Theme 5

Technology

- **What is technology?**
- **Uses of technology**
- **Low-tech technology**
- **Technology and the environment**

Listening: What is technology?

Objectives

By the end of the lesson, students should be able to:

• show understanding of common core knowledge – definition of technology, low and high-tech items, technological systems, materials and tools;

• show understanding of a talk containing target vocabulary, grammar and sub-skills from the theme;

• use critical thinking skills to analyze technological items.

Introduction

Write the question for the section on the board: *What is technology?*

Point out the spelling of the word *technology* and practise the pronunciation.

Ask students if they can think of any other words beginning with *tech~*:

technologist
technological
technician
technique
technical
technicolour.

A Problem solving

1. Refer students to the visuals. Ask one or two questions about the photos, for example:
   When was the telegraph/Biro/canning invented?
   Have you ever seen a telegraph transmitter?
   Have you ever worn a wet suit?
   Which is better – a plastic chair or a wooden one? Why?
   Now ask students to discuss the question in pairs. After a couple of minutes, elicit ideas.

2. Set the task. Monitor, then elicit answers. Accept any reasonable explanations.

Answers

1. They all involve technology – further explanation given in listening activity.
2. Students may have other answers but possible pairs are:
   Wet suit, carpet on a loom/woven fabric = materials, high and low-tech

Telegraph transmitter, mobile phone = messages, communication
Biro, laptop = writing
Table, chair = materials/furniture
Cans, can opener = machines/devices, food technology
Water pump, tap = system

B Predicting content

1. Focus students' attention on the notice. Give them a minute or two to read the information. Ask one or two questions to check understanding: *Who is the guest speaker? What's her job? When is the talk?* etc. Students discuss the question in B1 briefly. Elicit answers.

2. Ask students to discuss the question *What is technology?* in pairs. After a couple of minutes, elicit ideas but do not confirm or correct. Hopefully students will begin to realize that technology is not only about computers and mobile phones.

Answers

1. Research and development departments are responsible for new ideas in design, products and style. They also improve existing products. They work closely with the marketing department because they must find out about customer needs.
2. Technology is something which solves a problem or makes life easier for us.

C Understanding signposts

Tell students they are going to listen to a short introduction to Fiona's talk. Give students time to read the items in the box. Set the task. Check students understand they must do two things: select the items, then number them.
Play 🔊 5.1. Students compare answers in pairs. Elicit answers. Play the introduction again.

Answers

big numbers	
a definition of technology	1
computers	
problems with technology	3
technological systems	2

Transcript

Introduction
Voice: Let me start with an amazing fact. There are more than one billion computers in the world today. One billion. That is a big number and the number alone shows you the importance of technology nowadays. But technology is not only about computers. In this talk, I'm going to tell you about some of the different and fantastic ways we can use technology.
First, I'm going to give you a definition of technology. Next, I will talk about a problem, and I'll explain the system that solves the problem. Systems are very important in technology. Finally, we'll look briefly at a few problems with technology.

D Checking ideas

1. You might want to pre-teach the following words: *wire, plug, (water) pipe*.
   Set the task. You could suggest that students tick off the items in the photos as the speaker mentions them. Play 🔘 **5.2**. Students compare answers in pairs. Elicit answers. Ask students if they can remember the sentence or any information about the item mentioned.

2. Students discuss the task in pairs. Elicit which of the students' previous ideas were correct. If students are not sure or can't remember, play the CD again. Ask the key question again (*What is technology?*) and elicit the answer given for B2 above. Tell students they should remember this answer.

Note: Underlines in Transcript 5.2 refer to suggested closure task.

Answers
1. mobile phone, tap, pump, Biro, laptop, wet suit
2. See answers for A, B, and C above.

Transcript

Voice: So, what is technology? Well, as I said, many people think that technology is about electronic equipment, like computers and mobile phones. They think that technology must have a wire and a plug. But in fact, technology is much bigger than that. It is all around us. And, another interesting point, technology is not new.

Technology has many forms, but it always does the same thing. It solves a problem and makes life easier for us. Let's take a simple example – water. We all need water every day. In the past, people went to a river to get water. Sometimes they walked a long way. So people spent most of their time on a basic, but necessary, task. There was little time left for anything else. Unfortunately, even today in some developing countries, this same problem continues. But nowadays, in the developed world, we simply turn on a tap in our kitchen or bathroom and water flows. But how does the water get from the river to the tap?

Firstly, there is a pump. It lifts the water out of the river. Secondly, there are pipes. They carry the water to the houses. There are many pumps in the pipes to move the water uphill. Finally, there is a tap, a tool to control the flow of water from the pipe. The pipes, the pumps, the taps – these are the technology in a water system. This technology makes everyday life a lot better. And gives us more time for work and leisure.

So technology gives us water in our homes, hot water as well as cold nowadays, whenever we want it, wherever we want it. But, of course, technologists improve many other areas of life. They produce wonderful new inventions for work, for studying, for business and also for entertainment and sport. Even our clothes and our food need technology to bring the products to our shops and supermarkets.

Technology gives us tools, from low-tech simple ones, such as a Biro, to the latest high-tech laptop computer. Technology is also responsible for many special materials for clothes such as wet suits, for furniture, for buildings and for cars.

E Showing comprehension
Set the task. Explain that 'machine' can also be a tool or simple device. Students discuss in pairs. Elicit answers giving help with pronunciation where necessary.

Answers
A simple machine: a carpet loom, a can opener, a water pump, a tap, a telegraph transmitter, a Biro
Part of a system: a water pump, a tap, a telegraph transmitter
A material: a plastic chair, a wooden table, a wet suit, a woollen carpet

F Transferring information to the real world
Discuss one or two of the items with the class as examples. Give help with language where necessary and put possible phrases on the board for students to use:
This item / tool / machine / material solves the problem of + -ing
A (laptop) solves (data and communication) problems.
Alternatively you could allow students to discuss in L1 if you feel the explanations are above their level of English.
Allow students a few minutes to discuss ideas in pairs or groups then elicit ideas. Ask students to write some of the ideas down.

Answers

Answers depend on students, but here are some examples:

Can opener: this tool solves the problem of opening cans.

Mobile phone: this device solves many communication problems.

Wet suit: this material solves the problem of getting cold in the water.

G Developing critical thinking

Ask students to give more examples of low tech machines and systems and write on the board as follows:

A simple machine: a pair of glasses, a key or lock, a potato peeler

Part of a system: an electricity pylon, a road, a printer, etc.

Closure

Ask students to look at the transcript on page 203. Play 🔘 **5.2** again with students following the transcript. Ask students to find and underline words from the vocabulary box (see transcript 5.2 above). Check understanding of a few of the other words, e.g., *task, control, invention*.

5.2 Learning new listening skills: Signpost phrases; past or present?

Objectives

By the end of the lesson, students should be able to:

• use strategies for recognizing multi-syllable words in a talk;

• recognize some common signpost words and phrases;

• understand and recognize a range of quantifiers for countable and uncountable nouns.

Introduction

Write the question *What is technology?* on the board. Can students remember the answer? (It is something, for example, a machine or system, which solves a problem or makes life easier for us.)

Spend a few minutes revising the vocabulary from the last lesson, especially *low-tech* and *high-tech*. Ask for examples of items in each of these categories.

A Reviewing vocabulary

1. Focus students on the photos. Elicit some of the vocabulary: earth, pylon, etc. Check pronunciation of some of the words, e.g., plough, /p l aʊ/ scarf, windmill, wardrobe. Check that students understand the task. Use the board to highlight the grammar used in the example:

   a (thing) + is used + for+ -ing

   You don't need to explain that *is used* is a passive verb – encourage students to learn it as a phrase, or 'lexical chunk'.

   Drill the example sentence. Elicit one or two more sentences and drill them.

   Ask students to think of further sentences in pairs. Monitor and give help with vocabulary where necessary.

   Finally ask students to write the sentences for consolidation.

2. Check students understand the task and go over the example. Revise the vocabulary, referring back to the previous lesson if necessary.

   Students make further sentences in pairs. After a few minutes, elicit answers. Drill the sentences. Finally, ask students to write the sentences for consolidation.

Optional activity

Alternatively, say sentences about the photos. Students must listen and say if it is true or false. Students should correct false sentences, e.g., photo 2:

T: A windmill is a high-tech machine.

Ss: False. A windmill is a low-tech machine.

Combine the two exercises in the following way in order to give slightly more extended speaking practice.

Students use the two sentence patterns to describe the photos, e.g., *The plough is a simple machine. It is used for turning over the earth.* This can be done as an oral activity in pairs or set for written work.

Answers

1. a plough	a low-tech machine	turning over the earth
2. a windmill	a low-tech machine	making flour
3. a scarf	a type of material	keeping you warm
4. a factory robot	a high-tech machine	making, e.g., cars
5. a wardrobe	a piece of furniture	storing clothes
6. electricity supply	a system	bringing electricity to a town

B **Applying new vocabulary**
Set the task. Students can look back at the items from the previous lesson for ideas or think of their own items to describe. The task can be done orally or in writing.

Optional activity
Divide the class into pairs. S1 describes an item using two sentences. S2 guesses the item. Then swap roles.
S1: It's a low-tech machine. It's used for making carpets.
S2: It's a loom.
S1: Yes, that's right.

Answers
Answers depend on students.

C **Predicting pronunciation (1)**
Note: Avoid practising pronunciation of the words in Exercises A and B until students have completed Exercise D (stressed syllables).
1. Give students time to read through the information in the Pronunciation Check 1 box. Check understanding.
2. Divide the class into pairs and set the task. Students should know all the words in the box but quickly revise them if necessary. Students decide the number of syllables for each word in the box. Say the words for students to check their ideas. Elicit answers.

Answers
See Exercise D below.

D **Predicting pronunciation (2)**
1. Set the task. Give students time to read the information in the Pronunciation Check 2 box then elicit the answer.
2. Set the task. Students work in pairs. Say the words in the box again so that students can check their answers. Practise pronunciation of each word, making sure students stress the correct syllable each time.
Finally, ask students to recap or summarize the information in the two Pronunciation Check boxes.

Optional activity
Write some of the longer words from the talk in the previous lesson on the board in random order. Elicit the number of syllables in each word and the stressed syllable. Ask students to say the words 'in their heads' a few times. Allow a couple of minutes' silence for this.
Play ◉ **5.2** again and ask students to listen out for the long words. Ask them to raise their hand as soon as they hear one of the words. Pause the CD and ask students to tell you which one it was.

Answers
Number of syllables in brackets, ✓ = word which follows the 80% rule
'necessary (4)
communi'cation (5)   ✓
e'quipment (3)   ✓
enter'tainment (4)   ✓
fan'tastic (3)   ✓
im'portance (3)   ✓
in'vention [3]   ✓
ma'terial (4)
tech'nologist (4)
un'fortunately (5)

E **Identifying a new skill (1)**
Note: For many students this will be revision so you probably do not need to spend too much time here.
1/2. Ask students to discuss the activities in pairs. Do not elicit answers.
3. Elicit answers when students have finished reading Skills Check 1. Summarize the activity by explaining that these phrases will help students to follow the information in a talk. You can also point out that the phrases are also used to organize information in a written text.

Answers
1. Firstly
2. Secondly
3. Next
4. Finally

F Identifying a new skill (2)

1. Give students a minute or two to read the question and the phrases in the table, then elicit ideas but do not confirm or correct.

2. Students check their answers by reading Skills Check 2. Elicit the answer to F1 above. Give further explanation of the information in the box if necessary, however the following activities will help deepen students' understanding.

3. Students complete individually, then compare answers in pairs. Elicit answers and tell students they will see further examples in the next activity.

Answers
1./2. They are all signpost phrases which link back to a previous piece of information.
3.

In fact	3	a problem
Let's take	4	a result
Unfortunately	2	an example
So	1	an interesting point
Of course	5	an obvious result

G Recognizing signpost words

1. Remind students about the talk they listened to in the previous lesson. Ask two or three students to tell you what they learned from the talk. Explain that they are going to listen to the next part of the talk. This is about the advantages and disadvantages of technology. Ask students to read the talk, without completing the spaces.

2. Now ask students to complete the task individually. After a couple of minutes, students compare answers in pairs. Do not elicit.

3. Play ⊚ **5.3** so that students can check their answers independently. Go over any problem areas.

4. Elicit the advantages and disadvantages and see if students can add any of their own.

Answers
2./3. See underlined words in transcript 5.3.
4.
Advantages
make life better
share information
save time
store data
more creative
Disadvantages
lose data
kills relationships
lonely
hacking

Transcript

Presenter: Track 5.3
Voice: The aim of technology is to make life better for humans. Let's take communication technology. Firstly, it helps us to share information more easily and save time. Secondly, we can store a large amount of data easily and cheaply. Finally, we can use tools to be more creative, like drawing programs in computers. But unfortunately, technology can also make life worse. For example, it's very easy to lose electronic data. And some people say that over-using technology kills relationships. In fact, it can make people isolated and lonely. And, of course, electronic devices can be hacked. Criminals can get your data or they can get control of your computer. But we don't need less technology to protect people in the information age. We need more technology.

H Identifying a new skill 3

1. Set the task. Students complete individually then discuss in pairs. Elicit answers.

2. Students discuss the question in pairs. Do not elicit.

3. Give students time to read Skills Check 3. Check understanding and, if necessary, quickly revise countable and uncountable nouns.
Give students two minutes to study the example sentences in the Skills Check box again. Then ask them to cover the box. Elicit the example sentences, insisting on accuracy. Use written prompts on the board if necessary. Drill some of the sentences.

Answers
1. Finally, we'll look briefly at a *few* problems with technology.
2. *Many* people think that technology is about electronic equipment.
3. But in fact, technology is *much* bigger than that.

The connection between the three words is that they are all quantifiers.

Using quantifiers

1. Set the task. Students complete individually then compare answers in pairs.

2. Play 🎧 **5.4** so that students can check their answers. Drill the correct sentences if you wish.

Transcript and Answers

Presenter: Track 5.4
Voice: a. Technology has many forms.
b. There was little time left for anything else.
c. There are many pumps in the pipes.
d. This technology makes everyday life a lot better.
e. We don't need less technology.
f. We need more technology.

Closure
Try playing a game based on stressed syllables. Say the stressed syllable only of a word from the section. Students say the complete word. For example:
T: pu /p ɹ uː/
Ss: computer
T: ca /k eɪ/
Ss: communication
T: no /n ɒ/
Ss: technology

Workbook answers

Listening

Answers depend on students.

a. system
b. hacked
c. communication
d. passwords
e. cyber
f. Wireless
g. network
h. backed up
See also the transcript for Track 51 on pages 120–121 of the Workbook.

1. Answers depend on students, but possible answers are:
   a. Equipment is a group of things needed for a purpose. A device is a piece of equipment.
   b. Electronic means having electric components. Electrical is connected with electricity.
   c. An invention is the result of an idea.
   d. A tool is used directly by people. A robot is programmed.
   e. Information is data that carries a meaning.
   f. A computer is a type of machine.
   g. The internet is a network of computers and connections. It is hardware. The web is software such as programs. The web uses the internet.
   h. To update is to change part of a system or program. To install means putting the program in.
   i. Software is about programs. Hardware is about machines.
   j. High-tech involves using modern machines and methods. Low-tech involves more basic ideas.
   k. Safe means away from harm. Secure means protected in some way.

2./3. a. equipment (3), device (2)
      b. electronic (4), electrical ((4)
      c. invention (3), idea (2)
      d. tool (1), robot (2)
      e. information (4), data (2)
      f. machine (2), computer (3)
      g. internet (3), web (1)
      h. update (2), install (2)
      i. software (2), hardware (2)
      j. high-tech (2), low-tech (2)
      k. safe (1), secure (2)

Answers depend on students.

has, does, solves, makes, take, need, went, walked, spent, was, continues, turn on, flows, does, get
See also the transcript for Track 53 on page 121 of the Workbook.

Practice

Exercise A

1. Answers depend on students.
2. communicate   communication
   define   definition
   develop   development
   entertain   entertainment
   equip   equipment
   improve   improvement
   inform   information
   invent   invention
   produce   production
   solve   solution
3. *-tion*, *-ment*

Exercise B

communication	10
definition	3
development	1
entertainment	2
equipment	5
improvement	6
information	7
invention	8
production	9
solution	4

Exercise C

1.

A	T	O	T	R	O	P	J	N	W	E	I
N	F	E	E	C	C	M	L	O	A	F	M
L	E	S	C	F	S	O	I	E	D	F	P
J	M	A	H	H	D	T	O	X	V	I	O
S	A	F	N	Z	N	D	Y	P	I	C	R
W	C	E	O	R	A	O	E	U	C	I	T
Q	H	T	L	M	C	Z	L	V	E	E	A
Q	I	Y	O	E	V	E	G	O	I	N	N
V	N	G	G	M	E	K	Y	W	G	C	C
R	E	L	I	A	B	I	L	I	T	Y	E
Z	R	F	S	T	O	J	V	E	D	H	Y
O	Y	L	T	C	O	M	P	U	T	E	R

2. *-ology*, *-ance*, *-ability*, *-iency*, *-ty*, *-ice*, *-ogist*, *-er*

Exercise D

Possible answers:
1. A road is part of a transport system.
2. A wireless mouse is a type of computer device.
3. A hammer is a low-tech tool.
4. Cotton is a natural material.
5. A sari is a piece of clothing.
6. Polyurethane is a type of high-tech material.
7. A pump is a low-tech machine.
8. Secondary schools are a part of the education system.
9. A motorbike helmet is a piece of safety equipment.
10. A pencil is a type of tool for writing.

Exercise E

1. • controlling the cursor on a computer: a wireless mouse
   • making bags for food and other items: polyurethane
   • moving water: a pump
   • protecting your body: a motorbike helmet
   • writing and drawing: a pencil
2. 1. umbrella
   2. safety goggles
   3. flash drive
   4. traffic lights
   5. thermos flask
3./4. Answers depend on students.

Extended listening

Exercise A

Answers depend on students.

Exercise B

1. a. The Dark World of Cyber Crime
   b. Answers depend on students, but 'dark' suggests hidden or bad.
   c. Because they all need to work together to beat computer crime.
2. 4

Exercise C

Topic	Notes
Hackers	What? – someone looking for a way into a comp. system Why? – test security, fun, protest, to steal money or data Type of crimes: – theft of money or data

Reasons for increase in C crime	1. Improvements = slow
	   criminals = fast
	2. tech'gists = v. big task
	   criminals – 1 small way in
	3. systems = complicated
	   so criminals = more opportunity

Prevention	1. passwords: strongest = 3
	   random words
	2. update antivirus software,
	   install software updates imm'ly
	3. train staff in safe procedures:
	   emails, internet, mobile devices
	4. back up data, dispose old
	   equipment

Exercise D

2. Signpost phrases underlined below.
3. Links underlined below.

What is a hacker exactly? It is someone who looks for a way into a computer system or network. Why do hackers do this? A few of them do it for a good reason. They are helping to find a problem with the computer system. Then other people solve it. In this way, they improve the security of a system. But many hackers have very different reasons. Some do it for fun. Some do it to protest about a political idea or a social problem. <u>But actually</u>, a lot do it <u>so</u> that they can steal money or data.

For some people, hackers have a glamorous image. There are even movies about hacking, for example, *The Matrix*, *Mr Robot* and *The Girl with the Dragon Tattoo*. But <u>in fact</u>, most hackers are simply criminals. Sometimes they steal a lot of money from big companies. <u>Unfortunately</u>, they steal from ordinary people and small businesses, too.

<u>Firstly, let's look at</u> why hackers are so successful. <u>Unfortunately</u>, improvements in security can be slow. Society has to make improvements as a group. We have to agree the changes and organize them. Sometimes there is also a long legal process. Someone has to pay for the changes and a budget has to be agreed. <u>However</u>, a criminal can just use the new technology. <u>So</u> cyber criminals can respond much more quickly.

<u>Secondly</u>, there is another problem. Technologists have to protect computers from every possible kind of attack. <u>On the other hand</u>, hackers only need to find one small 'door' into the system. And <u>lastly</u>, systems are getting more complicated, and this gives cyber criminals more opportunities. There are more and more doors into each system.

<u>So finally</u>, how can we stop cyber crime? At the moment, organizations respond to attacks, but this is not the best way. <u>In fact</u>, we should try to prevent them. We all need to be responsible for security, and we can all take simple steps. <u>Let's take</u> passwords. In one cyber attack on a system with 38 million users, two million users had the password 123456. Another 150,000 used the word 'password'. And 50,000 used 'iloveyou'. The strongest passwords use three random short words. Other essential actions include updating your antivirus software regularly and, of <u>course</u>, you should also install software updates immediately. What else? Well, businesses and organizations need to train all their staff in safe procedures for emails, internet and mobile devices. They should make sure employees back up data. They should also ensure that old equipment is disposed of securely. I mean, don't just throw it away. Criminals can get passwords from old equipment. And, <u>of course</u>, you should make sure your wireless network is secure, too.

<u>In summary</u>, we all need to make security actions automatic when we're online. That means at home, at school and at work. In this way, we can fight hackers and cyber crime.

4.

Order of information	Firstly, secondly, lastly, finally
an interesting point	but actually, in fact
an example	let's look at, let's take
a problem or result	however, so, unfortunately, on the other hand
an obvious result	of course
A result	so

Exercise E

1./2. Answers depend on students.
3. Possible answers include the fact that cyber crime is anonymous and therefore hard for police to track, and the problem that police are often lagging behind criminals technologically.
4. Answers depend on students but possible answers include using antivirus software, installing updates and using strong passwords

Speaking: Uses of technology

Objectives

By the end of the lesson, students should:
- know more about the work of food technologists;
- have practised a model for a talk on food technology;
- be able to pronounce some key vocabulary for the section.

Introduction

Ask students to make a list of at least ten technology items in their kitchens. Set a time limit of two minutes. When the time is up, students compare their items in pairs. Ask two or three pairs of students to read out their lists.

Select a couple of items and ask if students know when each was invented and what they were originally made of. It doesn't matter if no one knows the correct answer, but encourage the students to make educated guesses and back them up with a reason, e.g., *I think the potato peeler was probably invented about 100 years ago. Before that, they probably used a knife. People kept cutting themselves so a potato peeler was much safer.*

A Activating ideas

1. Set the task. Students complete in pairs. After a couple of minutes elicit answers.

2. Elicit answers.
Elicit sentences about what each invention is used for. For example:
A fridge is for keeping food fresh.
A mill is for grinding corn or wheat/making flour.
A net is for catching fish.
A pot/an oven is for cooking/heating food.

3. Explain that the photos show the modern equivalent of an old invention.
Set the task and explain that it's fine if students do not know the answers at this stage. Students may be surprised at how old some of the dates are.
Check students can pronounce the dates correctly.
You can write some useful phrases for students to use for the activity on the board:
I think this invention/item is older/newer.
I (don't) think this was invented in/about …

The date of this item is probably … or …
Students discuss in pairs. Do not elicit answers.

Answers
2. They are all examples of food technology/inventions.
3. 1 can   1810
   2 instant coffee   1910
   3 fridge   1913
   4 pot   20,000 BCE
   5 oven   30,000 BCE
   6 (fishing) net   8,000 BCE
   7 (water)mill*   300 BCE
   * See note in B2 below.

B Hearing a model

Focus on the rubrics for the exercise. Ask questions to check students understand the context for the talk:
What are the students researching? (Careers in technology)
What is Andrea going to talk about? (Careers in food technology)

1. Set the task. Remind students about **signposts** – refer back to the Lesson 5.2, if necessary. Students should listen for the signposts such as *first, then,* etc. This will help them to complete the task. Students should make notes of the answer. If necessary, draw a template on the board for students to copy and complete:

Topic:	
1.	
2.	
3.	

Play ◉ **5.5**. Show the correct answer on the board. Go over any problem areas.

2. Tell students that they will be able to check the dates for the inventions in the photographs. You may need to revise or pre-teach some vocabulary: *grind corn, flour, watermill, refrigeration.*
Play ◉ **5.6**, then students discuss the correct answers in pairs. Elicit answers. Go over any problem areas.
Note: For number 7, point out that the photo in the Course Book shows the actual millstone which was invented much earlier. The speaker talks about a watermill – invented in about 300 BCE.

3. Check students understand the task and write the key question on the board. Encourage students to predict some possible answers and add them to the board:
What do food technologists do today? (Work with food manufacturers; design ready-made meals, frozen food, etc.; make sure food is safe to eat.)
Play ⓕ **5.7**. Then students compare answers in pairs. Play the CD again, if necessary. Provide correct answers on the board using electronic projection if possible.
Use follow-up questions to further check understanding and give help with the new vocabulary.

Answers
1. Topic: Food technology
   1.   History of food technology
   2.   System: fruit–farm–supermarket
   3.   Greener food production
2. See Answers to Exercise A3 above.
3. What do food technologists do today?
   1. Help farmers grow more food
   2. Food technologists work with food manufacturersDevelop healthy products
   3. Design packaging, help with quality control
   4. Resources, products must be 'green'

Transcript

Transcript

Transcript

C Practising a model
1. Students read the transcripts for Andrea's talk. Play ⓕ **5.5–5.7** at the same time.
   Select some of the sentences from the talk for repetition and drilling.
2. The level of your class will dictate how you approach this activity. For example, with less able classes, you could simply ask them to practise the introduction to the talk only (Track 5.5). More able students can give longer sections from the talk and add their own ideas and language.
   With all classes, it is best to avoid simply reading sentences aloud. Students should make notes first, then practise saying the sentences. Finally, students can take turns to give a few sentences from the talk.

Closure
Write the following questions on the board for students to discuss in pairs:
What were these items originally made from? e.g., the can (glass, tin), the fishing net, the fridge, the cooking pot, the oven, the mill
What are they made from today? (e.g., the can – steel, aluminium)
What are the (dis)advantages of the modern materials? (e.g., modern materials are usually lighter but often not hardwearing)
Were the original materials better in any way? (e.g., they may have lasted longer and not used so many resources)
How has computer technology improved some of the items? (e.g., microchips in the fridge control the temperature, warn you if electricity supply goes off, etc.)
Monitor while students are working and give help with vocabulary, etc. After a few minutes, elicit some of their ideas and give feedback.

This task could also be set as a research assignment, with students reporting back in a later lesson.

Everyday English: Getting around town

Objectives

By the end of the lesson, students should be able to:
- produce target language for directions, transport and transactions in a range of situations in public places.

Introduction

Ask students about getting around their own town:
How many ways are there of getting around town?
What is the best/fastest/cheapest/most convenient way of doing it?
When is a good/bad time to travel?

A Activating ideas

Exploit the visuals and elicit ideas by asking questions, for example:
Who are the people?
Where are they?
What are they doing?
What are they saying?
See if students can suggest any actual questions from the illustrations.

B Studying models

Make sure the conversations are still covered. Check students understand the task. Play 🎧 **5.8**, pausing after each dialogue if you wish, and elicit answers. If necessary, play the CD again. Ask the questions in Exercise A again so that students can confirm or change their ideas.
Now ask: *Where does each person want to go?*
If students can't remember, play the CD again.

Answers
1. C
2. A
3. B
4. D

Transcript

Voice: 1
A: How much will it be to Malvern Road?
B: About £7.
A: OK. Can you take me there, please?
B: Sure. Hop in.

2
A: Does this one go to the mall?
B: No. You need a 44 or a 45 for the mall.
A: Where can I catch one of those?
B: In the centre, next to the Post Office.

3
A: Could you show me where I am on this map?
B: Let's see… We're here.
A: And the high street is this yellow road?
B: Yes. Carry on down here and you'll get to it.

4
A: Excuse me. Where is Woodbine Lane?
B: Which lane?
A: Woodbine Lane. It's W-O-O-D-B-I-N-E.
B: Cross the road at the zebra crossing and then turn left.

C Practising conversations

See notes in the introduction for how to exploit Everyday English activities. However, here are some areas to focus on during this lesson:
- Highlight the target language used in the dialogues before the students practise.
- Point out that students must use expressions of politeness and polite intonation patterns when asking for help or dealing with members of the public. Practise polite intonations with these phrases:
  Could you show me where I am on this map?
  Excuse me. Where is Woodbine Lane?
  Can you take me there, please?
- Highlight and explain the use of the polite request word *could.* Practise the pronunciation of the phrase *could you …?* /k ʊ ʤ uː/

As usual monitor while students are practising in pairs. Give feedback.

D Real-time speaking

Elicit a dialogue for one of the situations and write it on the board. Practise it with the class and then get them to practise in pairs.
Tell students that they should decide on the following before they do their role plays in pairs:
- Who are the people? (Are they playing themselves or someone different?)
- Do the two people know each other well? (This will help the students decide whether to use formal or informal language, e.g., *could* or *can.*)

- Where does the conversation take place?
Monitor and make notes on general mistakes while students are practising. Give feedback. If there is time, students could write one or two of their conversations for consolidation.

Closure
Ask for volunteers to perform some of the dialogues from Exercise D for the class.

5.4 Learning new speaking skills: Introducing a talk

Objectives

By the end of the lesson, students should:
- be able to recognize and pronounce the sounds /s/ and /z/;
- be aware that the same sound does not equal the same spelling;
- use a 'hook' to introduce a talk;
- be able to give an introduction to a talk using target grammar (*will*, *going to*).

Introduction
Write the following words on the board:
all, cat, talk, dark, late, about, caught.
Ask students: *What do all the words have in common?*
Elicit that they all contain the letter 'a'.
Elicit the pronunciation of each word. Point out that in English, one letter, in this case a vowel, can have different pronunciations. This lesson is looking at more examples of the different ways letters can be pronounced.

A Saying vowels
1. Give students time to read Pronunciation Check 1. Ask different students to read out each pair of words. Use the board to highlight the different ways the same sound is spelled. If you wish, you can drill the pairs of words, particularly if any of the sounds are difficult for your students to pronounce. Ask students to suggest more words with the same sounds.

2. Set the task, pointing out that this time the spelling is the **same**, but the sound might be different. Students complete individually then compare answers in pairs.
Discuss strategies with students for learning the correct pronunciation of new words such as:
- Using phonemic script
- Using a dictionary with phonemic script and/or electronic dictionaries which pronounce the words
- Grouping words according to sounds in a vocabulary notebook.

Optional activity
Students refer to a phonemic chart and write the phonemic script for each vowel sound for the words in Exercise A2.

Answers
2. Pairs with the same sounds

walk	talk	✓
food	good	
grind	mill	
pot	<u>o</u>ven	
fresh	next	✓
fruit	building	
h<u>ea</u>lthy	year	
flour	your	

B Saying consonants
1. Give students time to read Pronunciation Check 2. Elicit the answer. Give students one minute to read the Pronunciation Check again and remember the information. Then ask students to cover the information. In pairs, students tell each other the spelling rules for each sound /s/ and /z/. Monitor and give help where necessary.
Practise pronunciation of some of the words from the box.

2. Students work in pairs to complete the task. After a few minutes, draw a table on the board and elicit the correct column for each word (see Answers below). Note that the word *solutions* can go in both columns. Elicit the spelling rule for each word, referring back to Pronunciation Check 2 as necessary. Practise pronunciation of the words.

Answers

2.

/s/	/z/
carpets	cans
plastic	machines
pumps	materials
relationships	solutions
solutions	tools
store	ways
suit	wires
supply	
taps	

C Identifying a new skill (1)

1. Set the two questions for students to discuss in pairs. Elicit one or two ideas but do not confirm or correct.

2. After students have read Skills Check 1, elicit further ideas for everyday uses for hooks, e.g., catching fish, in the kitchen for utensils and cups, etc., in the bathroom for towels and clothes.

3. Elicit answers. Ask some follow-up questions such as:
   Which hook is more shocking?
   What do both hooks have in common?
   How could you follow up each hook?
   What other hooks could you use? (e.g., a dramatic photo or video, a graph or chart, etc.)

4. If students can't remember the hook, they can either look at the transcript again on page 203 or you could replay 🔊 **5.5** (the introduction to her talk) once more. Alternatively write '7.5' on the board as a prompt.

5. Set the task. Elicit answers. Drill the complete hook sentences, encouraging the students to use an appropriate intonation pattern to arouse interest in listeners.

Answers

1./2. Everyday life– Catching fish.
   In the introduction to a talk – Getting attention.
3. Answers depend on students.
4. Andrea says: 'There are nearly 7.5 billion people in the world. And, of course, they all need food!'
5. Let me start with an amazing fact about … Did you know that …?

D Understanding 'hooks'

1. Set the task. Check students can pronounce the numbers. Play 🔊 **5.9**. Students compare answers in pairs. Play the CD again, if necessary. Elicit answers – these can be one word, for example, 60 billion = emails.

2. In pairs, students try to write the full sentence.

3. Play the CD again so that students can check their answers.

4. Drill the sentences adding one of the hooks from the Skills Check box. For example:
   Let me start with an amazing fact about emails. Sixty billion are sent every day.
   Encourage appropriate intonation in order to arouse interest.
   Students practise the hooks again in pairs. Monitor and give feedback.
   Ask students if they can think of a new hook. It doesn't have to be about technology but could be any interesting fact they have learned recently.

Answers

1.

60 billion	emails are sent every day.
97%	of emails are scam.
350 million	Snapchat messages are sent every day.
5,000	hours playing video games.
100	hours of video are uploaded onto YouTube.

Transcript

Presenter: Track 5.9
Voice: 60 billion emails are sent every day.
97% of emails are scam.
350 million Snapchat messages are sent every day.
The average 21-year-old has spent 5,000 hours playing video games.
Every minute, 100 hours of video are uploaded onto YouTube.

E Identifying a new skill (2)

1. Set the task. Give students time to read the information and discuss in pairs. Elicit ideas but do not confirm or correct.

2. Ask students to read Skills Check 2. Warn them that after two minutes you will ask them to cover the information and you will test them on it.
   After two minutes students cover the Skills Check box. Elicit the information. Confirm the

correct answers for Exercise E1. Point out alternative verbs for *talk*: tell, describe, explain.

Answers
1./2. The two correct verb forms are:
  I'll (will) talk …
  I'm going to talk …

F Practising a new skill

1. Students complete individually then compare answers in pairs. Do not elicit answers.
2. Play ◉ **5.5** for students to check their answers. Play each line twice. Go over any problem areas.

Answers
1. Did you *know* that there *are* nearly 7.5 billion people in the world*?*
2. And *of* course, they *all need* food!
3. So I*'m* going to talk to you *about* food technology.
4. It can ~~to~~ provide ~~the~~ food for everyone.
5. Firstly, I'm going to talk about *the* history of food technology.
6. Then, I'll tell ~~to~~ you about one *important system* in food technology.
7. It*'s* the process of *getting* fresh fruit from the farm to the supermarket.
8. Finally, I *will* mention some ways to make food production 'greener'.

G Introducing a talk
You will need to allow plenty of time for this activity – perhaps 20 minutes or more depending on the size of your class and their ability.

1. Set the task carefully. First organize the class into groups. If your class is very large, you can have several smaller groups for each letter. Check each group is studying the correct resource, then monitor and give help with vocabulary, etc. where necessary.
  Students should now help each other to prepare and practise their introductions. You should decide if you want each student to practise exactly the same sentences or if you will allow variations. Monitor and give help once again during this process.
  Remind students they need to include a 'hook'.

2. Organize the class into their new groups. Monitor as many of the introductions as you can. Make a note of common errors. Give feedback.

Closure
Use your feedback for the students' introductions in Exercise G.

Workbook answers

Speaking

Exercise A
Answers depend on students.

Exercise B
fruit, markets, fresh, bacteria, multiply, temperatures, refrigeration, store, choice, diets, products, use, invention, history, oven
See also the transcript for Track 58 on page 122 of the Workbook.

Exercise C
a. Fruit, cool
b. market, last
c. fresh, health
d. oven, much
e. diet, ice
f. choice, royal
g. product, not
h. keep, eat
i. store, more
See also the transcript for Track 59 on page 122 of the Workbook.

Exercise D

ac'tivity	4 syllables
bac'teria	4 syllables
'history	2 syllables
in'vention	3 syllables
'multiply	3 syllables
refrige'ration	5 syllables
'temperature	3 syllables

Exercise E

Adjectives underlined below:

Can you imagine life with no ice cream, <u>fresh</u> fruit or <u>ice-cold</u> drinks? Can you imagine visits to the shops and markets every day for <u>fresh</u> food?

Keeping food <u>fresh</u> has not always been easy. There are bacteria in all food. At room temperature, they multiply very quickly and make the food <u>bad</u>. In <u>cold</u> temperatures, bacterial activity is much <u>slower</u>. So we can keep food <u>fresher</u> for much <u>longer</u>.

During the last 150 years, refrigeration has given us ways to store and cool food. It has changed the way we eat, keeps food <u>fresher</u> for <u>longer</u> and gives us a <u>bigger</u> choice of food to eat. In other words, fridges have improved the diets of millions of people. In the past, people could eat only local food products. They had to buy it <u>fresh</u> and use it every day. Nowadays, we are <u>healthier</u> and also have more free time because of the invention of the fridge.

The Royal Society, the UK's national academy of science, voted it the most <u>important</u> invention in the history of food and drink. It is <u>higher</u> than pasteurized milk, the can and the oven.

Exercise F

Answers depend on students.

Practice

Exercise A

1.

/s/	/k/
ice	cool
century	bacteria
choice	can
cyber	cold
piece	local
process	plastic
resources	technology
society	topic

2.   society, technology

3./4. Answers depend on students.

Exercise B

a. seven billion
b. 1 billion
c. 5,000
d. 60 billion
e. $700
f. 70 million
g. 50 million
h. 4 million

See also the transcript for Track 62 on page 123 of the Workbook.

Exercise C

a. Can you imagine a world without colour?
b. Let me start with an amazing fact about refrigeration.
c. McDonald's food chain employs over 1.5 million people.
d. There are about 2,000 different food plants.
e. My topic today is the incredible world of bees.
f. Around 70 million people per year suffer from food poisoning.
g. Did you know that India is the largest producer of bananas in the world?
h. Rich countries waste about 1.3 billion tonnes of food each year.

Exercise D

a. Everything would be in black and white.
b. The Chinese stored ice more than 2,000 years ago.
c. Fast-food customers in the US spend over $100 billion on fast food every year.
d. These include fruit and vegetables and different kinds of cereals, too.
e. These insects have a very organized society and are very hard workers.
f. About seven million people die …
g. It produces about 22 million tons every year.
h. That's about one-third of all the food produced in the world.

Exercise E

1. I'm going *to* talk to you about food safety at home.
2. Then I *will* tell you about food safety in restaurants and supermarkets.
3. I will explain *to* you some ways to store food.
4. Professor Milton *is* going to describe the experiment in her lecture.
5. First, *I'm* going to talk about different types of bacteria.
6. I won't talk *about* this slide now, but I will come back to it later.
7. Our topic today is Technology Solutions, are we're going *to discuss* solutions for developing countries.

Extended speaking

Exercise A

1.	F
2.	F
3.	T
4.	F
5.	T
6.	F
7.	T
8.	T
9.	F
10.	T
11.	T
12.	F

Exercise B

2. Did you know that about 70 million people every year get food poisoning?
3. 1. dangerous bacteria
   2. food sources
   3. food safety

Exercise C

1./2.
Did you know that, unfortunately, talk, Firstly, These, Then, tell, Finally, explain, It is very important
See also the transcript for Track 64 on page 123 of the Workbook.

Exercise D

Answers depend on students.

Exercise E

Answers depend on students.

Exercise F

Answers depend on students.

Reading: Low-tech technology

Objectives

By the end of the lesson, students should:
- be aware of some key issues regarding the developing world;
- recognize and understand key vocabulary for the Reading section.

Introduction

Write the title of the section on the board: *Technology for the developing world.*

Teach the meaning of the phrase 'developing world' and elicit some countries or areas of the world which are in this category.

Write the following questions on the board for students to discuss in pairs or small groups:

What problems do developing countries face? (e.g., poverty, hunger, disease, unemployment)

Why do they have these problems? (e.g., climate and drought, corruption, civil war, poor education, few resources, etc.)

How can developed countries help them? (e.g., provide expertise, help with technology, give money, etc.)

After a few minutes, elicit ideas.

A Activating ideas

Set the task. Students discuss the questions in pairs or small groups. Then elicit ideas. Summarize by saying if you don't have electricity, most of your time is spent trying to survive. Point out that people in developing countries often have no reliable electricity supply.

Answers

Answers depend on students but here are some possible ideas:

Cook – collect wood or charcoal for a fire
Store – only store fresh food for a short time
Stay warm – light a fire, wear warm clothes
Stay cool – wear light clothes, stay in the shade, take showers
Have a hot shower – heat water over a fire
Study – with books, pen and paper, by candlelight

Work – office work – same as 'study' above, otherwise all manual or agricultural work has to be done by hand or with the assistance of animals
Play – no computer games or TV! Play sports, traditional board games, etc.

B Understanding a text

1/2. You may want to pre-teach the following words: *income, disease, shelter, construction.* Check that students understand the activity. Students complete individually then compare answers in pairs. Show the correct answers on the board.

Ask students how they feel about the information in the first paragraph.

Say some statements and ask students if they are true or false:

About 3.5 billion people live on less than $2.50 every day. (True – on the basis that the world population is about 7 billion.)

The richest people in the world earn about 20% of the world's income. (False – they earn about 75%.)

Cholera is a kind of disease. (True)

Technology can help poor people build houses. (True)

Answers
1. Facts about poverty
2. The problems of poverty
3. Poor people need technology

C Finding connections

Students discuss the vocabulary items in pairs. After a few minutes, elicit answers.

Ask students to think of two more words for each line.

Answers
1. money
2. health
3. human needs
4. industries

D Developing critical thinking

Divide the class into pairs or small groups. Set the task, explaining that there might not be a 'correct' answer. Some of the items chosen are deliberately controversial.

If necessary, elicit ideas about the first item, *computers,* as an example. Perceptive students may realize that there is little point in computers if there is no electricity, and/or no resources if computers go wrong.
At an appropriate point, elicit the students' ideas.

Answers
Answers depend on students, but here are some suggestions:

Computers – not useful if no electricity supply or resources for repairs
Electricity – useful, but needs to be supplied by solar or wind power rather than expensive resources such as oil
Water pumps – very useful if driven by 'green energy' and with resources for repairs
Farm machines – useful but again, only if they can be repaired easily. Alternative fuel sources need to be considered for the machines.
Powdered baby milk – very controversial. Mother's breast milk is best and it's free! But if the mother is sick or does not have enough food, the baby may need powdered milk to survive.
Fridges – once again, if there is no electricity or repairs available these are not useful. Alternative ways of keeping food fresh need to be found.

Closure
Use your feedback from the discussion activity in Exercise D. Or you could ask students to draw a table with notes on the advantages and disadvantages for each piece of technology in developing countries.

5.6 Real-time reading: Low-tech water supply

Objectives

By the end of the lesson, students should be able to:
- use co-text and topic sentences to predict information in a text;
- demonstrate understanding of a text by labelling a diagram.

Introduction
Ask students how they get water every day. Presumably, they will say 'from a tap'.
Ask them what happened before we had a water supply to houses. Answer: people got water from a river or a well.

Ask for any problems with the old method. Answer: distance to river/well; dirty water, well/river dried up.

A Activating ideas
Focus on the photo of the children on a roundabout. Elicit some vocabulary: *roundabout, go round, playground, park*.
Ask students to discuss the questions in pairs. Elicit answers. Tell students that they do not need to learn all the vocabulary for the playground equipment and so on.

Answers
1. It might be a developing country.
2. They are playing on a roundabout.
3. The children run and push the outside of the circle. This makes the circle spin around. Then they sit on the roundabout. The rotary motion (centrifugal force) keeps the roundabout spinning for a period of time.
4. Other equipment can include swings, slides, climbing frames and ropes, etc.

B Preparing to read
Find out how much students already know about South Africa. If possible, display some photos of the country and a map.
Students discuss the meanings of the words in the box in pairs. Elicit answers and give further explanation where necessary.

Answers
agriculture	farming
equipment	machines or devices
healthy	the opposite of sick or unwell
income	the money that you earn from a job or business
medical	the adjective from medicine, the treatment of disease
pipe	a pipe moves liquids from one place to another
poor	the opposite of rich
population	the number of people in a town, country or other place
pump	a machine for moving water from below ground to the surface
resources	water, energy, land, etc. in a country
suffer	to have an illness
tap	You have a hot water tap and a cold water tap in your kitchen and bathroom.

C Predicting information

1. Focus on the title of the reading text. Check understanding of the two phrases that make up the title: *collecting water, child's play.* Elicit the meaning of the title, which is a play on words. It means that collecting water is easy. Exploit the photo on the right of the article. Ask questions such as:
   What's she doing? (probably collecting/carrying water)
   Where has she got it from? (a river, a well, etc.)
   Where is she taking it to? (her home, or school)
   How often does she probably have to do this? (every day, twice a day)
   Set the task. Students discuss ideas in pairs. After a couple of minutes, elicit ideas but do not confirm or correct.

2. If necessary, remind students what a topic sentence is. Once again, students discuss ideas in pairs. Elicit ideas but do not confirm or correct.

3. Students now read the text and check their ideas. Tell students not to worry about new words, you will deal with them in the next activity. However, you may need to check that students have inferred the meaning of the word *borehole* from the context.

Answers

1.
The problem – of collecting water
The solution – an easy way to collect water
Water collection is fun – children enjoy collecting water
Life is better – ways that life is better
Simple = better – low-tech technology
2.
Paragraph 1 – schools in South Africa without water
Paragraph 2 – the PlayPump
Paragraph 3 – playground equipment
Paragraph 4 – the health of the villagers
Paragraph 5 – low-tech solutions

D Dealing with new words

Check that students understand the task and explain that these words are all in the text. Students complete individually then compare answers in pairs. Show the correct answers on the board so that students can check their own work. Give further explanations of meanings if necessary.

Answers

a. roundabout
b. attendance
c. fuel
d. collect
e. tank
f. maintenance
g. repair
h. rural
i. energy
j. panel
k. disease
l. drive

E Understanding a diagram

1. Set the task – show the diagram on the board to help you. Do the first answer with the class as an example. Students complete individually then compare answers in pairs. Use the diagram on the board to confirm the correct answers.

2. Set the task. Provide the main verb as a prompt for each sentence or clause on the board if necessary:
   1. drives
   2. go round
   3 and 4 is pumped
   5 can collect
   Elicit sentences. Then students try the activity again in pairs.

Answers
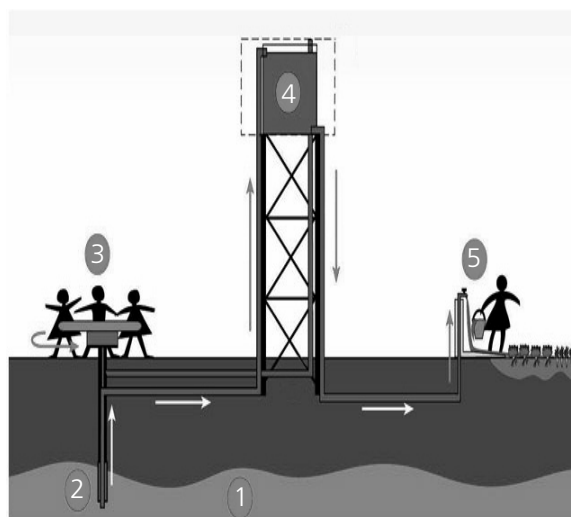
5.7 Learning new reading skills: Recognizing reasons and results

Objectives

By the end of the lesson, students should be able to:
- demonstrate understanding of sentences giving reasons and results;
- give reasons for information from a text.

Introduction
Use Exercise A.

A Reviewing vocabulary

1. Set a one-minute time limit for students to complete the task individually. Show the correct answers on the board. Ask students if they can remember the sentence from the text in Lesson 5.6, which each phrase appeared in. If not, ask students to look back and find it.

2. Students discuss answers in pairs. After a few minutes, show the correct answers on the board. Point out examples of common noun endings: -ment, -tion, -ance.

Optional activity
Students write a sentence for each noun either in class or for homework.

Answers
1.

a. water	c	area
b. clean	e	equipment
c. rural	f	solution
d. simple	a	tanks
e. playground	d	technology
f. low-tech	b	water

2.

a. attend	v	attendance
b. collect	v	collection
c. dirty	adj	dirt
d. equip	v	equipment
e. maintain	v	maintenance
f. sick	adj	sickness
g. solve	v	solution
h. successful	adj	success

B Identifying a new skill (1)

1. Give students time to read Skills Check 1 and think about the answers to the questions. Elicit answers. Tell students that they have one minute to read the Skills Check box again, then you will test them on the information.
   After one minute, ask students to cover the Skills Check box. Write some prompt words for each example sentence on the board. For example: *simple, technology, no fuel, other resources*. Elicit the full sentences. For example:
   It's a very simple piece of technology because it uses no fuel or other resources.

2. Set the task. Students should complete individually and write notes for the answers. After a few minutes, students ask and answer the questions in pairs. Monitor. Make a note of common errors and give feedback.

Answers
1. *Because* introduces reasons. *So* introduces a result.
2. a. Because they have to collect water.
   b. Because it uses low-tech technology and no resources.
   c. Because they also enjoy playing on the PlayPump.
   d. Because they have clean water.
   e. Because they have more time for school, they are sick less often.
   f. Because they do not have to walk long distances to collect water.
   g. Because low-tech solutions are more reliable.

C Practising a new skill
Students complete individually in writing. Ask some of the students to read out their sentences.

Answers
Answers depend on students.

D Identifying a new skill (2)

1. Set the task and give students time to read Skills Check 2. Elicit answers.

2. Set the task. Students complete individually then compare answers in pairs. Elicit answers, pointing out that the full stop should be removed and the capital letter should be changed in the second sentence.

Answers
1. Sometimes the words *because* and *so* are missing from a sentence. The meaning is implied.
2. a. It rained hard so I got wet.
   b. The girls are always tired because they walk 20 kilometres a day.
   c. We stopped watching the programme because it was boring.
   d. I didn't have enough money so I couldn't buy the car.

E Transferring skills
Set the task and elicit one or two sentences from the class as examples. Encourage students to use a range of tenses in their sentences. If you wish, you could put some phrases on the board for students to complete, for example:
I am very tired today so / because …
I don't like that kind of movie / that restaurant / that car so / because …
I prefer to walk / drive / catch the bus home so / because …
I couldn't come to classes / go to work yesterday / last week so / because …
I won't be in school / see you / be at work tomorrow / next weekend / next week because / so …

Answers
Answers depend on students.

Closure
Use your feedback from Exercise E.

5.8 Applying new reading skills: Low-tech food preservation

Objectives

By the end of the lesson, students should:
- be able to use co-text to predict content in a text;
- recognize reason and result in a text (*because* and *so*);
- use a diagram to help understand a process in a text.

Introduction
Teach the meaning of the word *preservation* in this context: to store or to keep food fresh.
Elicit some different methods of food preservation: refrigeration, freezing, canning, bottling, drying, salting, smoking, adding preservatives, vacuum packaging.

A Activating ideas
Focus students' attention on the photo. Elicit ideas, helping with any new language.

Answers
Answers depend on students but here are some possibilities:
1. The melons are going bad/rotting. The crop is dying. Maybe it is a problem of too much water – flooding – or too little water.
2. It's a hot country so food can go bad very quickly but the main reason is that the farmers can't store food.

B Preparing to read
Students discuss the meanings of the words in the box in pairs. Tell them not to worry about meanings they are not sure of. Monitor.
Do not elicit answers at this stage.

C Predicting information
Exploit the heading of the article – note the wordplay on the word *can.*
1/2. You may prefer to set the two exercises together. Students complete individually then compare answers. Elicit some of their ideas but do not confirm or correct.
3. Allow enough time for most students to finish reading the text. Then ask students if they got most of their predictions correct or not. Ask them to give you examples.

Answers
Students' own answers.

D Showing comprehension.
Students ask and answer the questions in pairs. Elicit answers.
Ask students to find examples of sentences with *because* and *so* in the text. Elicit which part of each sentence is the reason and which is the

result. (See Lesson 5.7 Skills Check 1.)
Ask students if they can find examples of similar sentence relationships to those in Lesson 5.7 Skills Check 2. There are several in the first paragraph:

In West Africa, most countries can grow enough food to feed their whole population. The crops grow well and the yield can be very high. (because)
Stored food starts to go bad. Up to 60 % of the crops are lost. (so)
They don't plant extra crops. Each farm only produces enough food for a small number of people. (so)

Answers

1. Farmers can grow enough food.
2. They can't store food.
3. Canning is a low-tech solution.
4. It stores food for a long time, but does not need electricity or refrigeration.

E Understanding a diagram

1. Check the vocabulary for the visuals in the diagram. Show the diagram on the board and elicit the words for:
   a jar, a rack, a lid, a pot.
   Then ask students to complete the task individually. Elicit answers.

2. Ask students to read the final paragraph again and underline all the verbs. Elicit the verbs used in the description of the process in the text and write them in a list on the board:
   is put
   are sealed
   are placed
   stops … from knocking
   breaking
   is put
   is covered
   is boiled
   expand
   escapes
   cool
   are pulled
   is

   Point out that many of the verbs are passive. Check understanding of the words *tight-fitting* and *vacuum*.
   Now ask students to cover the text and recall the sentences for the diagram. This can be done orally with students taking turns in pairs to say the sentences. Or you can ask students to write the paragraph, then check with the text.

Closure

Ask some comprehension questions on the third paragraph of the text – *The history of canning*. Recap the vocabulary from the lesson.

Knowledge quiz

Objectives

By the end of the lesson, students will have:
- reviewed core knowledge in the area of Technology;
- recycled the vocabulary and some of the grammar from the Listening, Speaking and Reading sections.

Methodology note

The quiz provides an opportunity to review the core knowledge which students have learned from the theme so far. As ever, you can run the quiz in a number of different ways: as a competition or series of mini-presentations by way of example. Ensure that you:

- give your students plenty of time to look back through the theme and study the lessons in order to be able to answer the quiz questions;
- give all students a chance to participate – avoid formats where the first student to shout out the answer wins the points.

The Knowledge quiz is not intended to be used as formal assessment.

Write *Technology* on the board. Ask students what they remember studying in this theme so far. What did they listen to? What did they discuss? What talk did they give? What were the Reading texts about?

It is probably best for students to do Exercises 1, 2 and 3 individually with pairwork checking.

Alternatively, students could complete individually at home, or in class in groups, and mark their own work as you give the answers. You collect the scores and declare a winner.

1.

a. a plough	f.	communicating on the move
b. a windmill	e.	controlling the flow of, e.g., water, oil
c. a factory robot	j.	keeping food cold and therefore safe
d. a can opener	c.	making, e.g., cars, furniture
e. a tap	b.	making flour
f. a mobile phone	h.	processing and storing information
g. a Biro	d.	opening cans
h. a laptop	i.	travelling very fast through the air
i. a jet plane	a.	turning over earth
j. a fridge	g.	writing with stored ink

2. The plough is the oldest invention, dating back to 6,000 BCE. The laptop was first commercially available in 1973 (robots were earlier – 1954).

3.

human power	animal power (e.g., horse)	electricity	oil or petrol	natural (e.g., water, wind, sun)
plough	plough	robot	plough	windmill
can opener		mobile phone	jet plane	
tap		jet plane		
Biro		fridge		
		laptop		

4. Students' own answers.

5. Possible answers:
   a. The Play Pump: collecting water, used a pump
   b. Canning: preserving food, uses a vacuum container

   c. CAD (computer assisted design): time to design documents and other media. Allowed the designer to experiment with software.
   d. Electricity supply: lack of energy such as heat, light and power. By providing energy for machines and devices.

6. Possible answers:
   a. hacking: software packages with inadequate security
   b. crashing: software and hardware overload
   c. pollution: coal and petrol products, and chemicals from engines and machines entering the atmosphere and earth surface.
   d. unemployment: new technology replacing jobs

Workbook answers

Reading

Exercise A

Answers depend on students.

Exercise B

1.
Getting water from the sun
Background
In <u>rural</u> Kenya, there is plenty of sunshine, but there isn't much water. There is also a lot of <u>poverty</u> and sickness. Women and children often walk **long** distances for water.
But now, technology is helping villagers with a **simple, cheap** <u>solution</u> to their water problem. A **solar** <u>pump</u> takes water from a source 100 metres <u>underground</u> and provides families with **clean** water.

How does it work?
A **solar** <u>panel</u> collects <u>energy</u> from the sun. It uses the **solar** energy to power an **electric** motor. The motor <u>drives</u> an **underground** pump. The pump can <u>provide</u> about 30,000 litres of **clean, fresh** water every day. The water is stored in a water <u>tank</u>. There is a system of <u>pipes</u> around the village. They connect to pumps and <u>taps</u> for the villagers to use. The <u>system</u> also provides water for the farm animals in the village.

Advantages
The system provides many advantages. Firstly, it needs

no **expensive** fuel or other _resources_. Secondly, it is low-**maintenance**. Next, the locals can now use **fresh** water without walking **long** distances. All the _villagers_ now have more **free** time, so children can go to school. The women can grow vegetables and _earn_ money for them at the **local** market. In addition, the villagers don't _suffer from_ diseases from **dirty** water. This proves that a little technology can go a **long** way.

2. nouns: energy, maintenance, panel, pipe, poverty, pump, resource, solution, system, tank, tap, villager
   verbs: drive, earn, provide, suffer from
   adjectives: rural, underground
3. See adjectives in bold type in the text above. They describe:
   rural: Kenya
   long: distances, progress
   simple: solution
   cheap: solution
   solar: pump, panel, energy
   underground: depth, pump
   clean: water
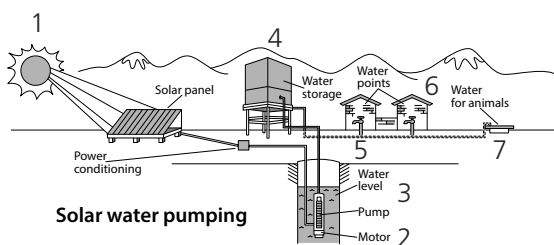   fresh: water
   expensive: fuel
   maintenance: system
   free: time
   local: market
   dirty: water

Exercise C

Solar water pumping

Exercise D

Answers depend on students.

Extended reading

Exercise A

Answers depend on students.

Exercise B

1. The dangers of using mobile phones when driving.

2. Answers depend on students.
3. Paragraph 1: g
   Paragraph 2: h
   Paragraph 3: c
   Paragraph 4: b
   Paragraph 5: e
   Paragraph 6: a
   Paragraph 7: f
   Paragraph 8: d

Exercise C

1. For causing death by dangerous driving.
2. Because drivers make simple mistakes.
3. Because both driving and using a phone require a lot of thought.
4. For the same reasons as driving and using a mobile phone.
5. Because you are less aware.
6. Because they are an essential part of people's lives.
7. Because we can call for help if we break down or if there's an accident.
8. Answers depend on students, but this point is covered in Exercise D.

Exercise D

Answers depend on students.

Exercise E

Results in bold type, reasons in italics.
Unfortunately, **most accidents happen** because _drivers make simple mistakes_.
So **if you do them both at the same time**, _your brain can't do either well_.
There's a crash because _you brake too late or miss road signs_.
Drivers are less aware and their reaction times are much slower, **so they cause the same problems.**
Perhaps this is because **mobiles can affect you in three ways:**
• _Eyes – you are not looking at the road_
• _Brain – you are not thinking about the road_
• _Hands – your hands are not on the steering wheel_
The number of texts we send every month is growing, so **the number of human error traffic accidents is growing**, too.
Thirdly, **mobile phones make us feel safer** because _we can call for help if we break down or if there's an accident_.

Writing: Technology and the environment

Objectives

By the end of the lesson, students should:

• be able to demonstrate target vocabulary from the theme;

• demonstrate understanding of some of the issues with regard to waste and landfill sites.

Introduction

Ask students to describe what they wearing, including the material it is made of.

Teach the word *property* and elicit what properties their clothes have, for example:

warm
hard-wearing
washable
fashionable
light
comfortable, etc.

A Activating background knowledge

Students discuss the questions in pairs. After a few minutes, elicit ideas. Accept any reasonable answers, but the main point should be that clothes must be fit for purpose and that new technology helps with this.

Answers
1.–3.

Photo	Clothes	Materials	Properties
1	suit, shirt, tie	suit: wool or man-made fabric shirt: cotton or cotton mix tie: silk or polyester	smart natural hard-wearing fashionable does not crease
2	helmet/hat jacket, trousers	man-made materials, e.g., polyester	hard-wearing light warm washable non-iron comfortable
3	space suit, helmet	man-made, high-tech materials	hard-wearing light warm very expensive
4	jacket, trousers, helmet, sunglasses, gloves	man-made materials	hard-wearing light warm washable expensive

4. When clothes are finished with, they are usually thrown away and end up on landfill sites.

B Learning new vocabulary

Exploit the visual by asking questions:
Which country could the landfill site be in?
What is the child doing?
Why?
How does the photo make you feel?
Is this a good system for dealing with waste?
Why (not)?
Set the task. Students make a list of items in pairs. After a few minutes, elicit ideas.

Answers

Answers depend on students but here are some ideas:
clothes, shoes, etc.
packaging, boxes
food
waste paper
plastic bags
plastic bottles
glass bottles, jars, etc.
broken toys
broken equipment and devices
sports equipment
furniture
household items: broken cups, vases, etc.
materials including carpets, curtains, cushions, etc.
books, CDs
newspapers, magazines, brochures.

C Using new vocabulary

Avoid pre-teaching the vocabulary from the box – it is better to give students the opportunity to try to work out the meanings from the context. Set the task. Students complete individually then compare answers in pairs. Show the correct answers on the board.

Go over any words students are still not sure about. Make sure students know the part of speech for each of the words in the box:
degrade (v)
dispose (v)
environment (n)
landfill (n)
pollution (n)
recycle (v)
textile (n)
throw away (v)
waste (v&n)

Answers

What happens to unwanted clothes and *textiles*? Most of us *throw* them *away*. We put them in the bin and forget about them. In the end, they probably go to a *landfill* site in your country or sometimes to a developing country far away.

Unfortunately landfill sites cause *pollution* and damage the *environment*. Many textiles and materials take years to *degrade*, or return to their basic chemicals. Natural materials take a few months or years, but man-made materials often take hundreds or thousands of years. Poor people and children can make money from the *waste* – but do we really want children to do this?

We need to look for alternative ways to *dispose* of things. For example, it is much better if we can reuse or *recycle* clothes. Perhaps, in the future, technologists can invent ways to make clothes degrade more quickly.

Closure

Ask a few comprehension questions about the text:
What do most people do with unwanted clothes?
What happens to them after that?
What are the problems with throwing clothes away?
What is the alternative?

5.10 Real-time writing: Smart textiles

Objectives

By the end of the lesson, students should:

* know more about sustainability and biodegradability of items;
* be aware of the organization of a case study;
* be able to place topic sentences in the correct paragraph;
* produce a short, guided paragraph about degradable plastic bags.

Introduction

Use Exercise A for your introduction.

A Preparing to read

Focus on the photos and elicit the word or phrase for each.
Set the task. Students work in pairs. Elicit answers and perhaps draw a timeline on the board.
Ask students to guess how long it takes for each item to degrade. Elicit ideas then give the answers.
Discuss what the implications are for waste and recycling.

Optional activity

Ask students to research the degradability of other items such as cigarette ends, chewing gum, an aluminium can, a baby's disposable nappy (diaper), orange peel, shoes, a plastic coffee cup, batteries.

Answers

tea bag	1 month
banana	6 weeks
apple core	2 months
woollen sock	1 year
plastic bag	20 years
magazines	50 years
plastic bottle	450 years
mobile phone	1,000 years

Source: practicalaction.org/plastics challenge

B Understanding the discourse structure

1. Allow students to read the heading. Elicit ideas for the meaning of the case study – but remember that this is explained further in the next lesson. Check understanding of the word *sustainability.* Give students a minute or two to guess the answers. Give further letters for each prompt if they are completely stuck.

2. Students check their answers and spelling with the text. Ask students not to read the complete text yet.
   Ask students to predict some of the content for each paragraph.

Answers

Background
The problem
The solutions
Conclusion

C Writing topic sentences

Set the task. Point out that the paragraphs in this text are very short, so there are a lot of topic sentences.

Students complete individually. Monitor during this phase and give help where necessary.

Give feedback, preferably using an electronic projection of the answers.

Ask a few comprehension questions to check understanding.

Answers

7 a Chemists mix polythene resin with a special additive during the production process.

5 b Finally, waste plastic can pollute the air.

9 c It really is an amazing material.

2 d Plastic is an old product.

4 e Secondly, plastic waste can damage the environment because it litters the countryside.

1 f The average family throws away about 1,000 kilograms of waste every year.

8 g The new material is safe for food packaging.

6 h There are a few solutions to the problems.

3 i There are three main problems with plastic.

10 j This is a big step forward but we must do more.

D Adding a paragraph

1. Check students understand the task. Students complete individually. Monitor and give help where necessary. Give feedback, preferably using an electronic projection of the paragraph.

Suggest ways to improve the paragraph by adding 'signposts' and other phrases – see underlined words in answer below.

2. Elicit answers.

Answers

1. The new bags are useful <u>for everyone</u>, in homes, businesses and government offices. <u>In addition</u>, they are good quality products because they are very strong.

The bags also come in several sizes and are easy to use.

<u>First</u>, the plastic bags start to degrade from contact with heat, light or pressure. <u>Finally</u> the plastic is converted into carbon dioxide and water.

2. The paragraph could go in the Solutions paragraph of the text.

E Developing critical thinking.

Divide the class into pairs or small groups to discuss the questions. Monitor.

Have a plenary session where some pairs or groups share their ideas with the class.

Finally, ask students to choose three of the sentences and write their opinion giving a reason with *because*. For example:

I think technologists should worry about the environment because they are responsible for the production of so many everyday objects.

Closure

Use your feedback from Exercise E.

5.11 Learning new writing skills: Writing a case study

Objectives

By the end of the lesson, students should:

• be able to use a range of ways to modify nouns;

• produce guided topic sentences.

Introduction

Ask students to spend a few minutes re-reading the text in the previous lesson (5.10).

A Developing vocabulary

Set the task. Students complete individually then compare answers in pairs. Elicit answers. Go over any answers students had difficulty with.

Answers

a. The average family throws away *about* 1,000 kilograms of waste every year. *Most* of that waste is plastic. *Even* non-plastic waste is often put into black plastic bags for disposal.

b. It was invented in 1856, but there are *many* different forms nowadays, including polythene.

c. Technologists have developed a plastic material that does not damage the environment. It *also* degrades more quickly.

d. This additive makes the plastic degradable without changing the other properties of the materials, so it is *still* strong and hard-wearing.

e. The new material is safe for food packaging. It is *already* used for bread bags, freezer bags and food packaging.

f. This is a *big* step forward but we must do more.

B Identifying a new skill (1)

1. Set the task and give students time to read the examples. Elicit ideas but do not confirm or correct.

2. Students read Skills Check 1. Elicit answers to Exercise B1.

3. Check students understand the task. Elicit answers.

Optional activity
Write some nouns on the board for example:
food
clothes
laptops
music.
Ask students to modify each noun in four different ways as shown in the Skills Check box. For example, with the noun *food:*
Restaurant food is usually expensive.
Fresh food is better for you.
The food in Italy is very good.
The food that she cooks is delicious.

Answers
Most of the examples of modification in the text are noun + noun and adjective + noun.
1. noun + noun examples include:
   non-plastic waste
   food packaging
   plastic materials
   waste plastic
   bread bags
   freezer bags
   carbon dioxide
2. adjective + noun examples include:
   black (plastic) bags
   traditional (plastic) bags
   long time
   dangerous gases
   the best products
   amazing material
   old products
   tiny amount
3. noun + prepositional phrase examples include:
   black plastic bags for disposal
   properties of the materials
   tiny amount of carbon dioxide

problem for many materials
1,000 kilograms of waste
solutions to the problems
4. relative clause examples include:
   plastic material that does not damage the environment
   make new materials that degrade in a safe way

C Identifying a new skill (2)

1. Give students time to read all the topic sentences. Then elicit ideas but do not confirm or correct.

2. Students read Skills Check 2. Confirm the correct answer.

Answer
Topic sentences do not usually give much information.

D Practising a new skill

1. Set the task. Students should either write the same topic sentence as given below the text or they can invent new ones. Students work individually then compare answers in pairs. Monitor and give help where necessary. For some classes, you might need to write prompts on the board for each sentence.

2. Students check their work. Give feedback on common errors.

Answers
1 f The average family throws away about 1,000 kilograms of waste every year.
2 d Plastic is an old product.
3 i There are three main problems with plastic.
4 e Secondly, plastic waste can damage the environment because it litters the countryside.
5 b Finally, waste plastic can pollute the air.
6 h There are a few solutions to the problems.
7 a Chemists mix polythene resin with a special additive during the production process.
8 g The new material is safe for food packaging.
9 c It really is an amazing material.
10 j This is a big step forward but we must do more.

E Identifying a new skill

1. Set the task and elicit answers. If necessary, give the first few letters of each heading.
2. Students discuss in pairs. Elicit answers but do not confirm or correct.
3. Students read Skills Check 3. Ask a few questions to check understanding.

Answers
1. Background
   The problem
   The solutions
   Conclusion
2.
a. Because the new material is strong, people can reuse the bags many times. (The solutions)
b. Companies should not use food packaging that does not degrade quickly. (Conclusion)
c. Plastic bags kill millions of animals each year. (The problem)
d. Polythene was invented in 1933 by George Feacham. (Background)

Closure
Give students copies of a previous text (or texts) with several paragraphs from the Course Book or Workbook with the topic sentences removed. Ask them to write a suitable topic sentence for each paragraph.

5.12 Applying new writing skills: Recycling materials

Objectives

By the end of the lesson, students should:
- know more about recycling waste;
- use topic sentences in a case study;
- write a brief case study on recycling using language and vocabulary from the theme.

Introduction
Use Exercise A.

A Reviewing vocabulary
Set the task. Students work in pairs. Give feedback, preferably using an electronic projection of the answers. Make sure students correct any errors in spelling.

Answers
1. dam   age
2. pack   aging
3. plas   tic
4. deg   rade
5. was   te
6. recy   cle
7. lit   ter
8. chem   ical
9. land   fill
10. poly   thene

B A case study: Thinking

1/2. Ask the questions in the Course Book and elicit ideas.
3. Set the task. Students discuss in pairs, then elicit ideas.

Answers
1. Answers depend on students.
2. Answers depend on students but they could suggest that bottles are recycled in some way.
3. Shows the process of turning plastic bottles into fleeces.

C A case study: Organizing

1. Elicit the five headings for a case study. If students can't remember, they should look back at the previous lesson, 5.11 Skills Check 3.
2. Ask students to study the notes for the case study in Resources. Check students understand the abbreviations and symbols used in the notes. Making sure students' pens are down, elicit possible sentences for some of the notes. Highlight any passive verbs needed for the sentences, for example, *the bottles are cleaned*.

Answers
Background
Problem
Solution
Conclusion

D A case study: writing

Go over the instructions for the writing and add any of your own points for students to remember. Monitor while students are writing and give help where necessary. Make a note of common errors.

E Editing and rewriting

1. Remind students how to mark each other's work – see the introduction to this book. Monitor and give help where necessary. Continue to make notes of errors. Give feedback on errors before students start their final drafts.

2. As usual this can be done in class or for homework. At some point the model answer can be copied and distributed for comparison, but students may have different versions that are also correct. If you are not able to monitor all the work in class, collect it in for marking.

Closure

If you haven't already done so, give out copies of the model answer below for students to compare with their own version.

Resources

Model answer

Sustainable technology: A case study
From bottles to fleeces

Background

In the past, most waste was sent to landfill because it was cheap and space was available. However, we are now running out of space so we must find ways to recycle as much as possible. Technology can help us to do this.

The problem

One of the biggest waste problems is plastic bottles. In the UK, people throw 15 million plastic bottles away every day. That's 275 million kilograms of plastic every year.

Most of the bottles go to landfill sites. In the ground, the bottles take about 100 years to degrade. Soon there will not be enough landfill sites to take all our waste.

The solution

There are two main solutions. Firstly, companies can collect the waste bottles from bottle banks. Then they can wash them and reuse them.

A second solution is to give the plastic bottles a new 'life'. Modern textile technology can reuse the bottles to make material for clothing. For example, twenty-five bottles can make one fleece garment. The manufacturing company collects the bottles from bottle banks. Then the bottles go to a processing plant. Here the bottles are cleaned, heated and turned into fibres.

Every 150 fleeces that are made of plastic bottles saves a barrel of oil. Oil is a non-sustainable source of fuel.

Conclusion

We cannot continue to put plastic bottles into landfill sites. We must do something sustainable with them. We should wash and reuse them or recycle them into new products.

Portfolio: Wearable technology

Objectives

By the end of the lesson, students should:
- have revised target vocabulary and skills from the theme;
- have improved their research and note-taking skills for technology;
- have used integrated skills in order to talk and write about wearable devices;
- have learned more common core knowledge about technology.

Introduction

Use Exercise A as the introduction.

A Activating schemata

Tell students the lesson is about wearable technology. Elicit the meaning of 'wearable' and point out that it's an adjective from the verb *wear.*

1. Set the task. Teach any new vocabulary: *cycling helmet, finger monitor*. Students discuss the question in pairs. After a few minutes, elicit ideas.

2. Go through the vocabulary in the question. Students discuss the question in pairs, then elicit ideas. Ask a few questions:
In what way could the smart watch be dangerous? (as a distraction when driving, crossing the road, etc.)
What about the dress with LED lights? (possible effects of light rays, etc. on the body)
Are all the devices gimmicks? (possibly all except the finger monitor)
Are smart watches secure? (some people say they aren't because they use Bluetooth, etc.)

Methodology note

You will probably need to teach the meaning of the word *gimmick*: it's an informal word. It is used to describe an unusual product or marketing strategy. Generally these products are not very useful. They are a marketing 'trick' to make you buy them. For example, a toothbrush with bristles that change colour.

Answers
1. There are many possibilities but here are a few examples:
Smart watch: it can be a fitness tracker/receive and make phones calls/receive and send texts or emails/give various alerts/communicate with other devices, etc.
Finger monitor: (pulse oximeter) measure amount of oxygen in blood/assess patient's needs/monitor oxygen supply
Helmet camera: record your ride/record accidents/protect against dangerous car/lorry drivers
Dress with LED lights: make a fashion statement/ use as a marketing strategy
2. Answers depend on students.

B   Gathering information (1)

Methodology note

If it is not possible to have two groups listening to different listening texts at the same time, you have the following choices:

1. While one group listens, set a different task for the non-listening group. They could perhaps go on to Exercise C and read one of the texts.

2. Do one or both listening activities with the whole class. Then, in pairs, students compare their notes rather than exchanging information.

1. Divide the class into two groups and set the task. You might wish to pre-teach some of the vocabulary if necessary.
Check students understand what to do. If you wish, you can provide a blank form for students to fill in – see Answers below for an example of the layout.
Play ⦿ **5.10** to Group 1 and ⦿ **5.11** to Group 2. Monitor while students listen to their talks and check they are completing the task correctly. Help with any new words.

2. Redivide the class into pairs. Students exchange information. Make a note of any common errors.
Use an electronic projection of the notes in the answers for students to check their ideas.
At a suitable point during the above, you may wish to replay the interviews.

3. Students discuss the question in pairs then elicit answers.

Answers
1./2.

Wearable technology		
	Retail	**Fashion**
Devices/ materials Uses	Smart watch easier shopping – alerts sales and discounts order, pay for goods	Dress with LED lights fun, interactive, display tweets handbag – speakers cycling helmet – sat nav jacket – solar panel – charge phone fabric-change colour – emotions
Advantages	convenient – on your wrist quicker, easier small screen = less battery power	colour-change fabric helpful for some groups people, e.g., with Alzheimer's mosquito-repellent fabric fabric with sun protection
Disadvantages	small screen (but uses helpful icons)	some ideas are gimmicks

Transcript

Int: Welcome to Innovations in Technology. This month we are talking to technologists about wearable technology. In today's programme, I am talking to Chloe Scott from TechWear about wearable devices for the retail sector. So Chloe, shoppers love wearable devices, don't they?

Chloe: Yes, they certainly do. Retail is the second biggest sector for wearables and 34% of wearable owners use their device for shopping.

Int: And what kind of wearable device are we talking about here? The smart watch?

Chloe: Yes, exactly. All the major mobile phone companies, including Apple, Sony and Samsung are producing smart watches.

Int: So what can smart watches do for you?

Chloe: Well, they make shopping a lot easier. For example, customers can get alerts, or messages about sales and discounts. They can use their watch to order and pay for goods.

Int: Can't you do that already with your phone?

Chloe: Yes, you can. But with a smart watch you don't need to fish your phone out of a pocket or handbag. It's right there on your wrist. So it's quicker, easier and saves time.

Int: What about the small screen size? Isn't that a problem for some people?

Chloe: Well, not really. The apps use icons and visuals instead of text. And the user responds with voice, or by tapping or swiping, so you don't need to type. And a smaller screen means you use less battery power too.

Int: But will retailers need to offer something different to smart watch users?

Chloe: Yes, that's true. They can't simply copy phone apps. And they need to give shoppers a more personalized service.

Int: I see.

Chloe: I'm sure that will happen. Sales of smart watches are predicted to grow from ten million in 2015 to 60 million in 2016. And most of those customers will want to use their watches for shopping.

Int: Well, we'll see if those forecasts are correct. Thanks very much, Chloe.

Transcript

Int: Welcome to Innovations in Technology. This month we are talking to technologists about wearable technology. In today's programme I am talking to Juraj from FashTex about wearable devices for the fashion sector. Welcome, Juraj.

Jur: Thanks very much.

Int: Now, I have seen quite a lot of fashion wearable technology recently. And, to be honest, a lot of it just seems to be a gimmick, or just for fun. For example, I saw a photo the other day of a dress with LED lights that changes colour.

Jur: Well, I definitely agree about the fun element. But fashion is fun! I saw that photo too – and there is another dress that can display your tweets! That's really cool! The point is that these clothes are playful, interactive and very visual.

Int: OK but what other kinds of wearable technology are there?

Jur: Well, one idea I really like is a handbag with Bluetooth speakers inside! And designers have other innovative ideas, too. For example, helmets with built-in sat nav.

Int: Helmets? Oh I see, for cyclists?

Jur: Yes, exactly. Or how about a jacket with a solar panel on the pocket? It can recharge your phone, or smartwatch after two hours of sunshine.

Int: OK, I can see that might be useful too.

Jur: And did you know a textile manufacturer has produced a fabric that can change colour with your emotions?

Int: Well, that seems fun but pointless to me.

Jur: But it is very useful and practical for certain groups of people. For example, Alzheimer's patients can't explain their emotions verbally. So clothes made from this fabric can communicate their feelings.

Int: That is a really helpful idea. So what other ways are manufacturers using technology with fabrics?

Jur: Yes, this is a really important area. Textile technologists have already produced fabric which is mosquito repellent – this is obviously a very important and useful innovation for travellers – and people who live in areas with malaria. Fabric which protects you from the sun is another development.

Int: So fashion wearables are not only about smart watches and fitness bands.

Jur: No, there's a lot more to them than that.

C Gathering information (2)

Before you set the task, elicit some ideas about wearable devices for:

1. Health
2. Safety.

What kind of devices for each area exist now?
What will there be in the future?
What do the devices do?
Select some vocabulary from each text to pre-teach.

If you wish, you can provide a blank form for students to fill in – see Answers below for an example of the layout. Or you can simply write the questions in the form below on the board.

1. Divide the class into pairs:
   S1 reads the article on Health page 158.
   S2 reads the article on Security page 159.
   Monitor while students are working in pairs and give help where necessary. Use the model notes given below and check them against the ones which are emerging from each student.

2. Students exchange information. If you have given them the form, or written the questions on the board, students can use them in this activity.
   Encourage listeners to ask questions if they are not sure of information. Monitor and assist each pair of students. Once again, use the model notes to ensure that the pairs are producing good notes on both texts.
   Finally, give feedback in two stages: (1) on students' performance and oral production, (2) use an electronic projection for feedback on the notes.

Answers
   See table on page 53.

D Giving a talk about wearable technology

1/2. Remind students about the pronunciation of some of the target vocabulary and the importance of stressing key words.
   Remind students to use some signpost phrases, if relevant to their talk.
   If you wish students to use photos, etc. to illustrate their talks, write some phrases on the board for them to use:
   In this photo you can see …
   This photo shows …
   Here is a photo of …

When students have chosen which device to talk about, divide the class into groups of students with the same choice.

Students work individually to start with. Give students time to turn their notes (from the previous activities above) into sentences for a talk. They also need time to find photos or illustrations if you wish them to do this. Help individual students who are struggling.

Ask students to practise their talks, one sentence at a time, with help from the others in their group. Students should help each other with pronunciation, vocabulary and grammar. Monitor and assist each group. Talks should be no longer than a couple of minutes.

Re-divide the groups so that there is a mixture of topics to be presented. Students give their talks in turn. Encourage other students to ask questions.

Give feedback.

E Writing a case study

Remind students about the purpose of a case study and the four-paragraph structure they learned in the writing section (see page 153).

Students should preferably find a different wearable device from the ones studied in this lesson. However, if this is not possible, they can research one of the devices from the lesson but perhaps go into further detail.
Students should make notes on their research before they start writing the text. The research could be done in pairs or groups, with students exchanging information on the device they have chosen.

Methodology note

This activity can be done in class or for homework.

If done in class, monitor and assist where necessary.

Answers
Answers depend on students.

Wearable devices		
	Health	Security
What/Where are the devices or apps?	smart watches, heart monitors, etc.	in fabric: electronic circuits solar panels headsets: cameras GPS navigation smart glass display sensors: on body in clothes
What specific areas are they used in?	Health and fitness - medical research - age-related illnesses, e.g., diabetes, dementia	military police firefighters miners sportspeople
Who uses the device and/or the data?	cardiologists, doctors,patients, the elderly	see above + supervisors
What can the devices do?	1. provide data for research 2. study links between physical activity and heart disease 3. monitor patients 4. check patients take medicine correctly 5. alert doctor	1. circuits, solar panels more practical power sources 2. cameras = provide evidence 3. GPS = help firefighters navigate through smoke, etc. 4. smart glass = send info to supervisor 5. sensors = send alert if sportsperson injured
How do they work?	sensors collect data on sugar levels, blood pressure, sleep patterns, etc.	n / a
Why are they necessary?	1. ageing population – healthcare systems can't cope 2. many conditions, e.g., diabetes, arthritis, heart disease, etc., need regular monitoring	dangerous jobs and / or environments
Are there any disadvantages?	need many tests before governments will use them	1. temperature of devices 2. metals, synthetic fabrics – cause skin reaction 3. possible electric shock and mechanical dangers 4. energy efficiency, reliability, sustainability 5. risk of lack of privacy

Workbook answers

Writing

Exercise A

noun 1		noun 2
1. adult	6	bag
2. car	5	device
3. food	2	factory
4. landfill	7	materials
5. mobile	3	packaging
6. paper	8	process
7. plastic	4	site
8. production	1	sweater

Exercise B

Possible answers:

bag:	degradable, fashionable, hard-wearing
device:	electronic, smart, safe
factory:	safe
materials:	woollen, smart, degradable, fashionable, warm, safe, natural, hard-wearing
packaging:	degradable, safe, hard-wearing
process:	electronic, smart, slow, long, safe, natural
site:	safe
sweater:	woollen, smart, fashionable, long, warm, natural, hard-wearing

Exercise C

Answers depend on students.

Exercise D

1. from Scotland
2. with many features/which is not recyclable
3. near the town/with 10,000 employees
4. near the town
5. which is not recyclable
6. which stops bacteria growing

Exercise E

1. These old mobile phones are recyclable.
2. These paper plates are disposable.
3. This handwriting is unreadable.
4. He is unlikeable.
5. The weather in London is changeable.
6. This work is unacceptable.
7. it's advisable to speak to your tutor.
8. She is very employable.

Exercise F

1. One of the world's biggest recycling problems <u>is</u> plastic bottles.
2. Some countries may run out <u>of</u> oil soon.
3. We throw <u>away</u> 140 million mobile phones every year.
4. Man-made materials take a long time <u>to</u> degrade.
5. Millions of plastic bags <u>are</u> sent to landfill sites every day.
6. All mobile phones are made <u>of</u> plastic and other materials.
7. Manufacturers can collect waste paper and recycle <u>it</u>.
8. There are many problems <u>with</u> plastic.

Extended writing

Exercise A

1. The verb *reuse* means to give an old product a new use.
   The verb *recycle* means to turn unwanted or waste products into a new item.
2. Answers depend on students.

Exercise B

Answers depend on students.

Exercise C

Answers depend on students.

Exercise D

Answers depend on students.