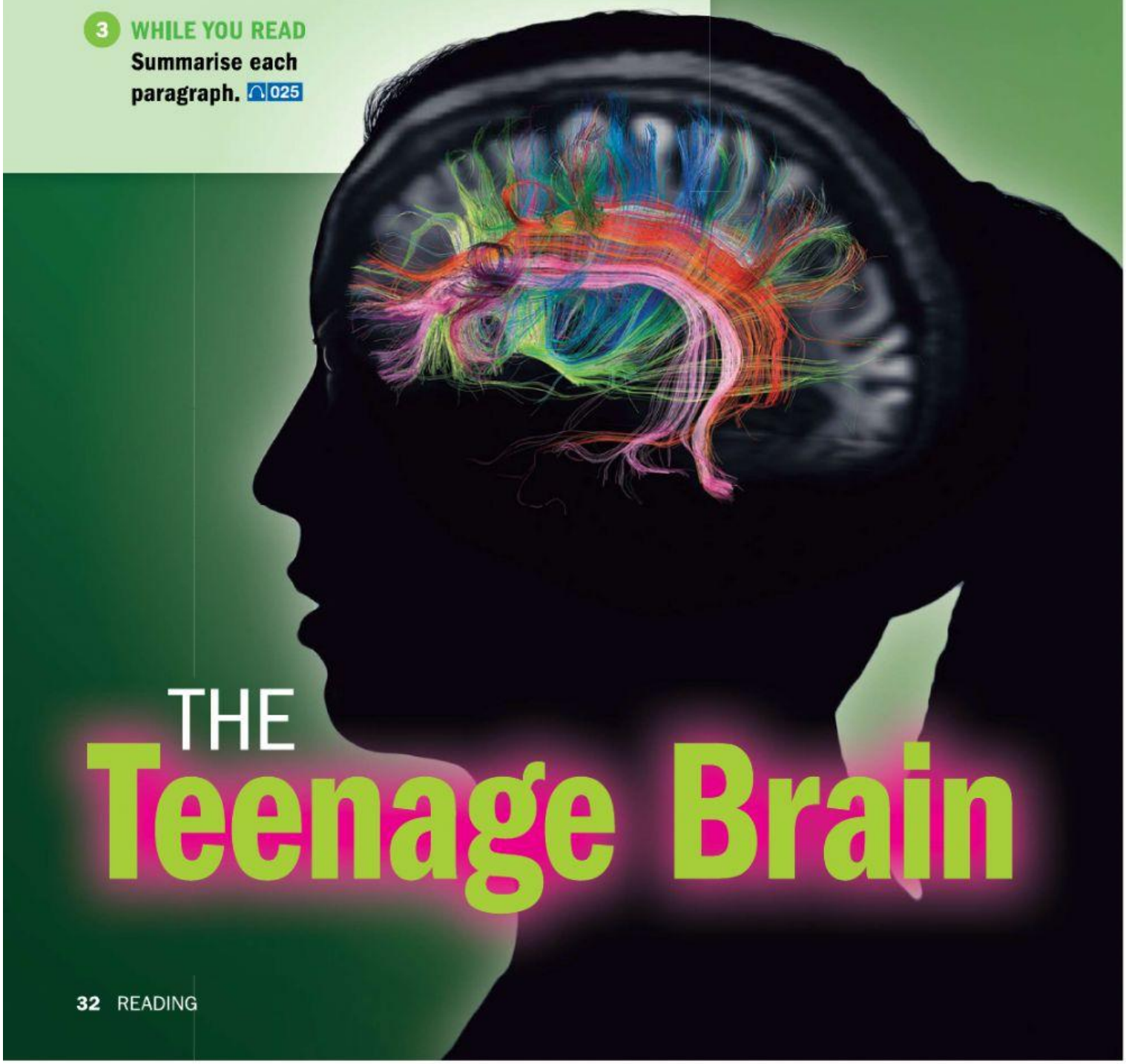
1 **BEFORE YOU READ** **Discuss in pairs.** Based on the title and the image, what do you think this reading is about?

2 **LEARN NEW WORDS** **Find these words in the reading.** What do you think they mean? Use a dictionary to check. Pay attention to how each word is used in a sentence in the dictionary. Then listen and repeat. 024

adolescent	experience	process	structure

3 **WHILE YOU READ** **Summarise each paragraph.** 025



THE Teenage Brain

Shaping your future

1 Being a teenager can be challenging, but it can also be exciting. You're becoming more independent and making decisions for yourself. You are also learning to take risks and solve problems better than you could before. And changes are happening throughout your body, even in your brain.

2 You can't see the changes in your brain, but they're affecting how you develop into an adult. At this time in your life, there is a process going on inside your brain that makes it work faster and more efficiently. Imagine that the structure of your brain is like a big road map. There are lots of roads leading to different destinations. When you were a child, as you learnt new things, your brain created more and more roads leading to different destinations. By the time you become an adolescent, the most important places on the map have many different roads leading to them. Now your brain's job is to make that map more efficient. It removes the roads that you don't need and works to make the other roads faster.

3 As a result, your experiences as a teenager actually affect the way that your brain develops. If you spend hours playing video games, what skills do you use? You learn to see something with your eyes and respond to it with your hands. As you develop those skills, your brain is making sure that the roads leading to them are especially fast and efficient. So, your video-game playing could be preparing you for a career such as a fighter pilot, or even a surgeon.

4 This is a great time for you to practise new skills and discover what you're good at and what you love doing. Go out and try different activities, and stick with them if you think they're useful. Remember that with everything you do, you're shaping your brain for the future.

4 AFTER YOU READ Work in pairs to answer the questions.

1. What does the writer compare the structure of the brain to?
2. What happened to your brain as you learnt new things as a child?
3. How does the brain become more efficient when you are an adolescent?
4. How can your experiences as a teenager affect the development of your brain?
5. What is the writer's advice for teenagers?

5 Match these summaries to the correct paragraph. Write the number on the line.

_____ What you do as an adolescent affects your brain's development.

_____ Your brain forms many connections when you are a child, and then it makes them more efficient when you are a teenager.

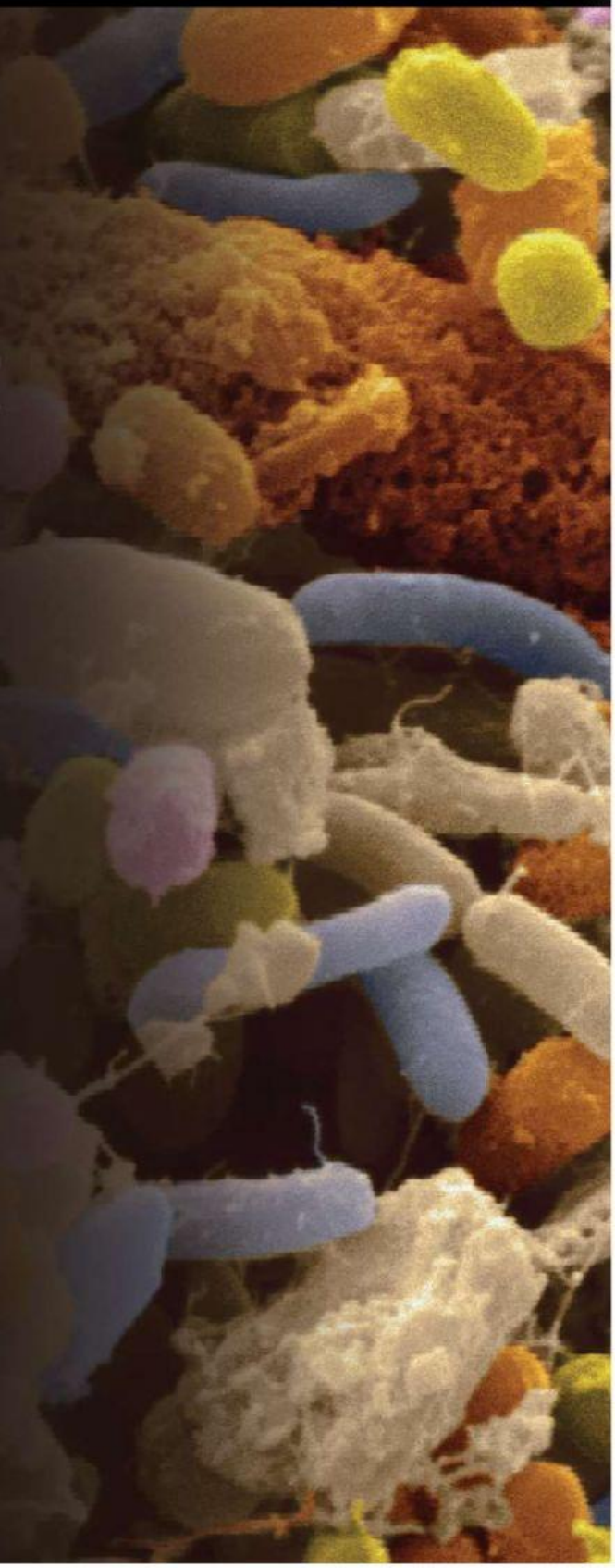
_____ It is important to try to have lots of new experiences when you are a teenager.

_____ Teenagers experience a lot of changes.

6 Discuss in groups.

1. How do some of the activities you enjoy doing now provide you with important skills for the future? Give examples.
2. Knowing that what you do shapes your brain, what activities shouldn't you do? Why shouldn't you do them? Give one or two examples.
3. Name three interesting careers. Then imagine what activities a teenager could do now to shape their brains for each career.

VIDEO



1 **BEFORE YOU WATCH** **Discuss in pairs.** How can each of the following affect your emotions?

diet	health	other people
school	sleep	surroundings

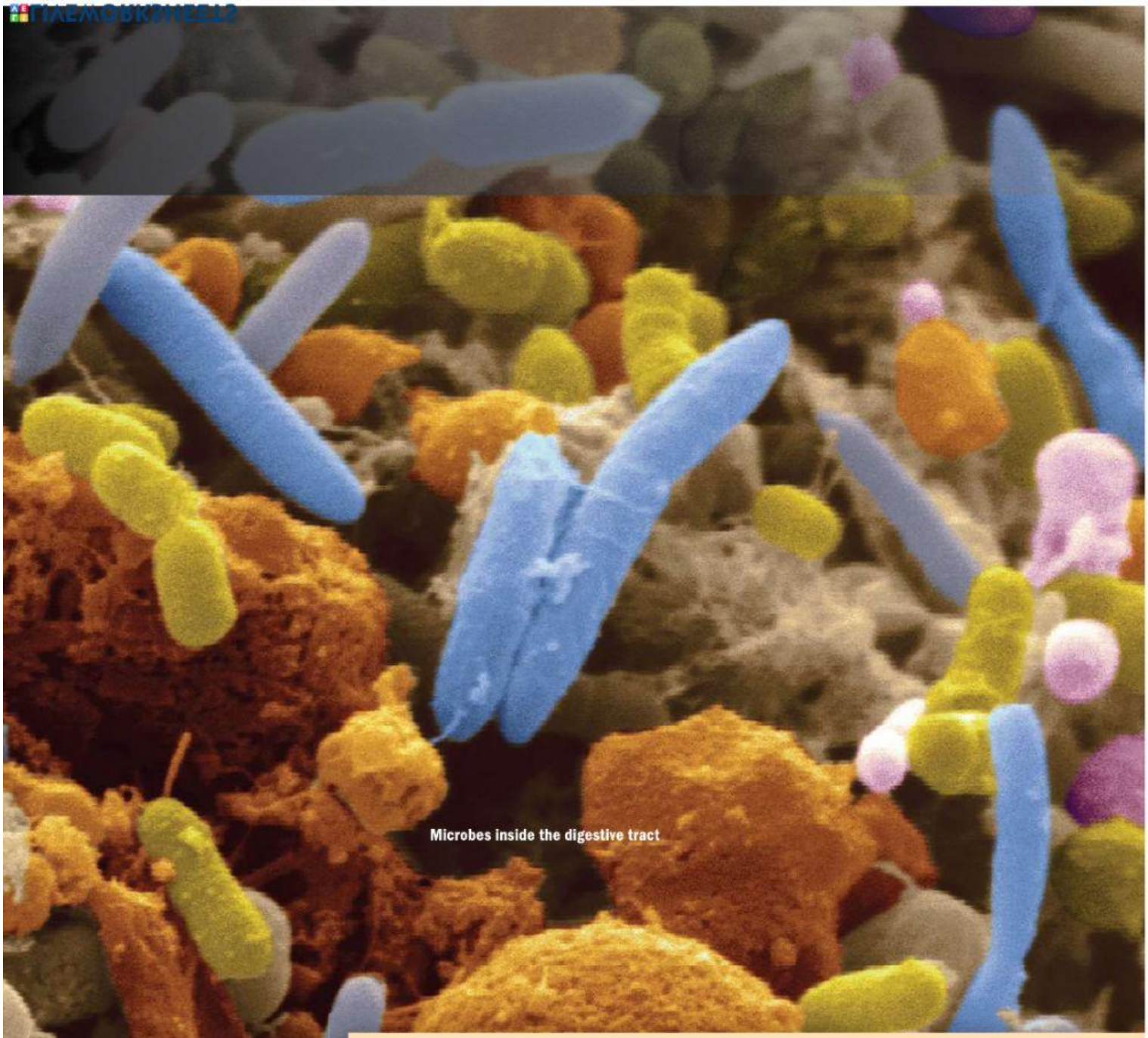
2 **Work in pairs.** The title of this video is *The Forgotten Organ*. An *organ* is a part of the body with a special task, such as the heart. What do you think the 'forgotten organ' is? Discuss your ideas.

3 **WHILE YOU WATCH** **Answer the questions.** According to the video, what is the 'forgotten organ'? Was your answer from Activity 2 correct? **Watch scene 2.1.**

4 **AFTER YOU WATCH** **Work in pairs to answer the questions.**

1. What are microbes?
2. What part of your body is almost equal in weight to all the microbes in your body?
3. How many bacteria are in your gut?
4. How do the microbes in your gut send signals to your brain?
5. When Elaine Hsiao observed communication between two mice, what did she notice about the mouse with no microbes?
6. What happened when she put microbes back into the mouse?

5 **Work in groups.** Some bacteria and viruses are harmful. Discuss examples of harmful microbes. Describe a time when harmful microbes made you ill. How did you treat the situation?



Microbes inside the digestive tract

6 **YOU DECIDE** **Choose an activity.**

1. **Work independently.** Keep a diary for two days. Record all the food you eat and how you feel. Do you think your diet affected your emotions? Explain.
2. **Work in pairs.** Create a poster about the microbes inside the body and how they're beneficial.
3. **Work in groups.** Create a public-service announcement to explain how people can get more healthy microbes to grow in their bodies. Use information from this unit, as well as your own research.