

3.05 Lesson 8A, Exercises 3 and 4

Speaker 1 I've absolutely no doubt that global warming is happening and that it's causing the world's climate to change. Just look at the number of irregular weather phenomena in recent years – hurricanes, storms, floods, drought, and so on. It's beyond doubt – to my mind anyway – that it's caused by human activity. It's imperative that we act now to prevent it getting much worse. Governments should invest massively in renewable energy, set up wind farms, tidal barrages, and so on. And don't fall into the trap of thinking that nuclear energy is the answer to our problems, because there's the problem of disposing of the nuclear waste.

There are lots of ways to reduce your own carbon footprint too. But to make a real impact on global warming we have to make radical changes to the way we live. For one, we should travel less. Don't go abroad on holiday. And if you have to travel, avoid flying if you can use a train or coach instead. Second, become a vegetarian. Meat production causes global warming. How? When farm animals digest food, they release vast amounts of methane, which is a very potent greenhouse gas.

Speaker 2 I must say, I'm a bit of a global warming sceptic. I know I'm in a minority, but I do think people exaggerate the problem. I agree that the earth is getting warmer, but I'm not 100% sure that human activity is entirely responsible for it. I think there are natural processes at work too. In the past, the earth has been much hotter – and much colder – than it is today, and that had nothing to do with us.

And anyway, I don't think there's a great deal we can do about global warming. Governments waste huge amounts of money on inefficient renewable energy schemes, like installing wind turbines and solar panels. Of course we should try to conserve energy and avoid polluting the atmosphere and oceans, but you can't persuade people to change the way they live. Basically, I don't think we should worry too much about climate change. We just have to learn to live with it.

Speaker 3 The vast majority of scientists have linked the increase in the earth's temperature with CO² emissions, so I guess it must be true. The problem is, what to do about it. It's all very well for us in the developed world to say we must cut carbon emissions and rely less on fossil fuels. We've already benefited from centuries of economic growth based on high energy consumption. What about India and China? They are going through a kind of industrial revolution, as we did. What right have we to tell them what to do? Especially if we don't practise what we preach.

I think it's down to each of us to do our bit: use public transport to get to school and work, insulate our homes, reuse and recycle. Every little bit helps. As for what the Government should do, personally I think the answer is to build more nuclear power stations. We'll have used up all the natural resources like coal, gas and oil by 2100, so I think we'll have no choice anyway.

3.06 Lesson 8C, Exercise 1

Solving the food crisis

Every night, almost one billion people go to bed hungry. How can we feed all these undernourished people? Farmers all over the world have to contend with weather, insects and natural disasters, which are capable of destroying crops and ruining years of hard work. And the population is set to rise to nine billion by 2050. Here are four possible solutions.

GM crops

Proponents of genetically modified crops (GM crops) claim that they will hugely increase food production. Scientists have developed drought-resistant and disease-resistant crops, more productive crops and crops with increased vitamins. Anti-GM protesters worry about health risks and damage to other plants that grow near the GM crops.

Vertical farming

Another answer could be to grow food in buildings. Advocates of vertical farming are suggesting we construct multi-storey, climate-controlled farm buildings in the heart of our cities. One indoor hectare of land would be equivalent to about five hectares outdoors, so we could grow year-round crops that would easily feed whole cities. Opponents point to the cost, the increased energy use and the effect on farmers.

Eat less meat

Others say the solution lies not in new technologies, but in eating less meat. It takes about seven kilos of corn to produce one kilo of beef. That quantity of corn will keep more people alive than that quantity of beef. But this is a message the world doesn't want to hear. Meat consumption is rising steeply.

Increase aid

Rich countries have far more food than they need and waste vast amounts of it – 6.7 million tonnes a year in the UK alone. We can afford to send surplus food to people who desperately need it. We could also simply give more money to developing countries, so they can buy food. Critics say that this makes people dependent on rich countries and is only a short-term solution.

3.07 Lesson 8C, Exercises 4 and 5

Vertical farming isn't actually a very new concept. The idea has existed since at least the 1950s. However, it is only recently that we have begun to seriously explore the idea and put it forward as a solution to the world food crisis.

So what has vertical farming got going for it? At present, over 80% of the world's land that is suitable for farming is already being used. In order to grow enough food to feed the nine billion people that will be living on our planet in the middle of the 21st century, we'll need ten million more square kilometres of land – that's an area 20% bigger than Brazil!

The buildings used for vertical farming won't take up much space because they are tall – they're skyscrapers. They can be built in the middle of cities, where all the people are. The food would be on people's doorsteps, almost literally, so transport costs are minimal. That's great for helping to combat global warming and climate change.

Another advantage is that all food could be grown organically. The crops would need less water than traditional ones because all the water is recycled. All the nutrients are recycled too. The only thing that actually leaves the building is the produce; the food.

Vertical farming would create jobs too. Imagine the small businesses that would spring up around these farms – for packaging, distribution, catering, and so on – they would employ thousands of people.

Where is it likely to happen? Who will benefit most from it? First and foremost, countries that don't have agriculture: cold countries like Greenland and Iceland, and hot, desert countries like Saudi Arabia. You would have sealed buildings in these places with an artificial climate – artificially warm in Iceland; artificially cool in a hot country.

The social benefits are amazing: everybody gets good, healthy food. People have reacted really well to this idea – I think the idea's about to develop into reality.

3.08 Lesson 8D, Exercise 2

Space Junk

A dangerous mission

A piece of rubbish in outer space has threatened the lives of six astronauts, prompting calls for something to be done about the mess we have created around our planet. The six astronauts – three Russians, two Americans and one Japanese – form the crew of the International Space Station (ISS). They were forced to get to their escape capsules and prepare for an emergency journey back to the Earth. The piece of debris came very near to the station, but fortunately passed by without causing any damage.

What a load of rubbish

A Russian official said that only a tenth of all objects in space are working pieces of equipment. The other 90% is a jungle of junk – leftovers from half a century of human activity in space. There are not only 22,000 large pieces of rocket, shuttle, satellite and sputnik, but also over 500,000 smaller bits, which are only a few centimetres in size. Surrounding all of these are also millions of tiny particles, for example, flakes of paint that have come off space vehicles. The problem is that all of this stuff is travelling at several kilometres per second. Even the tiniest, almost invisible speck could create a centimetre-deep hole in the side of a rocket or space station, potentially causing a leak. And a larger chunk could possibly destroy it – and any human life on board.

A growing problem

Unfortunately, the situation can only get worse. The number of satellites being sent into space is increasing rapidly. In the past ten years, an average of 76 satellites per year have been launched. And in the next ten years, the number of satellites will grow by around 50%. The latest analysis of the situation suggests that 1,145 new satellites could be launched during that time, mostly for broadband and satellite phone systems. When satellites become defunct, they stay in low-Earth orbit, eventually falling and burning up when they re-enter the Earth's atmosphere, as meteorites do. New satellites will have to be built to new standards, so that when they reach the end of their useful life, they will have enough energy left to travel back immediately into our atmosphere to burn up. At the moment, 80% of all space junk is around 1,200

miles above the Earth, which is called low-Earth orbit. Spacecraft have to orbit lower than this to avoid all the debris, and satellite companies have to navigate a way through the junk to place their equipment.

And we're not safe down here, either

Unfortunately, not all space junk burns up while re-entering the Earth's atmosphere. On average, one object a day survives re-entry. An American woman in Oklahoma was knocked down in January 1997 when she was struck by a lump of metal. Fortunately, she wasn't injured. 'The weight was comparable to an empty soda can,' the woman said. It was identified as debris from a rocket. Other parts of the rocket, including a steel tank and a titanium sphere, fortunately landed without causing any harm.

The biggest bit of rubbish to date

However, in the world of space litter, the biggest piece of junk would have to be Mir, the Russian space station, which is the heaviest object ever to orbit the Earth, apart from the Moon. The fifteen-year-old station began heading downwards on 23rd March 2001, and a month later, re-entered the Earth's atmosphere over the Pacific Ocean near Fiji. Though most of the station, weighing 130,000 kilogrammes, burned up in the atmosphere, about 1,500 fragments reached the Earth's surface. Holidaymakers on beaches in Fiji took photos of little bits of burning debris as they whizzed noisily through the sky above them. Fortunately most of them landed in the sea.

Time to clean up the sky

Occasionally debris collides with other debris, creating thousands more tiny pieces of space junk. So far, it is thought that there have been few such collisions, but what is feared is a kind of chain reaction, with debris fragmenting and going on to collide with other debris, creating a cloud of rubbish that would make it impossible for us to use the low-Earth orbit around our planet at all.

Some scientists think they might have come up with a solution to the problem of space junk. They want to put big 'cleaning robots' into the sky, in effect satellites which are able to locate and manoeuvre alongside large pieces of space junk. These satellites then attach a device to the debris which pushes it into the Earth's atmosphere, where it burns up.

The scientists say that each robot could safely remove up to ten objects a year. This would go some way to improving the situation, as long as collisions between debris do not increase in the meantime. Whatever the solution to the problem, experts all agree that something needs to be done to tidy up space sooner rather than later.

3.09 Lesson 8F, Exercise 2

Girl I think the best poster for encouraging people to recycle would be the third one. The reason I'd go for that one is that it's quite serious. What's more, it gives a lot of information about what exactly can be recycled: different metals and so on. That's very useful information. I wouldn't choose the first poster because it doesn't give very much information. And I also think it looks rather boring. It wouldn't appeal to teenagers of my age. Moving on to poster two ... I don't think poster two is a good choice because it isn't serious enough. Um, so, to sum up, I'd go for the third poster because it would have a greater impact and be more effective.

3.10 Lesson 8F, Exercises 5 and 6

Presenter What can be done to improve the environment where you live?

Boy Well, I live in a big city, and I do think they should ban cars from the centre. That would be a really good move. Why do I think that? Well, first of all it would improve the air quality a lot. Let me give you an example. When I go to school in the morning the exhaust fumes from all the cars are awful. You can hardly breathe! On top of that, banning cars would make the streets a lot safer. At the moment, I daren't cycle to school because it's too dangerous. But if there were fewer cars on the streets, I would cycle. Another thing they could do is plant more trees. They could plant them in the main square for example. The main reason is that they would make the city look nicer. But another reason is that we really do need more trees in the world because they absorb carbon dioxide and so help stop global warming.

3.11 Lesson 8F, Exercise 8

- 1 We've got bins for recycling paper, but we do need to recycle glass too.
- 2 I'm all for cutting our carbon footprint, but I do think the Government should come up with some better ideas.
- 3 We didn't install double glazing, but we did insulate the loft.
- 4 It isn't easy to save energy, but we do have to try.
- 5 The Government didn't cut carbon emissions, but it did promise to invest in renewable energy.

3.12 Skills Round-up 1–8, Exercises 4 and 5

- Stefan** Hi, Spikey. How are you?
- Spikey** What do you want?
- Stefan** Is Daisy there?
- Spikey** No, she isn't.
- Daisy** Who is it, Spikey?
- Spikey** It's Stefan. I'll have a word with him. She doesn't want to see you.
- Stefan** Oh. Why not?
- Spikey** You know.
- Stefan** No, I don't!
- Spikey** Why did you inform them about our plan?
- Stefan** What do you mean? What plan?
- Spikey** The cyber attack. On the supermarket website. They knew all about it. Somebody had told them how we were going to do it, the exact time, everything! You must have warned them.
- Stefan** Me? Why are you accusing me of doing it?
- Spikey** We hadn't mentioned it to anyone else. It must have been you!
- Stefan** But I promised Daisy I wouldn't say anything, and I didn't. I didn't even ...
- Narrator** A week later, in Stefan's office.
- Stefan** Stefan speaking.
- Daisy** Hi, Stefan. It's Daisy.
- Stefan** Daisy! Good to hear from you. How are you doing?
- Daisy** I'm fine. And I just want to say, I believed you ... when you said you hadn't told anyone about the cyber attack.
- Stefan** Thanks. Spikey didn't believe me, though, did he?
- Daisy** No, I'm afraid not. I've tried to convince him that you aren't like that, but ... well, you aren't exactly his favourite person, anyway.
- Stefan** I know!
- Daisy** Look, are you going to be at a charity event tonight? I think you mentioned that your company were supporters of Feed The Millions ...
- Stefan** Yes. The event at the Regal Hotel. I'll be there. Why?
- Daisy** Well, I'm going to be there too.
- Stefan** Really? Why? I mean ... good. I'm glad. But why?
- Daisy** I'll explain later. I just wanted to know there would be a friendly face ... See you later!
- Stefan** Yes, see you later.
- Daisy** Hi, Stefan.
- Stefan** Daisy! Good to see you!
- Daisy** Thanks. How's it going?
- Stefan** Fine, I think. But you didn't tell me why you were coming.
- Daisy** Oh, I'm meeting my dad here. His supermarket – Wesley's supermarket – are big sponsors of Feed The Millions. That's why he's here.
- Stefan** Your dad? But you said you didn't get on with him.
- Daisy** We're still in touch. I like to see him sometimes, but he won't come to the squat – and I don't like going home too often.
- Stefan** You still call it 'home' though ...
- Daisy** I guess.
- Stefan** Does Spikey know you're here?
- Daisy** No, he doesn't. I'm not sure he'd be too happy about it. He said I should stay away from you ...
- Stefan** It's a good cause though, isn't it? Feeding hungry children in Africa.
- Daisy** Yes, but the charity is sponsored by Wesley's, and they're the big enemy.

- Stefan** And I am too, I think.
- Daisy** Well, he still blames you for the failed cyber attack.
- Stefan** That was nothing to do with me. I couldn't have passed on any details – I didn't know any details!
- Daisy** OK, I believe you. But just to be on the safe side, I won't tell you about our next big protest, which is going to be even better!
- Stefan** Really? Give me a clue.
- Daisy** Actually, I can't – I don't know what it's going to be exactly. They haven't told me the plan. I just know when and where it's going to happen.
- Stefan** Oh, right.
- Daisy** Actually, if you're interested, you can see it all with your own eyes on Saturday.
- Stefan** How? You're being very mysterious.
- Daisy** Meet me outside the squat next Saturday at midday. You won't regret it, I promise.
- Stefan** OK, OK. I'll meet you outside the squat at midday.
- Daisy** Next Saturday. See you then.
- Stefan** Great. Now, I really should go and talk to some of the other guests ... Sir Roger! Nice to see you. Have you come far ...?