



5a

Growing on You

Lead-in

- Do you know approximately how many cells make up the human body? How many of these are microbes?

Between 10-100 billion
(it is estimated that there are



Did you know that ...

- microbes are single-cell organisms so tiny that millions can fit into the eye of a needle?
- microbes are the oldest form of life on Earth, dating back more than 3.5 billion years?
- without microbes, we couldn't eat or breathe, but without us, they would probably be just fine?

• **THINK!** Think of two questions about microbes. Read the text and see if you can answer them.

Reading

Read the passage below, and answer the questions. Explain the words in bold. Then use each word in a sentence.

Here's a humbling thought. Of the between 10 and 100 trillion cells that make up the human body, most of them are not even human. In other words, if you had to count all the cells in your body, the **vast** majority – by a factor of ten – would be microbes. These microscopic creatures which, when magnified, look like horror movie monsters, are everywhere – on your eyeballs, in your mouth, your nose, your ears, and all over your skin. There are up to a hundred trillion microorganisms in the human intestine alone.

Strangely enough, scientists do not yet know the identities of most of these microbes. They have, however, come to the conclusion that each one of us **hosts** somewhere between 500 and 1,000 species of microbes, representing about 8,000 subspecies. This internal multitude varies so distinctly from person to person that it can serve as a kind of fingerprint of an individual.

What is clear is that most of the microbes are not invaders. Rather, they are so vital for our well-being that some researchers consider them an organ of the human body. A human body is like a complex **ecosystem** – a biosphere, almost. Different species follow their own agendas, but collectively they **advance** the cause of the whole. Gut microbes, for instance, perform some indispensable functions such as helping to **digest** food, deactivating poisons, producing vitamins, and warding off disease.

This symbiosis, or 'strategic alliance' between mammals and microbes – that goes back millions of years – has led some scientists to believe that we will never fully understand the **workings** of our bodies until we understand the microbes that live in them, too. By probing further into these rarely studied 'alien communities', they may be able to discover **cures** for everything from illness to obesity.



1 Which of the following does the writer NOT say about microbes?

- Their main job in the intestine is to prevent disease.
- No two people have the same combination of species in them.
- There are ten of them in our bodies for every human cell.
- Most of them are still unidentified.

2 In paragraph three, the writer mentions a biosphere to illustrate ...

- the effect that microbes have on the human body.
- the importance of microbes in the human body.
- how numerous microbes are in the human body.
- the specific function of microbes in the human body.

3 According to the text, the main purpose of further research into microbes would be to ...

- encourage even more study of microbes.
- discover the identities of more of the microbes in the human body.
- learn more about the way the human body works.
- find out how some microbes cause particular illnesses.

4 Scientists have concluded that ...

- there are approximately 1,000 species of microbes in a person's intestine.
- most people's bodies host about 8,000 subspecies of microbes.
- microbes are being used to identify people.
- some human bodies have about 750 species of microbes living in them.

5 What is the main idea of the passage?

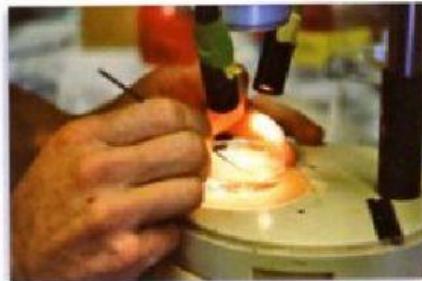
- There are more microbes in our bodies than originally thought.
- The human body resembles an ecosystem.
- There are trillions of microbes in our bodies and they are essential to our survival.
- We have much to benefit from more research into microbes.

Vocabulary

1 Fill in: multitude / humbling / obesity / intestine / probe / workings / symbiosis / ecosystems / agenda / alien

- 1 Many vitamins are absorbed through the walls of the small as food passes through
- 2 Since are interconnected, affecting one element in the chain will upset the balance of the whole.
- 3 It is very to realize how dependent we are on microbes.
- 4 Debates on stem cell research will be on the at the medical convention next week.
- 5 The between plants and animals has allowed each to benefit from the other.
- 6 Children are eating more and more fatty foods which is leading to an alarming rise in
- 7 A of people around the world use acupuncture therapy to relieve pain.
- 8 There is always more to learn about the complicated inner of the human body.
- 9 Scientists are beginning to into the effect of the new drug on the patients' brain.
- 10 Many species of plants have been introduced into a region far from their native habitat, posing a threat to our environment, health and safety.

Speaking & Writing



- Make notes under the headings. Use your notes to tell the class a summary of the text.
 - What are microbes?
 - Where are they?
 - What do they do?
 - What does the future hold?
- In five minutes write a few sentences about microbes. Read your sentences to the class.
- **ICT** In groups collect information about microbes. Prepare a quiz about them. You can visit this website: <http://www.microbes.info>