

## LET'S START!

Work in pairs. What environmental issues come to mind when you look at these pictures? Use the vocabulary given.

global warming  
deforestation  
harmful emissions  
shrinking ice caps  
habitat loss  
extinction  
pollutants

# UNIT 4

# The environment



### UNIT OBJECTIVES

- Listen to people's attitudes about recycling
- Discuss the advantages of recycling versus reusing
- Read about different types of energy
- Write an argumentative essay for or against banning nuclear energy
- Create a poster encouraging greener policies in your school

### Discuss in pairs.

- 1 Do you consider yourself to be environmentally conscious? Why?
- 2 What are some of the most hotly debated environmental issues globally?

## LANGUAGE BUILDER

**A** Match the words to the pictures. Two or three words may match to some pictures.

biodegradable compost ecosystem greenhouse gas impact landfill salvage unsettling waste



1



2



3



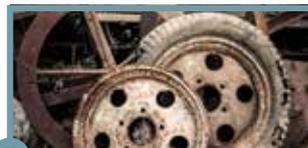
4



5



6



7

**B** Match the words in A to the definitions.

- 1 save or redeem something for continued use \_\_\_\_\_
- 2 causing discomfort or anxiety \_\_\_\_\_
- 3 the disposal of solid waste by burying it and covering with soil \_\_\_\_\_
- 4 capable of being decomposed by bacteria or living things \_\_\_\_\_
- 5 carbon dioxide, or any gas that traps heat in the atmosphere \_\_\_\_\_
- 6 decaying organic material used for fertilizing soil \_\_\_\_\_
- 7 the effect or influence one thing has on another \_\_\_\_\_
- 8 unwanted by-product that is left over and no longer needed after the completion of a process \_\_\_\_\_
- 9 community of organisms that functions as a unit \_\_\_\_\_

**D** **Track 8** Listen and circle the best title for the TV programme.

- 1 Urban Population Growth
- 2 Living Buildings for Tomorrow's Cities
- 3 Cleaner Not Greener

**E** **Track 8** Listen again and circle the correct answers.

- 1 According to the speaker \_\_.
  - a cities are growing too fast
  - b cities will have to grow
  - c cities are environmentally unsustainable
- 2 In the programme, they are going to show \_\_.
  - a interesting natural ecosystems
  - b current urban environments
  - c examples of more sustainable urban environments
- 3 What does the speaker use as an example of a future city?
  - a a city that has lights hidden in the trees
  - b a city with a water park
  - c a city whose buildings incorporate plant matter
- 4 The speaker sees our current urban environments as \_\_.
  - a environmentally sustainable
  - b environmentally damaging
  - c aesthetically unattractive

**C** Complete the sentences with the correct forms of the words in A.

- 1 News of the nuclear explosion in Japan had a very \_\_\_\_\_ effect on the rest of the world.
- 2 It is illegal for factories to dump untreated \_\_\_\_\_ into rivers.
- 3 Although certain food packaging is now \_\_\_\_\_, ultimately it still constitutes extra \_\_\_\_\_ for disposal.
- 4 The \_\_\_\_\_ of deforestation is most noticeable in terms of habitat loss for many species.
- 5 Climate change is having a noticeable effect on the delicate balance of the world's \_\_\_\_\_.
- 6 Consumer culture does not encourage the tendency to \_\_\_\_\_ old things for continued use.
- 7 It's difficult to predict the size of the emissions of \_\_\_\_\_ for the coming decades as this is dependent on political decisions.
- 8 By creating your own \_\_\_\_\_, you can reduce the amount of household waste.

**F** Discuss in pairs.

- 1 How polluted do you think your own town or city is? Why?
- 2 What measures are in place for sustaining the environment?

## USEFUL EXPRESSIONS

urban development  
genetically modified  
environmentally disruptive

## Conditionals (hypothetical)

Refer to *English Guide C1* page 16

If we **were to switch** 50% of energy production to greener methods, it **would** make a huge difference.  
 If the government **was/were to ban** CFCs outright, the ozone layer **would** recover more quickly.  
 If you **were to reuse** rather than recycle, you **would** save a lot of money.

**Building** more nuclear power stations **wouldn't help**.  
**Banning** coal fired power stations **would be** difficult.  
**Saving** energy **would lead** to more available money to spend on other things.



**G** Read the sentences in the grammar chart and put the grammar rules in the correct order.

1 If / + / subject / + / bare infinitive / + / was/were / + / infinitive with to / + subject / + / would / + / ,

\_\_\_\_\_

\_\_\_\_\_

2 object / + / gerund / + / bare infinitive / + / would

\_\_\_\_\_

\_\_\_\_\_

**H** Correct the mistakes. One sentence is correct.

- 1 If people was to stop using plastic bags for their shopping, the amount of plastic in the food chain will drop dramatically.
- 2 To create roof gardens in big cities would to help lower greenhouse gases.
- 3 If the global temperature were to rising a further four degrees, Venice can disappear completely.
- 4 Designing more environmentally friendly cities would reduce greenhouse gases.
- 5 If the government were to introduce more flexible building policies, it would easier to be constructed eco-homes.
- 6 Getting around on a bicycle minimize my personal consumption of fossil fuels.

**I** Complete the second sentence so that it has a similar meaning to the first sentence. Do not change the word given. Use between three and six words.

- 1 If people bought less food, there would be a significant drop in household food waste. (**lead**)  
 Buying \_\_\_\_\_ a significant drop in household food waste.
- 2 Insulating your house would definitely save on energy bills. (**were**)  
 If \_\_\_\_\_, you would definitely save on energy bills.
- 3 If we were to eradicate the malaria-carrying mosquito, it would affect the balance of our ecosystem. (**eradicating**)  
 \_\_\_\_\_ affect the balance of our ecosystem.
- 4 Would anyone realize it if we dumped toxic waste? (**to**)  
 If \_\_\_\_\_, would anyone realize it?
- 5 Introducing stricter environmental regulations would encourage businesses to be more innovative. (**introduce**)  
 If governments \_\_\_\_\_, it would encourage businesses to be more innovative.
- 6 The possibility of disease is greatly reduced by access to medical supplies. (**improve**)  
 If the access to medical supplies \_\_\_\_\_ the possibility of disease.
- 7 To minimize the pollution landfills create, people should be encouraged to compost their organic waste. (**reduce**)  
 \_\_\_\_\_ the pollution landfills create.
- 8 Saving the rainforests would save millions of animal and plant species. (**stop**)  
 We would protect many animal and plant species from extinction if we \_\_\_\_\_ of the rainforests.

**J** Work in groups. For each hypothesis, add hypothetical consequences that would result. The group which manages to add the most logical consequences to each hypothesis is the winner.

If we were to eradicate mosquitoes, ...

If the consumption of fossil fuels were to be made illegal, ...

Building eco-homes would ...

If the global temperature were to continue increasing, ...

Living underground would ...

**K** Work in groups. Exchange your opinions and beliefs about the quote. Can you think of other quotes related to the environment?

'If the bee disappeared off the face of the earth, man would only have four years left to live.'

## COMMUNICATION

**A** **Track 9** Listen and circle the correct answers.

- Margaret has recently \_\_\_.
  - moved house
  - stopped sorting her recycled waste
  - started campaigning to start a recycling scheme in her neighbourhood
- What is the incentive to recycle cans and bottles in Stephanie and Kirsty's neighbourhood?
  - free book tokens
  - a cleaner environment
  - a cash return on each item
- Why doesn't Kirsty read the Sunday Edition of the *New York Times*?
  - She reads so many books that she doesn't have time.
  - She feels it is bad for the environment.
  - She finds it depressing.
- Why would Kirsty consider an e-reader?
  - Because her husband throws her books in landfill.
  - Because reading 50 books a year is expensive.
  - Because she is running out of storage space.
- Why would reusing be a better way for Stephanie to reduce her carbon footprint?
  - Because she would make money from it.
  - Because it requires much less effort.
  - Because she would buy less make-up and hair dye.
- Kirsty feels \_\_\_.
  - that she does not know enough about what should be recycled.
  - there is insufficient effort by communities to educate children
  - that even if she knew more she would not recycle
- Why did Stephanie's efforts to create compost fail?
  - She mistakenly put plastic with the organic waste.
  - It caused problems in the garden.
  - Her husband could not stand the smell.
- According to Margaret, what is wrong with drinking bottled water?
  - It costs a lot of money.
  - The packaging should be used for other things.
  - The plastic bottles are a massive strain on the environment.
- What is the connection between recycling and watching TV?
  - TV is the best reward for recycling.
  - Recycling cans will help save money for a new TV.
  - Three recycled cans save an hour of electricity for TV.

**B** **Track 9** Listen again.  
Circle T (true) or F (false).

- T / F Margaret isn't as environmentally aware as Stephanie and Kirsty.
- T / F Recycling programmes are less common in rural areas.
- T / F Stephanie only recycles bottles and cans.
- T / F Statistics show that recycling is not as environmentally beneficial as reusing.
- T / F Kirsty has been drinking bottled water rather than tap water.
- T / F Margaret feels that she uses too much plastic wrapping.
- T / F Stephanie has always recycled all her tin cans.
- T / F Stephanie is a fan of *American Idol*.

**C** **Track 9** Listen again. Complete the notes.

If all communities (1) \_\_\_\_\_ in recycling programmes, it would be a (2) \_\_\_\_\_ to the environment. These are some of the things we could do:

- People should (3) \_\_\_\_\_ e-reading because it takes (4) \_\_\_\_\_ to print (5) \_\_\_\_\_ of the *New York Times*.
- Reusing definitely results in (6) \_\_\_\_\_; but recycling waste newsprint, cardboard, glass, and metal can reduce (7) \_\_\_\_\_ pounds a year.
- Plastic bottles are one of (8) \_\_\_\_\_; millions of the empty bottles (9) \_\_\_\_\_ in landfills; five recycled bottles make enough fibrefill to (10) \_\_\_\_\_. People should use (11) environmentally-friendly \_\_\_\_\_ and refill them when they're empty.
- Cutting back on (12) \_\_\_\_\_ should also be a goal; Americans use enough to wrap (13) \_\_\_\_\_.
- Lastly, recycling just one aluminium can (14) \_\_\_\_\_ to run a TV for three hours.

**D** Complete the excerpts from the listening with ONE word in each gap.

- Oh Margaret, I'm (1) \_\_\_\_\_ lazy for complicated recycling programmes. Sorry, but it's true. I do sort (2) \_\_\_\_\_ the bottles and cans. Twice a year, I drop (3) \_\_\_\_\_ a truckload of bags at the bottle depot and collect my cash. Then, I go out and (4) \_\_\_\_\_ the money on a treat for myself.
- That's an (5) \_\_\_\_\_ thought. I really should start thinking more about (6) \_\_\_\_\_ my carbon footprint. Maybe I need to look at reusing instead of recycling.
- Last year, I started a compost because Dan said it would help my garden (7) \_\_\_\_\_, but I got confused about which (8) \_\_\_\_\_ to use. I accidentally threw a plastic bottle in with my (9) \_\_\_\_\_ vegetables and had to fish it out.
- Recycling takes (10) \_\_\_\_\_, but I guess if we're going to have any (11) \_\_\_\_\_ on the environment, we need to make the (12) \_\_\_\_\_. Personally, I'm going to change back to tap water. I have one of those filters. I'll buy one of those environmentally-friendly water bottles and (13) \_\_\_\_\_ it when it's empty.

**E** Discuss in pairs.

- What are the best incentives to encourage people to recycle more efficiently?
- Can you think of ways in which you could lessen your consumption of non-biodegradable objects when you do food shopping?

For me, we need to recycle because we don't want to leave the environment in terrible shape for future generations.

## F Discuss in pairs.

- 1 What is the difference between reusing and recycling?
- 2 Why is reusing potentially better for the environment than recycling?
- 3 Does recycling have any negative effect on the environment? Why?

## G Work in pairs. Look at the pictures. They show the benefits of reusing over recycling. Discuss the pictures and then decide which one best exemplifies the idea of reusing.



## H Discuss in groups.

- 1 What objects do you think people are most likely to reuse. Why?
- 2 Have you or do you reuse anything? What? How?
- 3 In order for people to reuse objects more, what would need to change?
- 4 How can reusing help businesses?
- 5 Is there anything that you feel should not be reused? Why?

## I Work in groups. Imagine you manufacture these goods, but now more and more people want to keep their purchases for longer. What would you do to adapt your product for a new market or new use?

mountain boots	
vacuum cleaners	
mobile phones	
laptop computers	
trousers	
sandals	
towels	



## LANGUAGE BUILDER

**A Match the phrasal verbs to their definitions.**

change back   clear off   drop off   help (sb) along   loom ahead  
resort to   rule out   shy away from   sink in

- 1 be likely to happen soon—usually referring to a worrying or unpleasant event \_\_\_\_\_
- 2 transport something or someone to a specific spot; deposit \_\_\_\_\_
- 3 begin to accept or understand a situation \_\_\_\_\_
- 4 eliminate or exclude as an option \_\_\_\_\_
- 5 avoid because of fear or distrust \_\_\_\_\_
- 6 return to an original form or situation \_\_\_\_\_
- 7 assist someone or something in achieving an aim \_\_\_\_\_
- 8 choose as a course of action, often a desperate measure \_\_\_\_\_
- 9 remove objects from sight \_\_\_\_\_

**C Complete the blog post with the correct form of the words in A.**

← → www.environmentnewsblog.com/

The fact that we're responsible for the environment has not completely (1) \_\_\_\_\_ for some people. Sadly, once the environmental damage is done, we won't be able to (2) \_\_\_\_\_ things \_\_\_\_\_ to the way they once were. Scientists are, however, not fully convinced that a true disaster is (3) \_\_\_\_\_. There are those who believe that since the Earth has been around for millennia, we cannot totally (4) \_\_\_\_\_ the possibility that it will once again evolve and continue in a different form. But, the everyday person on the street should be doing as much as is humanly possible to (5) \_\_\_\_\_ the Earth \_\_\_\_\_ its merry way. How? Well, (6) \_\_\_\_\_ your recyclables at the bottle bank is a start, but there's a lot more that can be done. Most importantly, don't (7) \_\_\_\_\_ making significant lifestyle changes because they seem too difficult. Have you considered the prospect of getting rid of your car? No. Fair enough. But perhaps you could swap to two wheel transport and only (8) \_\_\_\_\_ using four when there really is no other option. Imagine your life as a shelf filled with environment damaging habits. Start thinking about (9) \_\_\_\_\_ that shelf and placing new things there.

**D Discuss in pairs.**

- 1 Are there any things that have changed that you would like to change back to the way they were? What are they? Why?
- 2 Have you ever had to resort to desperate measures? Why?
- 3 Which environmental changes have certain governments shied away from?
- 4 When you think of the future, what differences or changes are looming ahead?

**E Discuss the quote in groups. What does it mean? How does it relate to environmental practices?**

'It takes a noble man to plant a seed for a tree that will some day give shade to people he may never meet.'  
— Dr David Trueblood

**B Circle the correct answers.**

- 1 The advantage of strict environmental measures is that they force companies to \_\_\_ new and better practices.  
a shy away from  
b rule out  
c resort to
- 2 The steep rises in taxation that are \_\_\_ are obliging people to rethink many aspects of their lives.  
a clearing off  
b helping along  
c looming ahead
- 3 The total devastation caused by the hurricane took a while to \_\_\_\_\_.  
a sink in  
b drop off  
c change back
- 4 I use my car; otherwise it would take me two hours by bus to \_\_\_ my son at school.  
a help along  
b drop off  
c rule out
- 5 In the current economic crisis, parents have begun to \_\_\_ organic foods because they are less affordable.  
a shy away from  
b resort to  
c clear off
- 6 The weight of the snow fall on the roof was so great that it had to be \_\_\_ to avoid its caving in.  
a ruled out  
b cleared off  
c changed back
- 7 My parents are ageing, so I like to \_\_\_ them \_\_\_ with their vegetable garden.  
a drop ... off  
b rule ... out  
c help ... along
- 8 The government has \_\_\_ that the company had no prior knowledge of the damage it was causing to the environment.  
a ruled out  
b shied away from  
c sunk in
- 9 It's clearly not possible to \_\_\_ to the type of agriculture that sustained the country in the early 20th century.  
a change back  
b loom ahead  
c clear off

### Cause and effect

Refer to *English Guide C1* page 17

If we **cap** CO2 emissions, there **will be** a dramatic improvement in air quality.  
If governments **are** willing to act, they **can make** a difference.  
If you **don't stop** refusing to believe in global warming, it **will be** impossible to stop it.

**Building** more nuclear power stations **will lead** to another Fukushima.  
**Reusing** more **results** in less recycling.  
**Borrowing** ideas from other countries **leads** to long-term co-operation; **acting** alone **will lead** to isolation.

### G Match to make sentences.

- |   |                          |   |
|---|--------------------------|---|
| 1 If global warming is not stopped,                           | <input type="checkbox"/> | a in the atmosphere, the planet will suffer.          |
| 2 If more and more greenhouse gases accumulate                | <input type="checkbox"/> | b still results in unpleasant waste.                  |
| 3 Increasing the number of cars on the road                   | <input type="checkbox"/> | c to the atmosphere will lead to rising temperatures. |
| 4 Adding excessive amounts of greenhouse gases                | <input type="checkbox"/> | d will only lead to more pollution.                   |
| 5 Our waste will be far greater than the planet can cope with | <input type="checkbox"/> | e our climate will be irreversibly changed.           |
| 6 Recycling rather than reusing                               | <input type="checkbox"/> | f if we don't reuse more consumer goods.              |

### I Use the prompts to write cause-and-effect sentences.

- burn rainforests / fewer trees to absorb harmful CO2s  
If we burn \_\_\_\_\_.  
Burning \_\_\_\_\_.
- temperature increase / more occurrences of malaria and cholera  
Increasing \_\_\_\_\_.  
If temperatures \_\_\_\_\_.
- Antarctic glaciers melt / sea levels rise  
If glaciers in \_\_\_\_\_.  
Melting \_\_\_\_\_.
- inland climates change / develop more severe weather conditions  
Changing \_\_\_\_\_.  
If inland \_\_\_\_\_.

### J Role-play in groups of three. Imagine you are discussing the consequences of global warming on a radio programme. Choose a role and role-play the discussion.

#### A Host: Environmental problems

- Moving flora, fauna to different areas
- Sea temperatures increase; sea levels rise; shift in ocean currents
- Reduced snow cover in some areas; glaciers melt in Antarctica
- Reduction of wetland areas, as precipitation is reduced; flooding may increase in some areas
- Reduction of areas suitable for human habitation

#### B Pessimist: Consequence (-)

- Spread of pests, disease; change in crop yields, may increase food shortages
- Changes in location/number of fish; location will impact fish industry
- Rise in sea levels
- Great pressure on water supplies; problems for hydro-electric power and irrigation
- Increased population densities increase possibility of disease and malnutrition

#### C Pragmatist: Consequence (+)

- Canadian prairies could become major wheat growing belt; areas able to grow different crops, e.g. citrus fruits in the UK
- Increase in number of fish in certain areas
- Extended summer season in some areas due to higher temperatures, increasing revenue
- Increased awareness of water conservation measures, less water wastage
- Forced movement of population from coastal areas to interior locations

### F Read the sentences in the grammar chart and answer the questions

- What tense is used in the *if*-clause?  
\_\_\_\_\_
- What modal verbs are used in the main clauses?  
\_\_\_\_\_
- What tenses are used in the sentences beginning with gerunds?  
\_\_\_\_\_

### H Correct the sentences by inserting ONE word in each sentence.

- If species die as a result of climate change, nature's balance will disrupted.
- Relying on fossil fuels will not to a cleaner environment.
- If people do not adopt new attitudes, nothing change.
- Overfishing rivers, lakes, and oceans lead to declining numbers of wild fish.
- The Earth will survive we destroy the environment; it is humans who will die.
- Ignoring the current environmental problems result in a poorly educated younger generation.
- If governments work together, they establish laws to protect the environment.
- Cutting down the forests like giving the Earth cancer.

### USEFUL EXPRESSIONS

I'm afraid that ...  
Sadly, that may lead to ...  
Unfortunately, this will result in ...

The good thing is that ...  
One positive consequence could be ...  
On the bright side, it ...

# PCL Brightens the Future with Solar Power

PCL Construction is spreading a little sunshine these days, thanks to significant research and development advancements in solar energy production.

Beginning in 2014, all PCL-constructed homes will include a **solar power** package option designed to reduce the compounding negative effects of traditional electricity production—even in remote areas of the country. The innovative PCL research and development team has created a more cost-effective, compact solar panel that quietly harnesses electricity and eliminates pollution caused by other production methods.

‘In the past decade, our company’s **efficiency** in harnessing the sun’s energy has grown by leaps and bounds,’ says PCL President, Dean Thorpe. ‘Ever-evolving technologies are making considerable contributions to solving the urgent energy problems facing the world today. At PCL, we’re doing our part for the environment. If all companies were to switch 50% of current energy production to greener methods, such as solar power, it would make a huge difference.’

Critics have often dismissed solar power as an inefficient, costly method of producing energy, citing several barriers to consistent electricity, including unreliable weather and the initial price of the solar cells. Historically, this start-up cost has prevented mass commercial uptake of this viable alternative to traditional energy production.

However, PCL has sourced the most cost-effective materials available, and has recently filed an **appeal** with the National Competition Board in the hopes of mandating cost-breaks for companies that demonstrate a commitment to environmental sustainability. That case will be reviewed over the summer, and PCL has high hopes for a resolution that benefits everyone.

‘Lowering the cost of the panels themselves would allow PCL to pass on even greater savings to our customers,’ says Thorpe. ‘And saving energy would lead to more available money to spend on other things. It’s a win-win situation.’

He notes that the PCL research and development team has reviewed all types of energy production, from **tidal power** and **nuclear energy** to **hydroelectric** and **geothermal** energy, and artificial photosynthesis, finding both negative and positive attributes in each. For example, while the conversion of wind into energy produces no gas emissions and uses little land, the turbines are dangerous to wildlife, in particular, birds that fly in between the heavy blades. Similarly, wave power can have an impact on the marine environment or produce hazards to safe navigation.

‘Our experts reviewed the pros and cons of each system, and in the end, we opted to invest in solar production,’ he says. ‘It produces virtually no noise or environmental pollution. Unlike wind turbines, the panels don’t take up extra space, and thanks to our lower-cost cells, solar energy can compete with traditional energy production methods on a cost-per-watt ratio.’

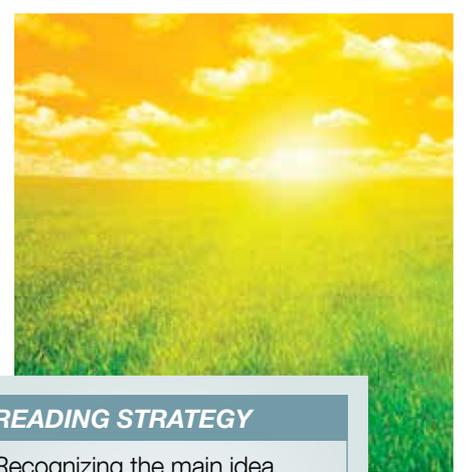
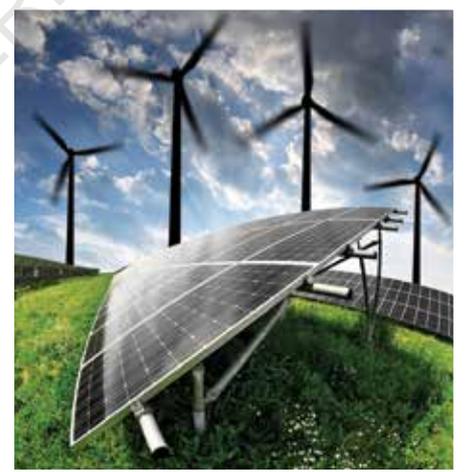
Currently, hydroelectric power represents 16% of global electricity generation, about 3,427 terawatt-hours of electricity produced annually. This is expected to increase by 3.1% each year for the next 25 years. Although this method produces energy at a relatively low cost to consumers, hydroelectricity is harmful to local ecosystems. Building large dams and reservoirs often involves displacing people and wildlife.

To that end, research teams across the globe continue to explore **sustainable** energy production that addresses the needs of the present without compromising the ability of future generations to meet their electricity needs.

PCL is at the forefront of this discovery process. Throughout its 25 years in operation, PCL Construction has remained committed to sourcing efficient, effective, and environmentally-friendly energy production technologies.

‘At PCL, we believe solar power will become the number one source of **renewable** energy in the future, one panel at a time.’

For an estimate on converting your house to solar power, or for a quote on your next home building project, contact PCL Construction—we’re lighting the way to a brighter future.



## READING STRATEGY

Recognizing the main idea of the text is key for good comprehension. It is usually included in the topic sentence or initial sentence of each paragraph. It helps to skim through a text reading topic sentences only so that you have an idea of what to look for in a more detailed read.

## READING

### A Read only the topic sentences in the article and answer the questions.

- 1 Who or what is PCL? \_\_\_\_\_
- 2 What is PCL trying to do? \_\_\_\_\_

### C Circle the correct answers.

- 1 What is different about PCL solar panels?
  - a They are quieter than other panels.
  - b They don't cause pollution.
  - c They are smaller and cheaper.
- 2 Why has solar panelling been criticized?
  - a Because it is not a solution to the urgent energy problem.
  - b Because the cost of installation is too high.
  - c Because they can only produce energy on sunny days.
- 3 How is PCL trying to ensure the commercial uptake of solar power?
  - a by using only the cheapest materials
  - b by arranging financial incentives for companies
  - c by getting the government to make its use mandatory
- 4 What is a major con of both wind turbines and hydroelectricity?
  - a They impact negatively on wildlife.
  - b They are extremely noisy.
  - c They take up too much space.
- 5 According to PCL, why is solar power truly sustainable?
  - a It never runs out.
  - b The environmental pollution it causes is minimal.
  - c It is able to cover all our energy needs.
- 6 What is the main aim of the text?
  - a to attract more customers for PCL
  - b to inform people about renewable energy sources
  - c to encourage people to switch to solar power

### D Answer the questions in your notebooks.

- 1 What product is PCL offering from 2014?
- 2 What does Dean Thorpe suggest companies should do in order to help the environment?
- 3 When does PCL expect their appeal to be reviewed?
- 4 Why will companies that use PCL be in a win-win situation?
- 5 What are two of the cons related to wave power?
- 6 What changes to hydroelectric power generation are we likely to see in the next 25 years?
- 7 Why is the increase in hydroelectricity generation going to harm the environment?
- 8 What does PCL see happening in the future?

### E Complete the paragraph with the correct form of the words in bold.

Clearly, the benefits to the environment of opting for solar-powered energy sources are (1) \_\_\_\_\_ because the by-products of the (2) \_\_\_\_\_ process involved in turning the sun into energy are practically non-existent. There is no dirty mining of fossil fuels and the sun is totally free. So, in terms of (3) \_\_\_\_\_, it is literally the best you can get. Then why is the sun only responsible for a mere 4% of our global energy? (4) \_\_\_\_\_, it has been criticized for its (5) \_\_\_\_\_. The ratio of energy generation versus extremely (6) \_\_\_\_\_ installation have made it an unpopular choice on a (7) \_\_\_\_\_ level. The initial investment required for a company to be totally reliant on solar energy is far from (8) \_\_\_\_\_. In fact, it could take up to 30 years to reap the benefits of saving on conventional electricity. Only someone with a ferocious (9) \_\_\_\_\_ to adopting greener practices would take this kind of risk. Yet there are enough companies vying for an (10) \_\_\_\_\_ solution to the disadvantages of solar power. One would think they would come up with the answer. Perhaps the point is that governments are not eager for a (11) \_\_\_\_\_. Since the sun is free it provides nothing for countries to (12) \_\_\_\_\_ over.

**CONSIDER  
CONVERT**

**SUSTAIN**

**HISTORY  
EFFICIENT  
COST  
COMMERCE**

**SIGNIFY**

**COMMITTED**

**INNOVATE**

**RESOLVE**

**COMPETITIVE**

### F Complete the definitions with the correct form of words in bold from the article.

- 1 \_\_\_\_\_ energy is created by using heat from the Earth's core or interior.
- 2 \_\_\_\_\_ is energy created through the pressure generated from the rise and fall of large bodies of water such as oceans.
- 3 \_\_\_\_\_ is generated using the gravitational force of falling or flowing water.
- 4 \_\_\_\_\_ is traditionally produced using the radioactive metal uranium and nuclear fission or fusion.
- 5 \_\_\_\_\_ is heat radiation from the sun converted into electricity.

### G Complete the sentences with the remaining bold words from the article.

- 1 In the wake of the Fukushima nuclear disaster, UN officials made a formal \_\_\_\_\_ for aide.
- 2 There are about 400 eco-villages worldwide which are striving to promote living that is totally \_\_\_\_\_ by not making any demands on the environment.
- 3 Fossil fuels cannot be considered a \_\_\_\_\_ resource because they will eventually be completely depleted.
- 4 Thanks to the \_\_\_\_\_ of hydroelectricity systems, it has become the fastest growing source of renewable energy.

## WRITING

**H** Complete the article with ONE word in each gap.

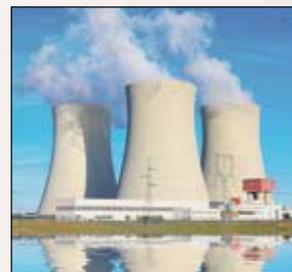
### Germany to Phase Out Nuclear Power

Germany has decided to rule (1) \_\_\_\_\_ nuclear power as a future energy source. If this move goes ahead, it will (2) \_\_\_\_\_ the first industrialized nation to have rejected it in favour of totally renewable (3) \_\_\_\_\_ sources in the future rather than relying on any kind of fossil fuels.

The move (4) \_\_\_\_\_ prompted by the Fukushima disaster in 2011 which (5) \_\_\_\_\_ to a nuclear meltdown that resulted (6) \_\_\_\_\_ a serious release of radiation into the atmosphere.

Germany's decision to abandon nuclear power comes at a (7) \_\_\_\_\_ when many nations including the US are planning to build more nuclear reactors. The Obama administration is said to (8) \_\_\_\_\_ backed a plan to build 100 reactors.

Many see nuclear power (9) \_\_\_\_\_ a way to meet the rapidly growing global demand for energy. But the benefits come at a high (10) \_\_\_\_\_ to public health and the environment. (11) \_\_\_\_\_ Fukushima has led governments and industries to re-examine the workings of nuclear reactors, nuclear power can never be truly safe. If something goes wrong, the radiation released ruins lives. Germany has (12) \_\_\_\_\_ a bold move. Let us hope that other nations will follow.



**I** Imagine you work for a newspaper. You have received this email from your editor-in-chief. Read the email and the notes attached and respond. Write 180–220 words.

MY\_MAIL

INBOX SEND TRASH

Hi Milton,

There have been a lot of articles applauding Germany's decision to ban nuclear power. I think we should publish an article saying something positive about nuclear power. France and the US are investing heavily. Anyway, even if Germany is shutting down, it will probably import energy from France to meet its energy demands. I'm attaching a few facts about the issue. Add more if you like, but will you write the article for tomorrow's issue, please?

Thanks

#### Some ideas ...

- modern nuclear plants are safer than coal burning plants; when maintained they pose no risk
- modern nuclear plants are clean and don't release greenhouse gases like other fossil fuels—this would help combat global warming
- amount of energy produced using nuclear power is far greater than any other green energy source; they also require less land; only 200–400 acres for a 1,000 megawatt plant.

**J** You are going to write an argumentative essay about whether or not nuclear power should be banned internationally. Look at the article in H and the article you wrote in I. Make a list of arguments for and against nuclear energy.

**K** Add these points to your notes in J.

- Nuclear power relies on the mining of uranium, which is not a renewable resource and will eventually run out.
- Nuclear power requires very large amounts of water for cooling. The filter systems can affect wildlife.
- Nuclear power would benefit developing nations who do not have access to reliable energy sources without expensive and damaging fossil fuels.
- The waste from nuclear power plants is not biodegradable and remains radioactive for thousands of years.
- Building nuclear reactors is a long expensive process and global warming is a problem right now.

**L** Decide whether you are for or against banning nuclear power internationally and write a one-sided argumentative essay. Use the plan to help you. Write 220–260 words.

<b>Introduction</b>	Introduce your essay with something that will catch the reader's attention and explain your aim
<b>Paragraph 1</b>	Topic sentence about ... Supporting information
<b>Paragraph 2</b>	Topic sentence about ... Supporting information
<b>Paragraph 3</b>	Topic sentence about ... Supporting information
<b>Conclusion</b>	Summarize and encourage support for your arguments

#### HOMEWORK

Complete activity L at home if necessary.

## PRE-TASK

**A** You are going to create a poster proposing greener policies for your school. Work in groups. Read the examples of greener lifestyles and decide how they are making a difference to the environment.



'I collect rainwater in a barrel and use it to water my garden.'

'I always reuse paper—for wrapping presents, drawing pictures on the back side, stuffing for packages. My daughter thinks it's fun.'

'I have a car, but I rarely use it. I find my bicycle suffices for getting me wherever I want to go.'

'My dad made openings in the roof to let in as much light as possible.'

'I can't remember the last time I read an actual newspaper. I only read news online now.'

'It's expensive, I know, but I try to buy organic—the long-term effects of pesticides on our health and on the planet are both dreadful and costly.'

**B** In your groups, discuss how these environmental measures could be transferred to your school. Are there any other aspects of running a school that are a potential strain on the environment?

**C** In your groups, think of incentives to guide your school's green policies. Write cause-and-effect sentences linking changed behaviour to greener outcomes.

*If we used online material or eBooks instead of actual books, we'd save a lot of money on paper and protect forests at the same time.*

**D** In your groups, use your ideas from A, B, and C to create a green policy for your school.

Paper consumption	
Energy use	
Waste	
Water consumption	
Electricity consumption	
Renewable energy	



## TASK

**E** In your groups, create your poster about greener policies at your school.

Rough sketch of poster

**Slogan**

**Images**

**Text**

**Others**

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## POST-TASK

**F** Now present your posters to the class. Make sure you link your green policies to the poster. As you listen, judge the posters using the criteria.

- 1 Which poster is the most attractive?
- 2 Which suggestions are most feasible?
- 3 Which ideas are the most inventive?

**G** As a class, talk about how being green could affect education in the future.