

5 CHANGE



OBJECTIVES

- summarize a sequence of past events
- evaluate a range of proposals
- talk about changes in your town or city
- evaluate eco-friendly solutions
- discuss ways to help the environment
- write a problem-solution article

SPEAK Work in pairs. Discuss the questions.

- 1 Look at the picture. Which towns or cities have changed the most in your country in the last few decades? How have they changed?
- 2 What are the biggest changes in the world that have happened in your lifetime?
- 3 Look at the idioms. What do they mean? Discuss situations in your life that match each one.

come a long way

give something a facelift

rock the boat

start from scratch



G the passive voice

READING

A SPEAK Work in pairs. Look at the food chain diagram. What would happen if you removed the wolf from this ecosystem? Why?

B 5.1 SCAN Read *How wolves change rivers*. Choose the correct summary.

- a The text shows how reintroducing wolves to Yellowstone caused a chain of changes affecting animals, plants and the landscape.
- b The text focuses mainly on how wolf populations recovered after being reintroduced and describes the political decisions behind protecting the species.
- c The text describes how elk overpopulation damaged the environment in Yellowstone and explains how people tried to control animal numbers.



HOW WOLVES CHANGE RIVERS

Wolves are top predators and their beneficial effects on entire ecosystems are gradually being understood.

Wolves are crucial for maintaining a healthy ecosystem – a fact that many people overlooked when they were being hunted and killed in vast numbers across the United States at the start of the 20th century to protect livestock.

Meanwhile, the populations of other animals exploded. The entire ecosystem of the American countryside changed as a result of rapidly expanding populations of elk.

After years of political discussion, conservation biologists finally got their way, and the gray wolf, *Canis lupus*, was reintroduced to several areas in the northern Rocky Mountains of the United States. One of those areas was Yellowstone National Park.

Although researchers only reintroduced a total of 41 wolves to the park in 1995, their beneficial influences soon became clear, and continue to be seen to this day. As wolves are top predators that mainly hunt sick or aging elk, their reintroduction had two main effects. First, it slowed the expansion of the elk population, which had exploded without natural predators. Second, it actually improved the overall health of the elk population as only the strongest and fittest survived.

The presence of wolves even changed elk behaviors. For example, they stopped eating in valleys where they could easily be attacked by wolves. Because of this, native plants were able to regrow, increasing biodiversity by providing food and shelter to a growing variety of plants and animals.

Amazingly, the presence of wolves also changed many rivers in the park. After the reintroduction of the wolves, researchers noticed that riverbanks became stronger, the rivers became deeper and small pools formed. Why? Again, the plants that had been eaten by the elk had time to recover, strengthening the riverbanks and in turn, changing the geography of the park itself.

Basically, humans conducted a huge real-life experiment by removing and then reintroducing a top predator from a large area of land. Initially, the changes caused by the lack of wolves were too small to be noticed. But the results of their reintroduction clearly indicate that wolves are essential to restoring and maintaining the ecosystem of the entire region.

This type of relationship is known as a 'trophic cascade'. In Yellowstone National Park, researchers observed the effect when the removal of the top predator started a chain of effects that affected the entire web of life. Similar effects have been identified throughout the natural world, from the Amazon rainforest to the eastern Pacific Ocean.

As more species are reintroduced around the world, no doubt more will be learned about the impact each has not just on ecosystems, but also on the surrounding landscapes.

GLOSSARY

biodiversity (n) the variety of different types of plant and animal life in a particular region

ecosystem (n) all the living things in an area and how they affect each other and the environment

predator (n) an animal that kills and eats other animals

C **5.1 IDENTIFY CAUSE AND EFFECT** Read the article again. Are the sentences true (T) or false (F)? Correct the false sentences.

- | | |
|---|-------|
| 1 Wolves started to die out because there were not enough elk to eat. | T / F |
| 2 Growing elk numbers affected all other plants and animals. | T / F |
| 3 Reintroducing wolves meant elk populations grew. | T / F |
| 4 Reintroducing wolves made elk populations healthier. | T / F |
| 5 A wider range of plants started to grow again as wolf numbers grew. | T / F |
| 6 The regrowth of plants meant that rivers became deeper. | T / F |

D **SPEAK** Work in groups. What animals are in danger of extinction in your country? What is being done about it?

GRAMMAR The passive voice

A Scan the article again and underline ten examples of the passive voice. The first has been underlined for you.

B **SPEAK** Work in pairs. Discuss the questions.

- What tenses are the examples in Exercise A?
- Which include a modal verb?
- Which are in the infinitive form?

C **WORK IT OUT** Choose the correct options to complete the rules.

The passive voice

- We form the passive voice with **be + simple past / past participle**.
- The passive voice can be formed with **all / some** tenses – only the form of **be** changes.
- We use the passive voice when:
 - we **know / don't know** who or what caused an action.
 - it's **important / not important** who or what caused an action.
 - we want to focus on the person or thing that **did the action / received the action**.

D Go to **Grammar Hub 5.1** at the back of the book.

E Complete the sentences with the correct form of the verbs in parentheses.

- As the population continues to grow, more and more land _____ (**use**) for farming.
- Very few fossil fuels _____ (**burn**) before the Industrial Revolution.
- Thousands of trees _____ (**cut down**) every year before the government changed the law.
- The future of humans _____ (**could/threaten**) by further increases in temperature.
- Many species _____ (**affect**) by climate change over the last decade.
- Plastic bags _____ (**ban**) recently in many countries.
- Many forests _____ (**destroy**) by wildfires in recent years.
- Some people feel that the use of packaging needs _____ (**control**).

F **SPEAK** Work in pairs. Describe how a natural area (park, forest, river or beach) is protected, using at least three passive voice sentences.

SPEAKING TASK

A Go to **Communication Hub 5.1** at the back of the book.

B **DISCUSS** Work in pairs. What are the main predators in your country? What other animals would be affected if they became extinct?





Adaptive Practice

- V** green vocabulary **S** listening for rhetorical questions **G** causative *have* and *get*
P glottal stop **G** -ing and infinitive forms



1 _____



2 _____



3 _____



4 _____



5 _____



6 _____



7 _____



8 _____



9 _____



10 _____

VOCABULARY

Green vocabulary

A Label the pictures (1–10) with the words in the box.

compost heap double glazing
 energy-efficient lightbulb insulation
 rain barrel smart meter solar panels
 thermostat underfloor heating wind turbine

B Complete the sentences with the words in Exercise A.

- Using _____ to produce energy from the sun can save you money.
- Turning down your _____ by just one degree can save money and energy.
- _____ can be used to extract heat stored in the ground through the floor of the house.
- _____ last much longer and use less energy than traditional ones.
- Use a _____ to capture rain which can then be used in the garden and the toilet system.
- Families often throw away a lot of food that could instead have been put in a _____.
- Using a _____ can produce clean energy on windy days.
- Installing a _____ helps keep track of energy use and may even save money.
- Since warm air rises, it is important that you have good _____ to keep the heat in.
- _____ is much better at keeping heat in than traditional windows are.

C SPEAK Work in pairs. Discuss the questions.

- Which of these things do you think are the most useful for saving energy?
- Which of the things from Exercise A do you have in your home?
- Which would you install if you had the money?

Game



LISTENING

A 5.2 LISTEN FOR GIST Listen to three callers on *Green Living Today* talking about home changes. Choose the correct summary of the callers' stories.

- The callers describe the challenges of reducing energy use and complain about how expensive eco-friendly technology is.
- The callers share different practical steps they've taken to make their homes greener, from small changes to bigger investments.
- The callers discuss government policies that encourage people to improve their homes and debate which policies are most effective.

B 5.2 LISTEN FOR RHETORICAL QUESTIONS Listen again. Check (✓) the questions that are used rhetorically. Use the information in the skills box to help you.

Listening for rhetorical questions

A rhetorical question is a question asked for effect, not because the speaker expects an answer. They are often used to emphasize when the speaker thinks something is obvious, or to express surprise, doubt or agreement.

- Am I using energy efficiently, or am I heating a mansion? ☐
- What did I do? ☐
- What are you going to do next? ☐
- What's the point of good insulation if all the heat leaks out? ☐
- Are we really using this much water? ☐
- Can we cut waste? ☐
- Why does it feel like the heat disappears the second I turn it on? ☐
- Why didn't we do this sooner? ☐

GRAMMAR Causative have and get

- A WORK IT OUT** Read the rules and complete the examples with the words in the box.

installed is having is installing

Causative have and get

We use the causative *have* and *get* (*have* / *get* + object + past participle) to say that someone does something for us – usually for tasks we can't or don't know how to do ourselves.

- Harry _____ solar panels on his roof. (= he is doing it himself.)
- Harry _____ solar panels _____ on his roof. (= someone is doing it for him.)

- B** Go to **Grammar Hub 5.2** at the back of the book.

- C** Complete the sentences with the correct form of the verbs in parentheses.

- I _____ at the garage last weekend. (**have**/the car/repair)
- We _____ right now. (**get**/the house/paint)
- We're also _____ to check how much energy we're using. (**have**/a smart energy meter/fit)
- We _____ last year to help keep heat in. (**have**/a roof garden/create)
- I'd like _____ in the living room. (**get**/new flooring/install)
- They want to _____ before winter. (**get**/the windows/replace)

- D SPEAK** Work in pairs. Have you or people you know had any home upgrades? Tell your partner about them.

PRONUNCIATION Glottal stop

- A** **5.3** Listen to an extract from the radio show. Is the /t/ sound in the words in bold pronounced or not pronounced?

We're also getting a **smart** meter installed. Hopefully, **it**'ll help us keep an eye on how much – or how little – energy we're using!

- B** **5.4** Listen to the same sentences said in two different ways. For each sentence, choose the speaker (A or B) who doesn't pronounce the sound /t/ in the words in bold.

- It's a **great** way to save money on our bills. A / B
- We'd like to **start** growing our own food. A / B
- We should save **about** \$100 a year. A / B
- We need to **get** quotes for the underfloor heating. A / B

- C SPEAK** Work in pairs. Take turns to read a sentence in Exercise B, with or without the /t/ sound in the words in bold. Your partner says if there's a /t/ sound or not.

GRAMMAR -ing and infinitive forms

- A** Complete the sentences with the correct form of the verbs in parentheses.

- We managed to reduce our heating costs by _____ (**change**) the windows.
- I kept _____ (**wonder**), why does it feel like the heat disappears the second I turn it on?
- We had a rain barrel installed _____ (**collect**) rainwater.
- We hope _____ (**get**) solar panels installed.
- _____ (**save**) energy isn't always easy, but it makes a big difference.
- It's amazing _____ (**see**) how quickly your bills drop once you make a few changes.
- People can _____ (**make**) a big difference if they decide to change just a few habits.
- We tried _____ (**use**) thicker curtains at first.
- Later, we tried _____ (**save**) energy by turning the heating down.

- B WORK IT OUT** Match the rules with the sentences (a–i) in Exercise A.

-ing and infinitive forms

We use verb + -ing:

- after prepositions _____
- as the subject of a sentence _____
- after some verbs (e.g. *admit*, *appreciate*, *avoid*, *finish*, *give up*, *mind*, *suggest*) _____

We use the infinitive:

- after adjectives _____
- to talk about purpose _____
- after some verbs (e.g. *attempt*, *decide*, *expect*, *learn*, *manage*, *need*, *promise*) _____

We use the base form:

- after modal verbs _____

Some verbs can be followed by either verb + -ing or the infinitive, but with a change of meaning (e.g. *forget*, *remember*, *try*, *go on*) _____

- C** Go to **Grammar Hub 5.2** at the back of the book.

- D MEDIATION** Your friend wants to make their home more eco-friendly. Write an email to explain and recommend useful ideas from the radio show.

SPEAKING TASK

- A PLAN** A local school has \$20,000 to spend on making the school greener. Write notes about the advantages and disadvantages of each idea.



WIND TURBINES Cost: \$10,000. Could save \$1,000 a year. School is not in a very windy area.



SOLAR PANELS Cost: \$16,000. Could save \$1,400 a year. School is in a sunny location.

- B DISCUSS** Work in groups. Decide how to spend the \$20,000. Explain your choices.

- C PRESENT** Present the options and explain why.



READING

A PREDICT Work in pairs. Read the title of the article and look at the picture. What do you think a megacity is? How would you define it?

B 5.5 READ FOR ORGANIZATION Read *Rise of the megacities*. Complete the blanks in the article (1–6) with the sentences (a–f).

- a Gyeonggi, on the southern outskirts of the city, has grown by over 55% since the beginning of the 21st century.
- b Today, it is a city with millions of people, but at the beginning of this century, its population was around 500,000.
- c However, in recent years, rapid urbanization has been happening at a rate never seen before.
- d Unfortunately, for many people, especially in poorer countries, this has not always been the case.
- e At the heart of this rapid expansion in urban populations are the same factors that have been there for centuries.
- f So, where and why is this happening at such an astounding rate?

C 5.5 READ FOR DETAIL Read the text again and answer the questions.

- 1 In what areas of the world have many cities reached populations over ten million?
- 2 Where was the original population growth in Seoul?
- 3 Where were the new housing projects built in Seoul?
- 4 In what way is Abu Dhabi's development different from that of Seoul?
- 5 What factors encourage people to leave rural areas and move to cities?
- 6 What problems do many new city residents face when they first arrive?

D SPEAK Work in pairs. What are the main advantages and disadvantages of living in a major city?

GLOSSARY

excess (n) more of something than is needed or wanted
immensely (adv) to an extreme
perception (n) a way of understanding or seeing something
prosperous (adj) successful financially; money-making
swell (v) become larger in size

Rise of the MEGACITIES

Large cities are not a new phenomenon. Attracted by work, better facilities and living standards, there have been cities with a population of over a million people for around 2,000 years. ¹ ___ This is particularly evident in the Middle East and across Asia, where many cities have swelled to populations in excess of ten million. Places that even just a few decades ago were nothing more than small farming towns or fishing villages now have millions of people living in them. ² ___ Seoul, in South Korea, is a prosperous **urban** area today, but in the 1950s it was a much smaller place. Once Seoul began to expand, much of the population growth was in the central **commercial** area. This has changed in the last 20 or 30 years, as much of the growth has been in the **suburbs**, where huge **residential** areas have been built on the edge of the city. ³ ___ Overpopulation has meant redeveloping traditional **industrial** areas of the city, where vast **housing** projects have expanded the population greatly. Although the growth of Seoul has been extraordinary, it has been a large city for decades. Abu Dhabi, on the other hand, was once not much more than a small village, and has grown immensely in recent times.

⁴ ___ It is not the only city to grow at this rapid rate, so what has led to this rapid expansion?

Population growth in general has come about due to falling death rates and improved life expectancy, but city populations are growing for numerous reasons. ⁵ ___ High levels of unemployment and a lack of resources have always pushed people away from **rural** areas. There is a perception that life will be better in a city, as the future residents are attracted to the prospect of well-paid jobs, greater opportunities to find work, better health care and education. ⁶ ___ All too many cities have illegal **slums** with poor living conditions, little or no electricity and limited access to clean drinking water. Yet this does not seem to deter new residents as both the central area and suburban populations continue to expand.

The trend of urbanization is unlikely to slow down any time soon, with millions of people expected to move to urban areas in the future, no doubt creating more megacities in the process. From Bogotá to Chengdu, the march of the megacities shows no signs of stopping across the world.

VOCABULARY Describing areas of a city

A Scan the article again. Complete the definitions with the words in bold.

- _____ (n): an area where people live that is outside the city center
- _____ (adj): relating to industry
- _____ (adj): relating to towns and cities, or happening there
- _____ (n): a poor area of a town where the houses are in very bad condition
- _____ (adj): relating to where people live rather than work
- _____ (n): buildings for people to live in
- _____ (adj): relating to business
- _____ (adj): relating to or in the countryside

B Choose the correct options to complete the sentences.

- Over half of the world's population live in ____ areas, and this is expected to grow.
a urban b commercial c slums
- Depopulation in ____ areas has led to even less work and fewer facilities.
a commercial b suburb c rural
- The ____ area is home to some of the largest banks and financial companies in the world.
a industrial b commercial c residential
- When people have families, they often move to the ____ to have more space.
a suburbs b housing c residential
- ____ areas with good transportation connections are often more expensive to live in.
a Slum b Industrial c Residential
- A lack of affordable ____ can lead to people living in poor conditions.
a suburbs b housing c slums
- When traditionally ____ areas are in decline, many of the old factories are often converted to apartments.
a industrial b commercial c rural
- The biggest ____ in the world has over half a million people living in poor quality housing.
a suburb b slum c urban

C **SPEAK** Work in pairs. Use the words in Exercise A to describe your city or a city you know well.

Game



D **SPEAK** Work in groups. Imagine you are city planners. Design an ideal city. Then present your city to the class.

VOCABULARY Prefixes

Prefixes

Prefixes are added to the start of a word to change the meaning. For example, *mega-* is added to the start of a word to mean very big or important (e.g. *megacity*).

A Choose the correct prefix in the parentheses to complete the sentences.

- Levels of pollution were so high they needed to _____ **contaminate** the river. (de / un)
- They were _____ **qualified** from the race for cheating. (dis / un)
- In order to improve travel times, they decided to _____ **grade** the metro system. (up / down)
- The solution was _____ **possible** to put into place. (up / im)
- The company _____ **led** the community about the development. (mis / dis)
- People don't use the train because they feel it is _____ **priced**. (over / under)
- The cost of building new road networks was significantly _____ **estimated**. It cost a lot more than they thought. (under / over)
- The excellent infrastructure has allowed the city to _____ **perform** many similarly sized cities. (over / out)

B Complete the words in bold with the prefixes in the box.

extra- il- over- re- sub- un-

- The cost of housing has led to some _____ **legal** housing areas being built.
- There have been some _____ **ordinary** new buildings constructed in the center of the city.
- _____ **population** has become a problem in my city.
- They have _____ **developed** the old industrial area of the city.
- The _____ **urban** areas around the city have expanded rapidly.
- Many were _____ **happy** about the construction of a large grocery store on the site.

Game



C **SPEAK** Work in pairs or small groups. Discuss these questions using words with prefixes.

- Many cities are growing fast. What problems can this cause?
- Do you think it's possible to control city growth?
- What are the advantages and disadvantages of living in suburban areas?

SPEAKING TASK

A **PREPARE** Write notes about important changes in your town or city over the past ten years. Think about:

- housing
- the cost of living
- shopping
- transportation

B **SPEAK** Work in pairs. Tell your partner about how your town or city has changed.

C **DISCUSS** Work in pairs. Discuss the questions.

- Do you think the changes in your city have been mostly positive or negative? Why?
- What changes would you like to see in the future?



AUTHENTIC VIDEO

A SPEAK Work in pairs. Look at the picture and discuss the questions.

- 1 How does climate change affect animals in cold environments?
- 2 Why might polar bears come close to towns or people?

B WATCH FOR MAIN MESSAGE Watch the video. Check (✓) the three sentences that are mentioned.

- 1 Polar bears arrive in the town of Churchill earlier and hungrier. ☐
- 2 Scientists are developing new ways to follow polar bears. ☐
- 3 Churchill relies heavily on tourism linked to polar bears. ☐
- 4 Residents are encouraged to help keep polar bears away from the coastline. ☐
- 5 Keeping bears out of town is difficult because of how they move. ☐

GLOSSARY

coexist (v) live in the same place at the same time, even if it is difficult

confinement (n) being kept in a controlled space and not allowed to leave

food deprived (adj) lacking food; unable to get enough food to survive

jail (n) a secure place where someone or something is kept temporarily; British English = *gaol*

litter (n) a group of baby animals born at the same time to the same mother

C WATCH FOR DETAIL Watch the video again. Are the sentences true (T) or false (F)?

- 1 Churchill is known as the 'polar bear capital of the world.' T / F
- 2 Scientists have noticed that fewer polar bear cubs are surviving. T / F
- 3 Polar bears can easily hunt seals in open water. T / F
- 4 Bob Windsor's job is to protect the bears from humans. T / F
- 5 Officers use loud noises to scare bears away from town. T / F
- 6 Captured bears are permanently kept in the 'polar bear jail.' T / F
- 7 The community is seen as an example of how humans and bears can coexist. T / F
- 8 Everyone agrees it's possible to completely prevent bear attacks. T / F

D SPEAK Work in groups. Discuss the questions.

- 1 Do you think humans and wild animals can truly coexist? Why/Why not?
- 2 How might climate change affect other animals and human communities in the future?
- 3 The mayor of Churchill says, *You can't prevent it. It's like rolling dice.* What does he mean by this? Do you think it's too negative?



AROUND THE WORLD

A SCAN Read two people's comments on the environmental impact of tourism in their countries and how effective current solutions are. Which paragraph (a-d) ...

- 1 evaluates a long-term consequence? _____
- 2 explains why a solution may not be enough? _____
- 3 evaluates short-term results? _____
- 4 evaluates overall effectiveness? _____



Edna, Brazil

a The Amazon has suffered serious environmental damage, and the impact has been long-lasting. This situation has had a positive impact on international awareness, as more people now recognize how fragile the ecosystem is. One clear advantage is that global attention helps to protect the rainforest. However, a major limitation of this is that large areas have already been lost, and recovery is slow.

b Brazil has introduced conservation measures, including restricting visitor numbers. The results so far have been quite promising, especially in reducing damage to marine life. In addition, community-based ecotourism projects help reduce damage by involving local people. In the long term, this could lead to better protection of wildlife.



Alice, Switzerland

c Switzerland's alpine landscapes, especially glaciers, have changed significantly due to tourism and climate change. One clear advantage is that the damage is well documented, which allows scientists to track changes accurately. However, the damage is hard to reverse.

d Switzerland strongly promotes public transportation. Encouraging train travel has a positive impact on reducing emissions. However, it does not completely solve the problem. Overall, this approach is effective, but it cannot completely prevent environmental damage.

B Read the Critical thinking box. Which facts do Edna and Alice evaluate, and what are their conclusions?

Critical thinking



Understanding what the facts mean

When we are given facts, we need to analyze and evaluate them. This will help us understand the 'why' and 'how' of the information before forming a reasoned judgment. This helps us decide whether solutions are strong, weak or only partly successful.

C Complete the Speaking skills box with words from Edna and Alice's answers.

Speaking skills



Evaluating solutions

- 1 This situation has had a _____ on ...
- 2 One _____ is that ...
- 3 Overall, this approach is _____ ...
- 4 However, a _____ of this is ...
- 5 These projects help _____ damage ...
- 6 However, it does not completely _____ the problem.
- 7 The results so far have been quite _____.
- 8 In the _____, this could lead to ...

D SPEAK Work in pairs. Use the Speaking skills phrases to evaluate some eco-friendly solutions you know about.

MY WORLD

A PLAN Think about new eco-friendly solutions or initiatives in your local area (e.g. clothing repair stores, bike-sharing, community gardens). Write notes on:

- what the initiative is
- who usually participates
- who benefits most from it
- what problem it tries to solve
- how successful the initiative has been since it began

B SPEAK Work in groups. Evaluate the solutions you chose in Exercise A. Discuss:

- its positive impact
- at least one clear advantage
- at least one clear limitation
- whether it is effective or only partly effective
- whether it could solve the problem in the long term

C COMPARE Discuss as a class. Which solutions seem the most effective overall? Which ones have the most serious limitations? Which ideas would you personally support or take part in? Why?



F taking the floor

VIDEO COMPREHENSION

A SPEAK Work in groups. Do you think where you work or study does enough to protect the environment? Why/Why not?

B  Watch the video and answer the questions.

- 1 What eco-friendly change does Harry suggest?
- 2 Why does Amanda support this idea?
- 3 What is Sam's criticism of the idea?

FUNCTIONAL LANGUAGE

A Read the extract from the conversation. Why do you think Amanda finishes Harry's sentence?

Harry: People respond better to a penalty than a ...

Amanda: ... reward. It's what we do at my office.

B Read the information in the skills box and check your answers to Exercise A.

C  Watch the video again and complete the extracts in the skills box.

Taking the floor

In discussions, one speaker will often interrupt another so they can start speaking. This is called taking the floor. In the video, Sam interrupts Harry by saying ¹ _____ and Malcolm interrupts Sam by saying ² _____.

To keep the floor, we need to avoid interruption. In the video, Harry stops Sam from interrupting him by saying ³ _____.

We can also take the floor by agreeing or disagreeing with what someone has said.

Sam: Yes, well, I think we already do a fair bit to help the environment.

Harry: ⁴ _____ we could do more?

Amanda: And it does seem to have changed how people behave.

Harry: ⁵ _____. People begin to feel that it's normal to have their own cup. It's not something that deserves a special reward.

Sam: ⁶ _____ we start penalizing them.

We can also show agreement or understanding by finishing someone's sentence, like Amanda does to Harry.



D SPEAK Work in groups. Discuss one of these topics using the strategies in the skills box to take or keep the floor.

- recycling
- wind farms
- solar panels
- electric cars
- plastic packaging
- food waste
- nuclear power
- protecting oceans

SPEAKING

A PREPARE Work in groups. Write a list of five ways you could be more environmentally friendly in these areas:

- travel and transportation
- recycling
- saving water
- eating smart
- reducing and reusing
- clothing

B PLAN Rank the points in Exercise A in order of importance. Try to reach an agreement in the group.

I really think recycling plastics is a top priority. We should all carry refillable water bottles with us.

Really? But surely people wouldn't want to carry a water bottle everywhere.

But they might if governments made plastic bottles expensive and provided lots of places where we can refill our bottles.

I know what you mean. When I see plastics on our beaches and in the oceans I am horrified. But, don't you think saving water should go at the top?



C PRESENT Present your list to the class. Explain your reasoning.

W describing problems and solutions

WRITING MODEL

A Read the introduction to the problem-solution article. What is the main focus of the article?

Overcrowding in cities is among the principal dangers facing society today. This article will first look at some of the problems this causes and then suggest a number of possible solutions.

B **SCAN** Scan the blog post. What problems and solutions are mentioned?



Overcrowding

The main issue facing cities today is overcrowding, and the result is added pressure on public facilities. Schools, hospitals and roads are pushed to breaking point as cities struggle to keep up with the rapid population increase. A good example of this is the pressure placed on hospitals and doctors, who are expected to deal with growing numbers of patients despite no increase in staff. One way to tackle the increased pressure on public facilities is to regulate building. When building new housing, rules should be put in place to ensure that enough new facilities are constructed at the same time. For instance, for every 1,000 new apartments, an elementary school and a doctor's office should be built by the construction firm.

One of the other foremost problems that occurs as a consequence of overcrowding is the increased levels of traffic. As a result, air pollution increases and traffic slows down. For example, in Mexico City, traffic has slowed to an average of around 10 kmph. One solution might be to build more bike lanes around city centers. This will allow commuters to navigate the city more quickly and will lower the CO2 emissions. One example where this has been done successfully is Copenhagen in Denmark, where hundreds of meters of bike paths have been built.

In order to tackle the problems of overcrowding, cities should focus not only on building more housing, but also on providing the infrastructure needed to support the growing population.

C **READ FOR STRUCTURE** Read the first paragraph again. Number the steps in the correct order (1–6) to show the paragraph structure.

- a state the solution _____
- b state the problem 1
- c explain how this will solve the problem _____
- d show the results of the problem _____
- e give an example of the solution _____
- f give an example of the problem _____

D Complete the sentences with the phrases in the box. Use the information in the skills box to help you.

Describing problems and solutions

When you write a problem-solution article, first present the problems and results. Then give examples and results, and finish with solutions and explanations.

A good example of this is As a result
foremost problems One solution might be to
The main issue the result is This will allow

- 1 _____ facing cities today is air pollution.
- 2 ..., and _____ that facilities struggle to cope.
- 3 _____ the pressure placed on schools and teachers in growing classes.
- 4 One of the _____ caused by air pollution is the damage to public health.
- 5 _____, there has been an increase in asthma levels.
- 6 _____ build subsidized electric vehicles.
- 7 _____ us to reduce the amount of carbon emissions.

WRITING TASK

A **PREPARE** Work in pairs. Think of problems and solutions in response to the following:

What are some of the difficulties of living and working in a megacity?

B **PLAN** Organize your ideas into a plan for an article.

C **WRITE** Write your article. Then complete the checklist.

- ☐ I organized my article to give examples, results, solutions and explanations.
- ☐ I described problems and solutions.
- ☐ I checked my grammar and punctuation.

D **REVIEW** Work in pairs. Read your partner's article. Discuss how effective the solutions are.

5. REVIEW

VOCABULARY

A Complete the definitions with the words in the box.

insulation rain barrel smart meter
solar panel thermostat wind turbine

- _____ : a container used to collect rain
- _____ : a large machine like a windmill used for producing electricity using the wind
- _____ : material used to prevent heat, cold, noise, etc. from passing through something
- _____ : an electronic device used to record how much electricity is used
- _____ : a piece of equipment that uses energy from the sun to create electricity
- _____ : a piece of equipment that controls the temperature in a building

B Complete the sentences with the words in the box.

housing residential rural slums suburbs urban

- They are building a new _____ area near me with over 2,000 new homes.
- The cost of _____ has increased by nearly 20% in the last year.
- I don't really like living in the _____. It's too far from the city and there isn't much to do.
- In countries such as Germany, nearly 80% of the population live in _____ areas.
- Because of high unemployment, many people leave _____ areas and move to cities for work.
- In many _____, many thousands of people have to share just one toilet.

C Complete the text with the correct form of the words in parentheses. Use the correct prefixes.

Growth and development

Modern cities are growing fast, and planners often ¹ _____ (estimate) how quickly people will move in. This leads to serious ² _____ (population) problems and housing that is ³ _____ (priced) for most families. Many older inner city industrial areas are being ⁴ _____ (developed) to create new housing, stores and restaurants. In some ⁵ _____ (urban) districts, the infrastructure is poor. While some projects ⁶ _____ (perform) expectations, others fail because companies give ⁷ _____ (lead) information about facilities that are never completed. This places ⁸ _____ (ordinary) pressure on schools and hospitals due to the numbers of people using them.

GRAMMAR

A Complete the sentences with the correct passive voice form of the verbs in the box.

make monitor rescue spot trap warn

- A survival drone is flying over the valley now, and the area _____ for any signs of movement.
- By the time rescuers reached the cave entrance, the climbers _____ for almost twelve hours.
- So far, five emergency calls _____ from the northern trail, and teams are on their way.
- The travelers _____ not to enter the canyon after heavy rain, as sudden floods are common.
- According to the latest radio message, the missing group _____ by a helicopter before sunset tomorrow.
- As the storm cleared, a small fire on the ridge _____ by a ranger using night-vision binoculars.

B Complete the sentences with the correct form of the words in parentheses.

- Claudio:** Can you give me a ride tonight?
Ali: No, sorry. I _____ (my car/service) at the moment.
- Jona:** _____ (you/your shower/fix)?
Claire: Not yet. Someone's coming to look at it tomorrow.
- Daniella:** Is Emily at the nail salon?
Li: Yes, she's _____ (nails/paint) now.
- Paco:** Why are they eating out so much?
Peter: They are _____ (kitchen/installed) this week.
- Elena:** Is your dentist appointment next week?
Daniel: No, it's tomorrow morning. I'm thinking about _____ (teeth/whiten).

C Choose the correct options.

- The city wants **to build / building** more bike lanes to reduce traffic.
- I really miss **to walk / walking** through the old part of town before it changed.
- The government hopes **to create / creating** more green spaces in crowded areas.
- Many residents can't afford **to live / living** in the city center anymore.
- The mayor suggested **to hold / holding** a public meeting to discuss the redevelopment plans.