as ibuprofen and paracetamol, were entering the market, and the pharmaceutical companies then focused on publicising these new drugs. But just at the same time, discoveries were made regarding the beneficial role of aspirin in preventing heart attacks, strokes and other afflictions. Had it not been for these findings, this pharmaceutical marvel may well have disappeared.

So the relationship between big money and drugs is an odd one. Commercial markets are necessary for developing new products and ensuring that they remain around long enough for

scientists to carry out research on them. But the commercial markets are just as likely to kill off certain products when something more attractive comes along. In the case of aspirin, a potential 'wonder drug' was around for over 70 years without anybody investigating the way in which it achieved its effects, because they were making more than enough money out of it as it was. If ibuprofen or paracetamol had entered the market just a decade earlier, aspirin might then not be here today. It would be just another forgotten drug that people hadn't bothered to explore.

None of the recent discoveries of aspirin's benefits were made by the big pharmaceutical companies; they were made by scientists working in the public sector. 'The reason for that is very simple and straightforward,' Jeffrey says in his book. 'Drug companies will only pursue research that is going to deliver financial benefits. There's no profit in aspirin any more. It is incredibly inexpensive with tiny profit margins and it has no patent any more, so anyone can produce it.' In fact, there's almost a disincentive for drug companies to further boost the drug, he argues, as it could possibly put them out of business by stopping them from selling their more expensive brands.

So what is the solution to a lack of commercial interest in further exploring the therapeutic benefits of aspirin? More public money going into clinical trials, says Jeffrey. 'If I were the



Department of Health, I would say "this is a very inexpensive drug. There may be a lot of other things we could do with it." We should put a lot more money into trying to find out.'

Jeffrey's book – which not only tells the tale of a 'wonder drug' but also explores the nature of innovation and the role of big business, public money and regulation – reminds us why such research is so important.



## Strategy

### Sentence completion using words from a box

In Reading Passage 1, you completed sentences using words from the passage. You may also have to complete sentences using phrases from a box. The sentences follow the order of information in the passage and may cover one section of the passage, or the whole passage.

- 1 Underline key words in Question 27 (remember that proper nouns are often useful key words). In which paragraph can you find related information? Read this paragraph carefully.
- 2 Look through the sentence endings in the box. Why does G appear to be a possible answer? Why is it not correct? Look for another answer that reflects the text more accurately.

Continue in the same way with Questions 28–32. Notice that you have to think about the *meaning* of each sentence – you cannot do the activity by looking at grammatical clues. When you have finished, check that you have not used the same ending twice.

### Questions 27–32

Complete each sentence with the correct ending **A–H** from the box below.

Write the correct letter **A–H** in boxes 27–32 on your answer sheet.

- 27 Ancient Egyptian and Greek doctors were aware of
- 28 Frederick Bayer & Co were able to reproduce
- 29 The development of aspirin was partly due to the effects of
- 30 The creation of a market for aspirin as a painkiller was achieved through
- 31 Aspirin might have become unavailable without
- 32 The way in which aspirin actually worked was not investigated by

- A the discovery of new medical applications.
- B the negative effects of publicity.
- C the large pharmaceutical companies.
- D the industrial revolution.
- E the medical uses of a particular tree.
- F the limited availability of new drugs.
- G the chemical found in the willow tree.
- H commercial advertising campaigns.

### Tip Strip

- The first set of questions will probably refer to the first part of the text.



## Strategy

### Yes / No / Not Given

This task is similar to True / False / Not Given except that the questions focus on opinions rather than facts.

- 1 Look at Question 33. Which three paragraphs in the text describe events in the nineteenth century?
  - 2 Read the second of these paragraphs. Which phrase reflects the idea of 'small-scale research'? Which phrase means 'important discoveries'?
  - 3 Does Question 33 exactly reflect the views of the writer?
- Now continue with Questions 34–37 in the same way.

### Questions 33–37

Do the following statements agree with the views of the writer in Reading Passage 3?

In boxes 33–37 on your answer sheet write

- YES** if the statement agrees with the views of the writer  
**NO** if the statement contradicts the views of the writer  
**NOT GIVEN** if it is impossible to say what the writer thinks about this

- 33 For nineteenth-century scientists, small-scale research was enough to make important discoveries.
- 34 The nineteenth-century industrial revolution caused a change in the focus of scientific research.
- 35 The development of aspirin in the nineteenth century followed a structured pattern of development.
- 36 In the 1970s sales of new analgesic drugs overtook sales of aspirin.
- 37 Commercial companies may have both good and bad effects on the availability of pharmaceutical products.

## Strategy

### Task: Summary completion using words from a box

A summary completion task may focus on all or part of the text. When the answers are given in a box, these will probably be paraphrases of the words in the text.

- 1 Look at the summary below. Does it focus on all the text, or part of the text? What tells you?
- 2 Read through the summary quickly. Don't try to answer the questions yet. Which sentence in the summary is describing a) a problem b) a possible solution?
- 3 Use the title of the summary to help you find the relevant section of the text. According to the text, who found out about new uses for aspirin? Who did NOT find this out? Find a phrase with the same meaning in the box below.

Questions 38–40

Complete the summary below using the list of words **A–I** below.

Write the correct letter **A–I** in boxes 38–40 on your answer sheet.

### Tip Strip

- At the end of completion tasks, check that your answers make sense and are grammatically correct.
- Write the letters only (A–I) not the words on your answer sheet.

### Research into aspirin

Jeffreys argues that the reason why **38** ..... did not find out about new uses of aspirin is that aspirin is no longer a **39** ..... drug. He therefore suggests that there should be **40** ..... support for further research into the possible applications of the drug.

- A** useful    **B** cheap    **C** state    **D** international  
**E** major drug companies    **F** profitable    **G** commercial  
**H** public sector scientists    **I** health officials