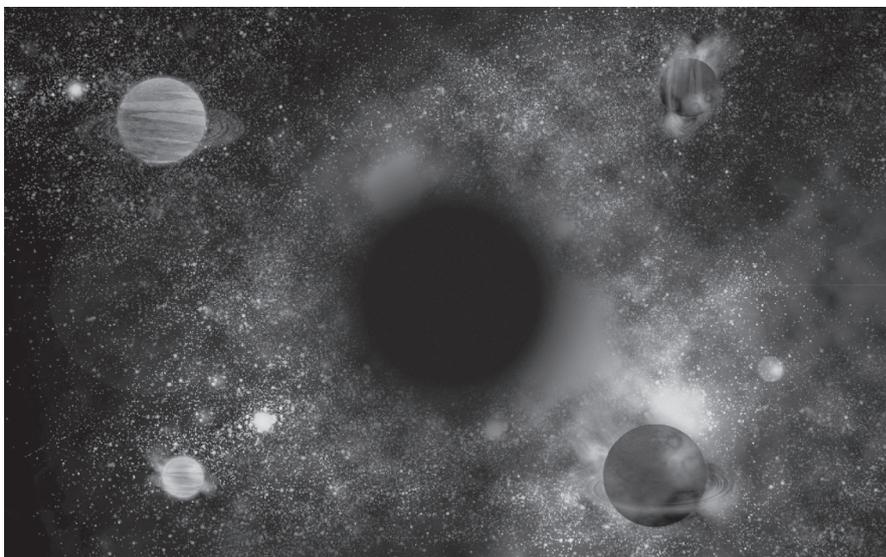


There could be tens of billions of planets

2 READING

Read *We are not alone* on page 36 of the Student's Book and answer the question in exercise 2. Then read *The World's Biggest Eye On The Sky* below and match five of these topics with paragraphs 1–5.

History Future Accuracy Value Ideal location Definite evidence Accommodation 

The World's Biggest Eye On The Sky

- At Paranal in the Atacama Desert, north of Santiago in Chile, at a height of 2,635 metres, there are four VLTs (Very Large Telescopes). These are the world's most advanced optical telescopes. Each VLT is 8.2 metres across, and weighs 200 tonnes. The telescopes work together to look into space in such detail that they could distinguish between the two headlights of a car at the distance of the Moon. This is the same as seeing objects that are four billion times fainter than the human eye can see.
- The VLTs are operated by the European Southern Observatory (ESO), an organisation of 15 European states, including Switzerland and the United Kingdom. But why are the telescopes in Chile and not in Europe? You could search the world, but nowhere has drier air than the Atacama desert. This is important because water in the air obscures a telescope's vision – in the same way that fog prevents you seeing clearly. The Atacama must be the most perfect place for astronomy.
- Over the last ten years the Paranal VLTs have made amazing discoveries. One is about what might be at the centre of Milky Way, the galaxy that contains our solar system. The VLTs were able to track the stars at the centre of the Milky Way, and watch them go round and round ... nothing. This proved the presence of a black hole at the centre of our galaxy. Black holes are formed when a huge star dies. What is left of the star is held in by gravity, and nothing can escape. That is why we can see nothing there, and why they are called black holes. Previously scientists thought they might exist, but now there is proof.
- More than a hundred astronomers and scientists work at Paranal, and live in a most surprising place. When you enter their 'Residencia' from the dry desert you get a great shock – you might be in a tropical rainforest! The air is hot and wet, and there are tropical plants everywhere, and a swimming pool. The idea is to help the staff live in the desert conditions of the Atacama. There is also another unusual thing – at 7pm every night all the windows are shuttered, so the light does not interfere with the telescopes. The building featured in the 2008 James Bond movie *Quantum of Solace*!
- Now the ESO are building the European Extremely Large Telescope (E-ELT) twenty kilometres away. This will be 39.3 metres in size and start working in 2025. One of its aims is to investigate exoplanets like Gliese 581 g. 'People may think ESO are crazy to spend so much money,' a scientist said. 'But science doesn't stand still. It must go forward.'

3 AFTER READING

Do exercise 3 in the Student's Book. Then read the sentences below about *The World's Biggest Eye On The Sky* and decide: true, false, or no information? Correct the false statements.

1 The VLTs can see car headlights on the Moon.

2 The atmosphere of the Atacama Desert is just right for VLTs.

3 The VLTs looked at stars orbiting the centre of the Milky Way.

4 Astronomers have seen a black hole at the centre of the Milky Way.

5 There could be a billion black holes in the Milky Way.

6 There is recent proof that there is a black hole at the centre of our galaxy.

7 It's hotter inside the Residencia than in the desert outside.

8 The evening blackout stops light coming into the Residencia.

Now look at *Your response* on page 36 of the Student's Book.