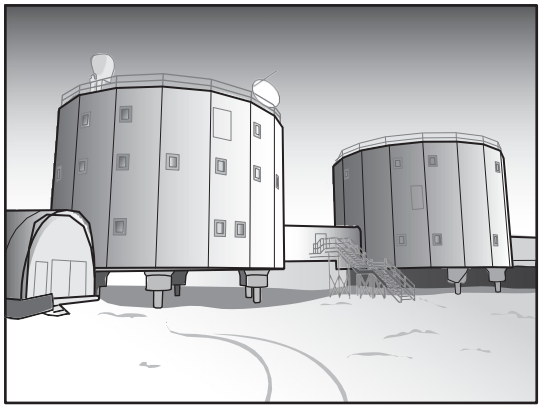
Exercise 1

Read the article about Dr Sarah Hilton, a researcher working in Antarctica, and then answer the following questions.

Antarctic space research



Nobody knows what it's like to live on Mars, but the scientist Dr Sarah Hilton does have some idea. She's spending a year at the Concordia research base in Antarctica, where the special conditions found there are helping her learn about what life on Mars might be like for future astronauts.

The region has an average temperature of minus 50 °C. The sun vanishes completely for four months in winter, with temperatures dropping to minus 80 °C. The base is so far from civilisation that it's the only place on Earth where you get the same feeling of remoteness that astronauts experience. In fact, it takes longer to get to Antarctica than to the International Space Station 400 kilometres above us!

Sarah is part of a team of 13 scientists who are living and working at the base. During summer, Concordia is home to up to 60 visiting scientists. But in winter, a crew of only 10 is left to run the base, so everyone has several roles: the chef is also a fireman; the plumber is trained as a medical assistant.

When asked why she applied, Sarah says: 'I've always been fascinated by Antarctica. I'd already experienced working in constant daylight at the North Pole, which had a negative effect on my body's ability to tell day from night. But sleeping in 24-hour darkness in Antarctica is totally different. Also, you immediately notice the flat landscape and strong winds here.' Sarah's main job is monitoring the effects of these conditions on health, as previous studies found that people working in Antarctica share many physical challenges with those working in space. Results on Earth can give clues about possible problems astronauts might face.

Sarah has discovered that although the freezing cold and lack of sunlight make conditions very uncomfortable, she was surprised to find that living with strangers is harder than anything else. Her team is of mixed experience and cultural background, including a French scientist, an Italian physicist and some Spanish astronomers. Although English is used when discussing research, there is a multicultural atmosphere, with Spanish being the most common language used in social situations.

Sarah started off trying to make friends with everyone because like being in space, communicating with people back home can be difficult. She soon realised, however, that having just a few close friends has made her feel more positive, and has also enabled her to focus more on work. She produces research which predicts how people might perform on future missions to the Moon, Mars and beyond. One study that Sarah hopes will be useful is to measure people's eyesight during their visit, as, just like the conditions in space, everyone at the base has only artificial light for many months.

Considering this difficult environment, everyday life at the base is well-managed, with the team kept occupied. While most prefer reading books, or using the games consoles provided, Sarah enjoys taking photos to record her trip when she isn't working. The food at the base is good, even if most of it is preserved – for example, vegetables and meat come in tins. Sarah admits to missing things like salad, although she made sure she brought plenty of chocolate, her favourite treat, with her on the

trip. Team members' personal items are important, and Sarah regrets not having her favourite shampoo, which she wasn't allowed to bring with her. This is because the base in Antarctica reuses its water through the same special recycling system that is used on the International Space Station, and it can't cope with the chemicals found in many washing products.

And Sarah's future? She says, 'I'd love to go to Mars if I could, but I don't think it's very likely!'

1 What is the coldest the weather can get where Sarah is working?

.....[1]

2 How many members of staff remain to manage the base after the summer?

.....[1]

3 Which job does the cook at the base also do?

.....[1]

4 What environmental factor meant that Sarah had difficulty sleeping in a previous job?

.....[1]

5 What is the biggest challenge that Sarah has to deal with at the base?

.....[1]

6 Which language do the scientists speak when they are not working?

.....[1]

7 What has helped to make Sarah's life at the base easier?

.....[1]

8 What does Sarah like doing while at the base?

.....[1]

9 What particular food does Sarah wish she could eat while at the base?

.....[1]

10 In what ways is life similar for people in Antarctica and astronauts in space? Give **four** details.

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.....

.....
.....

.....
.....

.....[4]

Exercise 2

Read the article about four people (**A**–**D**) who are reviewing computer games that they've played. Then answer Question **11 (a)**–**(j)**.

Computer game reviews

11 For each question, write the correct letter A, B, C or D on the line.

Which reviewer

(a) mentions that they enjoy choosing their own routes through the game?.....[1]

(b) recommends that players try out the skills that different characters possess?....[1]

(c) says that the characters look like real people?.....[1]

(d) explains how the music can help players make progress?.....[1]

(e) suggests that there are too many things to choose from in the game?.....[1]

(f) says that the game becomes more interesting the longer you play it?.....[1]

(g) mentions that changing between the different options in the game is quick?.....[1]

(h) says that just being good at the game is not enough to complete it?.....[1]

(i) feels that the level of the challenges in the game is often not hard enough?.....[1]

(j) states that it is not worth playing the game more than once?.....[1]

[Total: 10]

Exercise 3

Read the article about making energy from the sea, and then complete the notes.

Wave power: creating energy from the sea

Wave power is a source of energy that is created from the movement of the waves in the sea as they roll towards the shore then back out again. This regular movement means it is easy to predict how much energy will be produced. Equipment to collect the energy from the waves is already in place along many coastal regions including the United States, Canada, Scotland and Australia.

At a time when we understand that the remaining supplies of fossil fuels such as coal are very low in some places, it is good to know that wave power will never run out. The seas which have been a constant feature of our planet for billions of years are a vital part of our lives. While there is no doubt that we have a need for power, we must protect our planet from destructive human activities. In contrast to the way that fossil fuels are produced, no harmful waste is created in the process of obtaining energy from the waves. There are some problems, however. As parts of the equipment use chemicals to keep them running smoothly, there is always the possibility that these chemicals might spill into the water nearby and cause pollution.

For countries which have coastlines, major coastal cities are often important destinations for large cargo ships and recreational boats. As wave-power equipment is often situated just off the coastline, it can cause disruption to shipping, so governments and private companies that want to invest in wave power must consider the needs of those they may be disturbing. In addition, they have to take into account the fact that the energy produced by the waves can only be used in urban areas close to the sea.

Wave-power generators are large machines that may be unpleasant to look at for people living in coastal regions. They may be found in places that rely on holidaymakers, which could therefore have a damaging effect on the local tourist economy. Being situated close to the land could also be a problem in terms of noise from the machinery. Fortunately, the noise they make is covered by the natural sound of the waves, which is actually louder than the equipment.

Those who choose to invest in wave power do so in the knowledge that, unlike the situation with fossil fuels, wave power causes minimal damage to the Earth. While it can’t be denied that to some extent the machinery can disturb the creatures that live on the seabed, for many people, this is preferable to something like coal mining. Here, the extraction process can cause considerable damage to the landscape. Furthermore, the construction and management of wave-power sites can provide opportunities for creating ‘green jobs’ in the local community. Most people would consider this as a positive step.

Anyone who is interested in using waves to create power must examine both sides of the argument. What is certain is that traditional methods of fuelling the planet need to change, in response to both global climate conditions and the availability of the fuels we have relied on for years.

You are going to give a talk about wave power to your class. Prepare some notes to use as the basis for your talk.

Make short notes under each heading.

12 Benefits of wave power:

- .....
- .....
- .....
- .....
- .....[5]

13 Disadvantages of wave power:

- .....
- .....
- .....
- .....[4]

[Total:9]