

3a Is technology the answer?

Kolkata's streets crammed with vendors, pedestrians and taxis.

Speaking

- 1 Work in groups. Look at the photo. Which of these following problems does it illustrate?

congestion epidemic
overpopulation pollution
poverty starvation

- 2 Which of these problems could have a technological solution?

Listening

- 3 1.17 Read the opinions (1–3). Then listen to the presentation about overpopulation. Match the opinion with the people (a–c).

- 1 Whenever the population is too big, a disaster happens and reduces it.
- 2 Many people will die because there is not enough food for the growing population.
- 3 Science and technology will find a solution to the problem of overpopulation.

- a the speaker
b Thomas Malthus
c Paul Ehrlich

- 4 1.17 Listen again. Are the sentences true (T) or false (F)?

- 1 The speaker has some ideas for action which can immediately solve the problem of overpopulation.
- 2 Paul Ehrlich thought that we should control the number of babies being born.
- 3 There will be seven billion people in the world by the middle of the century.
- 4 Nanotechnology has saved the world from mass starvation.
- 5 There is not enough space on the Earth for nine billion people.
- 6 The growth in the 'global middle class' will put big pressure on resources.
- 7 According to the speaker, people are basically lazy. They will only act when they have to.

- 5 What is the meaning of each underlined prefix in these words from the passage? Match the prefix (1–6) to the meaning (a–f).

- | | |
|--------------------------|----------------------------|
| 1 <u>bio</u> fuels | a very small |
| 2 <u>nano</u> technology | b very big |
| 3 <u>mega</u> cities | c extremely |
| 4 <u>micro</u> phone | d of life or living things |
| 5 <u>semi</u> -retired | e half |
| 6 <u>ultra</u> -cautious | f $\times 10^{-9}$ |

WORDBUILDING prefixes

There are many prefixes in English taken from Latin and Greek, each of which have a particular meaning.

microphone, megacity

For further information and practice, see Workbook page 123.

- 6 Do you share the speaker's faith in science and technology? Why? / Why not?

7 Pronunciation /r/ and /t/ in American English

- a** **1.18** The speaker of the passage is American. Listen to these words from the passage. What can you say about how she pronounces the letter *r*? And the letter *t*?

answer better birth eating first
heart megacities part rate world

- b** **1.19** Now listen to these phrases said by an American speaker. Write in the missing words. How do you think a British speaker would pronounce /r/ and /t/ in these phrases?

- | | |
|-----------------|--------------------|
| 1 _____ metres | 4 a _____ letter |
| 2 an _____ site | 5 a _____ birthday |
| 3 a _____ bar | 6 a _____ beater |

- c** **1.20** Listen and check.

Grammar future forms review

FUTURE FORMS REVIEW

will

One moment, I'll just adjust my microphone.
It will be a bad thing for the planet if all those people start eating meat and driving big cars.
The population will probably peak at around 9 billion by the middle of the century.

going to

I'm not going to speak for too long.
Those of you who have come here looking for answers are going to be disappointed.

about to

Science is about to step in again with nanotechnology solutions.

Present continuous

I'm speaking to a government committee tomorrow.

Present simple

Oh, by the way, one more thing: the necessity train arrives in half an hour.

For further information and practice, see page 87.

- 8** Look at the grammar box. Match the verb forms (1–5) with their uses (a–i). Some verb forms have more than one use.

- | | |
|------------|----------------------|
| 1 will | 4 present continuous |
| 2 going to | 5 present simple |
| 3 about to | |

- a scheduled or timetabled event
- a future event in an *if* or *when* clause
- a prediction
- a confident prediction based on present information
- a decision made at the time of speaking
- an intention or previously made decision
- a formal arrangement
- a simple statement of fact
- an event in the immediate future

- 9** Underline the correct future forms in this presentation. Sometimes there is more than one possibility.

I think ¹ we wait / we'll wait a few moments until everyone ² arrives / will arrive ... OK, ³ I am beginning / I'll begin now. Hello everyone and thank you for coming to hear my presentation about appropriate technology. I am ⁴ about to / going to speak for about 30 minutes and then I ⁵ will take / am taking your questions. If there ⁶ is / is going to be anything that you don't understand, please ask me then rather than during the presentation. My colleague, Liesel Babel, ⁷ talks / is talking this afternoon in the green seminar room, if people would like to learn more about appropriate technology. I think her session ⁸ starts / is starting at two o'clock. She ⁹ is speaking / will speak about her experience in the field, working on various development projects in Africa. OK ¹⁰ I am going to show / I'll show you a short film now, so could someone at the back please turn the lights down?

- 10** **1.21** Complete the radio news headlines about overpopulation using an appropriate future form. Then listen and check.

- World leaders _____ (meet) in Geneva tomorrow to discuss the issue of overpopulation.
- In the next few weeks, the government _____ (introduce) a fee for each child that couples have after their first two children.
- Scientists say that space colonies _____ (be) the only solution for overpopulation in the medium term.
- Doctors have said that in future they _____ (not / spend) so much effort keeping the old alive.
- The government _____ (launch) a new education programme later today to encourage women to have fewer children.
- People _____ (have to) change their lifestyles if they _____ (want) the world's resources to support the growing population in the coming years.

- 11** Work in pairs. Underline all the time expressions in the sentences in Exercise 10. Then put them in order of the nearest to the most distant future. Compare your answers with another pair.

Speaking

- 12** Work in groups. Decide which of the ideas in Exercise 10, or one of your own, are the best course of action for dealing with overpopulation. Then explain your plan and the reasons for it to the rest of the class.

3b Revealed world

Speaking

- 1 Work in pairs. What information (news, travel advice, maps, a grammar rule, etc.) do you get through printed media and what through digital media?

► WORDBUILDING compound nouns (noun + noun)

We can use two nouns together to mean one thing.
information overload, computer graphics

For further information and practice, see Workbook page 123.

REVEALED WORLD

By Tim Folger

The regular world presented to us by our five senses – you could call it reality 1.0 – is not always the most user-friendly of places. We get lost in unfamiliar cities; we meet people whose language we don't understand. So why not try the improved version: augmented reality (AR) or reality 2.0? AR technology superimposes computer-generated images on the real world, via a mobile phone camera or special video glasses.

Early forms of AR are already here. With the right downloads, smart phones can deliver information about nearby ATMs and restaurants and other points of interest. But that's just the beginning. A few years from now the quantity of information available will have increased enormously. You will not only see that there's a Chinese restaurant on the next block, you will be able to see the menu and prices, read reviews of it and even find out how busy it is at the time.

This is where the next revolution in computing will take place: not in ever-more sophisticated games that exist in a virtual reality world, but rather in the interface between the real world and the information brought to us via the Internet. Imagine bubbles floating before your eyes, filled with cool information

Reading

- 2 Work in pairs. Look at the picture and the labels. Which information would you find useful or interesting if you were a visitor in Washington D.C.? What other information might you want?
- 3 Read the article about augmented reality and complete the table.

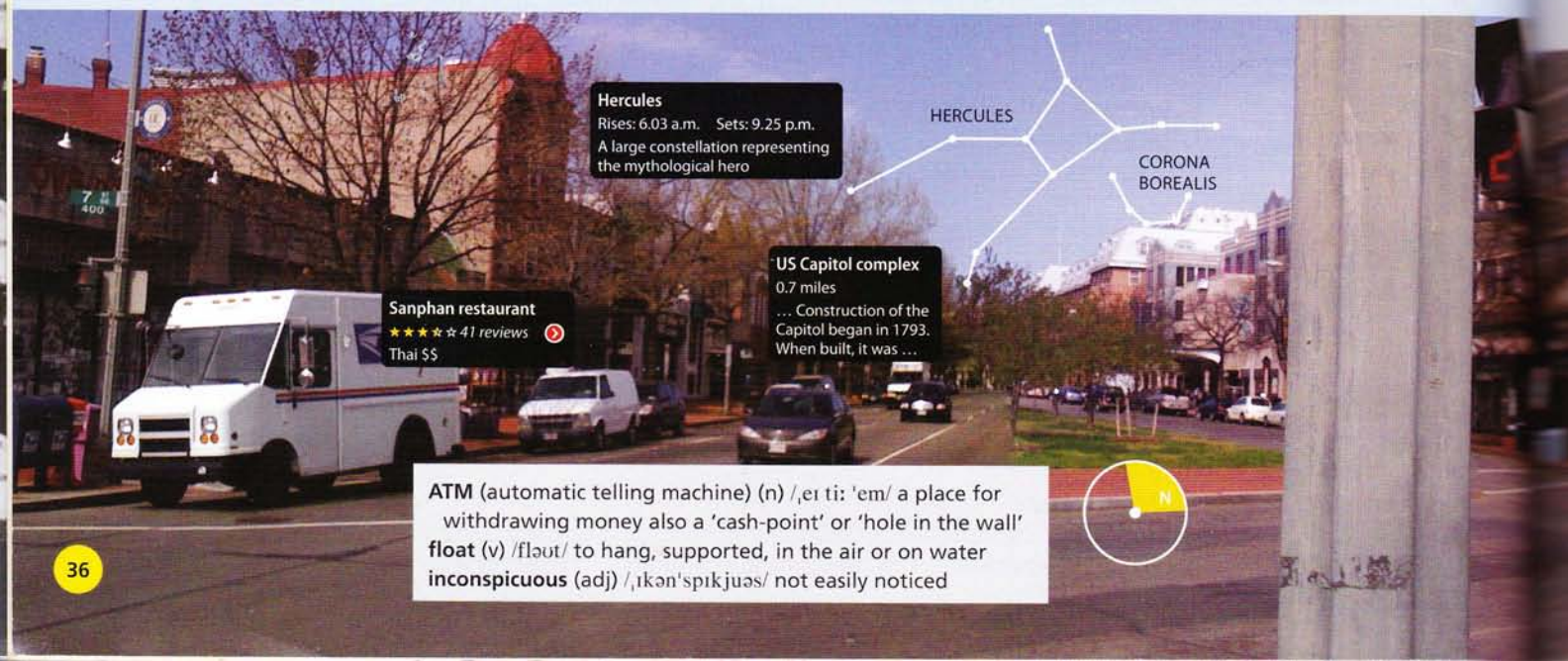
Other terms for augmented reality:	1 <u>AR</u>
	2 _____
Examples of augmented reality already in use:	3 _____
The kind of information we will be able to access:	4 <u>restaurant menus and prices</u>
	5 _____
Devices we will use to see the augmented reality world:	6 _____
	7 _____
Future applications for augmented reality technology:	8 <u>3-D repair instructions</u>
	9 _____

about anything and everything that you see in front of you. Information overload? Perhaps not.

Let's jump ahead to ten years from now. A person trying to fix their car won't be looking at a repair manual online or a book with illustrations; they will be wearing a device that projects animated 3-D computer graphics onto the equipment under repair, labelling parts and giving step-by-step guidance. Such technology is already being used by trainee mechanics in the US marines.

The window onto the AR world can be a smart phone or special video glasses that look like wraparound sunglasses. But in ten years' time these will have been replaced by contact lenses etched with tiny LEDs, which display text and images at a readable distance in front of the eye. So a deaf person wearing these inconspicuous lenses will be able to see a real-time transcript of what people are saying as they speak.

The question is: while we are all absorbed in our new augmented reality worlds, how will we be interacting with each other?



4 Discuss the questions. Then tell the class what you think.

- 1 Which of the AR applications described in the article do you think will be really useful?
- 2 Can you think of any other possible applications?
- 3 What do you think is the answer to the author's final question?

Grammar future continuous and future perfect simple

5 Look at the sentences (a–e) from the article and the verbs in bold. Answer the questions.

- 1 Which sentences describe an action in progress at a certain time in the future?
 - 2 Which sentences describe an action completed before a certain point of time in the future?
- a A few years from now the quantity of information available **will have increased** enormously.
- b Ten years from now a person trying to fix their car **won't be looking** at a repair manual.
- c They **will be wearing** a device that projects animated 3-D computer graphics onto the equipment under repair.
- d In ten years time this device **will have been replaced** by contact lenses etched with LEDs.
- e But in our new augmented reality worlds, how **will we be interacting** with each other?

► FUTURE CONTINUOUS and FUTURE PERFECT SIMPLE

Future continuous

We will be using ...

We won't (will not) be using ...

Will we be using ...?

Future perfect simple

We will have used ...

We won't (will not) have used ...

Will we have used ...?

For further information and practice, see page 88.

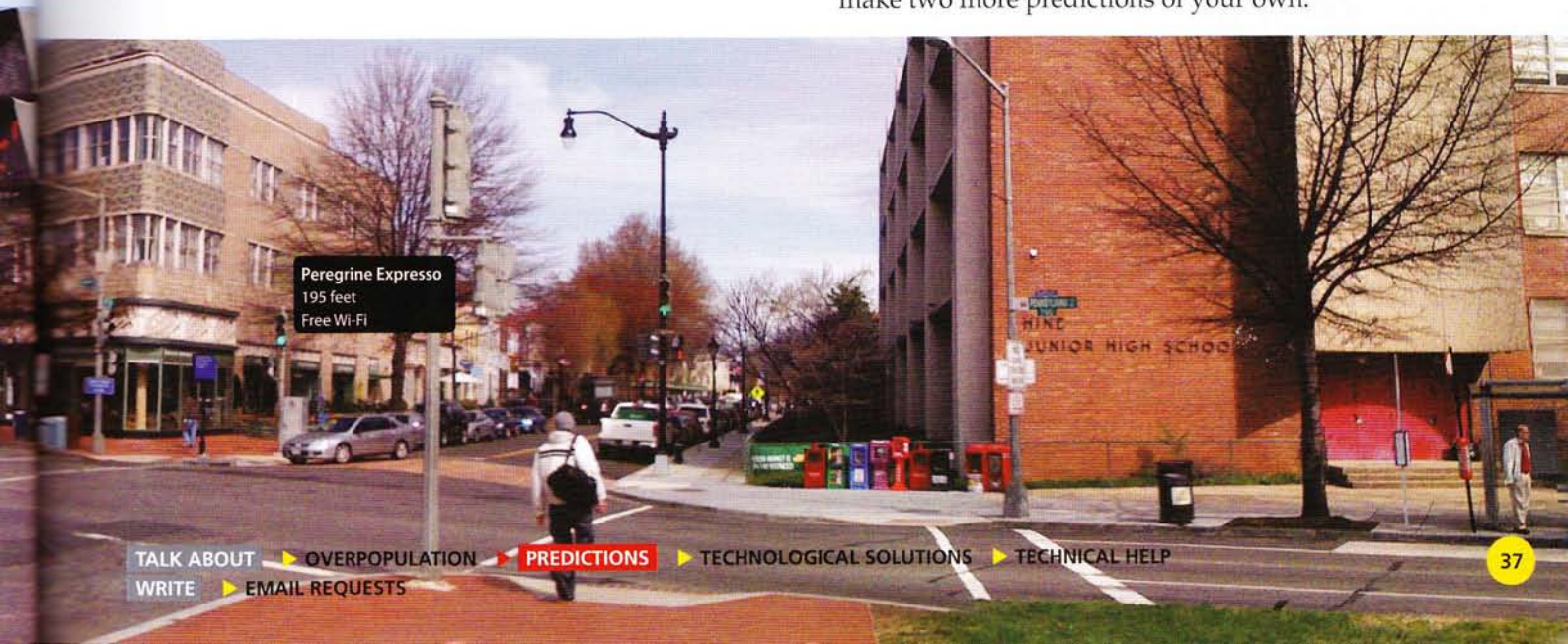
6 Look at the grammar box. Complete predictions (1–10) for mobile technology made by various industry experts by putting the verb in the future continuous or future perfect simple.

Ten years from now ...

- 1 ... very few people in the developed world _____ (use) credit cards because mobile phone payment _____ (replace) them.
- 2 ... it is predicted that people _____ (sit) in front of traditional computers much less than they do now.
- 3 ... data security _____ (become) a huge issue because mobile devices will store so much personal information.
- 4 ... advertisers _____ (put) their adverts on mobile devices rather than on traditional media like TV, magazines, etc.
- 5 ... we _____ (get) accustomed to advertisements which target us directly with personalised messages.
- 6 ... body sensors connected to our mobile devices _____ (provide) us with real-time information about our health.
- 7 ... the problem of short battery life in phones _____ (disappear) because phones and mobile devices _____ (use) more sophisticated power sources, like kinetic energy.
- 8 ... mobile phones _____ (become) very sophisticated, so that as well as being your diary, address book and music player, you _____ (also / use) them as your secretary, accountant and lawyer.
- 9 ... everyone _____ (use) universal translators in their mobile phones, which will make language learning less necessary.
- 10 ... it is unlikely that we _____ (find) a way to use technology to know exactly where people are, because legally it is so difficult.

Speaking

7 Work in groups. Discuss the predictions for mobile technology in Exercise 6 and decide which ones you think will come true and which not. Then make two more predictions of your own.



3b Smart technology

Listening homes of the future

- 1 1.23 You are going to listen to an interview with a researcher about smart homes of the future. Tick (✓) the items you think you will hear. Then listen and check.

kitchen gadgets	<input type="checkbox"/>	visual media	<input type="checkbox"/>
water use	<input type="checkbox"/>	security	<input type="checkbox"/>
GPS systems	<input type="checkbox"/>	lighting	<input type="checkbox"/>
sound-proofing	<input type="checkbox"/>	hot water systems	<input type="checkbox"/>

- 2 1.23 Listen again and choose the best option (a–c).

- The aim of the radio programme is to find out which technology ...
 - is going to be of practical use to us in the near future
 - is the most imaginative
 - will help us to be more environmentally-friendly
- Intelligent fridges will be more popular when ...
 - they have been developed more
 - they can tell you about the condition of your food
 - they are less expensive
- Ultrasonic showers are not likely to be used soon because ...
 - sonic waves do not clean the body particularly well
 - we still have plenty of water
 - they could be dangerous
- The researcher thinks that in the future we could sound-proof rooms using ...
 - magnetic fields
 - high-tech insulation materials
 - energy fields
- Which of the following will we NOT be able to do with a kitchen surface in the future?
 - watch TV
 - defrost a pizza
 - clean it by hand
- In the future, we will be using electric lighting in our homes ...
 - in place of natural light
 - to simulate natural light
 - to help control our moods



- 3 Look at the words and expressions from the interview. Match the words or expressions in bold (1–8) with the correct definition (a–h).

- | | |
|-------------------------------|--|
| 1 new gadgets | a people who love technology |
| 2 just a gimmick | b clever devices |
| 3 techies | c distant |
| 4 a pipe dream | d imitate or copy |
| 5 remains to be proven | e protected from |
| 6 a remote possibility | f fantasy |
| 7 sound- proof | g thing that simply attracts attention |
| 8 simulate the sunrise | h shown to be true |

Grammar future continuous and future perfect simple

- 4 Read the sentences and choose the correct option.

- In a few years, I'm sure we *will be hearing* / *will have heard* a lot more about this technology.
- In the future, cookers *will be making* / *will have made* our meals for us.
- We *will all be using* / *will all have used* intelligent fridges when food packaging is intelligent too.
- In the next ten years, lack of water *will be becoming* / *will have become* a big issue, so we need to find alternatives.
- In the future, people *will be using* / *will have used* energy fields that isolate a particular space from the rest of the house.
- I don't think people *will be cleaning* / *will have cleaned* kitchen surfaces either in the future.
- Soon, we *will be installing* / *will have installed* surfaces that can act as computer or TV screens in almost every room.
- I think in ten years or so, that kind of technology *will be becoming* / *will have become* quite common in new-build houses.
- Next year, our company *will be launching* / *will have launched* a new lighting system for bedrooms that simulates the sunrise.