Human memory implants

SPEAKING

LEVEL	NUMBER	LANGUAGE
Advanced	C1_4034S_EN	English

Goals

- Can recognise and recall some more technical vocabulary related to memory and technology.
- Can maintain an in-depth discussion on the pros and cons of having a memory implant.

Every day we deposit **memories** into our **brains**, but for some people those memories disappear just as quickly as they are formed. A **neuroscientist** has an **audacious** idea about how to stop that happening.

Your memory

What is your most **treasured** memory? Do you struggle to remember certain things?

Memory techniques

What techniques are there to help people remember things? Do you use any of them?

mnemonic devices

repetition

Test your memory

Look at the slide and try to remember as much as possible. Your teacher will take away the slide after 30 seconds.

What can you remember?

What can you remember from the previous slide? Try to describe the pictures in detail.

Did you use any techniques to help you remember?

Memory

Discuss the questions below.

1. What is your earliest memory?
2. What is your happiest memory from your childhood?
3. Would you like to be able to remember everything? How would it change your life?

Forgetting

Sometimes we have memories which we would rather forget. Do you have memories that you would like to remember more clearly?

Human memory implants

Scientists have discovered multiple ways to extend human **lifespan** by making our bodies less **vulnerable** to disease. What they haven't yet worked out is how to slow the **ageing process** of the mind. It is a common fear of humans that they will grow old to have a fully-functioning body but the **ravages** of **Alzheimer's** will catch up with them. Of course, Alzheimer's is not the only cause of memory loss, a knock to the head or a traumatic event can produce similar disappearances of our pasts. One scientist thinks he may now have discovered a way to prevent or reverse that loss.

Human memory implants

A **biomedical engineer** and **neuroscientist** believes he may have discovered how the brain forms long-term memories. He has spent the last 35 years investigating the behaviour of **neurons** in the **hippocampus**, this is the part of the brain that transforms short-term memories into long-term ones.

The neuroscientist now believes he might have **cracked it!** A **silicon chip** has been designed to **mimic** the behaviour of these neurons. In the tests, the scientist connected the silicon chips externally to rat and monkey brains, and they worked!

Losing your memory

Do you know anyone who has lost their memory for any reason? How do you imagine it would feel?

Getting older

Are you worried about getting older? Discuss what you think might be the positives and negatives of ageing.

Do you understand?

Do you understand what the biomedical engineer and neuroscientist is trying to do? Use the words below to help you explain.

Memories

What do you think the quotation below means? Do you agree with it?

> Memories make the man.

Get ready to listen

The next few slides will focus on training your listening comprehension

Before you listen

You will hear the words below in the following listening activity. Think about the connection they have to a memory implant. Discuss your ideas.

quality of life

electrical pulses

audacious

prosthesis

formulation

doable

outlandish

Outlandish and audacious?

Do you think the neuroscientist's idea is **outlandish** and **audacious**? Can you think of any other **scientific** or **medical breakthroughs** that were thought to be similar?

Living without a memory

In what ways do you think it would be difficult to live without a long-term memory? Which everyday activities would it be difficult to complete?

A perfect memory

If we could all have a perfect memory, how do you think life would change?

holding grudges

exams

work and jobs

Worries

Is there anything that would worry you about having a human memory implant?

Selling the implant

Imagine you were in charge of marketing and selling the fully working memory implant. Discuss the factors below, thinking about how you would advertise the product.

target audience

cost

advertising

slogan

Are there any circumstances under which you might accept a human memory implant?

Reflect on this lesson

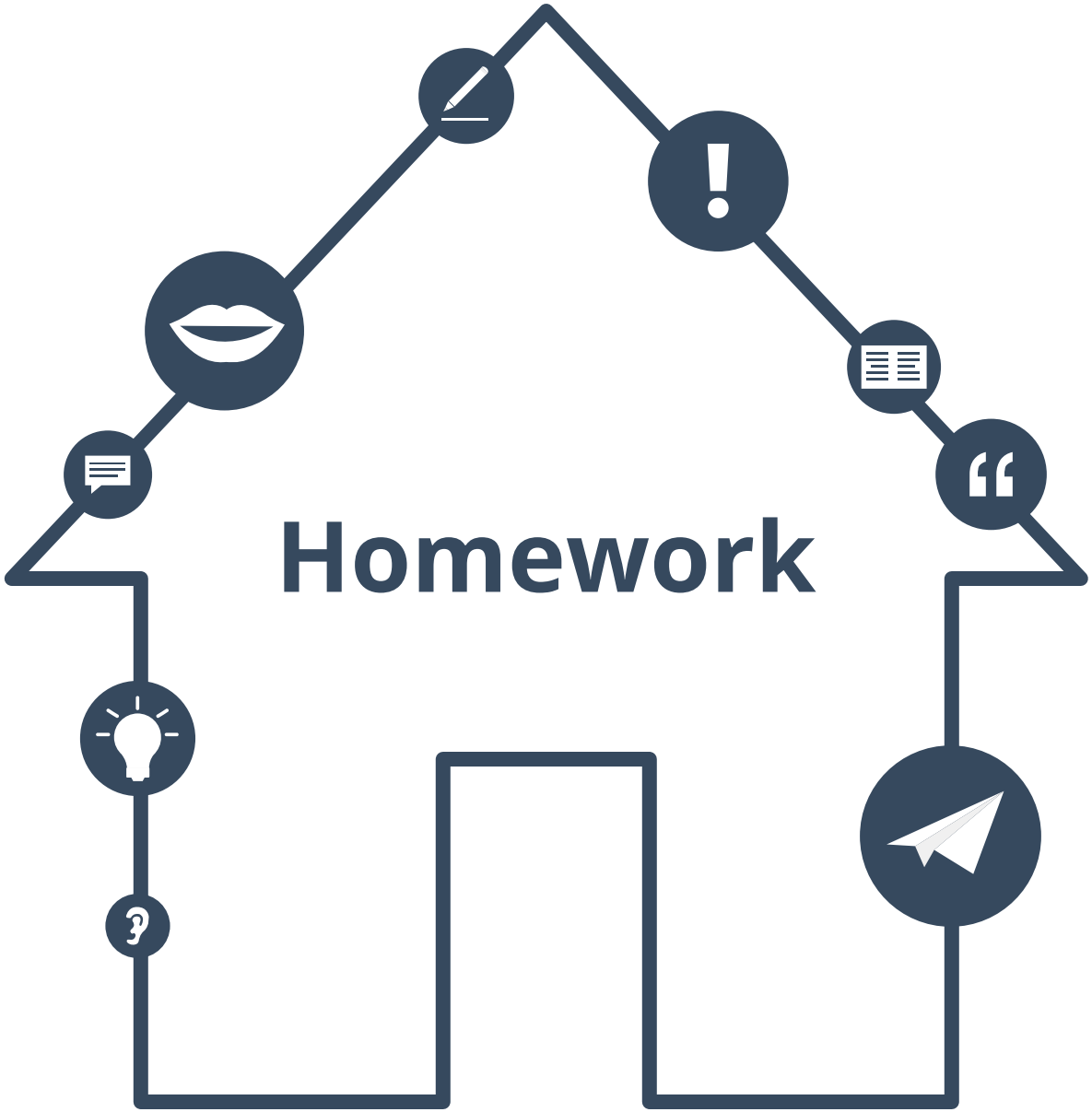
Take a moment to review any new **vocabulary**, **phrases**, **language structures** or **grammar points** you have come across for the first time in this lesson.

Review them with your teacher one more time to make sure you don't forget!

Transcription

The biomedical engineer and neuroscientist's first task was to understand how memory works, and he reduced it to a simple formulation: a series of electrical pulses over time that are generated by a given number of neurons. This reduction to a mathematical formula made the task taken on by the neuroscientist seem more doable. But the idea of creating a chip to help form memories seemed audacious and outlandish to the neuroscientist's colleagues. It is only his recent successful experiments which have brought his ideas into the mainstream. Within the next two years, the neuroscientist and his colleagues hope to implant a memory prosthesis into animals. The neuroscientist admits that he never thought he would live to see his memory chip implanted into humans when he started work, and recognises that there is a long way to go yet.

Some people remain sceptical about just how much has been discovered. His experiments show only long-term memories being formed in a few specific situations. The neuroscientist and his team want to see whether the results can be generalised to form a variety of long-term memories, and he accepts that this may not be the case. However, he concludes that any improvement in forming long-term memories would be a great step forward for his patients in terms of quality of life.


Homework

Fill in the gaps

1. The _____ is the part of the brain that forms long-term memories.
2. People with _____ would benefit from a memory implant.
3. Other neuroscientists thought the idea of a silicon chip was _____.
4. A biomedical engineer and neuroscientist came up with a mathematical _____ to explain how memory works.
5. Electrical pulses are generated by _____.
6. The silicon chip will _____ the process of memory formation.

mimic

formulation

Alzheimer's

hippocampus

audacious

neurons

Make 2 lists

Write a list of the pros and cons of having a memory implant. What is your overall consensus?

Pros	Cons

Homework answer key

Exercise p. 27

1. hippocampus, 2. Alzheimer's, 3. audacious, 4. formulation, 5. neurons, 6. mimics

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