Listening

6 Science and technology

UNIT AIMS

LISTENING SKILLS
Identifying and avoiding distractors
Matching

SPEAKING SKILLS
Part 3: Making generalizations

PRONUNCIATION
Sounding interested

EXAM LISTENING
Section 4





Topic talk

1 Look at the pictures and answer the questions below.

a What role do scientists and engineers play in the situations in the pictures?
b To which other areas of life do scientists and engineers contribute?
c What skills and qualities do you need to be a scientist or an engineer?

2 Match the branches of science (1–10) with the area each one involves (a–j).

1 biology	**a** forces and energy in the world around us
2 chemistry	**b** chemical elements, their compounds and how they react
3 physics	**c** the earth's atmosphere and weather
4 psychology	**d** the mind and its effect on behaviour
5 botany	**e** society and how human beings behave in groups
6 astronomy	**f** plants, animals and all living things
7 sociology	**g** the structure and materials of the earth, e.g. rocks and minerals
8 geology	**h** the environment and the things that live in it
9 meteorology	**i** plants
10 ecology	**j** the stars, planets and galaxies

LIVEWORKSHEETS

3 Do you study or you have studied any of these sciences? Do you plan to study any of them in the future?

4 Which branch of science would you describe in the following ways? Give reasons for your answers.

a the most interesting
b of the most practical use
c the most difficult to study
d of the most relevance today

5 What are the adjectives for each of the nouns in 2?

Example
biology: biological

6 How have engineers and scientists contributed to the following areas of life? Think of at least one example for each area.

a buildings and homes
b communication
c food and agriculture
d health and medicine
e natural disasters
f travel and transport
g work
h power and energy

7 Look at the list of scientific and engineering achievements (a–j). Match the achievements to the examples (1–10).

a	water supply and distribution	**1**	cardiac pacemaker, kidney dialysis machine, laser surgery
b	imaging	**2**	stainless steel, nylon, carbon fibre
c	agricultural mechanization	**3**	hydraulic brakes, electronic fuel injection system, airbags
d	household appliances	**4**	the transistor, the microprocessor, the integrated circuit
e	high-performance materials	**5**	railways, light bulbs, domestic heating systems
f	roads	**6**	tractors, the internal combustion engine, the combine harvester
g	electrification	**7**	canals, desalination plants, pipes
h	electronics	**8**	radar, photography, ultrasound
i	health technologies	**9**	the washing machine, the dishwasher, the vacuum cleaner
j	the motor car	**10**	motorways, tarmac, Catseyes

8 Number each achievement (a–j) in 7 according to how important you consider it. (1 = least important, 10 = most important).

9 Compare lists with another student. Explain the reasons for your choices.

Example
I think electronics are important because they contribute to so many other things. Without them we wouldn't have computers, mobile phones or TVs.

LIVEWORKSHEETS

Listening skills

Identifying and avoiding distractors

Technique

A distractor is a key word used in the listening which is specifically designed to distract you and lead you to an incorrect answer.

1 Read the following multiple choice question and answer questions a and b.

> Dan got the idea for his research from
>
> **A** a friend of his tutor's
>
> **B** a postgraduate student in his department
>
> **C** an article he read in a scientific journal

a What are the key words in the question? Underline them.
b Can you think of any synonyms for the key words?

2 Read the audio script below of part of the listening task to find the answer to 1.

a What is the correct answer? _____

b Underline the distractors. What information tells you that the distractors are incorrect?

Dan I've been doing some research into the popularity of engineering as a university subject and in particular the number of females choosing this subject. My main research was based on UK home students but I wanted to make a comparison with international students in the UK and with students studying engineering in other countries.

First, a little about my reasons for choosing this area of research. Well, a few months ago I was talking to a friend who studies chemistry and she mentioned that her tutor was concerned about falling admissions in their department. This got me thinking about student numbers in engineering. Soon after I noticed an editorial piece in *Science Today* which mentioned that the numbers of postgraduate engineering students had declined in recent years, although the number of female students had increased. I therefore decided to carry out my own research in this field.



LIVEWORKSHEETS

3 Read the next question. Underline the key words and think of any synonyms.

Who was questioned in Dan's survey?

A academic staff in his department

B undergraduate students from other countries

C postgraduate students studying overseas

4 2.1 Listen and answer the question in 3. Audio

5 Did you hear any distractors? How did you know what the correct answer was? Look at the audio script or listen again and find the distractors.

Matching

Exam information

In matching tasks, you will be given a number of options to match to the questions. You will hear the questions in the same order as they are written on the question paper.

6 2.2 Listen to the final part of the talk. Which statement applies to each of the following people who were interviewed by Dan? Audio

*Choose **FOUR** answers from the box and write the correct answer, **A–F**, next to questions **1–4**.*

A	disconnected in the middle of the interview
B	was annoyed by the questions
C	withheld information
D	refused to participate
E	was suspicious of Dan's motives
F	was not easy to locate

1 a postgraduate student from China .....

2 a female student at a foreign university .....

3 a male undergraduate .....

4 a contact of Dan's tutor .....

Technique

Underline the key words in the question and/or options and think of possible synonyms or paraphrases.

LIVEWORKSHEETS

Exam listening

Section 4

2.6 Audio

Questions 31–34

*Choose the correct letter, **A**, **B**, or **C**.*

31 The number pi

A is usually approximated to three decimal points

B is an infinite number

C can be shown as an exact fraction

32 The date of World Pi Day

A is July 22nd

B is a fraction shown as a date

C is a decimal shown as a date

33 The Ancient Babylonians

A discovered an imprecise value of pi

B calculated pi as exactly 3

C used pi to calculate building size

34 The Ancient Egyptian document mentioned

A is the first written record of pi

B gives an accurate value of pi

C is a reproduction of a previous one

2.7 Audio

Questions 35–40

Which statement applies to each of the following people?

*Choose **SIX** answers from the box and write the correct letter, **A–I**, next to questions 35–40.*

A	had a formula named after him
B	made a mistake
C	proposed a name for the ratio
D	proved the irrationality of pi
E	used a calculator to calculate pi
F	holds the world record for calculating the most digits of pi
G	used shapes to calculate pi
H	achieved a feat of memory
I	proved the transcendence of pi

35 A Greek academic .....

36 A British mathematician .....

37 A German mathematician .....

38 An amateur mathematician .....

39 A French computer programmer .....

40 A postgraduate student .....

LIVEWORKSHEETS

Writing

2 Communication and the internet

UNIT AIMS

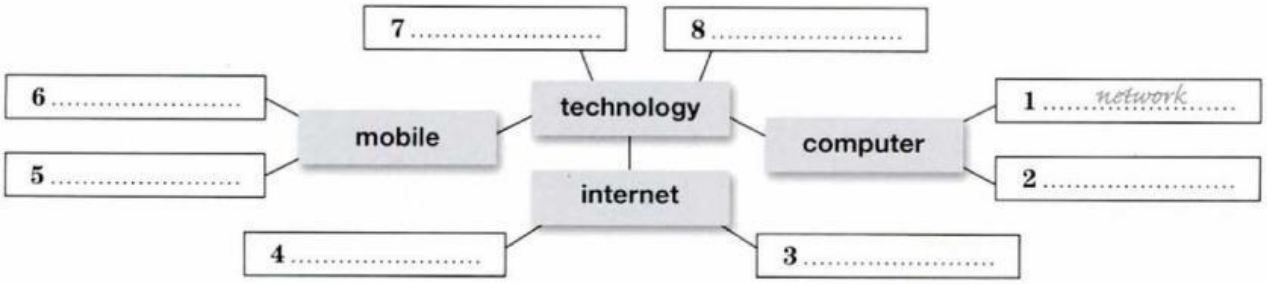
TASK 1 Noun phrases
Describing trends
Adjectives and adverbs

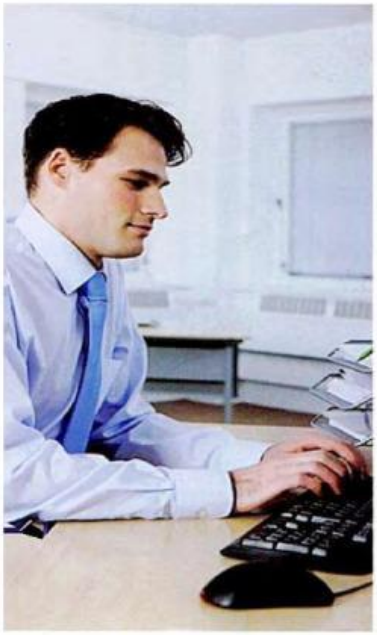
TASK 2 Adjective and noun forms to establish opinion
Introducing an evaluation and opinion essay
Organizing ideas

Task 1 Noun phrases

1 Complete the diagram with collocations. Use words from the box.

app ■ device ■ domain ■ hacker ■ network ■ obsolete
state-of-the-art ■ traffic





2 Choose two phrases from the diagram. Think of three ways that these things affect your own life.

At work I keep all my documents on a computer network because different staff members have to access them. When the network goes down it is annoying because I can't do any work. I don't have a computer network at home unless you count the internet.

Technique
Look out for nouns with the same or similar meaning in adjacent sentences. You may be able to combine them into one sentence, e.g. the nouns *brand* and *device* are used in a similar way in the example below so can be combined easily.

3 The sentences in a have been rewritten as a single sentence. Following the same pattern, rewrite sentences b–f.

a The first mobile phone was a Motorola brand. It was a 9-inch device and an important innovation.
The first mobile phone, a 9-inch Motorola device, was an important innovation.

b Mobile apps are software applications. They are downloadable tools and are often free.

c The cloud is a virtual space on the internet. It is a storage environment not reliant on a PC.

d The first website went online in 1991. It was a French-based technical web page.

e Instant messaging allows quick transmission of text. It is an enhanced mode of communication in real time.

f Smart phones have a wide variety of applications. They are one of the biggest selling technological devices available.

Technique
Use a variety of vocabulary and grammar forms in order to make your writing interesting. Repeating words and structures makes a text dull and difficult to read.

LIVEWORKSHEETS

4 Look at the Task 1 question below. What key trends can you see in the table?

The table gives information about the number of people working as researchers in technology per million people in five countries. Summarize the information by selecting and reporting the main features, and make comparisons where relevant.

	2003	2004	2005	2006	2007
Turkey	47	50	70	83	106
Poland	285	263	234	227	226
Mexico	147	212	242	179	183
Moldova	103	92	89	97	114
Togo	18	17	23	17	18

5 Read the sentences about the table. Look at the words in italics. Which is NOT correct?

1 The table *illustrates/provides data about/draws* the number of technology researchers per million of population who were working in five countries from 2003 to 2007.
2 Mexico and Togo followed a similar *pattern/style/trend* as they both reached a peak in 2005, with 242 and 23 researchers *respectively/in turn/each*.
3 The number of researchers in Mexico was greater than for Togo *in general/overall/ in summary*.
4 In Turkey numbers *climbed/slipped/increased* steadily from 47 in 2003 to over double that in 2007.
5 Poland's numbers *fell/peaked/dipped* to 226 in 2007 although they remained higher than those of any other country for most of the period.

6 The last two sentences in 5 describe upward and downward movements in the data. Write the verbs from the two sentences in the correct place in the table below.

Verbs showing downward movement	Verbs showing upward movement	Verbs showing little or no movement
	climbed,	

7 Add the verbs below to the correct place in the table in 6.

decline ■ decrease ■ drop ■ go down ■ go up ■ grow (to) ■ hold (steady at) ■ level (off)
plunge ■ range ■ reach ■ remain (stable at) ■ rise ■ slump ■ soar ■ span ■ stay (constant at)

8 Match 1–3 with a–c to make sentences about Mexico. Underline the adverb in each sentence.

1 The number of researchers in Mexico	**a** rose very slightly, ending at a total of 183.
2 From 2005 to 2006 numbers	**b** increased dramatically to a high of 242.
3 Finally they	**c** dropped steeply again to 179.

LIVEWORKSHEETS

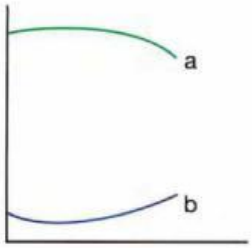
9 Look at the line graphs opposite. Which line a–d matches sentence 1 about Mexico in 8? Which matches sentences 2 and 3?

10 Match the sentences a–d to the line graphs opposite. Then write the adverbs in the correct place in the table below.

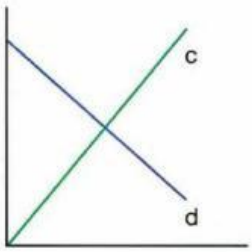
~~dramatically~~ ■ gradually ■ marginally ■ markedly ■ moderately ■ modestly
noticeably ■ progressively ■ sharply ■ significantly ■ slightly ■ steadily

a The numbers rose. **b The numbers dropped.**	**c The numbers soared.** **d The numbers plunged.**
1	7 *dramatically*
2	8
3	9
4	10
5	11
6	12

1



2



11 Draw two lines below to match the adverbs in bold in a and b.

a The numbers fluctuated **wildly**. **b** The numbers varied **gently**.

12 Read the sentences below. Which sentence has the pattern verb + adverb and which has the pattern *there is/was* + adjective + noun?

a The number of researchers in Mexico rose dramatically to a high of 242.
b There was a dramatic rise in the number of researchers to a high of 242.

13 Rewrite the sentences below using the alternative pattern.

a In Turkey numbers increased steadily from 47 in 2003 to over double that in 2007.

b There was a slight fall in Poland's numbers to 226 in 2007.

c From 2005 to 2006 we can see a steep drop in Mexican numbers to 179.

d Finally they rose very slightly, ending at a total of 183.

14 Look at the information about Moldova in 4. Write one sentence about the data using the pattern verb + adverb and one sentence using the pattern *there is/was* + adjective + noun.

Technique

Include adverbs or adverbial phrases in Task 1 answers in order to show that you can evaluate the data given. Make sure that the adverb you choose collocates (matches) with an appropriate verb, e.g. *The numbers soared ~~modestly~~ dramatically*.

Technique

If you find it difficult to work with the numbers in a table, draw a very rough line graph of the information first to help you visualize it. Alternatively put a small 'up' ↗ 'down' ↘ or 'level' → arrow after each number in the table comparing it to the preceding number, to help you see the trend.

LIVEWORKSHEETS

Vocabulary

Telecommunications

1.1 Before you listen, answer these questions.



One of the first mobile phones

1 Do you have: a mobile phone; a laptop computer; a portable music device; an email address?

2 How long have you had it/them?

3 If you need to connect to the Internet, what do you use? How long does it take you?

4 How would you describe the technology you use?
A up-to-date B dated C state-of-the-art

5 How do you prefer to stay in touch with people?
A by post B by email C by phone

1.2 12a Listen to a conversation about two different mobile phones and say whether the questions below apply to

Audio

A the Smart Phone

B the Optima

C both the Smart Phone and the Optima.

Which phone

1 is small? (A) compact .....

2 is easy to use? .....

3 has normal phone buttons? .....

4 shows a calendar without being asked?
.....

5 has the most up-to-date technology?
.....

6 can obtain information from the Internet?
.....

Audio

1.3 12a Now listen again and next to your answers in **1.2** write the words that paraphrase the underlined words.

1.4 Complete the crossword with words from the recording.



Across

1 easy to use

3 open a computer file

6 move up or down on a screen

7 work a machine

9 the keys on a computer, typewriter or piano

11 an action or purpose something is designed for

Down

2 show on a screen

4 have specific tools

5 save or keep safe

8 the part of a computer that stores information

10 information

1.5 12b Listen to five people speaking. Each one has forgotten the name for something. What is the word they need to use?

Audio

Speaker A: I use my ..... every day.
Speaker B: I use my computer as a ..... .
Speaker C: I would like to get a ..... .
Speaker D: I can't imagine what it was like without ..... .
Speaker E: I would love to get my mother a ..... .
Which two of the words you have used needed the suffix *-or*?

LIVEWORKSHEETS