

Unit 4 Innovation

An artist's impression of the Shweeb urban transport system of the future



FEATURES

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What drives new discoveries

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The art of origami engineering

50 The shoe giver

The story of a successful social entrepreneur

54 Ethical Ocean

A video about a social enterprise

1 **1.19** Work in pairs. Look at the picture and caption and discuss how this transport system works and what its advantages are. Then listen to an extract from *Science Today* and check your answers.

2 **1.19** Complete the summary using one word in each space. Then listen to the radio programme again and check.

The original idea for putting a bicycle on ¹ so that it could run more ² appeared in the 1800s. The idea was updated by a company called Shweeb for an ³ park. ⁴ have now invested money to develop it into an urban transport system. Drivers sit in pods hanging from a monorail, and ⁵ while almost lying down. They travel ⁶ the traffic. It is a solution with many advantages: it is green, convenient, cheap and ⁷

3 Match the two halves of the collocations. Discuss what they mean.

- | | |
|------------|-------------------------------|
| 1 have | a a need |
| 2 make | b a breakthrough |
| 3 spot | c (an idea) one stage further |
| 4 take | d a bright idea |
| 5 fill | e the wheel |
| 6 reinvent | f a trend |

4 Work in groups. Each describe an innovation or invention from the last 100 years. Which innovation had more impact?

4a The mother of invention

Listening

- 1 Work in pairs. Look at the saying below. Discuss what it means and if it is always true.

“Necessity is the mother of invention.”

- 2 Look at the photo and the caption. What adjectives would you use to describe this invention? What other inventions have you seen that fit that description?

- 3 1.20 Listen to an interview about what inspires inventions. Choose the statement that best summarises the speaker's view.
- a Most inventions are an answer to an urgent need.
 - b Most inventions are things that we didn't imagine we needed until we became used to them.
 - c Most inventions come from companies who want to make a commercial profit.

- 4 1.20 Listen to the interview again and choose the correct option to complete the sentences.

- 1 People in their teens or twenties probably can't imagine *doing research / following the news* without the Internet.
- 2 Martha Kay is a *business woman / an academic*.
- 3 A British parliamentary committee said the telephone was *too expensive / of little use*.
- 4 The presenter uses the telephone as an example of a case where a need was *filled / didn't exist before*.
- 5 Most innovations make our lives *richer / easier*.
- 6 The presenter suggests that women in the 1960s liked *going out to shop / staying in the house*.
- 7 The mobile phone and the computer are examples of innovations that were *very expensive at first / seen as unnecessary*.
- 8 *Literary Digest* predicted that the motor car would *remain a luxury / go out of fashion*.

- 5 What fact or point of view did you find most interesting? Why? Discuss with your partner.



Charles Steinlauf's invention: a four-position bicycle which also contains a built-in sewing machine

Vocabulary phrasal verb *come*

- 6 Look at the sentences from the interview (1–3) which use phrasal verbs with *come*. Choose the correct meaning (a–c). Then do the same for the other phrasal verbs (4–6).
- 1 But how do such inventions **come about**?
a succeed b happen c work
 - 2 Entrepreneurs often **come up with** ideas that will make our lives a little more convenient ...
a think of b ignore c search for
 - 3 What it **comes down to** in the end is wants rather than needs.
a relies on b emphasises c is a question of
 - 4 A researcher **came across** the material for sticking post-it notes when looking for a new kind of glue.
a thought of b found by chance c stole
 - 5 People's early experiments with flying didn't really **come off**.
a succeed b get noticed
c get taken seriously
 - 6 Perrelet was so respected that when other watchmakers **came up against** a problem, they would consult him.
a solved b encountered c analysed
- 7 Work in pairs. Write three sentences using the phrasal verbs in Exercise 6. Then read your sentences to your partner omitting the verb and see if they can guess the missing verb.

Language focus past modals

- 8 Look at the sentences from the interview (1–4) which use past modal verbs. Match each sentence with the function of the modal verb (a–d).
- 1 It's difficult to imagine what life **must have been** like before the invention of certain things.
 - 2 In 1878, a British parliamentary committee **had to comment** on the usefulness of the telephone.
 - 3 Perhaps they **should have been** more open-minded.
 - 4 But in 1878 people **didn't need to have** phones.
- a to talk about obligation
b to talk about necessity / lack of necessity
c to speculate about the past
d to say what was advisable/inadvisable

PAST MODALS

Obligation

They had to patent the product before trying to sell it.

Necessity

They needed to have a way to communicate more quickly.

They didn't need to / have to make the instructions very complicated.

They needn't have made the instructions so complicated.

Speculation

He must have realised it was an important discovery.

He may/might/could have wanted to keep it a secret.

It can't/couldn't have been easy to convince people of the idea.

Advisability

They should have included more safety features.


They ought to have tested it properly first.

Note: *needn't have done* means it wasn't necessary but they did it anyway; with *didn't need to do* we don't know if they did it or not.


For further information and practice, see page 160.

- 9 Look at the language box and complete the sentences using past modals. Sometimes more than one answer is possible.
- 1 Before cars were invented, it (not / be) easy to take your family for a weekend outing.
 - 2 In the 1940s, people (not / own) a television, because they could get news and entertainment from their radios.
 - 3 Before satellite navigation in cars, people (depend) on a passenger for directions.
 - 4 Some people (drive) with the steering wheel in one hand and a map in the other.
 - 5 I (buy) this microwave oven. I never use it.
 - 6 Before we all had digital cameras, it (be) expensive to keep buying film for your camera.
 - 7 The electric spaghetti fork is a useless invention. The inventor really (bother).
 - 8 The inventor of 'cats eyes' in the road (be given) a medal. They have saved so many lives.
 - 9 When James Watt invented the steam engine, he (realise) that the railway locomotive would follow.
 - 10 Who knows what inventions people like Leonardo da Vinci (come) up with if they had had modern technology!

10 Pronunciation weak forms

- a  1.21 Circle the weak forms (not stressed) in these phrases using past modals. Then listen and check.

- 1 You should have told me.
- 2 Did you have to wait?
- 3 He must have forgotten.
- 4 You needn't have worried.
- 5 She may have left already.
- 6 I didn't need to be there.

- b  1.22 Work in pairs. Listen to how these phrases are pronounced and underline the stressed words. What is the difference in meaning in each one?

- 1 a You might have told me.
b You might have told me.
- 2 a You shouldn't have waited.
b Flowers? Oh, you shouldn't have.

- 11 Work in groups. Use past modals to speculate on the answers to these questions.

How did people:

- wake up in time before there were alarm clocks?
- keep money safe before savings banks existed?
- amuse themselves in the evenings without electricity?
- deal with pains and aches without medicines?
- contact each other in an emergency before the telephone existed?
- light candles before matches were invented?
- find out if bones were broken before x-rays existed?

Speaking

- 12 Work in pairs. Think of two commonly used inventions: one that you couldn't live without and one that you find unnecessary. Discuss the inventions with your partner and the reasons why you chose them.

4b Fold everything

Reading

- 1 Look at the picture of a horse made using origami, the traditional Japanese art of paper folding. Answer the questions.
 - 1 Do you do any kind of hand crafts? What are they?
 - 2 Have you ever tried origami? What did you make?
- 2 Work in pairs. What are the basic principles of origami? Are these sentences true (T) or false (F)? Read the first paragraph of the article and check your answers.
 - 1 You need more than one piece of paper.
 - 2 The paper should be square.
 - 3 You mustn't use scissors.
 - 4 Sometimes you need to use glue.

- 3 Read the rest of the article and find the following.

- 1 two things used in space exploration that are folded using origami techniques
- 2 two origami-inspired devices that help to save lives
- 3 a use of origami that seems like a fantasy
- 4 a use of origami that can make machines more powerful

Fold EVERYTHING

Almost certainly you have at one time in your life practised origami, even if it was just making a paper aeroplane. Perhaps it was something more sophisticated like a paper crane. The chances are that as you did it, you reflected on how ingenious this traditional Japanese art is. Animals, boxes, flowers, boats – all can be created from a single square or rectangular sheet of paper simply by folding it – no cutting, no pasting.

But did you ever stop to think how the same techniques might be applied to engineer equipment that could be of real practical use? In fact, origami-inspired creations have already flown in space; in 1995, Japanese engineers launched a satellite with solar panels that folded like a map. And very soon origami engineering may well be seen in a host of other applications.

'It's now mathematically proven that you can pretty much fold anything,' says physicist Robert J. Lang, who quit his engineering job in California eight years ago to fold things full-time. Lang, an origami enthusiast since the age of six, advised a well-known car manufacturer on the best way to fold an airbag into a dashboard. He is currently working on a space telescope lens that, if all goes to plan, should be able to unfold to the size of a football pitch.

At the other end of the scale, researchers are also working on tiny folding devices that could lead to breakthroughs in medicine and computing. These include origami stents that are inserted into arteries and open up to keep the blood flowing. Computers of the future are likely to contain tiny, folded motors or capacitors, which will mean faster processing and better memory storage.



There's no doubt that saving space has become important in our world, as the search for ever smaller electronic components shows. But origami also meets the demand for things which need to be small when transported and large when they arrive, like the everyday umbrella.

Applications for origami engineering go further than many of us might imagine. 'Some day,' says MIT's* Erik Demaine, 'we'll build reconfigurable robots that can fold on their own from one thing into another,' like Transformers. Too much like science fiction to be true? Maybe; though you certainly wouldn't bet against it.

* MIT = Massachusetts Institute of Technology

crane (n) /kreɪn/ a large bird with long legs
ingenious (adj) /ɪn'dʒiːniəs/ very clever
stent (n) /stent/ a thin rod used in medicine to support a cavity in the body

4 Work in pairs. Explain the following terms and expressions from the article.

- 1 How is a paper crane 'more sophisticated' than an aeroplane? (para 1)
- 2 What is meant by 'applications'? (para 2)
- 3 What 'plan' is referred to in the phrase 'if all goes to plan'? (para 3)
- 4 What scale is referred to in the phrase 'At the other end of the scale'? (para 4)
- 5 What does 'it' mean in the phrase 'you wouldn't bet against it'? (para 6)

▶ WORDBUILDING past participles as adjectives

We often use past participles as adjectives.
a well-**known** car manufacturer, tiny **folded** motors
In a few cases, the adjective form is different from the past participle.
*It has been **proved**. A **proven** method.*

For further information and practice, see Workbook page 35.

Idioms partitives

5 Compare these two expressions. Which expression means 'some' or 'a piece of' and which means 'a small piece'?

- 1 a **sheet** of paper
- 2 a **scrap** of paper

6 Look at the partitive expressions in bold and say which mean 'some' and which 'a small piece or amount'.

- 1 I'm really thirsty. I haven't had a **drop** of water all day.
- 2 It was a **stroke** of luck getting those tickets. They were the last two available.
- 3 There's not a **shred** of evidence to suggest that there is life on other planets.
- 4 The latest figures offer a **glimmer** of hope that the recession is coming to an end.
- 5 She had a **flash** of inspiration. Why not use the principles of origami to make foldable furniture?
- 6 There was a **hint** of disappointment in his voice, but he took the news very well.

Language focus probability

7 Work in pairs. How many examples of the following can you find in the article? Compare your answers with your partner.

- 1 phrases that say something is possible
- 2 phrases that say something is probable
- 3 phrases that say something is more or less sure

Example:

- 1 *Perhaps it was ... (paragraph 1)*

8 Look at the sentences and say whether they use a verb, an adverb, an adjective or a noun phrase to express probability. Is there any difference in meaning or register between them?

- 1 He probably won't come with us.
- 2 It's unlikely that he'll come with us.
- 3 He may (well) not come with us.
- 4 The chances are that he won't come with us.

▶ PROBABILITY

Modal verbs

may/could/might; should

Origami may (well) be the answer.

The telescope should help us to explore the universe.

Adverbs

perhaps; maybe; probably; almost certainly

Perhaps one day they will invent foldable robots.

The adjective (un)likely

It's (un)likely that this technology will be used in computers.

This technology is (un)likely to be used in computers.

Noun phrases

The likelihood is; The chances are; There is a good chance

The chances are that it will be used in robot design.

Note: *should* is not used for the probability of something bad happening.

For further information and practice, see page 161.

9 Look at the language box. Then rewrite the sentences in the text using the words given.

The grocery shopping bag of the future ¹will perhaps be made of steel (could). The folding steel bag, invented by Dr Zhong You from Oxford University, ²will probably inspire other packaging solutions too (likely to). Flat-pack boxes used by industry these days have to be fastened at the bottom. But with Dr You's origami design ³you can make boxes with a fixed base (possible). ⁴This is likely to save industry a lot of time and money (should).

Dr You thinks that if this process works for steel, ⁵it will probably work for a range of other materials (the chances). Origami engineers hope that ⁶one day perhaps it will be possible to build houses from flat-pack materials (might). In ten years' time, ⁷it's very possible that we will be folding away our kitchen counters or table (may well). ⁸The likelihood is that we won't have foldable TVs or cars (unlikely), but who knows?

Speaking

10 Work in pairs. Think of three more ideas for how origami methods could be used to help save space in the modern home. Then present your ideas to another pair.

4c The shoe giver

Reading

- 1 Read the definition of *social entrepreneurship* and say which of the examples (a–c) fit the definition and why. How would you describe the other operations?

Social entrepreneurship is the art of creating a socially responsible business that aims to generate profit while solving social and environmental problems.

- An organisation which collects food near its sell-by date from supermarkets and distributes it free to homeless people.
 - An organisation which sells gardening services to companies. The people it employs are all long-term unemployed people who get training, work experience and a small salary.
 - An organisation that collects old clothes that people are throwing out and recycles the material to make new clothes which it sells.
- 2 Read the article on page 51. In what ways does TOMS fit the definition of social entrepreneurship given in Exercise 1? Why? / Why not?
- 3 Read the article again. Are the sentences true (T) or false (F)?
- Mycoskie's early career was characterised by establishing and then selling companies.
 - Mycoskie immediately saw the Argentinian children's shoe problem as another business challenge.
 - The main advantage of the one-for-one scheme is that each child is given one pair of shoes.
 - Podioconiosis is a disease that affects children in developed countries as much as in developing countries.
 - The author suggests that, in business, energy and enthusiasm are as important as knowledge.
 - Any business could profit from making a similar one-for-one offer to its customers.

Critical thinking finding counter arguments

- 4 The author presents a positive picture of TOMS, but there are suggestions that there are also arguments against the initiative. Find possible criticisms in the text in these areas.
- the price and quality of the product
 - buying shoes as a way of giving to charity
 - the business model

- 5 Work in pairs. Compare your answers from Exercise 4. Then write some questions for Blake Mycoskie that would challenge him on these points.

Word focus give

- 6 Work in pairs. Find these expressions with *give* in the article and discuss what they mean.

give it a break give it some thought

- 7 Complete the expressions with *give* using these words. Discuss what each expression means.

best break go go ahead thought time

- There's no need to tell me your answer now. **Give it some** and then let me know.
 - Don't worry if you don't win: just **give it your**
 - I wasn't actually expecting him to like our business proposal, but he **gave us the**
 - Give him a** He's only been doing the job two months. He can't be expected to know everything.
 - It's difficult to be in a new environment, but **give it some** and you'll feel more at home.
 - The only way to find out if you can mend it yourself is to **give it a**
- 8 Match these expressions with a similar expression from Exercise 7.

a chance consideration the green light
a try a while your all

Speaking

- 9 Work in pairs. You are going to act out an interview between a journalist for an ecology magazine and Blake Mycoskie. Take turns to play the roles of interviewer (the journalist) and interviewee (Blake Mycoskie). Think about the questions that were raised about the shoe-giving initiative in Exercise 5.

Student A: You are the journalist. Focus on the possible problems with the one-for-one shoe giving business and ask questions that test Mycoskie to defend it.

Student B: You are Blake Mycoskie. Defend your business and its philosophy.

Blake Mycoskie is a self-confessed serial entrepreneur. He set up his first business, EZ Laundry, a door-to-door laundry service for students, when he was still at college. Having grown the company to service seven colleges in the south-west of the USA, he sold his share to his business partner and moved on to a media advertising business in Nashville. This again he sold on to Clear Channel, one of the industry's leading companies.

Three more businesses later, still only 29 years old, and feeling a bit 'burned out' from work, Mycoskie decided to give it a break for a while and headed down to Argentina for some rest and relaxation. But rest isn't really part of an entrepreneur's make-up. It's in their nature to keep having good business ideas, and it wasn't long before Mycoskie had hit upon the one that would come to define him as a social entrepreneur.

On a visit to a village outside Buenos Aires, he was shocked to see that many of the children didn't have any shoes or, if they did, the shoes were ill-fitting and badly worn. Since shoes – particularly the local farmers' canvas shoe, the algarparta – can be bought relatively cheaply in Argentina, Mycoskie's first instinct was to set up a charity to donate shoes to the children. But after giving it some thought, he realised that this was not a model that would work. One pair of shoes per child would not make that much difference, because they wear out. And if he asked people to donate repeatedly – to provide new shoes for the same child every six months – the donors' sympathy for the cause might also wear out pretty quickly.

Instead he came up with the idea of 'TOMS: one-for-one shoes'. He would take the algarparta to America, manufacture it and sell it as a high end fashion item at around US\$50 a pair. (A pair of similar shoes with a well-known brand name costs around \$30.) For each pair he sold he would donate one pair to shoeless village children. That way he could guarantee a continual supply. Also, rather than running a charity – something he had no real experience of – he could run the project as a business.

Several years on, the business is thriving, supplying shoes not only to children in Argentina but also other

parts of the world where foot diseases are a problem. In southern Ethiopia, a high concentration of silicone in the soil can cause podoconiosis, a disease which severely swells the feet. The shocking appearance of the disease means sufferers are often ostracised from society. 300,000 people in Ethiopia suffer from it simply because they have no shoes. The same silicone-rich soil exists in parts of France and Hawaii, where people wear shoes and are not affected.

Mycoskie had no experience of manufacturing – let alone shoe manufacturing – but he understood that he had to learn fast. For the first eighteen months, by his own admission, he made 'a poor job of making shoes', but since then he has brought in help from people with experience in the industry. The vital element that Mycoskie added was his own passion. It is a passion he wants others to share with him. One criticism of initiatives like TOMS is that the money spent by customers might otherwise have been used to make direct charitable donations. So Mycoskie encourages his customers to become more involved with TOMS by inviting them to volunteer to hand-deliver the shoes to the children in need. It's an intimate giving experience and he hopes it might inspire some of the volunteers to develop similar projects.

But is the one-for-one model one that can be repeated with other products? Mycoskie is doubtful. TOMS is a for-profit business, but does not yet make a profit. He says one-for-one is not an offer that you can just add to your existing business model; you have to build it in from the beginning.

Some would also argue that the charity aspect is just a marketing tool, but in the end does that matter? TOMS is making a real difference to poor children all over the world and Mycoskie is enjoying being an entrepreneur more than ever.

make-up (n) /meɪk ʌp/ composition, character
ostracise (v) /'ɒstrəsaɪz/ to refuse to allow someone to take part in a social group
self-confessed (adj) /self-kən'fest/ the person admits this themselves
swell (v) /swel/ to grow larger

The shoe giver



Changing a life begins with a single step

4d An elevator pitch

Real life making a short pitch

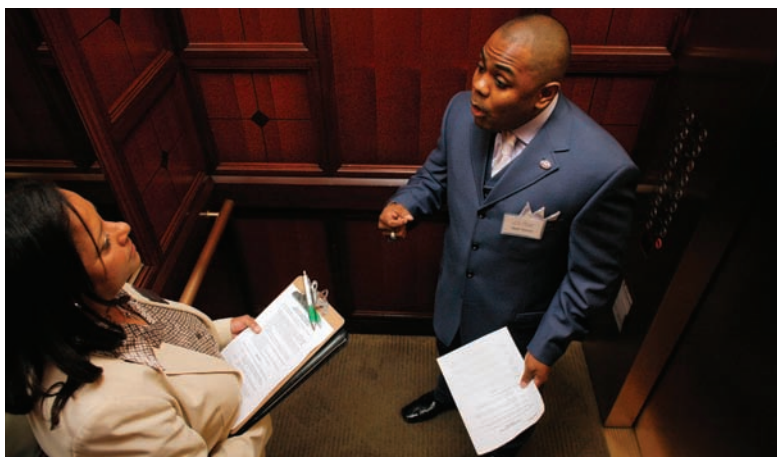
- 1 Work in pairs. Look at the advice about public speaking. Discuss with your partner what it means.
Be sincere, be brief, be seated.
Franklin D. Roosevelt, former US President
- 2 Do you know what an elevator pitch is? Read the text quickly. Then cover the page and summarise the key points.

The principle of an elevator pitch is really like that of a TV commercial. You're trying to sell an idea to someone whose attention you have for a limited amount of time – 30 seconds to a minute before they get out of the elevator. Just as with a TV commercial, the idea is to get the person in front of you interested enough to come back and have another look. So the key things to convey are:

- the problem that your idea solves
- the uniqueness or freshness of your idea

That's all. It's not about selling yourself at this point – talking about your own achievements and experience – and it's not about criticising the competition.

- 3 You are going to listen to a business proposal based on the idea of doing voluntary work in the local community. Before you listen, discuss the questions with your partner.
 - 1 What motivates people to do voluntary work?
 - 2 What kind of things might people volunteer to do?
- 4 **1.23** Listen to the proposal and answer the questions.
 - 1 What is the unique idea that the speaker describes?
 - 2 What problem(s) does it solve?
 - 3 What phrases does the speaker repeat often?



5 Speaking skill using rhetorical questions

1.23 Listen to the box. The speaker used rhetorical questions. Listen again and tick (✓) the phrases you hear. Then try to recall what he said directly after each question.

▶ USING RHETORICAL QUESTIONS

What is it?	'So what?' I hear you say.
How does it work?	Isn't it going to be expensive?
Why is it necessary?	So, how do we achieve this?
What does it do exactly?	What's our ambition for ...?

6 Pronunciation long and short vowels

a **1.24** Work in pairs. Listen to the questions in the box and say if the stressed syllables in these words contain a long or short vowel sound. Then practise saying them.

is work necessary do what expensive
achieve ambition

b Underline the word in each pair that contains a long vowel sound. Then practise saying the words.

- | | | | |
|------------|----------|---------------|----------|
| 1 look | loop | 5 bottle | both |
| 2 scheme | skim | 6 interactive | internal |
| 3 father | fatter | 7 forward | foreign |
| 4 training | treasure | | |

7 Work in groups of three. You are each going to present your own elevator pitch for a new social enterprise. Follow the steps below.

Student A: Turn to page 153 and read the notes.

Student B: Turn to page 154 and read the notes.

Student C: Turn to page 155 and read the notes.

- Prepare your pitch carefully. Use the guidelines in Exercise 2 and the language in the box to help with the structure.
- Speak for no more than a minute.
- Write down the main message of each pitch and at the end compare your answers.
- Vote on who you think gave the most persuasive pitch.

4e Volunteer planner

Writing describing how things work

- 1** Work in pairs. Read the description of 'Volunteer Planner', a phone app to encourage volunteering in the community. Answer the questions.
- Who is this description written for?
 - Which of the adjectives best describe this piece of writing?
a friendly b factual c technical d analytical

Volunteer Planner

Overview

Volunteer Planner is an easy-to-use tool that makes volunteering simpler. The application can be downloaded from the website www.volunteero.com and set up quickly: in five minutes or less. It consists of two main components: a database of volunteers and organisations; and the planner itself.

The database

For each geographical area, there is a register or database of both volunteers and organisations.

For each volunteer, details are listed of:

- their general availability e.g. one afternoon per week
- their contact number
- a brief description of qualifications (e.g. driving licence) and skills

For each organisation, details are given of:

- the type of activity and skills needed
- any special conditions relating to the work
- its precise location

The planner

The planner allows volunteers and organisations to fill slots for volunteers in a real time calendar through their smart phones. When a volunteer enters their name in a slot, the organisation is alerted automatically by a text message, inviting them to confirm the offer. By selecting 'accept' on the calendar, the organisation automatically sends confirmation to the volunteer. If the volunteer is forced to cancel this slot at a later date, they select 'cancel' on the calendar. A message is then sent automatically to the organisation; it is also sent to all the other volunteers who are eligible to work for it, inviting them to fill the slot.

- 2** How is the description organised to make it easier for the reader to follow? Did you find these features helpful?

3 Writing skill punctuation

- a** Find examples of these punctuation marks in the description of 'Volunteer Planner'.

- colon :
- semi-colon ;
- dash –

- b** Match the punctuation marks in Exercise 3a (a–c) with their correct uses (1–5).

- to separate items in lists where commas would be confusing
- to explain the idea in a preceding clause or sentence
- in place of parentheses () to give extra information
- to introduce a list
- to separate two very strongly connected ideas

- c** Punctuate this passage correctly. Use a colon, two semi-colons and two dashes.

The three good reasons to use the Volunteer Planner are to help you to plan your volunteering to help the organisation and this is our sincere hope to increase the number of volunteers.

- 4** Write a description of how something works for a potential investor. Use the idea that you presented in Exercise 7 on page 52 or another idea. Remember to organise your description using subheadings and bullet points.

- 5** Exchange descriptions with your partner. Use these questions to check your descriptions.

- Have they written a clear, factual description?
- Have they organised the description using subheadings and bullet points?
- Have they used punctuation correctly?

4f Ethical Ocean



Ethical Ocean, a social enterprise

own
WHAT'S

good



ethical ocean TM

Before you watch

- 1 Work in pairs. What does a *social entrepreneur* do? Discuss with your partner.
- 2 David Damberger is a social entrepreneur and winner of a scholarship at the Skoll Centre for Social Entrepreneurship in Oxford. Look at the photo. What kind of activities do you think *Ethical Ocean* is involved with? Discuss with your partner.

While you watch

- 3 Watch the interview and check your ideas from Exercise 2.
- 4 Read these sentences about David Damberger's background. Then watch the first part of the video (to 01.23) and choose the correct option to complete the sentences.
 - 1 David Damberger is from *Canada / Colorado*.
 - 2 He helped start an enterprise called *Engineers Without Borders / With Ideas*.
 - 3 Their idea was to help people in poor countries to improve *walls / wells* or bridges.
 - 4 They realised that the problem was not a lack of technology or *engineers / know-how*.
 - 5 The problem was *too much bureaucracy / a lack of business ability*.
- 5 Watch the second part of the video (01.24 to 02.06). Complete the table about *Ethical Ocean*.

1	Type of business:	An e-..... for ethical goods
2	Description:	A one-..... shop for everything ethical
3	Categories of goods:, fair trade, friendly, sweat-shop labour
4	Product range:	clothing,, home products

- 6 Watch the third part of the video (02.07 to 03.12). Look at these words and listen to how *Ethical Ocean* ensures the companies on the site are ethical. Then summarise this to your partner.
 - 1 certification 2 story 3 vote
- 7 Watch the fourth part of the video (03.13 to end) and answer the questions.
 - 1 What category do the majority of products on the website fall into?
.....
 - 2 What particularly successful product does David Damberger mention?
.....
 - 3 What are the advantages of this product?
.....

- 8 Work in groups. Discuss what you think of David Damberger's social enterprise idea, *Ethical Ocean*.

After you watch

- 9 Work in pairs. Look at these products and the list of ethical criteria (a–g). Which criteria are relevant to each product? Which do you actually consider when buying these products?

car clothes cosmetics electronic equipment
fruit and vegetables furniture stationery toys

- a Are the materials used from sustainable sources?
- b Was a lot of energy consumed to make this product?
- c Where has it been transported from?
- d Did the maker have good working conditions?
- e Did the maker receive a fair proportion of the selling price?
- f If it is a food product, is it organic (grown without the use of chemicals)?
- g Will the product biodegrade or be recycled when it is finished with?

10 Roleplay a product pitch

Work in pairs.

Student A: Imagine you are a representative from a company who is going to pitch a product to *Ethical Ocean* to sell through their website. Look at these points and prepare your pitch.

- think what your product is
- think about what its ethical credentials are
- prepare to sell its benefits

Student B: Imagine you are a representative from *Ethical Ocean*. Look at these points and prepare your questions.

- think about the questions you will ask (price, ethical criteria, product benefits, etc.)

Act out the conversation. Then change roles and act out the conversation again with a different product.

accessory (n) /ək'sesəri/ an extra, supplementary item
bunch (n) /bʌntʃ/ a group
credentials (n) /krə'denʃlɪz/ qualifications, proof of a thing's suitability
detergent (n) /dɪ'tɛ:dʒənt/ washing powder or liquid
naively (adv) /nə'i:vli/ making a judgment that's too simple because you lack experience
sweat shop (n) /'swet ʃɒp/ a workplace where people work for very low wages

UNIT 4 REVIEW

Grammar

1 Read the article and complete it with these words.

chances could likelihood likely might
must need probably should unlikely

2 Answer the questions according to the author.

- 1 What is the problem with most innovations?
- 2 What is the answer to our future energy needs?
- 3 Is the writer optimistic or pessimistic about finding alternative ways of generating power?



What is the ¹ that in fifteen years' time we will still be burning fossil fuels like coal and gas and driving petrol-powered cars? Looking at the progress that has been made with alternative forms of energy, the ² are pretty high. The problem with innovation, especially green innovation, is that each time you think you ³ have found the answer, you also find a catch. Wind turbines only work when the wind blows. The inventors ⁴ have realised that, surely? Hydrogen is a clean alternative to petrol, but it is highly explosive and when the first accident happens, there is ⁵ to be a strong public reaction against it.

The real innovation in energy ⁶ will not come from a new means of power generation, but in how the energy network is organised. Advances in IT mean that rather than connecting big power stations to a network that delivers electricity to homes, factories and public buildings, in the future all these places ⁷ be able to generate small amounts of energy, which they ⁸ either use themselves or put back into the network for others to use. The question is: can we make that change? Some say that because it is not in the interest of big business, it is ⁹ to happen any time soon. But look what happened to the music business. We didn't ¹⁰ to change from a system of buying CDs to sharing music online. But that is what happened.

3 Work in pairs. Are you optimistic about finding a different way to manage our energy needs? Why?

I CAN

- express obligation and necessity, speculate and give advice in the past (past modals)
- talk about the probability of things happening

Vocabulary

4 Complete the idiomatic expressions. The first letter has been given for you.

- 1 I'm not expecting you to produce an idea right now. Just give it some t..... and see what you come u..... with.
- 2 There's not a s..... of evidence to suggest that this is going to work, but you can give it a g..... anyway.
- 3 I came a..... some old plans for an extension to the house. It was a real s..... of luck, because I was about to employ an architect to do some drawings.
- 4 For a long time they were making no progress. Then Natalia had a f..... of inspiration and suggested using hydrogen. It was then that they made the b..... .
- 5 I don't really understand how the invention of the television came a..... . It didn't really f..... a particular need that people had.

5 Work in pairs. Have you ever had any experiences of the following? Discuss with your partner.

- an idea which needed some thought
- a flash of inspiration
- a stroke of luck
- an invention that didn't fill a particular need

I CAN

- use idioms
- talk about inventions and innovations

Real life

6 Look at the statements from a short product pitch. Write a rhetorical question before each one.

- 1? It's a vacuum cleaner that can clean any type of floor surface.
- 2? Because there's no other machine that can perform all these functions.
- 3? At the base, there's a rotary brush which cleans as it sucks up the dirt.
- 4? Despite its sophistication, we're hoping to keep the cost down.
- 5? By making it in China, where manufacturing costs are much lower.

7 Work in pairs. Think of a product that you use frequently. Present it to your partner as if it was a new product. Use at least three rhetorical questions.

I CAN

- give a short presentation for a new product
- use rhetorical questions in a presentation

Speaking

8 Work in pairs. Discuss what device or technological gadget would most improve your life.