

## Is Stephen Hawking right about aliens?

### Level 3 • Advanced

#### 1 Key words

Fill the gaps in the sentences using key words from the text. The paragraph numbers are given to help you.

1. An \_\_\_\_\_ is someone who studies the stars and planets using scientific equipment, including telescopes. (para 1)
2. If you \_\_\_\_\_ a radio signal, you send it through the air. (para 1)
3. An \_\_\_\_\_ is a person or creature from a planet other than Earth. (para 1)
4. A \_\_\_\_\_ is an extremely large group of stars and planets. (para 3)
5. The planets of our solar system \_\_\_\_\_ the sun. (para 3)
6. \_\_\_\_\_ communication is communication between different stars. (para 3)
7. A \_\_\_\_\_ is the distance that light travels in a year. (two words, para 5)
8. A \_\_\_\_\_ is a period of one thousand years. (para 6)
9. A \_\_\_\_\_ is a hole or space that allows gas to escape. (para 8)
10. A \_\_\_\_\_ is a substance in food that plants, animals and people need to grow. (para 9)

#### 2 What do you know?

Decide if these statements are true (T) or false (F). Then check your answers in the text.

1. There are almost a million stars in our galaxy.
2. The oldest broadcast has already travelled 80 light years from Earth.
3. It would take a thousand years for a message from a planet 1,000 light years away to reach Earth.
4. In the early days of research, astronomers focused on finding planets like the Earth.
5. Some single-cell Earth creatures can live in temperatures of minus 200°C.
6. Everyone agrees that making contact with aliens would be a good thing.

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*Stephen Hawking thinks that making contact with aliens would be a very bad idea indeed. But with new, massive telescopes, we humans are stepping up the search. Have we really thought this through?*

**Alok Jha**  
30 April, 2010

- 1 The hunt for intelligent species outside Earth may be a staple of literature and film – but it is happening in real life, too. Space probes are searching for planets outside our solar system, and astronomers are carefully listening for any messages being beamed through space. How awe-inspiring it would be to get confirmation that we are not alone in the universe, to finally speak to an alien race. Wouldn't it?
- 2 Well, no, according to the eminent physicist Stephen Hawking. "If aliens visited us, the outcome would be much as when Columbus landed in America, which didn't turn out well for the Native Americans," Hawking says. He argues that, instead of trying to find and communicate with life in the cosmos, humans would be better off doing everything they can to *avoid* contact.
- 3 Hawking believes that, based on the sheer number of planets that scientists know must exist, we are not the only life form in the universe. There are, after all, billions and billions of stars in our galaxy alone, with, it is reasonable to expect, an even greater number of planets orbiting them. And it is not unreasonable to expect some of that alien life to be intelligent, and capable of interstellar communication. So, when someone with Hawking's knowledge of the universe advises against contact, it's worth listening, isn't it?
- 4 Seth Shostak, a senior astronomer at the SETI Institute in California, the world's leading organization searching for telltale alien signals, is not so sure. "This is an unwarranted fear," Shostak says. "If their interest in our planet is for something valuable that our planet has to offer, there's no particular reason to worry about them now. If they're interested in resources, they have ways of finding rocky planets that don't depend on whether we broadcast or not. They could have found us a billion years ago."
- 5 If we were really worried about letting aliens know we were here, Shostak says, the first thing to do would be to shut down the BBC, NBC, CBS and the radars at all airports. Those broadcasts have been streaming into space for years – the oldest is already more than 80 light years from Earth – so it is already too late to stop passing aliens watching every episode of TV programmes like *Big Brother*.
- 6 There are lots of practical problems involved in hunting for aliens, of course, chief among them being distance. If our nearest neighbours were life forms on the (fictional) forest moon of Endor, 1,000 light years away, it would take a millennium for us to receive any message they might send. If the Endorians were watching us, the light reaching them from Earth at this very moment would show them our planet as it was 1,000 years ago; in Europe that means lots of fighting between knights around castles and, in north America, small bands of natives living on the great plains. It is not a timescale that allows for quick banter – and, anyway, they might not be communicating in our direction.
- 7 The lack of a signal from ET has not, however, prevented astronomers and biologists (not to mention film-makers) coming up with a whole range of ideas about what aliens might be like. In the early days of SETI, astronomers focused on the search for planets like ours – the idea being that, since the only biology we know about is our own, we might as well assume aliens are going to be something like us. But there's no reason why that should be true. You don't even need to step off the Earth to find life that is radically different from our common experience of it.
- 8 'Extremophiles' are species that can survive in places that would quickly kill humans and other 'normal' life-forms. These single-celled creatures have been found in boiling hot vents

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of water that come through the ocean floor, or at temperatures well below the freezing point of water. The front ends of some creatures that live near deep-sea vents are 200°C warmer than their back ends.

- 9 On Earth, life exists in water and on land but, on a giant gas planet, for example, it might exist high in the atmosphere, trapping nutrients from the air swirling around it. And given that aliens may be so out of our experience, guessing motives and intentions if they ever got in touch seems beyond the realms even of Hawking's mind.

- 10 Paul Davies, an astrophysicist at Arizona State University argues that alien brains, with their different architecture, would interpret information very differently from ours. "Lots of people think that because they would be so wise and knowledgeable, they would be peaceful," adds Stewart. "I don't think you can assume that. I don't think you can put human views onto them; that's a dangerous way of thinking. Aliens are alien. If they exist at all, we cannot assume they're like us."

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### 3 Comprehension check

Choose the best answer according to the text.

- Stephen Hawking believes ...
  - ... we should continue to try to make contact with aliens.
  - ... we should only make contact with intelligent life forms.
  - ... we should do everything we can to avoid contact with aliens.
- According to Seth Shostak, ...
  - ... TV and radio stations and radars should be shut down.
  - ... TV and radio stations and radars could let aliens know we are here.
  - ... TV and radio stations and radars are an effective way of contacting aliens.
- The biggest problem in contacting aliens is ...
  - ... the lack of technology.
  - ... the fact that we don't speak their language.
  - ... the enormous distances involved.
- What are 'extremophiles' ?
  - people who like extreme sports
  - organisms that live in extreme temperatures
  - creatures with front ends and back ends that have different temperatures

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#### 4 Find the word

Find the following words and phrases in the text.

1. a two-word noun meaning *a vehicle containing cameras and other equipment that is sent outside the Earth's atmosphere to collect information* (para 1)
2. a two-word adjective meaning *making you feel great respect and admiration and sometimes fear* (para 1)
3. an adjective meaning *obvious* (para 4)
4. an adjective meaning *not necessary* (para 4)
5. a noun meaning *friendly conversation in which people tell jokes and laugh at each other* (para 6)
6. a verb meaning *move quickly in circles* (para 9)
7. a four-word expression meaning *outside the area of knowledge, experience or interest* (para 9)
8. an adjective meaning *knowing a lot about different subjects* (para 10)

#### 5 Two-word expressions

Match the beginnings and endings to make phrases from the text.

- |             |              |
|-------------|--------------|
| 1. freezing | a. inspiring |
| 2. solar    | b. year      |
| 3. light    | c. point     |
| 4. life     | d. number    |
| 5. awe-     | e. form      |
| 6. sheer    | f. system    |

#### 6 Word-building

Complete the sentences using the correct form of the word in brackets at the end of each sentence.

1. It is \_\_\_\_\_ to assume that even more planets orbit the billions of stars in our galaxy. [REASON]
2. It is not \_\_\_\_\_ to expect some alien life to be intelligent. [REASON]
3. \_\_\_\_\_ study space using scientific instruments. [ASTRONOMY]
4. Even on Earth we can find life forms that are \_\_\_\_\_ different. [RADICAL]
5. Alien brains might have a different \_\_\_\_\_. [ARCHITECT]
6. Wise and \_\_\_\_\_ creatures may not be peaceful. [KNOW]

#### 7 Discussion

Do aliens exist? Should we try to make contact with them? Why? Why not?

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### KEY

#### 1 Key words

1. astronomer
2. beam
3. alien
4. galaxy
5. orbit
6. interstellar
7. light year
8. millennium
9. vent
10. nutrient

#### 2 What do you know?

1. F
2. T
3. T
4. T
5. F
6. F

#### 3 Comprehension check

1. c
2. b
3. c
4. b

#### 4 Find the word

1. space probe
2. awe-inspiring
3. telltale
4. unwarranted
5. banter
6. swirl
7. beyond the realms of
8. knowledgeable

#### 5 Two-word expressions

1. c
2. f
3. b
4. e
5. a
6. d

#### 6 Word-building

1. reasonable
2. unreasonable
3. astronomers
4. radically
5. architecture
6. knowledgeable