

5

Economic resources

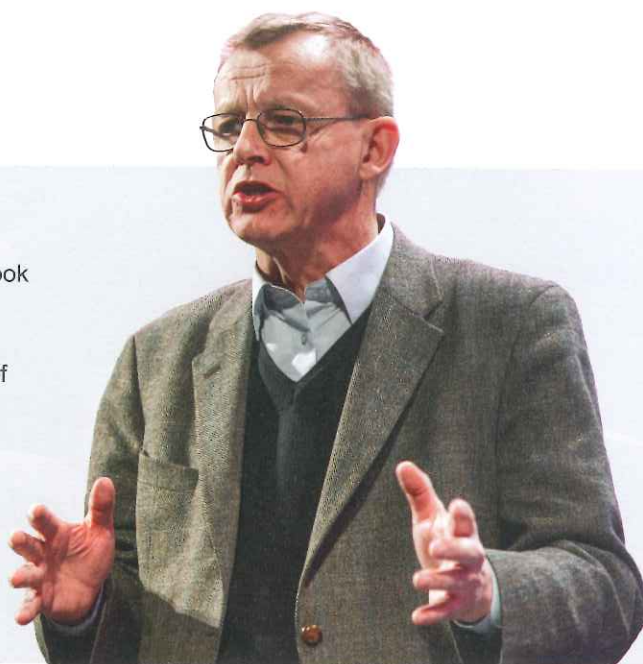


A new LED vegetable farm is unveiled in Tagajo, Japan

TED TALKS

HANS ROSLING began his career as a physician, spending many years in rural Africa tracking a rare paralytic disease. He co-founded Médecins Sans Frontières, Sweden, wrote a textbook on global health, and as a professor of International Health at the Karolinska Institutet, Stockholm, initiated key international research collaborations. He is best known for his unique style of presenting economic data. He developed this style through his non-profit organization, Gapminder, with a piece of breakthrough software, which Google purchased in 2007.

Hans Rosling's idea worth spreading is that even technology that we take for granted, such as the washing machine, is important because it frees people's time for more educational and life-changing pursuits.



BACKGROUND

- 1 You are going to watch a TED Talk by Hans Rosling called *The magic washing machine*. Read the text about the speaker and the talk. Then work in pairs and discuss the questions.

- 1 What are Hans Rosling's interests?
- 2 What enables him to give distinctive presentations?
- 3 Can you think of any other devices / machines apart from the washing machine that have freed people's time for more productive pursuits?

KEY WORDS

- 2 Read the sentences (1–6). The words in bold are used in the TED Talk. Match the words with their definitions (a–f). Then work in pairs and answer the questions.

- 1 What machines or technology are you **mesmerized** by?
 - 2 One definition of being below the **poverty line** is not being able to afford the necessities to live a healthy life. Can you think of any other definition?
 - 3 Why is it important to subject economic data to close **scrutiny**?
 - 4 Which **fossil fuel** is the most polluting?
 - 5 What do you think are the main causes of child **mortality** in the world?
 - 6 Where in the world would you find a **favela**?
- a the point at which people are considered to be poor
 - b to have your attention completely captured by something
 - c material formed from ancient plants and animals (coal, oil, gas) that are burned to produce energy
 - d the number of deaths
 - e (from the Portuguese) an area of very poor and crowded housing
 - f very close and critical examination

AUTHENTIC LISTENING SKILLS


Prediction

Thinking about what a speaker is going to say about a topic before they speak helps you as a listener in several ways:

- It gives you a reason to listen.
- You begin to think about the topic-related vocabulary that you are going to hear.
- You form ideas that may or may not be confirmed by the speaker.

These things help before you listen, but once the speaker has begun speaking, listen carefully to what they are saying. If you continue to predict while listening, it may distract from what you are actually hearing.

- 3a Work in pairs. Look at the Authentic listening skills box. You are going to watch a TED Talk called *The magic washing machine*. Write four key words related to washing clothes. Then compare your words. Did you write the same words?

- 3b  17 Work in pairs. Why do you think the invention of the washing machine was so significant? Discuss with your partner. Then listen to the introduction to Hans Rosling's talk and answer the questions.

- 1 Does Hans Rosling give or suggest the reason why the invention of the washing machine was so significant?
- 2 Did he use any of the words you wrote in Exercise 3a?

5.1 The magic washing machine

TED TALKS Watch at home

1 ▶ 5.1 Watch the TED Talk. Answer the questions.

- 1 What have been the benefits of the washing machine, according to Hans Rosling?
- 2 What conditions will be necessary for everyone in the world to have a washing machine?
- 3 What kind of energy would Hans Rosling like to see being developed?

2 ▶ 5.1 Watch the first part (0.00–4.38) of the talk again. Answer the questions.

- 1 How did Hans Rosling's grandmother wash clothes in the past?
- 2 How does Hans Rosling define the world's richest and poorest in terms of daily spending?
- 3 What are the four categories by which Hans Rosling differentiates the world's population? What are the 'lines' that separate them?
- 4 According to Rosling, at the time of this talk how many people were still without a washing machine?
- 5 How does he describe the work of washing clothes by hand?
- 6 How many of his students don't use a car? And a washing machine?

3 ▶ 5.1 Watch the second part (4.38–6.40) of the talk again. Complete the sentences with the statistics Hans Rosling shares.

- Total number of people in the world: ¹ _____
- Total number of fossil-fuel energy units consumed: ² _____
- The richest ³ _____ people use ⁴ _____ units (⁵ _____ of the total energy).
- The people with washing machines use ⁶ _____ units (of energy).
- The 'bulb' people use ⁷ _____ unit per billion people.
- The ⁸ _____ billion poorest people use only one unit.
- By the year ⁹ _____ the population of the lowest category will grow; they have ¹⁰ _____ children because of high child mortality.
- At the same time because of economic growth, the two lowest categories will each ¹¹ _____ their energy use.
- Overall, energy use will increase to ¹² _____ units.

- 4 ▶ 5.1 Watch the third part (6.40 to the end) of the talk again. Are the sentences true (T) or false (F), according to Hans Rosling?

- 1 People in more developed economies need to advise the less developed countries how to be more energy-efficient.
- 2 Dilma Rousseff widened access to electricity in Rio de Janeiro in Brazil.
- 3 Dilma Rousseff's policies on energy helped her to become president of Brazil.
- 4 With the new free time available to her, Hans Rosling's mother was able to educate herself.
- 5 According to Hans Rosling, we should feel grateful for heavy industry – energy, steel, chemical processing, etc.

VOCABULARY IN CONTEXT

- 5 ▶ 5.2 Watch the clips from the TED Talk. Choose the correct meaning of the words and phrases.
- 6 ▶ 5.3 Watch the clips from the talk. Complete the collocations. Then discuss your answers.
- 7 Complete the sentences in your own words. Then compare your sentences with a partner.
- 1 You have to be a hardcore environmentalist to ...
 - 2 A lot of my fellow students ...
 - 3 ... is a very time-consuming activity.
 - 4 There's a high probability that ...

CRITICAL THINKING Reading between the lines

- 8 It is important when listening to an argument to think about what is implied as well as what is explicitly said. Work in pairs. Which of these views do you think were implied by Hans Rosling in his talk?
- 1 Technology is a wonderful thing.
 - 2 Restricting energy consumption in developing countries will restrict their progress.
 - 3 Overpopulation will be a serious problem in 30–40 years' time.
- 9 Read these comments* about the TED Talk. Do you agree with the inferences the viewers have drawn from Hans Rosling's talk? Why? / Why not?

Viewers' comments

- H Hannah – I think Hans Rosling is saying that we must not judge people in developing countries if they use machines which pollute, because they just want a better life and what people in the developed world already have. He chose the example of the washing machine, because it is a necessary, not a wasteful, use of energy.

- R Rama – Hans Rosling wants us to see that technological progress and education are strongly linked. It is true that machines give us more time. It is how we choose to use that time that is important. I think the point he is making is that we should use this time to educate ourselves as he and his mother did. He is kind of implying too that we often use the time we gain with machines to pursue less productive activities.

*The comments were created for this activity.

PRESENTATION SKILLS Presenting statistics

- 10 Work in pairs. How can statistics help you to present your ideas? What are the dangers in presenting a lot of statistics in a talk? How can these risks be minimized?
- 11 Look at the Presentation tips box. Compare your answers from Exercise 10 with the ideas in the box.

TIPS

Be strategic about visuals (e.g. charts, diagrams and pictures) that present statistics. Don't overuse them or you will overload your audience with information. Use visuals selectively and make sure each visual is bright, clear, simple and easily comprehensible. For example:

- a single sentence stating a striking statistic
- a graph or chart that shows a clear trend or deviation from a trend
- an infographic that illustrates data with icons or images
- an arresting photo that backs up a statistic you have given

If you are using a graph or infographic to explain a dynamic situation, try to make the visual itself dynamic so that it changes as you describe the development, rather than using a sequence of slides. The audience may remember the development better that way.

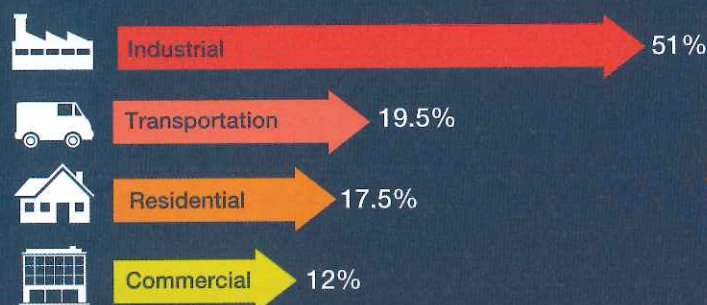
- 12 ▶ 5.4 Watch the clip from the TED Talk. Which of the techniques in the Presentation tips box does Hans Rosling use? Are they effective?
- 13 Work in pairs. Turn to page 175 and look at the information.
- Discuss how you would present the information in a dynamic slide.
 - Make a sketch of your slide. Use the ideas in the Presentation tips box to help you.
 - Write a few sentences to explain the idea.
 - Practise presenting the idea with the slide.
- 14 Work with a new partner. Take turns to present the idea and the slide. Did you have similar ideas?

5.2 Energy-hungry world

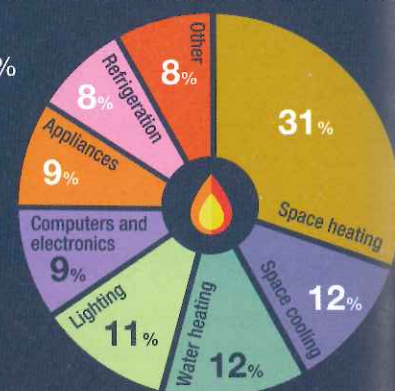
ENERGY: WHO'S USING WHAT?



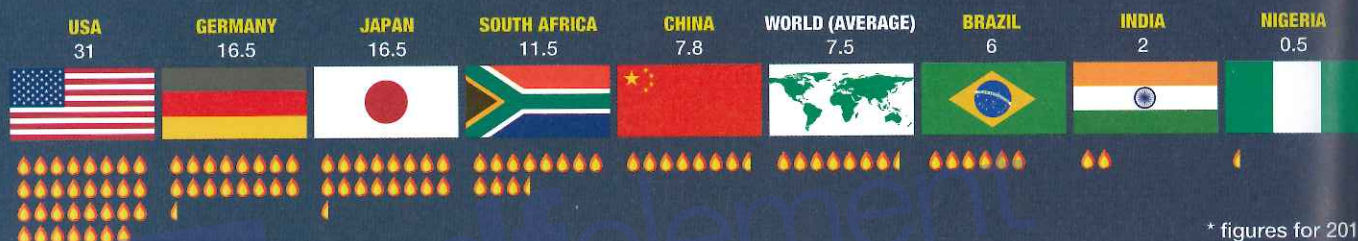
% of total energy use



% breakdown of residential energy



In 10 million British thermal units (Btu) per person per year*



* figures for 2011

GRAMMAR Passive forms

1 Work in pairs. Discuss the questions.

- Compared to other people in the world, do you think your energy use is above or below average?
- How do you consume this energy: at home, getting around, in the products you buy, or some other way?

2 Look at the infographic and answer the questions. Do the facts surprise you? Why? / Why not?

- Which country uses the most energy per person? And the least?
- Which sector is the biggest user of energy? And the smallest?
- What are the three largest uses of energy in the home?
- What proportion of a household's energy is used by household appliances and electronic devices?

3 18 Listen to an energy expert speaking about the statistics in the infographic. What reasons does she give for the following?

- the level of energy consumption in the USA
- transport being a big issue for the future
- people not doing more to save energy in their homes

4 Read the sentences (1–7) in the Grammar box. Answer the questions (a–c).

PASSIVE FORMS

- The disparity in energy use between different countries **is linked** to their level of economic development.
- In the United States much more energy **is being consumed** by each person.
- American energy consumption **could be reduced** if greater priority **was given** to energy efficiency.
- I'm confident that efforts **will be made** in this direction, particularly by industry.
- People in developing countries **have been restricted** by the cost up to now.
- The main area which needs **to be addressed** is heating and cooling.
- The solution is relatively cheap and simple. It just means homes **being insulated** properly.

- What tense or form of the verb is used in each passive verb in bold?
- Which sentences specify the agent of the action, and who or what is it?
- In the other sentences, why is the agent not mentioned?

Check your answers on page 150 and do Exercises 1–2.

5 Rewrite the sentences as passive sentences. Decide if the agent needs to be mentioned or not.

- Experts expect electricity consumption to double by 2050.
- Coal power plants generate 25 per cent of the world's electricity.
- If we are to reduce CO₂ emissions, we need to find alternatives to fossil fuels.
- Whoever first used a sailing boat discovered wind power – probably around 5,000 years ago.
- If scientists can find a solution to the problem of electricity storage, wind power will be more practical.
- People could save a lot of energy if they were more careful about switching off lights and appliances.
- The use of smart appliances, like intelligent fridges, will reduce energy consumption in future.
- It wouldn't surprise me at all if people were still discussing these issues in thirty years' time.

6 Choose the most appropriate option (active or passive) to complete the text.

¹ Millions of homes across Europe could be powered by African sunshine / African sunshine could power millions of homes across Europe by 2020 under a new \$12bn plan to build a giant solar farm in the Sahara Desert. ² The electricity generated by the farm will be shipped / Operators will ship the electricity generated by the farm to Europe through an undersea cable which will stretch 450 km from the coast of Tunisia to Italy. From there ³ it would be distributed / they would distribute it across the electricity network to various European countries as far as the UK. The farm, which ⁴ is known / people know as the TuNur farm, will be made up of thousands of computer-controlled mirrors that track the sun and ⁵ the light is reflected / reflect the light back towards a central tower. Here, ⁶ pipes filled with salt are heated / the light heats pipes filled with salt. ⁷ This salt is used / They use this salt in turn to heat water, creating steam that drives a turbine and generates electricity.



LANGUAGE FOCUS Nominalization in passive sentences

7 Read the sentences (1–2) in the box. Answer the questions (a–b).

- American energy consumption could be reduced if people prioritized energy efficiency more.
- American energy consumption could be reduced if greater priority was given to energy efficiency.

- In sentence 2, which verb from sentence 1 has been nominalized (changed to a noun)?
- What other changes have been made?

See page 151 for more information about nominalization in passive sentences, and do Exercise 3.

8 Rewrite the sentences as passive sentences using nominalization. Think about the verb that is needed with each new noun. You may also need to make other changes.

- They have **agreed** on the main points, but not the details.
- They **decided** to restrict CO₂ emissions from large industries.
- They are **researching** the consequences of each possible scenario.
- They will **confirm** the results after further tests.
- We have **arranged** for him to be met at the airport.
- No one **explained** why there was a delay.
- They **legislated** to ban the burning of coal in people's homes.
- We will **assist** people with their energy costs.

WRITING AND SPEAKING Headline news

9 21st CENTURY OUTCOMES

Work in pairs. Complete the headlines below in your own words. Then choose one headline and write, in brief, the story behind it. Use passive verbs where appropriate.

- CAR DEVELOPED WHICH CAN RUN ON** _____
- £10,000 ELECTRICITY BILL RUN UP BY FAMILY WHO** _____
- NEW** _____ **SAVES ENERGY BY** _____
- HEATING THE PERSON NOT THE ROOM**
- POLITICIAN COMMUTES TO WORK BY** _____ **TO HIGHLIGHT ENERGY CRISIS**
- MILLIONS SAVED BY COUNCIL ON STREET LIGHTING BY** _____

10 Work with a new partner. Take turns to tell your news stories. Ask and answer questions about each story.

5.3 Land for all

READING Land – a fairer system

- 1 Work in pairs. Look at the online comment. Then answer the questions.

'I have a question. It might seem childish to some, but please think about it anyway. Why do we have to pay to live on our own planet?'

- 1 Is there any good answer to this question?
 - 2 Do people in your country generally rent or own their homes?
 - 3 Is property and land seen as a good investment?
- 2 Complete the definitions. Use one word per space.
- 1 **speculator** someone who risks losses for the possibility of big _____
 - 2 **creditor** someone who _____ money to another person
 - 3 **asset** something which a person or organization _____
 - 4 **commodity** everyday things which are bought and _____
- 3 Read the article. According to the author, what is the fundamental problem with the current system of land ownership?
- 4 Read the article again. Are the sentences true (T) or false (F)?
- 1 The 2008 global financial crash was caused by people speculating in land.
 - 2 The author implies that a similar problem could not happen again.
 - 3 According to Julius Nyerere, landowners profit from the hard work of other people.
 - 4 The author implies that with LVT, the amount of tax you pay will increase if the value of the land increases.
 - 5 People who run a business from a particular piece of land will pay more LVT than those who just live there.
 - 6 LVT is not popular with people who are looking to buy land or property for the first time.
- 5 Work in pairs. Find the words in bold in the text. Discuss what the words mean. Then answer the questions.
- 1 What other examples can you give of a) basic **amenities** and b) non-basic public **amenities** in a town? (line 2)
 - 2 If everyone made a **dash** for the exit, how would they be leaving? (line 4)
 - 3 What parts of the body do you use when you are **crawling**? Who normally gets around in this way? (line 8)
 - 4 What responsibilities are **inherent** in owning a property, rather than renting it? (line 11)
 - 5 If an employer rewarded an employee for their **diligence**, what would they be rewarding exactly? (line 35)
 - 6 What **constitutes** lazy behaviour? (line 46)

VOCABULARY Economics

- 6 Read three people's accounts of their economic situation. Complete the phrases in bold using the verbs given. Then discuss with your partner what each phrase means.

1 A company manager's perspective

cut expand go pay off take on

'Things are pretty good at the moment – particularly if I think back two years ago when I thought we might ¹ _____ **bankrupt**. But since the government ² _____ **interest rates** last May, we have been able to ³ _____ some of our **debts**. We've also managed to ⁴ _____ our **operations** and even ⁵ _____ a few more **employees**.'

2 An employee's perspective

coming investing making rising

'It's still quite difficult ¹ _____ **ends meet**. I know officially we are supposed to be ² _____ **out of recession**, but we're not feeling it round here. Youth **unemployment is** ³ _____ in our area because no one seems to be ⁴ _____ **in youth training** or apprenticeships.'

3 A politician's perspective

demanding enjoying going setting
stifling turning

'I think we are slowly ¹ _____ **the economy around**. Manufacturing is ² _____ **a boom** at the moment and more people are ³ _____ **up their own businesses** than ever before. People just need to be patient. I'd urge them to avoid ⁴ _____ **higher salaries** or ⁵ _____ **on strike** or generally ⁶ _____ **the recovery**.'

SPEAKING Economic prospects

7 21st CENTURY OUTCOMES

Work in pairs. Look at the economic problems (1–4). Think of a solution for each problem. Then discuss the advantages and disadvantages of each solution.

Problems

- 1 Youth unemployment
 - 2 Weak consumer confidence (people are not spending their money)
 - 3 The government cannot pay for the growing number of pensioners
 - 4 Parents cannot afford to stay at home and look after young children
- 8 Work with another pair. Compare your answers from Exercise 7. Which solutions did you like?

LAND – A FAIRER SYSTEM



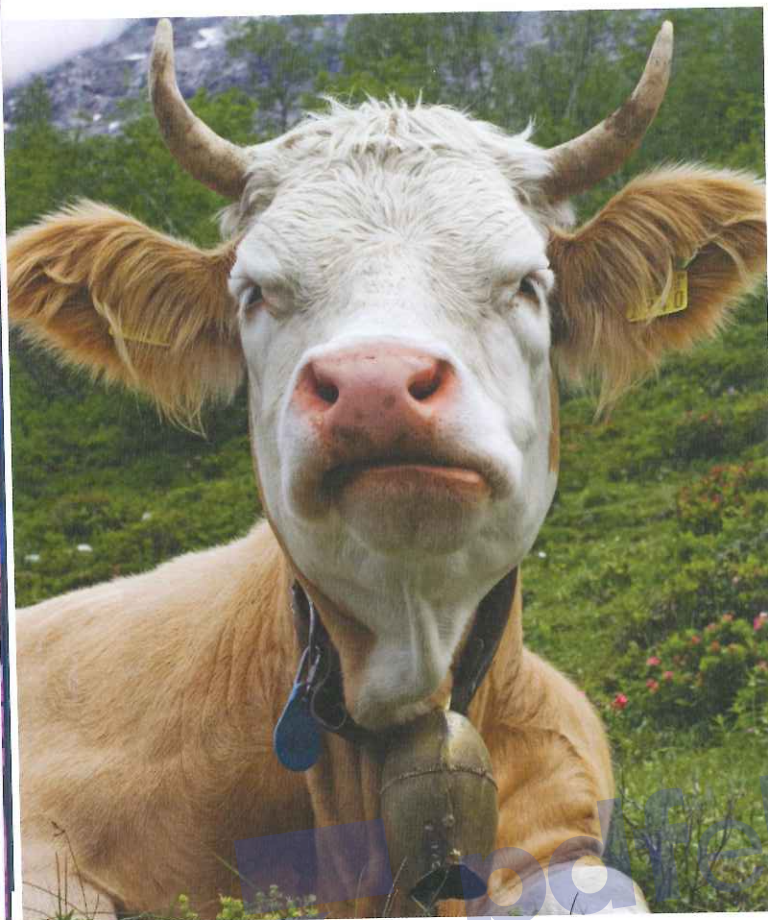
Land – a place to live. Surely it is the most basic of all human amenities. Yet it has also become the principal tool by which people acquire and pass on wealth. The global financial crash of 2008 was precipitated by a credit-fuelled dash for land and property. All over the USA and western Europe people became speculators in land, borrowing vast sums to cash in on rising values until the bubble burst, leaving their creditors, the banks, to go crawling to governments, and us, the tax-payers, to bail them out. Even though the effects of this crash are still being felt today, we seem not to have learned from it. The problems inherent in land as a marketable commodity are still the same as Tanzania's Julius Nyerere described them in his 1967 manifesto, *Ujamaa*.

'The African's right to land was simply the right to use it: he had no other right to it ... The foreigner introduced ... the concept of land as a marketable commodity. According to this system, a person could claim a piece of land as his own private property whether he intended to use it or not. I could take a few square miles of land, call them "mine", and then go off to the moon. All I had to do to gain a living from "my" land was to charge a rent to the people who wanted to use it. If this piece of land was in an urban area, I had no need to develop it at all; I could leave it to the fools who were prepared to develop all the other pieces of land surrounding "my" piece, and in doing so automatically to raise the market value of mine. Then I could come down from the moon and demand that these fools pay me the high value of "my" land ...!'

Yet there is a simple solution: a Land Value Tax (LVT). An LVT is a tax on the unimproved value of land, that is to say it is levied not on the value of a property but on the value of the land that the property sits on. Without an LVT, it is possible to buy a piece of land in an undeveloped area and wait for that area to be developed by the government or by the community around you. Through no diligence or hard work of your own, that land will become more valuable by the addition of infrastructure and services – transport connections, schools, shops, etc. A Land Value Tax seeks to collect payment from you on what economists call the 'unearned betterment' of your asset – the part that has nothing to do with your actions as an owner and everything to do with the actions of the community. So if the value of the land is improved by the community, the amount of tax you pay will increase. Should you develop the land yourself, on the other hand, by building or improving a house or running a business from that site, you will not be taxed on those elements, since they constitute productive activity. If, however, you do nothing productive with it, you will pay the LVT regardless. In this way, an LVT discourages idle speculation.

The economists Adam Smith and Milton Friedman both noted the efficiency of a Land Value Tax and it has been implemented in a few countries, such as Denmark, Singapore and Russia. Winston Churchill was also a fan, stating that 'land differs from all other sorts of property'. So why is it not more popular? The main reason, as with many things, is short-term and political. Introducing an LVT would impose fairly heavy costs on today's landowners, who would face a new tax bill and a reduced sale price. The benefit to future generations, however, would be enormous.

5.4 I can well believe that



Fact or hearsay?

Finding out the true state of the environment and the world's resources isn't easy. Information abounds, but it is often difficult to know whether you are reading objective data or unverified facts that are being used to promote a particular agenda or argument. We are also easily persuaded by what we *want* to hear (perhaps you feel that too much is made of environmental problems or perhaps that they're not taken seriously enough). Look at these statements. Which do you think are accurate?

- 1 There is enough food in the world to feed everyone.
- 2 We are the last generation that will harvest wild fish from the seas.
- 3 A cow in Europe receives twice as much income as a lot of people living in Africa.
- 4 Only a very small percentage of the world's CO₂ is produced by human activity.
- 5 The Amazon Rainforest is the world's lung, producing nearly half its oxygen.
- 6 Deforestation is taking place at a rate of an area equivalent to three football fields every hour.

READING Fact or hearsay?

- 1 Work in pairs. How careful are you about checking the information you read on the Internet? How can you tell whether what you are reading is reliable or not?
- 2 Read the extract from an article. Which of the six statements (1–6) in the extract do you think are (probably) true (PT) and which are (probably) false (PF)? Check your answers on page 175.

LISTENING Discussing facts and beliefs

- 3 19 Listen to a conversation between two friends. Answer the questions.
 - 1 Which of the statements in the extract in Exercise 2 are the two friends discussing?
 - 2 What argument does the first speaker use the statement to support?
 - 3 What is the second speaker's view of this statement and argument?
- 4 19 Look at the expressions in the Useful language box. Do the expressions express belief or disbelief? Write True (T), Probably true (PT), False (F) or probably false (PF). Then listen to the conversation again and tick (✓) the expressions the speakers use.

EXPRESSING BELIEF AND DISBELIEF

I very much doubt that.
 I'd be very surprised if that was / were the case.
 That doesn't surprise me in the least.
 I think they've got that spot on.
 That's a common misconception.
 That's nonsense.
 I suspect that's true.
 That's an old wives' tale.
 That's what ... would have you believe.
 I'd take it / that with a (big) pinch of salt.
 I can well believe that.
 I'd have some reservations about that.

Pronunciation Silent letters

- 5 20 In the word *doubt*, 'b' is a silent letter. Look at these words and underline the silent letter. Then listen and check your answers.

architect	biscuit	condemn	guilty
receipt	resign	sandwich	scissors
subtle	thumb	whistle	

SPEAKING Expressing belief and disbelief

- 6 Work in pairs. Look at the statements and the supporting notes. Prepare to present these ideas.

Student A

- 1 When you are lost, looking at a tree can tell you which direction to go in.
- 2 Being lonely in old age is as bad for your health as smoking fifteen cigarettes a day.

Look at the supporting notes on page 175.

Student B

- 1 Using an automatic dishwasher is more environmentally friendly than washing dishes by hand.
- 2 Eating carrots helps you see in the dark.

Look at the supporting notes on page 176.

- 7 Take turns to present your ideas and ask questions about your partner's ideas. Use the expressions in the Useful language box to help you express belief and disbelief. Begin like this: 'Did you know that ...?'

WRITING A newspaper report

- 8 Read the newspaper report. Answer the questions.

- 1 What has happened?
- 2 Where and when did it happen?
- 3 Who was involved?
- 4 Why did they do this?
- 5 How did they do this?

- 9 A good newspaper report should give the key facts (what, who, where, when, why and how) to the reader as soon as possible. Did the report do this? In what order were these questions answered?

Breakthrough in energy transmission

The dream of generating solar power in space, where the supply is endless, and transmitting it back to Earth may be a step closer to becoming reality. In an experiment that is believed to be the first of its kind, Japanese scientists managed this week to transmit energy wirelessly.

Researchers at the Japan Aerospace Exploration Agency (JAXA) used microwaves to deliver 1.8 kW of electric power to a small receiver 55 metres away. Although this is a modest amount of energy, enough only to power a small iron, it is hoped that the breakthrough could pave the way for larger-scale and longer distance transmissions in future. JAXA

Writing skill Passive reporting verbs

- 10a Look at the example of a passive reporting verb from the report. Find two other examples of passive reporting verbs in the report. Then answer the questions (1–2).

*In an experiment that **is believed to be** the first of its kind, ...*

- 1 Why does the writer use passive reporting verbs rather than active verbs?
- 2 What are the types of subject a passive reporting verb can have?

See page 151 for more information about passive reporting verbs, and do Exercise 4.

- 10b Write sentences with passive reporting verbs. Use the verbs in brackets.

- 1 The technology originated in the USA. (think)
- 2 They are currently working on a larger-scale version. (say)
- 3 They are about to launch a prototype in the next few months. (report)
- 4 There have been several unsuccessful attempts to replicate the results. (believe)
- 5 The technology will transform the way energy is generated. (hope)

11 21st CENTURY OUTCOMES

Write a short newspaper report using an event that has been in the news recently. Remember to follow the principles of the five Ws and the H questions. Write 150–200 words.

- 12 Work in pairs. Exchange your reports. Use these questions to check your partner's report.

- Does the report include all the facts?
- Does it answer the five Ws and the H questions as quickly as possible?
- Does it use passive reporting verbs where appropriate?

already uses solar energy to power its satellites in space, but has no way of transmitting the energy back to Earth.

The technology is of particular interest in Japan, which now imports large amounts of coal and oil to produce electricity, having been forced to close down nuclear plants after the Fukushima disaster. Other Japanese companies, such as Mitsubishi, are known to be working on similar technology, which could have other useful applications, such as transmitting power to remote areas of the country, or charging electric vehicles from a distance.