

6 Science and our world

READING SKILLS Making notes • Interpreting meaning

WRITING SKILLS Paraphrasing and summarizing • Writing a summary

VOCABULARY DEVELOPMENT Noun/verb + preposition • Using numbers

READING Air pollution

- 1 What are the causes and effects of air pollution?
Discuss with a partner and make two lists.

Causes **factory emissions ...**

Effects ...

Skim the report *Air Pollution* on page 35.
Are your ideas the same?

- 2 Scan the report and answer the questions.
- 1 What is the main cause of air pollution?
 - 2 What are two natural sources of air pollution?
 - 3 Which are the most polluted cities in the world?
 - 4 Where was the first study done?
 - 5 What health problems did the first study look at?
 - 6 Where was the second study done?
 - 7 What health problem did the second study look at?
- 3 Scan the report again. What do the numbers in the box refer to?

20	three times	two	25,000	250	second	2.5
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- 4 Read the notes and compare them to the highlighted and underlined sections in paragraph 1 of the report. **Read Study Skill**

Air pollution – major problem

Man-made causes

- **vehicles – major cause**
- **power stations**
- **factories**
- **mining/building**
- **burning – fossil fuels/wood**

Natural causes

- **volcanoes**
- **forest fires**

∴ **more cars = more pollution in major cities**

- 5 Make notes from the underlined information in paragraph 2.
- 6 Read paragraph 3 carefully and highlight the key information.
- 7 Write about paragraph 3 from the prompts in the box.

Where ...?	What ... studied?	Who ...?
How many ...?	Where ... live?	What result ...?



STUDY SKILL Making notes

Take time to make good notes. They will help you to organize, record, and remember important information you have read. Use your notes to prepare for essay writing, for doing revision, and for sitting exams.

To find and mark relevant information:

- ask yourself what information you need.
- read and underline/highlight relevant information in the text (use different colours to represent different types of information, for example, blue for *man-made causes*, yellow for *natural causes*).
- rewrite the information as notes.

To organize your notes:

- use bullet points, headings, and numbering.

To be concise:

- don't write full sentences. Leave out words that are not central to understanding/meaning:
 - articles (*a, an, the*) the verb 'to be'
 - prepositions (*in, at, on*) auxiliary verbs (*has sent*)
- Use some simple abbreviations and symbols:
 - e.g. (*for example*) ∴ (*therefore*)
 - ∴ (*because*) = (*equals/means*)
 - (*leads to*)

Air pollution

Air pollution is a major problem all over the world today. Probably the single biggest contributor to the problem is the motor vehicle. However, there are many other man-made sources, such as industrial factories, power stations, mining, building, and the burning of fossil fuels and wood in homes around the world. There are natural sources of air pollution too; volcanoes and forest fires produce a lot of pollutants. However, it is the increasing number and use of motor vehicles that is doing the most damage, and logically, where there are more cars, there is more pollution, that is, in the major cities of the world. Some of the most polluted cities include Beijing, Mexico City, Athens, Moscow, and Mumbai.

Health problem

This problem of increased pollution in the major cities of the world has led to an increase in the number of studies done to look at the effects on our health. The results so far are not very reassuring. In fact, air pollution may be a much greater danger to our health than scientists believed before. A 20-year study of residents of a Cairo suburb shows that the tiny particles in polluted air could lead to three times as many long-term health problems as was previously thought. A connection between the number of particles in the air and health is suggested by Dr Razia of Cairo University. He and his colleagues collected data on 25,000 residents of Cairo over two decades. They found that as the number of tiny particles, those less than 2.5 microns in diameter increased, so did the risk of dying from health problems such as heart attacks and lung cancer.

Traffic and asthma

Other studies show a similar link between traffic pollution and ill health. A second group of researchers in Ottawa, Canada, reported that children living near busy roads were more likely to develop asthma. They studied the health of 250 children in different Canadian cities. The results suggest a strong connection between how close a child lives to traffic and the possibility of that child developing asthma and other similar diseases. It is clear from these studies and others that the time has come to start reducing the levels of air pollution in our cities for the sake of our children and future generations.



8 Read Study Skill Read the report again. Are the statements expressed as fact (F) or speculation (S) in the text?

- 1 Growing car use is causing the most damage. **F**
- 2 More pollution in big cities has resulted in more studies being done.
- 3 Polluted air is more dangerous than people thought.
- 4 Small particles in dirty air cause three times as many health problems.
- 5 The results of the Canadian studies prove there is a link between a child living close to traffic and getting asthma.
- 6 All these studies show that it is important to reduce air pollution for the next generation.

STUDY SKILL Interpreting meaning

Most academic and scientific articles express facts (what happened), and speculate (guess). It is important to be able to distinguish uncertainty and speculation from fact.

Uncertainty and speculation can be expressed using:

- *may, could, might* before the main verb, e.g.
*Air pollution **may be** a much greater danger to our health ...*
*Polluted air **could** lead to three times as many ... problems.*
- verbs such as *believe, claim, think, hope, seem*, e.g.
*Dr Razia ... **believes** there is a connection between the number of particles in the air and health.*
- words and phrases, e.g.
possibly, probably, it is possible

WRITING Trends

- 1 Read the report *School Dinner Scandal*. Underline the main information.

Report

School dinner scandal

The results of a study into what 10,000 primary school children, that is, children aged five to eleven, ate in a day shocked the researchers. They believe it shows that children's diets are getting worse and that this might cause health problems in the future. It shows that 49 per cent of the children had eaten chips, which had been cooked in oil. Less than half had eaten a vegetable or a piece of fruit in the last 24 hours and, most shockingly, only one in ten children had eaten fish. As Dr G. Bennett, the author of the study, concluded (2006, p191) 'Poor eating habits in early childhood can lead to health problems in later life. It is therefore essential to ensure that children eat properly.'



- 2 Read the summary. Match the highlighted words and phrases with words and phrases in the report.

Research = a study

Summary

Research into 10,000 primary pupils' daily diet revealed that just under half had eaten chips, fewer than 50% had had either vegetables or fruit, and only 10% of the children had eaten fish.

- 3 Read the article *Scientists on the decline* on page 37. Highlight or underline the main information.
- 4 Make notes from the information you have highlighted or underlined. Organize them logically, and be concise.

Number science students ↓ about 5% a year.

Focus on Science

Scientists on the decline

As science becomes increasingly important in our daily lives, so the shortage of scientists gets greater. The number of students going to university to study pure and applied sciences is decreasing by about five per cent each year. This, in turn, leads to a drop in the number of people able to be science teachers in schools. This shortage of science teachers, unsurprisingly, leads to fewer school children studying science, and even fewer going on to university. Prominent scientists believe that one of the reasons is that science is undervalued in society: people do not discuss the latest scientific breakthrough in the same way they would discuss the latest bestseller. It could also be because scientists starting their professional lives are often poorly paid. However, some scientists think that the reason is a distrust of scientists because of the claims for 'breakthroughs' and 'cures' for diseases which do not actually happen. Whatever the reason, young people must be encouraged to study science. The world needs scientists.



- 5 **Read Study Skill** Write sentences in your own words using your notes. Do not look back at the text *Scientists on the decline*.

There is an annual fall of around five per cent in the number of people studying science in higher education.

STUDY SKILL Paraphrasing and summarizing

You often need to use other sources, for example other people's work, in your own essays and reports.

This can be done by:

- paraphrasing information, that is, rewriting information in your own words. Use synonyms wherever possible (see Study Skill Unit 4 p26).
- summarizing the information, that is, linking the main points in your own words.

NOTE You may quote directly from the piece of work, but it is essential to give the source of the quote and its author, e.g.

... Dr G. Bennett, the author of the study, concluded (2006, p191) 'Poor eating habits in early childhood can lead to health problems in later life.'

The use of other people's work 'word for word' without saying you have done so (plagiarizing) is strictly not allowed.

Writing a summary

- 6 Use your sentences to write a paragraph (50–75 words) summarizing the text.