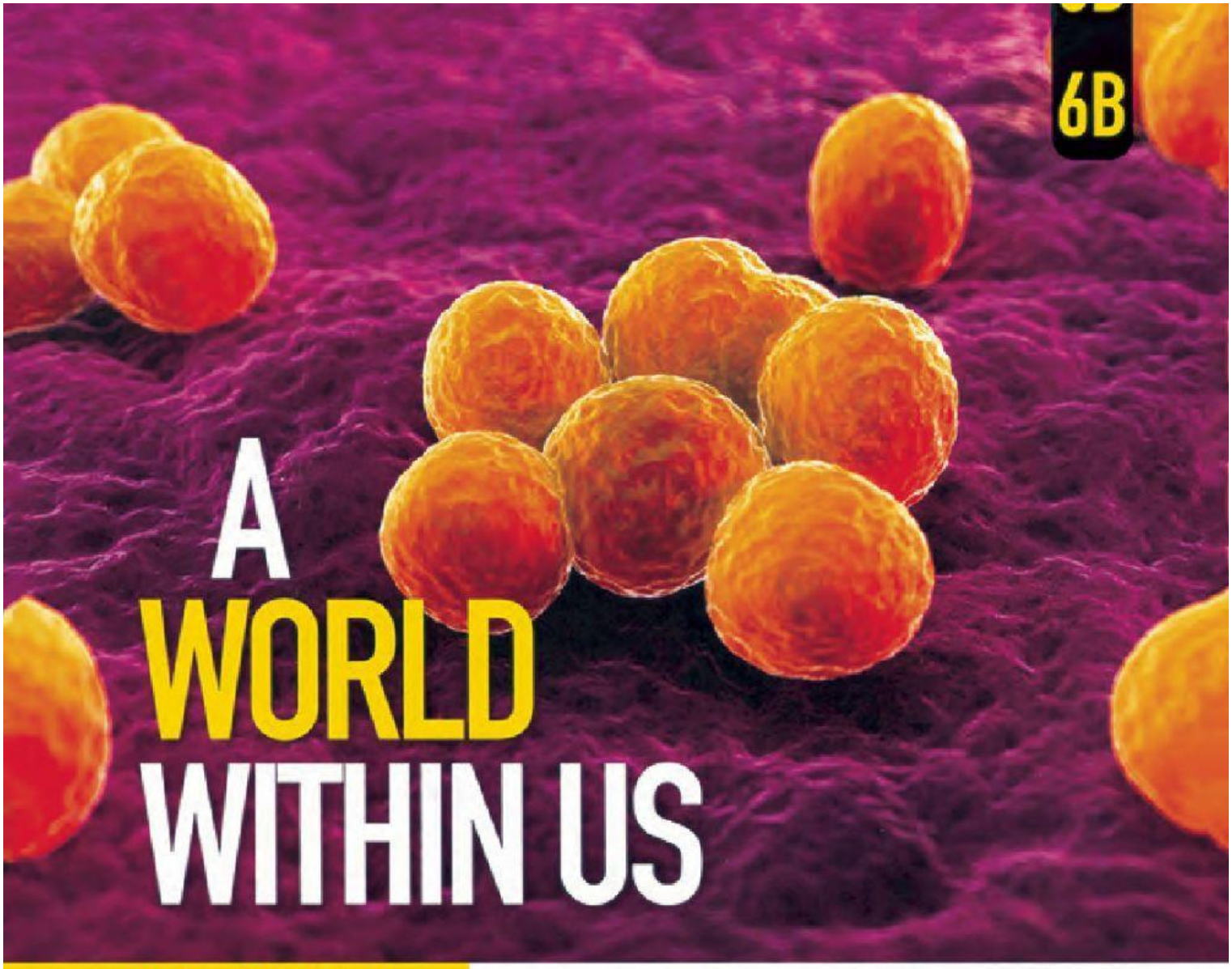


6B

A WORLD WITHIN US

Before You Read

Bacteria are microscopic[1] organisms. Some like Staphylococcus aureus can cause harm.

A. True or False? Look at the photo and read the caption. What do you know about bacteria? Circle **T** (True) or **F** (False).

1. You have more bacteria in your body than human cells. **T** **F**
2. In our body, most bacteria is in our mouth. **T** **F**
3. Most bacteria in our bodies are dangerous to us. **T** **F**
4. Antibiotics[2] can be bad for us. **T** **F**

B. Skimming. Read the passage on pages 86–87. Check your answers in **A**.

1 If something is **microscopic**, it is very small. You can only see it with a microscope.

2 **Antibiotics** are a type of medicine that stops bacterial infections.

Life in Miniature

Bacteria: They're **invisible**. They're everywhere. And we need them to live.

In our bodies, bacteria outnumber human cells by ten to one. All this bacteria weighs as much as your brain—nearly three pounds (1.3 kilograms). Most bacteria in our bodies are not **harmful**; in fact, many benefit us in important ways. They help us digest[1] food. They make important vitamins, and they help fight **infections**.

But some bacteria can be dangerous. Take, for example, *Staphylococcus aureus*. It lives in our noses. Usually, it's **harmless**; other bacteria in the nose control it. But if *S. aureus* travels to another environment, things change. In the skin, for example, it can cause **deadly** infections.

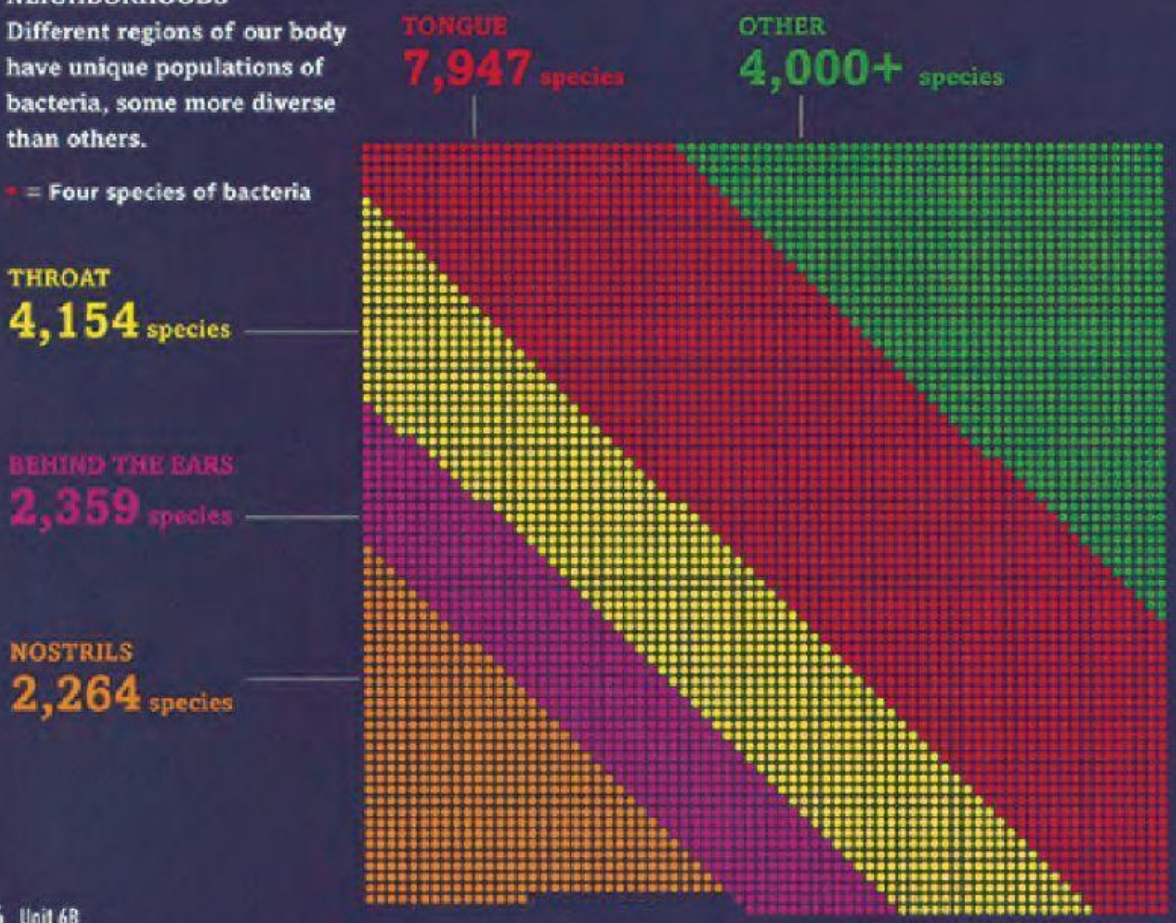
1 IN 10 CELLS in the body is human.

1 When you **digest** food, your stomach uses the food it needs and removes the rest.

THE BODY'S NEIGHBORHOODS

Different regions of our body have unique populations of bacteria, some more diverse than others.

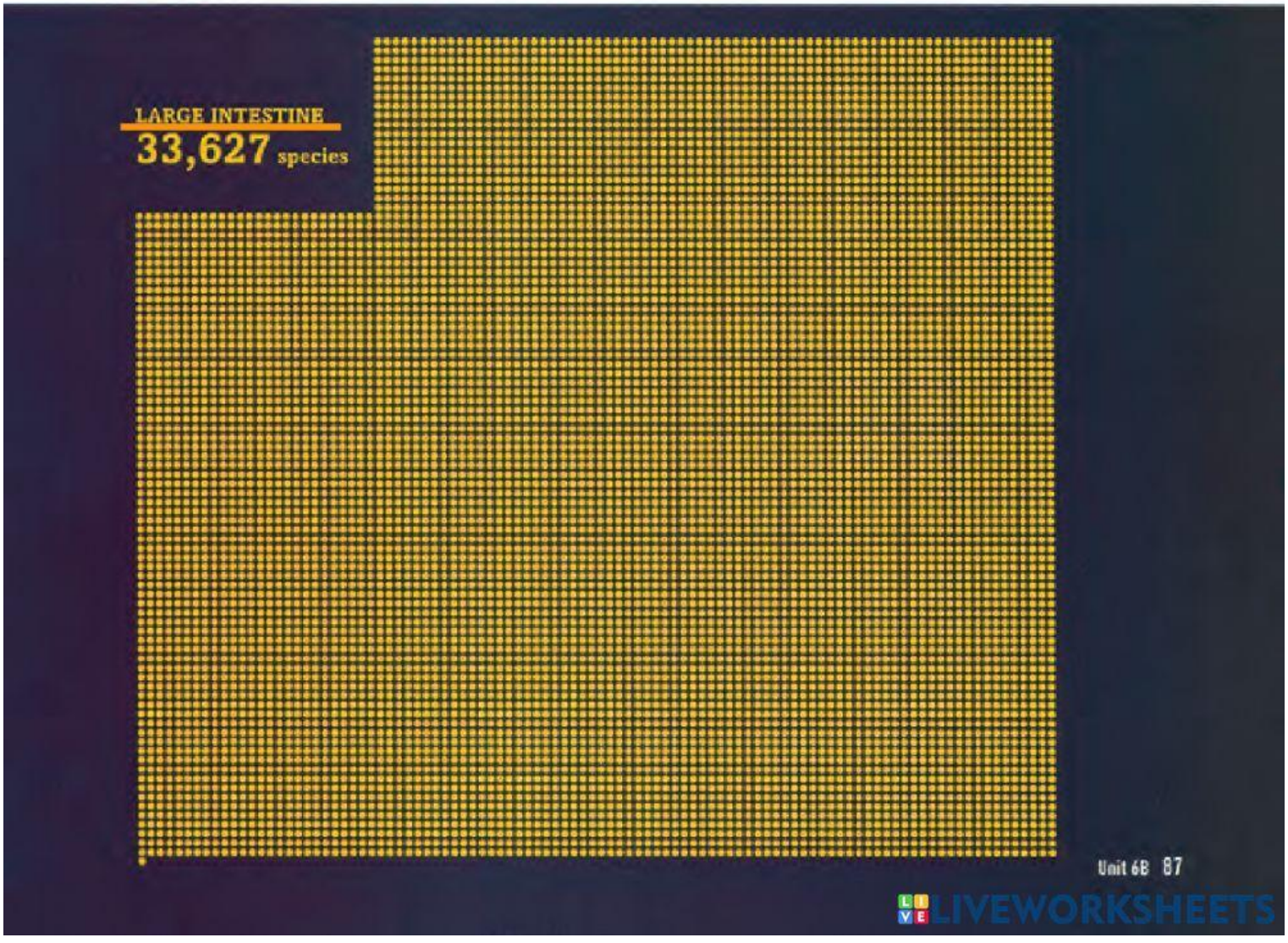
• = Four species of bacteria



We **cure** most bacterial infections with antibiotics, but there are problems with this medicine. Antibiotics kill bad, infection-causing bacteria. But this medicine kills good bacteria in our bodies, too. When we kill the good kind, this can cause other health problems. A **lack of** certain bacteria in the body can make us sick.

So what can we do? We should not use antibiotics very often, say scientists. We can fight infections, but we also need to maintain helpful bacteria in the body. To help us do this, doctors are now developing "probiotic remedies." These new medicines will return certain bacteria to the body and **restore** the **balance** our body needs.

For years, we thought all bacteria were dangerous. Of course, some are. But we are learning that many bacteria keep us healthy. They live on and within us, and our well-being **depends on** them.



Reading Comprehension

Multiple Choice. Choose the best answer for each question.

Purpose
1. What is the purpose of this reading?
   a. to describe how bacteria are important to our bodies
   b. to examine the dangers of bacterial infections
   c. to compare the bacteria that live inside and outside our body
   d. to explain why we should avoid antibiotics

Detail
2. Which statement about bacteria is true?
   a. The bacteria in our brain weigh three pounds.
   b. Most bacteria in our bodies are dangerous.
   c. We cannot live without bacteria.
   d. There are more bacteria in our nostrils than in our throat.

Paraphrase
3. In lines 4–5, it says *In our bodies, bacteria outnumber human cells by ten to one.* What does this mean?
   a. There are more bacteria than human cells.
   b. There are more human cells than bacteria.
   c. There are ten human cells for every bacteria cell.
   d. There are ten bacteria in every human cell.

Purpose
4. What is the purpose of the third paragraph?
   a. to describe why people get skin infections
   b. to warn us against *Staphylococcus aureus*
   c. to list the dangers of *Staphylococcus aureus*
   d. to explain why some bacteria can be dangerous

Reference
5. What does *it* in line 14 refer to?
   a. bacteria in the nose
   b. *Staphylococcus aureus*
   c. dangerous infections
   d. bacteria in the skin

Detail
6. What can "probiotic remedies" do?
   a. get healthy bacteria back in the body
   b. fight against some antibiotics
   c. identify good vs. bad bacteria
   d. increase good and bad bacteria in the body

Vocabulary
7. In line 28, what does *well-being* mean?
   a. medicine
   b. health
   c. body
   d. bacteria

Did You Know?

Bacteria-infecting viruses known as phages are the most common form of life on Earth. There are more phages than stars in the universe. More than a trillion (1,000,000,000,000) exist in a human body.

Reading Skill

Understanding Pros and Cons

Writers will often discuss both the pros (good points) and the cons (bad points) of a piece of information or an issue. Understanding both sides is a useful way to consider an issue. It can also help you decide your own opinion. When taking notes on a text that includes both pros and cons, it can be helpful to list them in two columns.

A. Determining Pros and Cons. Look at this information about bacteria in our body. Mark each one **P** (pro) or **C** (con).

1. _____: Bacteria help fight infections.
2. _____: Bacteria can cause infections.
3. _____: Bacteria help us to digest food.
4. _____: Bacteria make vitamins.

B. Identifying Pros and Cons. Read paragraph 4 on page 87 again. Then complete the chart below with the pros and cons of taking antibiotics.

Pros of taking antibiotics	Cons of taking antibiotics

Antibiotic medicine is a common way to treat illnesses, but it can cause problems, too.

Critical Thinking Discuss with a partner. Bad bacteria in food can lead to stomach infections. What foods do you think cause this? What can people do to avoid getting sick?

Vocabulary Practice

A. Matching. Read the information below. Then match each word in **red** with its definition.

Bacteria are organisms made up of just one cell. They live between other cells. Viruses, on the other hand, live inside cells. And while some bacteria can make us sick, most are **harmless**. All viruses, however, are **harmful**.

Viruses are 10 to 100 times smaller than bacteria, but both are **invisible** to humans. Unlike bacteria, viruses **depend on** living plants or animals to multiply and survive. Bacteria can live nearly anywhere, even on non-living surfaces.

Antibiotics cannot **cure** you of a viral **infection** such as the flu. They only kill bacteria. Many people have chicken soup, hot tea with lemon, or chili peppers to help them get better.

1. causing damage _____
2. not causing damage _____
3. impossible to see _____
4. help in healing _____
5. to need in order to survive _____
6. a disease or an illness _____

B. Words in Context. Complete each sentence with the correct answer.

1. You have **balance** when both sides of something are _____.
   a. heavy b. equal
2. If you have a **lack of** support, you have _____.
   a. a lot of support b. no support
3. To **restore** something means to _____.
   a. make it like it was b. hide it from others
4. Something that is **deadly** can _____ you.
   a. kill b. cure

that is worth 50 dollars
That house is worthless now.

Word Link

We can add the suffixes **-ful** (meaning "full of") and **-less** (meaning "without") to some nouns to form adjectives. Some nouns take *-ful* (e.g., *wonderful*), some take *-less* (e.g., *worthless*), and some can take both (e.g., *harmful / harmless*).

VIEWING Under Yellowstone

Before You Watch

A. Matching. Look at the photo and read the caption. Then match each word in **bold** with its definition.

^ Steam rises from a **hot spring** in Yellowstone National Park, U.S.A. Scientists have recently discovered **strange** kinds of **microbes** living in this extremely hot **environment**. These tiny creatures are unlike any other type of life on the planet.

1. unusual, different from normal _____
2. very, very small life forms _____
3. surroundings in which a plant or an animal lives _____
4. a place where heated water flows from the ground _____

B. Discussion. Discuss these questions in a group.

1. What do you know about Yellowstone National Park?
2. Why do you think scientists are studying the microbes in the hot springs?

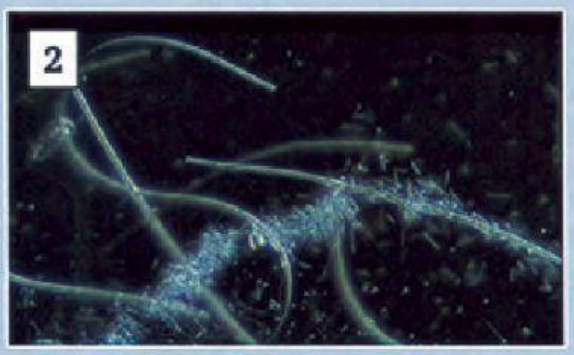
While You Watch

A. Noticing. Check (✓) the topics that are discussed.

- ☐ dangers from wolves and bears
- ☐ temperatures of hot springs
- ☐ what microbes eat
- ☐ creatures that survive in hot springs
- ☐ different types of microbes
- ☐ possible life on other planets

B. Completion. Complete each sentence by circling the correct word in each pair.

The water in hot springs can reach temperatures of (**200 / 275**) degrees Celsius.



If you remove microbes from their hot springs environment, they (**grow / die**).

In the 1970s, scientists added a new branch to the tree of life called (**Bacteria / Archaea**).

Scientists hope to find (**gases / microbes**), similar to those in Yellowstone, on Mars or other planets.

After You Watch

Completion. Complete the summary with the words from the box. There is one extra word.

discovered	**environment**	**explored**	**information**	**life**	**perfect**	**similar**	**universe**

A group of scientists is studying the microbes in the hot springs at Yellowstone National Park. The very hot **1.** _____ of these hot springs is **2.** _____ for microbes.

In the 1970s, scientists **3.** _____ a new group of organisms in the hot springs, which they called Archaea. This group may give scientists **4.** _____ about what early life forms on Earth were like, and also show how **5.** _____ evolved.

Scientists think that these life forms may show whether life exists elsewhere in the **6.** _____. If there is indeed life beyond Earth, it may be very **7.** _____ to the microbes found in Yellowstone's hot springs.