

2 Innovations in health and medicine

READING SKILLS Predicting content • Topic sentences • Avoiding plagiarism (1)
LANGUAGE FOR WRITING Rephrasing
WRITING SKILLS Developing a paragraph • Writing a paragraph
VOCABULARY DEVELOPMENT Recording vocabulary (1), (2), and (3)

READING A musical cure

- 1 Work with a partner. Where, when, and why do people listen to music? Brainstorm as many ideas as you can in two minutes.
- 2 **Read Study Skill** Look at the text on page 13. Answer the questions.

STUDY SKILL Predicting content

Predicting the content of a text will help you understand it.
To predict the content, survey and skim the text (see Study Skill p4).

- 1 Where could the text come from?
- 2 What do the pictures show?
- 3 Who is the text for?
 - a musicians
 - b general readers
 - c medical specialists
- 3 Use the title of the text and the question words in the box to make questions.

Where ...? How ...? What ...? Who ...?

Where is music used as therapy?

- 4 Skim the text and find the answers to your questions in exercise 3.
- 5 **Read Study Skill** Read the text and underline the topic sentences in paragraphs 3–6.

1 A recent study funded by the Wellcome Trust has investigated the connection between the use of music and the recovery of patients suffering from a variety of medical conditions. The study has brought together musicians, health workers, and researchers to find evidence of the beneficial effects music has on health.

- 6 Read the questions. Use the topic sentences to locate the answers to the questions.
 - 1 Is there any clear proof that music can heal? **Paragraph 6**
 - 2 For which diseases is music currently used?
 - 3 What effects does music have on people?
 - 4 Do we know how music therapy works?
 - 5 What effects does feeling good have on our health?
- 7 Scan the text and answer the questions in exercise 6.
- 8 Highlight the information which develops the topic sentences in paragraphs 3–6. Look at the example in paragraph 2 first.

Music used as a healing therapy

1 A recent study funded by the Wellcome Trust has investigated the connection between the use of music and the recovery of patients suffering from a variety of medical conditions. The study has brought together musicians, health workers, and researchers to find evidence of the beneficial effects music has on health.

2 Music has long been used to treat patients suffering from different problems. In 400 BCE, its healing properties were documented by the ancient Greeks. More recently, in both world wars in the last century, medical workers used music therapy with people suffering from trauma. Currently, it is used as a treatment for many diseases, such as cancer and Alzheimer's disease, and it has also been used with patients with long-term pain and learning disabilities.

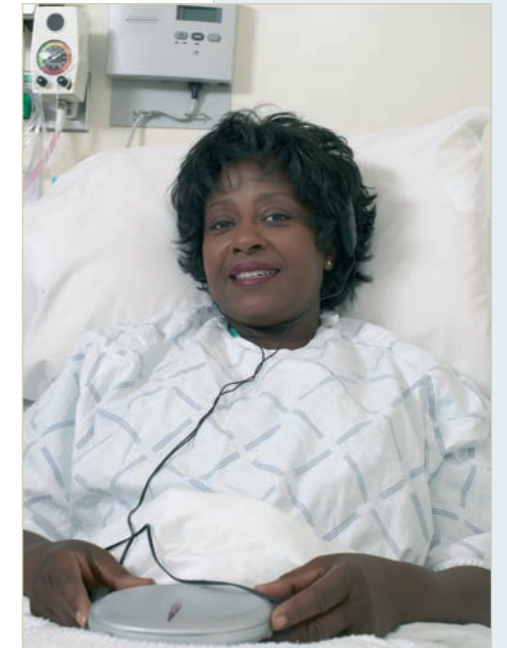
3 There is growing evidence that music can cause physical changes to the body which can improve our health. In the Wellcome Trust study, which took place over three years at the Chelsea and Westminster hospital in London, patients were asked to listen to musical performances. As a result, it was found that stress levels were significantly reduced, recovery times were improved, and fewer drugs were needed.

4 These very positive results are partly due to general well-being. It is already accepted that when people feel happy and have a positive approach to life, they are more likely to feel better and recover from disease quickly. Music increases this feeling of joy and adds to the recovery process.

5 However, not all these benefits can be attributed to an increase in general well-being. Music has other effects which have not yet been understood. According to Professor Robertson, a scientist and musician, some effects of music are mysterious and are, therefore, being investigated further. It has been suggested that the sounds and rhythms of music help stimulate the brain and send electrical messages to the muscles and limbs.

6 Science, however, demands facts and hard evidence. Many in the medical profession have not yet recognized the healing benefits of music, since reports have been based mainly on anecdotal evidence. These new studies could provide proof to medical practitioners that music is a suitable treatment for many conditions. One day doctors may even 'prescribe' music, but that could be a long time in the future.

(383 words)



A new vaccine

- 9 Read the title of the article from a medical journal. What is the article about? Compare your ideas with a partner.
- 10 Use the key words in the box to predict what each paragraph is about. Use a dictionary if necessary.
- 11 Skim the article. Were your predictions correct?

A	vaccine	cured
B	involved	trials early stages advanced stages spread
C	stimulates	immune system cells harmful
D	further studies	

Promising results from cancer study

A A new experimental vaccine has shown promising results in the fight against lung cancer. In a small Texas-based study, a vaccine developed by scientists at Baylor University Medical Centre in Dallas, USA cured lung cancer in some patients and slowed the progress of the disease in others.

B Researchers have reported encouraging findings from this small study. Forty-three patients suffering from lung cancer were involved in these trials. Ten of these patients were in the early stages and thirty-three in the advanced stages of the disease. They were injected with the vaccine every two weeks for three months, and were carefully monitored for three years. In three of the patients in the advanced stages of cancer, the disease disappeared and in the others, it did not spread for five to twenty-four months. However, no great difference was seen in the patients in the early stages of the illness.

C This new vaccine uses the patient's own immune system. It is made specifically for each patient and is injected into the arm or leg. It stimulates the body's immune system, which then recognizes that the cancer cells are harmful, and attacks and destroys them.

D The vaccine could be effective against other forms of cancer. It offers great hope for the treatment of cancer in general, although further studies are needed before such treatment can be widely used.

(232 words)

Deakin, F. P. (2007). Promising results from cancer study. *New Medical Journal*, 32.

- 12 Scan the article. Are the statements true (T) or false (F)?

- The investigation cured all of the participants in the trial.
- About forty people participated in the study.
- Patients in the early stages of the disease recovered more quickly.
- Every patient was given the same vaccine.
- The vaccine activates the immune system.
- This treatment may be useful for treating other cancers.

- 13 Read the summary of the article. How is it different from the original? Discuss your answers with a partner.

A group of US researchers has carried out trials of a new vaccine which is effective against lung cancer. Although the study was limited to fewer than fifty people, the results were very promising. Some of the patients at an advanced stage of the disease were cured. Each patient in the trial had their own vaccine which activated their bodies' immune system and enabled it to fight the cancer. It is hoped that other forms of cancer can be cured in a similar way.

- 14 **Read Study Skill** Read the summary again. Match the highlighted parts of the summary with parts of the text.

A group of US researchers = scientists at Baylor University Medical Centre in Dallas, USA

STUDY SKILL Avoiding plagiarism (1)

Plagiarism is copying someone's work, or using someone's ideas and pretending they are your own. Do not copy directly from a text, but rephrase by changing:

- the vocabulary (using synonyms or phrases with a similar meaning)
- the sentence structure and grammar

NOTE You must always credit the source when you use another person's ideas, opinions, facts, and graphics, even if you paraphrase their words.

LANGUAGE FOR WRITING Rephrasing

- 1 Look at the sentences below from the summary on page 14. Replace the underlined words with a suitable synonym or near synonym from the box.

tests scientists encouraging illness
research recovered findings conducted

- A group of US researchers has carried out trials on a new vaccine.
- Although the study was limited to fewer than fifty people, the results were very promising.
- Some of the patients at an advanced stage of the disease were cured.

- 2 Rewrite each sentence from exercise 1, using the synonyms.

A group of US scientists has conducted tests on a new vaccine.

- 3 Read the rules. Rewrite the sentences in the correct form of the passive.

RULES The passive voice

The passive voice is used when it not important *who* or *what* does an action. It is formed by the verb *to be* in the correct tense + the past participle.

The vaccine is injected into the arm or leg.

The patients were injected with the vaccine.

In most passive sentences, *by* and the agent (the subject of the active sentence) are omitted because the agent is obvious or not necessary.

The patients were carefully monitored for three years by doctors.

NOTE An academic text will usually have a mixture of active and passive sentences.

- Pharmaceutical companies are constantly developing new drugs.
New drugs are constantly being developed by pharmaceutical companies.
- The government provided the funding for the study.
- Doctors have used alternative therapies for many years.
- Scientists usually test their theories in the laboratory.
- The researchers will publish their findings next month.

- 4 Find the words or phrases which are synonyms in the pairs of sentences.

After only six months the team's research was completed.

The group's study was finished after only six months.

- The main causes of acute asthma attacks are common cold viruses.
 - Common cold viruses are the principal causes of severe asthma attacks.
 - Scientists use radiation to investigate details of tiny structures.
 - Scientists use radiation to study details of very small structures.
 - A short ten-minute walk every day can be beneficial to your health.
 - Walking for ten minutes daily can benefit your health.
- 5 Rephrase the sentences, using synonyms and the passive voice where appropriate.
- We need proof that the medicine works.
 - They will build a huge medical centre in the near future.
 - An unhealthy lifestyle can be the cause of many diseases.
 - The organizers cancelled the talk because the speaker was ill.



WRITING Keeping healthy

- 1 Work with a partner. Discuss the questions.
 - 1 How often should you see a doctor?
 - 2 How do you keep healthy?
 - 3 What is meant by a balanced diet?
- 2 **Read Study Skill** Read paragraph A and look at the underlined topic sentence. Read paragraphs B and C and write a topic sentence for each paragraph. Compare your sentences with a partner.

STUDY SKILL Developing a paragraph

A well-developed paragraph usually has:

- a topic sentence which gives the subject of the paragraph
- several body sentences, which develop that subject
- a final sentence, which concludes or summarizes, or leads on to the next paragraph

Focus on Health

A Exercise

There are a few things to remember when you take exercise. Warm up properly before starting, choose comfortable loose-fitting clothing, and stop if you don't feel well. Take some rest if you need it, and remember that exercise should be fun!

B Dehydration

..... Not drinking enough water causes dryness of the mouth, headaches, and dizziness as well as feelings of confusion. You should drink at least one litre of water a day, and more if you are exercising, or in hot weather. Dehydration is common in very young children, people who over-exercise, older people if the weather is very hot, and those suffering from diabetes.

C Diet

..... The body requires all of the important food groups: fats, carbohydrates, proteins, fibre, and vitamins and minerals. You should not omit any of these groups from your diet completely, but maintain a sensible balance of all five. Choose a diet which is high in fruit and vegetables and low in fats and sugar.

- 3 Read the topic sentences in the box. Use sentences a–f to develop the topic sentences into a paragraph. Write out each paragraph in full.

- 1 We should all eat five portions of fruit and vegetables a day, according to nutritionists.
- 2 Obesity is a growing problem all over the world.

- a It has been proved that eating regular amounts of fresh fruit and vegetables reduces the risk of developing serious diseases.
- b In some developed countries, over 50% of the population is overweight.
- c This is in part due to an unhealthy diet, but also to lack of exercise.
- d It is easy to follow these guidelines by having fruit juice for breakfast and vegetables with your main course at lunch, followed by a piece of fruit for dessert.
- e There is also growing concern over the number of young people who suffer from weight problems.
- f If you then include salad or more vegetables with your evening meal, you will soon reach the target five portions.

fats
carbohydrates
proteins
vitamins and minerals
fibre

- 4 Write three body sentences for this topic sentence. Compare your sentences with a partner.

The weather can affect how people feel.

- 5 Match final sentences 1–3 with paragraphs A–C.

- 1 Their findings are published in the journal *Nature*.
- 2 These cells then heal the damage at the cut.
- 3 As a result, the healing process is accelerated.

Focus on Science

The healing power of electricity

- A Scientists have discovered how the body uses electricity to heal cuts. When a person's skin is cut, an electrical signal forms at the edge of the wound and it remains there until the wound heals. This electrical signal stimulates special skin cells to move to the wound. _____.
- B The effects of the electrical charge are very slow. The skin cells move at a speed of fifty micrometres an hour, which is approximately one millimetre a day. However, experiments have shown that the mechanism can be speeded up by fifty per cent. _____.
- C In fact, this is a rediscovery of an old medical observation. In the mid-1880s, a German scientist measured the electrical charge across a wound in his arm. At that time it was not considered to be an important discovery. The researchers in Scotland have now confirmed his observations and explained the process behind it. _____.

- 6 Write a final sentence for these two paragraphs.

Antibiotics

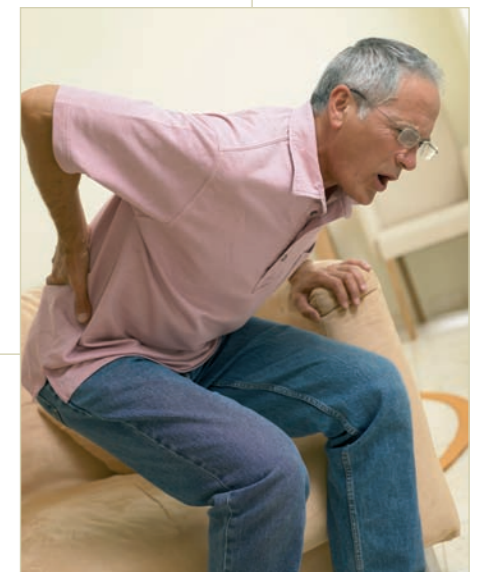
One of the greatest scientific advances of the last century was the discovery of antibiotics. Antibiotics are drugs which kill or stop the growth of bacteria. The first modern antibiotic was penicillin. Since its discovery, many more antibiotics have been discovered or manufactured, and have proved essential in the fight against some diseases. However, if they are overused or used wrongly, they become ineffective.

Back pain

Many people suffer from back pain. It is said that four out of five adults will suffer from back pain at some time in their lives. There are many causes and types of back pain, and there are various treatments. Previously the treatment for back pain was bed rest, but these days many doctors recommend light exercise.

Writing a paragraph

- 7 Write a paragraph (80–100 words) about each of the topics. Include a topic sentence, several body sentences, and a concluding sentence.
 - Vaccinations
 - The prevention of diseases



VOCABULARY DEVELOPMENT Recording vocabulary

- 1 **Read Study Skill** Which of the words would be more useful to ...
 1 a literature student? 2 a medical student? 3 all students?

curriculum heal data novel therapy analyse grading
 immune define course vaccine lecture disease author

- 2 **Read Study Skill** Look at the vocabulary records and answer the questions.

- 1 Which words have been recorded for active use?
 2 Which words have been recorded for understanding only?

STUDY SKILL Recording vocabulary (2)

What you record about a word depends on how you will use it. If you only need to **understand** the word, record:

- the pronunciation
- a definition and/or translation

If there is a word which you want to **use** in your own work, record:

- the pronunciation
- the part of speech
- any irregular forms
- associated prepositions or verb patterns
- an example sentence
- a definition and/or translation

- 3 **Read Study Skill** Which methods are used to record the vocabulary in 1–3 opposite?

STUDY SKILL Recording vocabulary (3)

It is important that you can remember vocabulary and find it again. Choose a suitable method to record it effectively. For example:

- according to topic
- as a group of words with similar meanings
- as a mind map



- 4 Divide the vocabulary in the box into three groups. Choose a suitable method to record each group.

scientists geneticists encouraging proteins physicists
 food favourable fats vitamins minerals biologists
 promising sugars positive chemists carbohydrates

STUDY SKILL Recording vocabulary (1)

When you read, you will come across many new words. It is not possible or useful to record them all. Choose words which:

- are related to your academic studies
- are key words in the text
- will be useful when you write

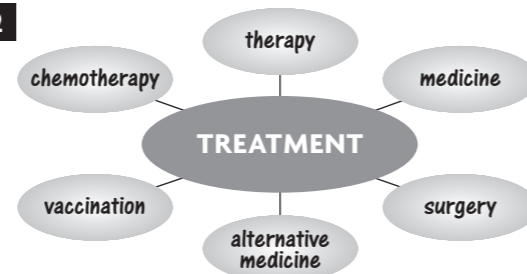
Vocabulary records

- **prestigious** /pre'stɪdʒəs/ – having a good reputation, respected
- **suffer (from sth)** /'sʌfə(r)/ **verb** [I,T] – to experience something unpleasant such as pain, disease, etc.
e.g. Barbara suffered a heart attack last year.
Syn: experience
- **intake** /'ɪnteɪk/ – the process of taking food, drink, etc. into your body
- **cut** /kʌt/ **noun** – a hole or wound made with something sharp
e.g. He had a cut on his head.

1 Vocabulary of health & medicine

- to prescribe medicine – to say what treatment or medicine sb should have
- **treatment** **noun**, to treat **verb** – to use medical care to make sb better
- to suffer from a disease/condition/illness

2



3 a study/research/an investigation/a project/a survey

REVIEW

- 1 Survey the text and title and answer the questions.

- 1 Where could the text come from? 3 What do the pictures show?
 2 Who is it written for? 4 What is it about?

- 2 Skim the text and match topic sentences 1–3 with paragraphs A–C.

- 1 AMD occurs when a region at the back of the eye starts to deteriorate.
 2 Although there is currently only a cure for one type of AMD, diet and the increased consumption of certain vegetables appear to lower the risk of developing other forms of the disease.
 3 Brightly-coloured vegetables can help protect your sight.

Do carrots help you see in the dark?

A _____ Vegetables such as peas, broccoli, and carrots contain substances which are important in the protection of our eyesight. Older people are likely to get an eye disease called Age-Related Macular Degeneration (AMD), which is the most common cause of blindness in the western world. Research shows that increased consumption of these vegetables reduces the risk of developing the disease.

B _____ This causes a loss of clear, sharp vision, which makes it difficult for the person to carry out everyday tasks. It is not a painful condition, but it does become worse with age.

C _____ Dr Suzen Moeller led a research group which studied a group of women between the ages of 50 and 79 at Wisconsin University, in the USA. The women's consumption of coloured vegetables was monitored over 15 years. It was concluded that women under 75 who have a high intake of these vegetables are less likely to develop the eye condition. It would seem that there is some truth in the saying that carrots are good for our eyes.

- 3 Read the text again and answer the questions.

- 1 Which people are most affected by AMD?
 2 How does eating vegetables affect your chances of getting AMD?
 3 What effect does AMD have on eyes?
 4 How was the study carried out?

- 4 Rephrase the sentences in your own words.

- 1 Increased consumption of these vegetables reduces the risk of developing the disease.
 2 Dr Suzen Moeller led a research group.
 3 The women's consumption of coloured vegetables was monitored over 15 years.
 4 Women under 75 who have a high intake of these vegetables are less likely to develop the eye condition.

- 5 Write a paragraph (80–100 words) about one of the topics.

- Diet and health
- A common illness

- 6 Choose ten words or phrases from Unit 2. Record five of them for active use and five for understanding only.

