

1

GET CREATIVE



1

2

3

SPEAK Look at the photos and read the quote. Answer the questions.



Creativity is intelligence having fun.

Albert Einstein

(German-born theoretical physicist and Nobel Prize winner)

- What aspects of creativity do the pictures illustrate?
- What do you think the artist's intention was in picture 2? How effective is the artwork?
- Do you think there is a difference in the way artists, scientists and businessmen come up with new ideas? Why/Why not?
- How do you understand the quote? Do you agree with it? Do you think intelligence and creativity are closely connected?

1 Choose the correct options.

- 1 Each group *brainstormed* / *drew* solutions to the problem and then chose one to present to the class.
- 2 When you struggle to make an important decision, sometimes it's better to *imagine* / *use* your intuition rather than think too hard about it.
- 3 I wasn't sure Tracy's idea was the best, but I *considered* / *suspended* judgment and just went along with it.
- 4 Before writing the essay, I *identified* / *named* the pros and cons and then drew up a plan.
- 5 It's important to analyse all the data carefully before *sketching* / *drawing* a conclusion.
- 6 The inventor of the Internet could never have *brainstormed* / *predicted* all the effects it would have on society.
- 7 There are many ways to approach this problem, and we should *consider* / *use* all the alternatives.



- 2 Read the text. Do you use any of the strategies described in the text? What else helps you to come up with new ideas?

HOW TO BE MORE CREATIVE

GET TIRED!

A psychological study by Mareike Wieth and Rose Zacks found that the best ideas often **emerge** when you're feeling tired and that **daydreaming** promotes creativity. It has also been demonstrated that we are most productive at 2:55 pm, just after lunch, when we are feeling sleepy. So next time you **get stuck** or **your mind goes blank**, wait until you're tired – it may work for you!

GET MOVING!

The co-founder of Apple, Steve Jobs, loved taking long walks. They used to help him **dream up new ideas** for products. A Stanford University study found that walking can stimulate the brain and **boost creativity** by up to sixty percent. The study showed that walking is actually better for brainstorming and **exploring possibilities** than focused thinking. The most unlikely things can **trigger new ideas**, and when you're not consciously thinking about a problem, solutions can amazingly just fall into place.

GET VISUAL!

Carla Marie Williams was a teenager when she decided to focus on songwriting. She has **followed it through** to build a successful career, and she's written songs for many famous singers, including Beyoncé. When she **gets inspiration** for a song, she creates a mood board to visualise the ideas and emotions she wants to express. Carla has had highs and lows in her career, but one thing remains constant – she **sticks with it**.



3 KEY WORDS Replace the underlined phrases in sentences 1–10 below with the correct forms of some of the highlighted words and phrases from the text in exercise 2.

- In the next fifteen years, people could have their brains zapped to make them more creative.
- Sometimes when I'm trying to get an idea for an essay, I can't think of a single thing.
- We were trying to come up with a new idea for the design, but suddenly we stopped making any progress, so we decided to take a break and go for a walk.
- Camilla dreamed of being an athlete and, unlike many others, she did what needed to be done to achieve it.
- You shouldn't spend so much time staring out of the window and thinking about stuff!
- My sister loves painting, and she's always thinking of new ideas for her art.
- Where do you acquire ideas for new songs?
- I thought Greg would give up trying to get into medical school, but he continued with it.
- During our debate, several interesting ideas came up.
- He was experiencing writer's block at the time, but a trip to the Scottish Highlands made him think of a new idea for a detective story.

4 Complete the sentences with the correct forms of the highlighted words and phrases from the text in exercise 2.

- New ideas and trends constantly [] through the Internet and viral videos.
- Patrick's question in history class [] a debate about the European Union.
- Has Max ever developed his crazy idea for a new invention and []?
- If you let your mind wander, answers to a problem can just [] like magic.
- Charles Dickens [] ideas for many of his best stories while he was walking.
- If you don't [] it and practise every day, you'll never become a successful tennis player.
- The company held a meeting to [] possibilities for new products.
- We love working together because we get [] from each other and come up with great ideas.
- The teacher caught Lucy [] when she was supposed to be doing her work.
- Going for a walk in the countryside is a good way to [] your [].

5 **1.01** Listen to a podcast and answer the questions.

- What was worrying the speaker on the evening in question?
- How did she spend a large part of that evening?
- How did a nighttime event help her solve her problem?
- What is the main message of her account?

6 **1.02 KEY WORDS** Complete the text with the highlighted words below. Listen and check.

box • feet • flash • imagination • loud • train

The next time you find yourself **thinking out** ¹ [], don't worry – you're not crazy. It's creative! Did you know that it may help you to **think outside the** ² [] if you literally sit next to a cardboard container? And although 'to **think on your** ³ []' means to make a quick decision, it has been demonstrated that people do better at solving word puzzles when they are lying down. It's important to boost your natural creativity – you never know when you may need a ⁴ [] **of inspiration**. If you're a complex thinker, practise expressing your thoughts in different ways so that others can **follow your** ⁵ [] **of thought**. Learn to **capture people's** ⁶ [] using something intriguing.

7 Match the highlighted idioms from the text in exercise 6 to definitions 1–6 below.

- [] – a good idea that comes suddenly
- [] – understand your thought process
- [] – inspire people's thoughts
- [] – saying your thoughts
- [] – have thoughts and ideas that are different to the mainstream
- [] – decide something quickly

8 **SPEAK** Answer the questions.

- Which strategy in exercise 6 would you like to try? Why?
- Do you think some people are born more creative than others? Can creativity be learned? Give examples of people you know.
- How many different uses can you think of for an umbrella?

9 **SPEAK** Look at the video still and answer the questions.



- What's your reaction to how the artist has changed the photograph?
- Think of a photograph of your town or a place you know. What could an artist add to it?

FAST FINISHERS

Look back at exercise 5. What do you think the girl's story was about? Write an outline.

Past perfect simple and past perfect continuous

- 1** **SPEAK** Have you ever been tricked? What did you learn from your mistake?
- 2** **1.03** Read and listen to the text and answer the questions.
- Do you think J.D. McMahon should have been prosecuted for what he had done?
 - What did the investors learn from their mistake?



Wichita Falls in Texas is home to the 'world's littlest skyscraper'. In 1919, a local businessman called J.D. McMahon, who ^a **had been working** in the oil construction business, proposed building a skyscraper with new offices. By the time construction began, McMahon ^b **had been asking** various entrepreneurs

for financial support for some time, and he ^c **had collected** \$200,000 from investors. However, as soon as the building began to take shape, the investors realised that McMahon ^d **had tricked** them. Instead of presenting plans for the building in feet (the standard measurement at the time), McMahon ^e **had used** inches (12 inches = 1 foot). The building, now a historic landmark, measures just 12 metres instead of 150 metres.

- 3** **1** Study the grammar table and complete it with examples a–e from the text in exercise 2.

Key Grammar

Past perfect simple and past perfect continuous

We use the **past perfect simple** to talk about a completed past action which happened before another action or point in time in the past, e.g.: ¹ **had done**, ² **had seen**, ³ **had finished**.

We use the **past perfect continuous** to talk about an action that was happening up until another action or point in time in the past, e.g.: ⁴ **had been waiting**, ⁵ **had been working**.

We use **past perfect** tenses with these time expressions: *before, until, after, by the time*.

Grammar Reference >> 20 Irregular verbs >> 158–159

- 4** Choose the correct options.
- The participants were starving because they hadn't **eaten** / **been eating**.
 - We were absolutely furious after the airline had **lost** / **been losing** our luggage.
 - Had you **been waiting** / **waited** long when I arrived?
 - Pauline didn't know the answer because she **hadn't listened** / **hadn't been listening**.
 - Dave had already **sent** / **been sending** the money when he realised it was the wrong amount.
 - I **'d written** / **'d been writing** a full page when I realised I **'d done** / **'d been doing** the wrong essay.

- 5** **1** Complete the sentences with the correct past perfect simple or continuous forms of the verbs from the box.

arrive build lose plan sing try work

- Until being injured in a bus accident in 1925, Frida Kahlo **had been studying** to study medicine.
 - Five-year-old Louis Braille didn't realise at first that he **had lost** his sight, and kept asking his parents why it was always dark.
 - In November 1887, Vincent van Gogh befriended Paul Gauguin, who **had been living** just **had been living** in Paris.
 - Grace Davies **had been singing** in bars and pubs since she was sixteen before she decided to follow through with her dreams and perform on *The X Factor UK*.
 - James Dyson **had been trying** to sell his revolutionary dual cyclone vacuum cleaner to different manufacturers for years when he decided to set up his own manufacturing company.
 - By the time he died in October 2011, Steve Jobs **had built** Apple into the world's most valuable company.
 - The pharmaceutical company Moderna **had been working** on mRNA vaccines for cancer and infectious diseases for more than a decade when the COVID-19 pandemic hit.
- 6** **1** Complete the sentences with your own ideas. Use the past perfect simple or continuous.

- By the time I left home this morning, **had been waiting**.
- Before I went to bed last night, I **had been thinking**.
- My parents **had been arguing** until I agreed.
- I came up with a brilliant idea after **had been working**.

#BRAINTEASER

A couple went on holiday for three weeks. They carefully locked their house and had a neighbour check on the place while they were gone. When they returned, the wife was distressed to learn that, because of a power cut, she had lost all her best jewellery. She had hidden the jewellery in what she thought was a very safe place. She was not robbed. Her jewellery was lost by accident. What happened?



FAST FINISHERS

1 Think of a time when someone tricked you or someone you know. Write four sentences about that situation using *before, until, after* and *by the time*.

Checking and clarifying information

1 **SPEAK** Answer the questions.

- 1 What do you think the picture in exercise 2 shows? How useful do you find this invention?
- 2 Think about things you have touched or used in the last five minutes. Which do you think was invented most recently?

2 Read the text. What can you do on the website in question? Choose two answers.

- a Read about the best inventions of all time.
- b Learn about recent inventions.
- c Post about something you have invented.
- d Suggest an invention that could be useful.

ANOTHER DAY, ANOTHER AMAZING NEW INVENTION!



Our website brings you some of the most incredible products and gadgets that today's clever brains have dreamed up. Some are so useful we cannot imagine having ever lived without them. Others are a tad crazy!

Check out our posts and tell us which inventions you think are the best and why. AND we want to know if you think there's a gap in the market for a new invention. What would YOU like to see invented? Send us your ideas. The weirder, the better! ☺

3 **1.04** Listen to a dialogue. Which invention does Lily like and why? Which invention would she like to see and why?4 **1.04** Study the Key Phrases box. Then listen to the dialogue again. Which Key Phrases did you hear?

Key Phrases

Checking and clarifying information

Checking information and confirming understanding

I'm not quite following here.
Am I right in thinking ...?
If I'm hearing correctly, ...
So, you're saying that ...
Let me get this straight.
You mean ...
The what?
Sorry, what was that ...?
Ah, I'm with you now.
That makes sense now.

Clarifying information and rephrasing

Let me put that another way.
What I'm saying is ...
Essentially, ...
Simply put, ...
In a nutshell, ...
What it boils down to is that ...
In other words, ...
What I mean is (that) ...

5 **1.05** **SPEAK** Translate into English. Use the Key Phrases. Then listen and check. Practise the dialogues in pairs.

- 1 X: Another invention is a robo bird. Other birds are really scared of it.
Y: (Niech to dobrze zrozumiem.)
There's a bird that is robotic and it frightens other birds. Why?
X: (W skrócie), this robotic bird chases birds from airports so that they don't fly in front of the planes.
Y: Ah, (teraz rozumiem)!
- 2 X: Personally, I'd like to be able to buy an extra thumb.
Y: (Jeśli dobrze słyszę), you said an extra thumb?
X: (Chodzi mi o to, że) mine hurts after a lot of messaging. It would be good to attach an extra one, wouldn't it?
Y: (Innymi słowy), you don't want a permanent extra thumb, just for occasional use?
X: Exactly. Just saying.

6 **SPEAK** Talk about inventions you would like to see. Think about:

- household gadgets,
- helping people with health problems,
- facilitating transport.

7 **SPEAK** Read the instructions and do the speaking task. Student A, look at page 156. Student B, look at page 157. Then change roles and do the task again.**FAST FINISHERS**

Imagine the website from exercise 2 is also asking for people's choice of the best invention of all time. Write a short post giving your opinion.



Go online and find out about an unusual recent invention. Describe it to the class.

1.4 Reading

A blog post about using AI in art



- 1 **SPEAK** Compare photos A and B. How do you think the different works of art have been created? In what ways might the people's experiences be different? Use the adjectives from the box.

abstract bizarre captivating emotional
exceptional powerful remarkable superb unique

- 2 **SPEAK** Look at photos A and B again and answer the questions.

- 1 Which type of artwork would you have, or not have, in your bedroom? Why?
- 2 Which experience shown in the photographs would you prefer to have? Why?
- 3 Do you think digital art is as good as conventional art? Why/Why not?

- 3 **1.06** Look at the photos and the title of the text on page 11. What do you think the text will be about? Read the text quickly and check your ideas. How were the two pieces of art made?

- 4 **Read the article again and choose the correct options.**

- 1 Why was the sale of the painting *Edmond de Belamy* historic?
A It's the first painting ever created using a neural network.
B It was the first AI portrait ever sold at auction.
C Nobody had ever bought a similar portrait for so much money at an auction before.
D No auction house had ever made free software to create art before.
- 2 In the fourth paragraph, the writer implies that
A new technology will create a new style of art.
B AI will help humans to evolve further.
C all artists will use AI in the future.
D artistic creation will improve thanks to AI.
- 3 Sougwen Chung's robotic arms are
A controlled by the artist.
B using their own movements.
C copying the movements as she makes them.
D working independently.
- 4 According to the writer, one way of judging AI-produced art could be
A the quality of the final work.
B its growing popularity.
C how different it is from conventional art.
D what people are prepared to pay for it.

- 5 **Read the text again and complete the sentences.**

- 1 In the title, the writer added a question mark because _____.
- 2 The writer believes that humans are unique in _____.
- 3 Sougwen Chung is a Chinese-Canadian artist who _____.
- 4 _____ whether human-made and AI-made art are comparable.



- 6 **SPEAK KEY WORDS** Complete the questions with the correct forms of the highlighted collocations from the text on page 11. Then answer the questions.

- 1 Can coming from a family of successful actors give someone a(n) _____ in getting roles? Give an example.
- 2 Would you be able to remember what you were doing _____ last week? Give an example.
- 3 What _____ are trending on social media at the moment?
- 4 Do you think students benefit from being involved in _____? Why/Why not?
- 5 What _____ is there at the moment about an upcoming film, series or video game?
- 6 If you had the money, would you spend a(n) _____ on an artwork? Why/Why not?
- 7 What would you say is one of the _____ of throwing a great party?
- 8 Do you think AI artwork will inevitably continue to have a(n) _____? Why/Why not?

- 7 **SPEAK** Answer the questions.

- 1 If you were organising an art exhibition at your school for charity, what sort of art would you include? Why?
- 2 Some people say that art masterpieces should be available for the public to see, not in the hands of private collectors. Discuss arguments for and against the idea.

FAST FINISHERS

- Write a blog post to describe an art gallery, exhibition or artwork that you think people might enjoy, explaining why. It can be real or imaginary.**

Find out about an interesting digital art exhibition. Research the theme, the artists and the visitors' reactions. Share your findings with the class.

AI = ARTISTIC INTELLIGENCE?

MACHINE AND ARTIST COLLABORATE THROUGH AI

Judging by the number of comments, last week's post about art apps touched on a **hot topic** and definitely divided opinions. It generated a **fierce debate** after one reader brought up the question of whether these apps 'make art easier' and therefore weaken the creative role of the artist.

This week's post explores another aspect of technology used in art, artificial intelligence (AI).



Edmond de Belamy,
from *La Famille de Belamy*, 2018.

A few days ago, I read about the sale of a very interesting painting at Christie's in New York. In late 2018, a portrait called *Edmond de Belamy*, which had been created using a computer system called a neural network, was sold for \$432,500

at auction. It was the work of a group of young artists from Paris called *Obvious*, and it made history by being the first time anyone had paid such a **substantial sum** for a painting like this.

The strange-looking figure was generated using a complex algorithm based on work done by a nineteen-year-old AI genius, Robbie Barrat, who had been experimenting with neural networks. He had trained one to paint original landscapes and portraits using information from images that it had stored in its memory from WikiArt. Barrat had posted his network online for anyone to use.

The idea that apps and AI can be used to create art is intriguing, as artistic creation is surely an essentially human activity. As far as we know, humans are the only species with the ability to create art and there is indeed **widespread**

speculation that this brought about a significant shift in human evolution, giving us a **competitive edge** over other species.

The use of technology available **at a given time** – brushes, paint, surfaces, etc. – is a **crucial element** in how new artistic styles emerge. In the twenty-first century, the tool of choice for certain artists is AI – sophisticated, intelligent machines that enhance the artist's capabilities and, controlled by the artist, are capable of producing truly original creations.

Having decided to check out AI art further, I came across the work of the Chinese-Canadian artist Sougwen Chung. In one memorable video, the artist is squatting on the floor drawing white lines on a square black canvas. Either side of her are two small robotic arms that draw lines along with her. The software controlling the arms had memorised Chung's gestures from previous drawings and was able to make movements that reflected her style. Chung and her robots produced a set of improvised drawings using the artist's own movements and what the robots' AI system had learned about how she worked.

I had been watching the performance for a few minutes when I started to consider whether we can actually talk about artistic intelligence in machines. Is what the robotic arms do really a form of 'art'? Is it any good? The AI-generated portrait, *Edmond de Belamy*, is clearly an original work, though criticised by some for its rather **primitive finish**. And surely if someone's willing to lay out that much money for a work of art, it must be considered good or valuable in some other way, at least by the person who bought it. So today's blog ends with another question: Will AI on its own ever be able to dream up a masterpiece on a par with anything created by a human being? Should we even be thinking about making comparisons? Your thoughts please!



Sougwen Chung collaborating with machines to paint on a flat canvas.

Creative advertising

1 **SPEAK** Do you ever enjoy watching commercials? Why/Why not?

2 **1.07** Listen to three people answering the question from exercise 1. Match speakers 1–3 to statements a–d. There is one extra statement. Whose comment reflects your own opinion?

- a Advertisements often don't reflect reality.
 b Advertisements can be entertaining and have their own merit.
 c Advertisements can be misleading and on the edge of breaking the law with false claims.
 d Advertisements serve no real purpose and encourage people to spend money unnecessarily.

1 2 3

3 **1.08** Read and listen to the blog post about art and advertising and answer the questions.

- 1 Why do people usually think art and advertising are different?
 2 According to the writer, what sort of advertising can be considered 'art' and what cannot? Why?
 3 How do advertisers use famous artists or artworks in commercials?



There's been a lot of fierce debate recently about whether advertising is art. Surely, they're different? Art uses a combination of skill and creativity to convey ideas, whereas advertising relies on **ingenious techniques** and **philosophical** tools to promote products or

services, urging us to part with our money. However, some adverts and commercials are cleverly **crafted** to use visuals and audio in a way that **sparks intrigue**, makes us curious and **nurtures an interest in** both the brand and the product. In my mind, this kind of advertising appeals to the viewers' conscious and subconscious minds, just as art does. It can **pull the emotional strings** in the same way that art can, **encapsulating** many ideas to **make us think twice** about something we might not normally consider. In this way, advertising becomes art. It is this pairing of photos, illustrations, digital materials and in some cases famous artworks that can produce **legendary** campaigns. The adverts can be **static** pictures or **vibrant** videos with **haunting** voice-overs or earworm music and lyrics that hang around in our heads for days and weeks. Think gorilla playing the drums in a memorable advert from 2007 (BTW – a gorilla and chocolate?). In addition to this, there are the promotions that actively focus on artworks, whether 'borrowing the originals' to support the brand's message or adapting them to **target** the twenty-first century viewer. A famous home appliance brand uses images inspired by Matisse, as well as Andy Warhol and Salvador Dalí! Art has a home in advertising, and advertising has a home in art. After all, they are both about communication on many different levels. Have you got a favourite 'art' advert? Do tell!

4 **KEY WORDS** Read the blog post in exercise 3 again and match the highlighted verbs and verb-noun collocations to definitions 1–6 below.

- 1 – direct advertising or criticism at someone
 2 – make people curious about
 3 – cause fascination
 4 – capturing the most important elements
 5 – encourage people to reconsider
 6 – make people identify with something, produce feelings in them

5 **SPEAK KEY WORDS** Complete the gaps with the correct forms of the verbs from exercise 4. Then finish the sentences so that they are true for you. Discuss your answers and give details.

- 1 A teacher who my interest in a particular topic at school was ...
 2 An advert that particularly under-tens is ...
 3 A classic film that the emotional strings in many people is ...
 4 A book that the emotional problems of a teenager is ...
 5 A trailer for a recent film that my interest was ...
 6 A documentary that really me think twice was ...

6 **SPEAK KEY WORDS** Read the instructions and do the task. Student A, look at page 156. Student B, look at page 160.

7 **SPEAK** Answer the questions.

- 1 Some adverts seem to have little connection with the product. How effective do you think they are? Give an example.
 2 Describe a legendary advert that you would consider 'art'. What has made it memorable?

FAST FINISHERS

Choose a modern-day product and think of/design an advertisement or commercial for it using a famous artwork.



Search the web to find images and/or videos from one of the campaigns mentioned in the lesson. Present them to the class along with the information about their history and creators.

A radio interview about copying ideas



1 **SPEAK** Look at the photos. What do you think these two objects might have in common?

2 **KEY WORDS** Match the highlighted words and phrases below to definitions 1–8.

cite your sources • **counterfeit** • **get credit for in the public domain** • **infringe copyright intellectual property** • **plagiarism** • **take out a patent**

- 1 – inventions, artistic works, etc. that a person has the rights to
- 2 – available for everyone to use
- 3 – not original, designed to fool
- 4 – receive praise or reward for
- 5 – get the official legal right to sell an invention for a certain length of time
- 6 – break the law regarding what belongs intellectually to someone else
- 7 – the practice of copying someone else's written work and ideas illegally
- 8 – say where you obtained information from

3 **1.09** Complete the sentences with the correct forms of the words and phrases from exercise 2. Then listen and check.

- 1 It's unethical for people to other people's work, don't you think? So, if you have a new idea, you need to to prove that it was your original idea and not someone else's.
- 2 You can use music in your video as long as it's . Otherwise it's illegal – you'd be .
- 3 Photographers often add a watermark to pictures they post online in order to protect their .
- 4 There are strict rules about using other people's words or ideas, to avoid . You should always when passing on information.
- 5 There are a lot of goods on the market, and if you buy something that turns out not to be genuine, you have the right to get your money back.

4 **1.10** Listen to a radio interview about copying products and answer the questions.

- 1 How does today's programme differ from the usual one?
- 2 Why does the interviewer mention students copying work?
- 3 When, according to Liam, does copying become a crime?
- 4 How was Marconi rewarded for his work on radio?
- 5 What similarities are there between the two games, *Monopoly* and *The Landlord's Game*?

5 **1.10** Listen again and choose the correct options.

- 1 What is important to the companies selling smart speakers?
 - A That they are as popular as other must-have gadgets.
 - B That they are produced by major tech manufacturers.
 - C That they encourage users to buy additional devices.
 - D That they cannot be copied easily.
- 2 Marconi couldn't get a patent for radio technology in the US because
 - A he already had one in Britain.
 - B it was Tesla's invention.
 - C Tesla already had the patent there.
 - D he didn't have the right contacts.
- 3 The guest expert mentions when Magie's game was patented in order to
 - A show that hers was the original idea.
 - B contrast it with recent versions of the game.
 - C stress that Darrow had developed *Monopoly* before Magie.
 - D point out that buying and selling property was important at that time.
- 4 What do the examples of the products in the podcast illustrate?
 - A How easy it is for inventors to copy other people's ideas.
 - B How inventors are often inspired by other people's work.
 - C How inventors never invent anything original.
 - D How marketing is more important than the original invention.

6 **1.11** Listen and write down the verbs, nouns and adjectives. Draw a stress mark /' / before the stressed syllable in each word. Notice the stress shift. Then listen again and repeat.

7 **SPEAK** Answer the questions.

- 1 Have you ever bought something you thought was original, but turned out to be fake? What was it?
- 2 How important do you think it is to have strict rules about intellectual property? Why?
- 3 Do you sometimes use online information to give you inspiration for your work? Give examples.

FAST FINISHERS

Design another version of the board game *Monopoly*. Think about your town or area, or a trending film or TV series.



- 1 **SPEAK** Describe a situation in which you got completely engrossed in a creative process.
- 2  1.12  Complete the text with sentences a–e below. There is one extra sentence. Listen and check. What do you think was in the envelope?
- There goes my creative weekend ...
 - Barely had she been painting for two minutes when she heard a knock on the door.
 - Little did Hannah know how the visit was going to change her life.
 - Not only was she curious, but she was also a little aggravated by the interruption.
 - No sooner had she finished her first drawing than she wanted to start on a new one.



It was Saturday morning and Hannah couldn't have been more excited. She intended to spend the whole weekend in her studio painting – something she hadn't been

able to do for quite a while now. She felt a flash of inspiration and was ready to finally give vent to her creativity. She became completely engrossed in the process. ¹  And she knew exactly what she wanted now – oil on canvas. ²  'Who could it be?' she wondered. ³  She opened the door and saw an envelope on the doorstep. She looked inside the envelope and murmured, ⁴ .

- 3  Study the grammar table and complete it with examples a–e from exercise 2.

Key Grammar

Stylistic inversion

In a formal or literary style, we can invert (= change) the order of the verb and the subject in a sentence for emphatic or dramatic effect.

In sentences with negative or limiting adverbials at the beginning, we change the usual word order to that used in questions (adverbial + auxiliary/modal + subject + main verb). Adverbials that can be used in this way include:

- time adverbials: *never, rarely, seldom, hardly/barely/scarcely ... when, no sooner ... than*, e.g.: ¹ , ² .
- expressions with *not*: *not only ..., but also, not until, not for a moment*, e.g. ³ .
- little* (with negative meaning), e.g. ⁴ .

When an adverb or an adverbial expression of place (*here, there, in the studio*, etc.) comes at the beginning of a sentence, the subject and verb are inverted. We do not add an auxiliary. We only use this type of inversion in sentences with the verb *be* or a verb of place/movement (*stand, go, come, fly*, etc.), e.g. ⁵ . We do not use inversion if the subject is a pronoun, e.g.: *Here comes the groom. Here he comes.*

- 4 Choose the correct options.

- No sooner / Little / Not only* did we know that we would never meet again.
- Look up there! *Rarely / Never / Here* comes another kite!
- Hardly / No sooner / Only* had she gone to bed when her phone rang.
- Never / No sooner / Not only* did we text him, but we also called him several times.
- Little / Only / Not only* do they realise how difficult our situation is.
- Seldom / Hardly / No sooner* had we left than Mary said we needed to return.
- Not once / Barely / There* did the teachers question the plausibility of the student's explanations.

- 5  Complete the second sentence so that it means the same as the first one.

- She had only just created a new product when she started developing another one.
No sooner .
- They'd only just put out one fire when another one started somewhere else.
Hardly .
- I had just closed the front door when I realised what had happened.
Barely .
- George had only been studying for a few minutes when he fell asleep.
Scarcely .
- I didn't stop thinking about the performance for one moment.
Not for a moment .
- I hadn't even read one chapter of that book until yesterday.
Not until yesterday .
- These adverts use famous paintings and feature haunting music.
Not only .
- The university doesn't even realise the extent of plagiarism.
Little .

- 6  Finish the sentences and write them on a separate piece of paper. Then exchange your sentences with your partner and add one sentence before or after to create a context.

- Little did I know ...
- Barely had I finished ...
- There goes my ...
- Never have I heard ...

FAST FINISHERS

-  Continue the story from exercise 2. Use stylistic inversion at least twice.

- 1 **SPEAK** Have you ever made an expensive mistake? What happened?
- 2 **1.13** Read the **WATCH OUT** box and complete the sentences using the verbs in brackets and *do/does/did* for emphasis. Then listen to a conversation and check.
- I (like) your blog, but it (need) to be a little more original.
 - Your blog (resemble) the one the teacher showed us a bit too much, don't you think?
 - They (tell) us about copying and plagiarism, remember?
 - So, in other words, it (look) like I've just copied it.
 - You (have to) start somewhere!
 - That definitely (make) sense.

WATCH OUT**Do/Does/Did for emphasis**

In the present simple and past simple, we can use *do/does/did* + infinitive in affirmative sentences to express emphasis. In speech, *do/does/did* is stressed.

*Are you OK? You **do look** a little pale. Please lie down.*

*Dad hardly ever sees his old school friends now, but he **does write** to them.*

*I **did want** to tell you, but I was too afraid.*

- 3 Complete the second sentence so that it means the same as the first one. Use the words in capitals.
- Almost everybody was in a brainstorming meeting, but I managed to talk to a few people. **MANAGE**
Almost everybody was in a brainstorming meeting, but I to a few people.
 - After someone bought the painting at auction, they discovered it was a reproduction. **TIME**
 the painting was a reproduction, someone had bought it at auction.
 - Decca Records rejected the Beatles, and then they became successful. **REJECTED**
Before the Beatles became successful, Decca Records .
 - You don't see many good quality campaigns these days. **SELDOM**
 see good quality campaigns these days.
 - At that point, five years had passed since Lucy had started to run that project. **BEEN**
At that point, Lucy that project for five years.
 - Helen copied my work and accused me of using her ideas. **ONLY**
 my work, but she also accused me of using her ideas.
 - As soon as I went to bed, I realised I hadn't done my homework for the following day. **SOONER**
 to bed than I realised I hadn't done my homework for the following day.
 - Contrary to popular belief, the classic horror film *Rosemary's Baby* uses some special effects. **USE**
Contrary to popular belief, the classic horror film *Rosemary's Baby* special effects.

- 4 Match the words from box A to the words from box B to make collocations. Then write three sentences with a collocation of your choice, leaving a gap where the phrase should be used. Exchange sentences with your partner and complete the gaps.

A explore get infringe spark
think trigger

B copyright ideas intrigue
possibilities stuck twice

- 5 Translate into English. Use the words from the box.

blank boost fierce nurture pull
trigger

- Before we found common ground, we (odbyliśmy zaciekną debatę).
- (Nie tylko miałam pustkę w głowie), but I was also unable to say a word.
- Tom's presentation (stała się źródłem wielu pomysłów) for further development.
- They decided to join the rescue mission only after we (zagraliśmy na ich emocjach).
- What (pobudza twoją kreatywność) the most?
- They did (żywili nieco zainteresowania) in the new campaign, but not much.

- 6 **SPEAK** Complete the questions with the correct words. Some letters are given. Then answer the questions.

- What do you do to s m t creativity?
- What would your maths teacher do if he/she caught you d y r m g?
- Do you ever think outside the x? Give an example.
- What do you think gives people a competitive g on the job market these days?

FAST FINISHERS

Imagine you are preparing a speech about copying among bloggers. Write four sentences with stylistic inversion and two with *do/does/did* for emphasis that you might include in your speech.

- 1 **SPEAK** Which of these creative apps do you find the most appealing: film-making, music-making or photo-editing? How do creative apps stimulate creativity?
- 2 Read the article and answer the questions.
 - 1 What does the article review?
 - 2 What is the writer's overall opinion?
 - 3 Would you like to download a tool like this? Why/Why not?
- 3  Read the review again and make notes about the main ideas in each paragraph.

Paragraph 1:  Paragraph 2: 

Paragraph 3:  Paragraph 4: 
- 4 Find features 1–5 below in the article from exercise 2.
 - 1 Adjectives used to describe the app's positive features (highlighted in the text)
 - 2 Adjectives used to describe the app's negative features (highlighted in the text)
 - 3 Linking words and phrases of contrast
 - 4 Linking words and phrases of addition
 - 5 A phrase to summarise

Release your inner van Gogh ★★★★★☆

While there are many concerns about whether smart technology could possibly be about anything beyond consumption and entertainment, more and more **innovative** video, photography and music-making software is being produced that can actually stimulate the brain. These **ingenious** applications open up a whole range of new possibilities. Not only are they based on advanced professional software, but they also contain **intricate** editing features. People like me, who are truly into drawing, will find the free app *Tayasui Sketches* particularly **appealing**.

The app has been **critically acclaimed** by its users for a number of reasons. First and foremost, it has an **outstanding** range of tools – brushes, pencils, pens, shapes – that you can use in your drawings. What is more, all these tools are **easily accessible** through a well-designed interface. Nonetheless, what impressed me most was the incredible choice of colours and textures. Another **superb** feature is the online community of *Tayasui Sketches*, where artists publish their work.

On the downside, for people who are used to drawing on paper, the app may seem **impenetrable** at first. If you have no experience with using a similar tool, you may find the complexity of the app a little **overwhelming**. Also, the app's promise to help you become 'the next van Gogh' does appear rather **far-fetched**.

Overall, this app is a **phenomenal** way to boost your creativity, and it does seem well worth taking the time to learn to use all the different features. It is highly recommended to anyone, from beginners to experts, who is willing to open up their artistic creation to wider audiences.

- 5  Study the Key Phrases box and complete the sentences with one word in each gap.
 - 1 This dress is   creation of the young Croatian designer.   you to learn a lot about his artistic interests and inspirations.
 - 2   particularly superficial was how the photographer presented the female subjects.
 - 3 Due to the   of editing features, the tool is   professional designers.
 - 4 Unfortunately, the film  too controversial for younger audiences.
 - 5   , viewers without profound historical knowledge may not fully understand the message.

Key Phrases

A review

Introduction

(The album) is yet another creation of ...

Not only is it ..., but it also ...

People like me, who ..., will find ...

Positive features

One feature I really like is ...

... an impressive range of ...

... an incredible choice of ...

I found the ... incredibly useful/convincing/intriguing.

One brilliant/superb/brilliantly inventive feature that I absolutely love is ...

It allows you to ...

What I find/found particularly impressive/relevant/spectacular is/was ...

Negative features

It may seem a bit shocking/superficial/controversial.

It does appear rather far-fetched/misleading.

On the downside, ...

One major flaw of (the app) is ...

Summary and recommendation

Overall, ...

It is well worth taking the time to ...

I strongly recommend this ... to ...

It is highly recommended to ...



6 KEY WORDS Match the highlighted adjectives from the article in exercise 2 to definitions 1–9 below. Two definitions match more than one adjective.

- 1  – very unlikely and difficult to believe
- 2  – complex; containing many small details that work well together
- 3  – interesting and attractive
- 4  – praised by critics
- 5  – not difficult to find and use
- 6  – impossible to understand
- 7  – overbearing; making you feel confused and unsure how to react
- 8  /  – new, inventive and original
- 9  /  /  – extremely good or impressive

7 Develop the sentences using the adjectives from exercise 6.

- 1 I found the interface really easy to use.
1 *I found the interface particularly appealing as it was really easy to use.*
- 2 This app really needs a companion website.
- 3 The thing I like about this app is the photo-editing tool.
- 4 It is great that you can interact with other users.
- 5 The quality of the video content really stands out.
- 6 Most app users appreciate the simple registration process.

8 Write the following review excerpts. Use the Key Phrases and the adjectives from exercise 6. Write up to three sentences in each point.

- 1 the first three sentences in an article reviewing a virtual gallery
- 2 one reason why you didn't like an online tutorial
- 3 one positive feature of an electronic notebook
- 4 a final positive recommendation of a note-taking tool
- 5 one negative feature of a website with templates for writing essays
- 6 a reason why you want to review an app
- 7 discourage people from downloading a new operating system

9 SPEAK Think of a cultural event you have recently attended. Make a list of adjectives you could use to describe it. Then work in pairs and tell each other about the event, presenting its positive and negative aspects. Would you recommend it? Why/Why not?

WRITING PLANNER

THINK

Think of the details of the exhibition: where it was held (e.g. at a contemporary art gallery), the target audience, the exhibits, your general opinion. Remember that it does not need to be a real event – you can make everything up.

PREPARE

- Come up with a title for your article.
- List the most important features of the exhibition (mainly positive, but you can also mention what you did not like about it).
- Form your opinion about plagiarism in art and think of appropriate vocabulary to express it.
- Organise your notes into four paragraphs:
 - 1 The details of the exhibition (When? Where? For whom?)
 - 2 Describe the main features and give your opinion of them.
 - 3 Describe any negative features or disadvantages.
 - 4 Summarise your opinion and say whether you recommend the exhibition.

WRITE

Write your review. Use your notes and the Key Phrases. Remember to use appropriate linking words and phrases of contrast and addition.

CHECK

- Read your article and answer the questions:
- Have you included and developed both parts of the instruction?
 - Have you varied the structure of sentences?
 - Have you checked your review for spelling mistakes?

10 Do the writing task. Follow the steps in the Writing Planner.

You have visited a photography exhibition on the theme of modern technologies in art. You liked the exhibition, but you had an impression that many of the photos resembled the work of another famous photographer. Write a review of the exhibition for a culture website. In your review, discuss the exhibition and express your opinion on plagiarism in art.

FAST FINISHERS

Look at the highlighted adjectives in the article from exercise 2. Choose five positive and two negative adjectives and think of the best example from real life for each of them (app, game, film, video, art installation, artwork, etc.). For each example, mention the title and the creator's name.



VOCABULARY

1 Choose the correct options.

VICTOR LUSTIG is known as the man who sold the Eiffel Tower – twice. But how did he do it? In 1925, Lustig ¹ up the idea after reading an article in a newspaper about the terrible state of the famous tower. His plan involved convincing people that the Paris City Council had been ² the possibility of removing the iconic monument because it had become too expensive to maintain. He got a group of iron dealers together and ³ that he worked for the French government – he even made ⁴ government documents that ⁵ the real thing. One of the dealers, André Poisson, thought Lustig was ⁶ and paid him some money to secure the contract to pull down the Eiffel Tower. By the time it ⁷ that Poisson had been tricked, Lustig was on a train to Austria with his money. Although it wasn't a(n) ⁸ crime, Lustig got away with it the first time and so decided to try it again! The second time he was caught and sentenced to twenty years.

- | | |
|-----------------|---------------|
| 1 a dreamt | b emerged |
| c stimulated | d stuck |
| 2 a having | b exploring |
| c looking for | d searching |
| 3 a made | b pretended |
| c falsified | d inspired |
| 4 a original | b compatible |
| c genuine | d counterfeit |
| 5 a infringed | b cited |
| c resembled | d emerged |
| 6 a genuine | b outstanding |
| c daydreaming | d original |
| 7 a explored | b checked out |
| c emerged | d got stuck |
| 8 a plagiarised | b counterfeit |
| c haunting | d ingenious |

2 Complete the sentences with the adjectives from the box. There are two extra adjectives.

actual crucial fierce ingenious legendary
original stuck substantial

- The topic of artificial intelligence has stimulated a lot of debate in class.
- The updated device doesn't resemble the one at all.
- When you get , you can always ask someone for help.
- Without these techniques, the whole campaign wouldn't have been so successful.
- The bad boy of rock, Mick Jagger, has repeatedly said that he will not write an autobiography.
- Unfortunately, a(n) proportion of this artist's work has been plagiarised.

GRAMMAR

3 Complete the sentences with the correct forms of the verbs in brackets. There may be more than one correct answer.

- Paul (try) really hard to generate some enthusiasm for the trip, but no one seemed interested.
- No sooner (I / see) Jonathan's drawing than I knew it was a replica.
- Little (Helen / realise) how serious the consequences of plagiarism may be.
- I (only / write) for ten minutes when I got completely stuck.
- I couldn't believe my eyes when Hannah won the tenth game in a row, but it later turned out that she (cheat).
- Not only (you / be able) to edit the uploaded videos, but you can also make your own.
- Nobody bothered to tell me what the board (decide) to do.

4 Correct the mistakes in the sentences.

- By the end of the day, they'd been finishing the project.
- The artist shared with the audience why he had been deciding to end his career.
- Hardly had they announced that the painting wasn't original then its price went down.
- Look! Here come the artists' manager.
- Never I have seen a more impressive building.
- They had cooked for almost an hour, but dinner wasn't ready yet.
- True, you did told me the short story had been plagiarised, but I just couldn't believe it.

USE OF ENGLISH

1 2 3 4 5 6 7 8

5 Complete the second sentence with up to five words so that it means the same as the first one. Use the words in capitals.

- Ahmed was surprised that so many people were interested in his ideas. **INTEREST**
Ahmed was surprised that his ideas .
- Emma was really angry because Martha was half an hour late. **HAD**
By the time Martha arrived, Emma half an hour and was really angry.
- It took Heidi two years to take an award-winning photograph. **BEEN**
Before Heidi won the award, she two years.
- It started raining the moment we went outside. **HAD**
No sooner it started raining.
- The show started at eight o'clock and we got there at 8:15. **ALREADY**
By the time we got there, .

READING

- 6   Read the article and match sentences A–E to gaps 1–4 in the text. There is one extra sentence.

- A The images included photos of planets in our solar system, DNA, humans and animals.
- B It was not certain whether the Apollo 12 astronauts had left small artworks on the moon.
- C Using those tools, he drew an orbital sunrise as the sun appeared from behind the Earth.
- D In fact, artists have recently begun to claim their place in space.
- E However, while it's hard to explain exactly why, these were never located on subsequent moon landings.

SPEAKING

- 7  Read the instructions and do the task. Then change roles and do the task again.

Uczeń A

W ramach dni otwartych w Twojej szkole przygotowujesz wystawę prac plastycznych najzdolniejszych uczniów. Omów z kolegą/koleżanką* z Walii (uczeń B) szczegóły wystawy. W rozmowie z uczniem B porusz następujące cztery kwestie:

temat wystawy

dobór prac

termin i miejsce wystawy

ceny biletów

Uczeń B

Jesteś w Komitecie organizacyjnym wystawy prac plastycznych przygotowywanej z okazji dni otwartych w Twojej szkole w Walii. Kolega/Koleżanka (uczeń A) chce omówić z Tobą szczegóły wystawy. W zależności od tego, jak potoczy się rozmowa, spróbuj włączyć do niej wszystkie lub wybrane punkty:

- poproś ucznia A o uzasadnienie jakiejś kwestii,
- nie zgódź się z jedną z propozycji ucznia A tak, aby musiał zaproponować inne rozwiązanie,
- zaproponuj włączenie do akcji nauczycieli przedmiotów takich jak plastyka czy informatyka,
- zachęć ucznia A do wystawienia swoich prac.

Rozmowę rozpocząć uczeń A.

A BRIEF HISTORY OF SPACE ART

In 1965, the Soviet cosmonaut Alexei Leonov became the first person to make a spacewalk, leaving the Voskhod 2 spacecraft to float in space for twelve minutes. He took a small box of coloured pencils with him, which he had attached to his wrist with an elastic band. ¹ And just like that, the first work of art ever made in outer space was created.

Space exploration is considered to be strictly the territory of science, but since its beginnings, it seems that art has had a place on many space missions. According to some sources, four years after Leonov's spacewalk, Apollo 12 astronauts took tiny pieces of ceramic tiles with drawings by famous artists, including Andy Warhol, to the moon. ² Two years later, the Apollo 15 crew caused some controversy when they placed a small aluminium sculpture, *Fallen Astronaut*, on the moon's surface, along with a plaque commemorating the fourteen astronauts who had died on previous missions. The members of the crew only revealed what they had done in a press conference after their return to Earth.

Later on, as scientists explored further, art became much more important on space missions because of its ability to communicate without language and the possibility that it could be found and understood by extraterrestrial life forms. In 1972 and 1973, NASA launched two probes called Pioneer 10 and 11 to explore Jupiter and Saturn. Both were fitted with small metal plaques with a diagram indicating the location of the Earth within the galaxy. The Voyager 1 and Voyager 2 probes, launched four years later, both carried a gold record containing some visuals, music and sounds from Earth. ³ Among the pieces of music were Beethoven's Fifth Symphony and music from Peru, China and India. There were also recordings of rain, fire, animals and greetings in different languages.

Since then, the trend has continued and grown in strength. ⁴ In 2014, the Japanese artist Makoto Azuma sent a bunch of flowers and a small tree to a height of thirty thousand metres above Earth using balloons. Four years after that, American artist Trevor Paglen launched a large reflective sculpture on a SpaceX rocket to 560 kilometres above the Earth's surface. Paglen hopes the project will change the way we see our place in the world.

*W całej serii *Impulse* zastosowano kolejność form męska/żeńska. Zachęcamy jednak do zapoznania się z tendencjami etykietałnymi współczesnej polszczyzny.

1.2 Past perfect simple and past perfect continuous

PAST PERFECT SIMPLE

Czas *past perfect simple* stosujemy do opisu przeszłych zdarzeń poprzedzających inne zdarzenia, np.

We had been to the local theme park several times before it closed down in 2020.

Zdania w czasie *past perfect simple* tworzymy z użyciem czasownika posiłkowego *had* oraz formy *past participle* (dla wszystkich osób i liczb).

Affirmative	Negative
<i>I had bought</i> souvenirs for everyone by the time Tom joined me at the shop.	<i>We hadn't rented</i> a bike on holiday before.
Yes/No questions	Short answers
<i>Had she ever travelled</i> by plane?	Yes, she <i>had</i> . / No, she <i>hadn't</i> .
Wh- questions	Subject questions
<i>What had the kids eaten</i> by the time their parents arrived?	<i>Which composer had written</i> six marches by age five?

Określenia czasu typowe dla *past perfect simple* to m.in.: *by the time, by then, by (six o'clock/midnight/Friday/March/2001), ever, never, already, before, after.*

PAST PERFECT SIMPLE VS PAST PERFECT CONTINUOUS

Zarówno *past perfect simple*, jak i *past perfect continuous* odnoszą się do czynności poprzedzających inne przeszłe czynności. Czasu *past perfect simple* użyjemy, by położyć nacisk na skutki danego zdarzenia, np. *Kyle had sprained his ankle a few weeks before, so he decided not to take part in the marathon.*

Czasu *past perfect continuous* użyjemy, by położyć nacisk na czas trwania danej czynności, np. *We had been practising the new song for a week before I finally managed to learn the lyrics by heart.*

PAST PERFECT CONTINUOUS

Czas *past perfect continuous* stosujemy do opisu czynności, które trwały do określonego momentu w przeszłości lub zakończyły się niedługo wcześniej, np.

When she was finally taken to hospital, she had been feeling unwell for three days.

Zdania w czasie *past perfect continuous* tworzymy za pomocą konstrukcji: *had + been + present participle.*

Affirmative	Negative
<i>I had been revising</i> for two hours when Mum called me for dinner.	He decided to take a break although he <i>hadn't been working</i> on the report for long.
Yes/No questions	Short answers
<i>Had they been queuing</i> at the entrance since 5 am?	Yes, they <i>had</i> . / No, they <i>hadn't</i> .
Wh- questions	Subject questions
<i>How long had you been waiting</i> for us?	<i>How many children had been playing</i> outside since lunchtime?

Określenia czasu typowe dla *past perfect continuous* to m.in.: *by the time, by then, by (nine o'clock/noon/Tuesday/July/2012), when, before, for, since.*

1.7 Stylistic inversion

Inwersję stosujemy, aby położyć nacisk na konkretny aspekt danej sytuacji i osiągnąć mocniejszy, bardziej dramatyczny efekt. Zamieniamy wówczas miejscem podmiot i orzeczenie, np. *Stuart put together the guest list and designed the invitations.* → *Not only did Stuart put together the guest list, but he also designed the invitations.* Takie użycie inwersji jest typowe dla stylu formalnego i literackiego.

Stosując inwersję, korzystamy z czasowników posiłkowych lub modalnych, np.: *I have* → *do I have*; *she has seen* → *has she seen*; *it rained* → *did it rain*; *they had been waiting* → *had they been waiting*; *I will be sitting* → *will I be sitting*; *we could lose* → *could we lose*.

UWAGA!

Czasownik *to be* w czasach *present simple* i *past simple* zachowuje się inaczej niż pozostałe czasowniki: *I am* → *am I*; *we were* → *were we*.

Inwersję stosujemy w następujących sytuacjach:

- z określnikami czasu, np. *never, rarely, seldom, hardly/barely/scarcely ... when, no sooner ... than*, np.:
No sooner had we submitted our report than the power went off.
Barely had the ceremony begun when the bride's mother fainted.
Never had I seen such incompetence.
Rarely am I praised by my superiors at work.
- z niektórymi wyrażeniami z *not*: *not only ... , but also, not until, not for a moment*, np.:
Not only did the mayor implement a new recycling policy, but he also introduced fines for those breaking the rules.

Not until we unpacked our suitcases did we realise that we were at the wrong hotel.

Not for a moment had we expected to achieve such outstanding results.

- ze słowem *little* w znaczeniu negatywnym, np.
Little did we know what the PM was hiding from the public.
- po określnikach miejsca *here* oraz *there* – wyłącznie z czasownikiem *to be* lub z czasownikami opisującymi położenie/ruch, np.: *stand, go, come*; w tej sytuacji w inwersji pomijamy czasownik posiłkowy:
Here stood the tallest tower in medieval Britain.
There sails the Azzam, the largest yacht ever built.

UWAGA!

Inwersję stosujemy również:

- po niektórych wyrażeniach z *only*, np.: *only when, only then, only after, only once, only in this way, only by + czasownik z końcówką -ing*:
Only in this way can this conflict be resolved peacefully.
Only by banning all plastic packaging will we reduce the amount of rubbish sent to landfills.
- po niektórych wyrażeniach z *no*: *under no circumstances, on no account, at no time*, np.:
At no time should the pupils be left unsupervised.
Under no circumstances can this information be made public.
- po *so/such ... that*, np.:
So enraged were the party's supporters that they organised protests across the country.
Such was the happiness of the newlyweds that even the photographer shed a tear.

- KEY WORDS

VOCABULARY 1

boost creativity	/ˌbuːst ˌkriːeɪtɪvəti/	pobudzać kreatywność
brainstorm solutions	/ˌbreɪn ˌstɔːm səˈluːʃənz/	szukać rozwiązania za pomocą burzy mózgow
capture sb's imagination	/ˌkæptʃə ˌsʌmbədiz ɪˌmædʒɪˈneɪʃən/	działać na czyjąś wyobraźnię
co-founder	/ˌkəʊ ˈfaʊndə/	współzałożyciel
consciously	/ˈkɒnʃəsli/	świadomie
consider alternatives	/kən ˈsɪdər ɔːlˈtɜːnətɪvz/	rozważyć opcje
daydream	/ˈdeɪ ˈdriːm/	śnić na jawie
draw conclusions	/ˌdruː kən ˈkluːʒənz/	wyciągać wnioski
dream up new ideas	/ˌdriːm ˌʌp njuː aɪˈdiəz/	snuć nowe pomysły
emerge	/ɪˈmɜːdʒ/	wyłaniać się
explore possibilities	/ɪk ˌsploː ˌpɒsəˈbɪlətɪz/	odkrywać możliwości
fall into place	/ˌfɔːl ɪnˈtə ˈpleɪs/	układać się w logiczną całość
flash of inspiration	/ˌflæʃ əv ˌɪnspəˈreɪʃən/	przebłysk inspiracji
follow sb's train of thought	/ˌfɒləʊ ˌsʌmbədiz ˌtreɪn əv ˈθɔːt/	rozumieć czyjś tok myślenia
follow sth through	/ˌfɒləʊ ˌsʌmθɪŋ ˈθruː/	doprowadzić coś do końca
get inspiration	/ˌget ˌɪnspəˈreɪʃən/	czerpać inspirację
get stuck	/ˌget ˈstʌk/	utknąć, zablokować się
your mind goes blank	/jə ˈmaɪnd ˌgəʊz ˈblæŋk/	masz pustkę w głowie
highs and lows	/ˌhaɪz ən ˈləʊz/	wzloty i upadki
let your mind wander	/ˌlet jə ˈmaɪnd ˈwɒndə/	błądzić myślami
productive	/prəˈdʌktɪv/	produktywny
remain constant	/rɪˈmeɪn ˈkɒnstənt/	być stałym, nie zmieniać się
stick with sth	/ˈstɪk wɪð ˌsʌmθɪŋ/	trzymać się czegoś
stimulate the brain	/ˌstɪmjəleɪt ðə ˈbreɪn/	stymulować mózg
suspend judgment	/səˈspend ˈdʒʌdʒmənt/	wstrzymać się z wydaniem opinii
think on one's feet	/ˌθɪŋk ɒn ˌwʌnz ˈfi:t/	szybko podejmować decyzje
think out loud	/ˌθɪŋk aʊt ˈləʊd/	głośno myśleć
think outside the box	/ˌθɪŋk ˌaʊtˌsaɪd ðə ˈbɒks/	myśleć kreatywnie, niestandardowo
trigger new ideas	/ˌtrɪgə njuː aɪˈdiəz/	wyzwalać nowe pomysły
zap	/zæp/	porazić, np. prądem

GRAMMAR 1

befriend sb	/bɪˈfrend ˌsʌmbədi/	zaprzyjaźnić się z kimś
measure	/ˈmeʒə/	mierzyć (mieć określone wymiary)
revolutionary	/ˌrevəˈluːʃənəri/	rewolucyjny
take shape	/ˌteɪk ˈʃeɪp/	nabierać kształtu

SPEAKING

a tad	/ə ˈtæd/	trochę
boil down to	/ˌbɔɪl ˈdaʊn tə/	sprowadzać się do
facilitate	/fəˈsɪləteɪt/	ułatwić
gap in the market	/ˌɡæp ɪn ðə ˈmɑːkt/	luka na rynku
in a nutshell	/ɪn ə ˈnʌtʃl/	w pigułce, w skrócie

READING

AI-generated	/ˌeɪ ˈaɪ ˈdʒenəreɪtɪd/	stworzony przez sztuczną inteligencję
at a given time	/ət ə ˈɡɪvən ˈtaɪm/	w danym momencie
be trending on social media	/bi ˌtrendɪŋ ɒn ˌsəʊʃəl miːdiə/	być w modzie w mediach społecznościowych
bring sth up	/ˌbrɪŋ ˌsʌmθɪŋ ˈʌp/	poruszyć temat czegoś
competitive edge	/kəmˌpetətɪv ˈedʒ/	przewaga
crucial element	/ˌkruːʃəl ˈelɪmənt/	kluczowy element
enhance	/ɪn ˈhɑːns/	zwiększać, podnosić
evolve	/ɪˈvɒlv/	rozwijać się
ferce debate	/ˌfiəs dɪˈbeɪt/	zażarta dyskusja
historic	/hɪˈstɒrɪk/	historyczny (o dużym znaczeniu), wielkopomny
hot topic	/ˌhɒt ˈtɒpɪk/	gorący temat
inevitably	/ɪn ˈevɪtəbli/	nieuchronnie
lay out money	/ˌleɪ ˌaʊt ˈmʌni/	wydać pieniądze
neural network	/ˌnjuərəl ˈnetˌwɜːk/	sieć neuronowa
on a par with	/ɒn ə ˈpɑː wɪð/	na tym samym poziomie, co
primitive finish	/ˌprɪmɪtɪv ˈfɪnɪʃ/	proste wykończenie
substantial sum	/sʌbˌstænʃəl ˈsʌm/	znacząca kwota
squat	/skwɒt/	siedzieć w kucki

upcoming	/ˌʌpˌkʌmɪŋ/	nadchodzący
widespread speculation	/ˌwaɪdˌspred ˌspekjuˈleɪʃən/	powszechne spekulacje

VOCABULARY 2

convey an idea	/kənˌveɪ ən aɪˈdiə/	wyrażać ideę
crafted	/ˈkrɑːftɪd/	przygotowany, stworzony
earworm music	/ˌiəwɜːm ˈmjuːzɪk/	melodia, która nie chce wyjść nam z głowy
encapsulate	/ɪnˈkæpsjəleɪt/	ujmować, zawierać
fast-forward through sth	/ˌfɑːstˈfɔːwəd θruː ˌsʌmθɪŋ/	przewinąć coś
hang around in sb's head	/ˌhæŋ ə ˈraʊnd ɪn ˌsʌmbədɪz ˈhed/	chodzić komuś po głowie
haunting	/ˈhɔːntɪŋ/	zapadający w pamięć
ingenious techniques	/ɪnˈdʒiːniəs tekˈniːks/	pomysłowe techniki
legendary	/ˈledʒəndəri/	legendarny
make sb think twice	/ˌmeɪk ˌsʌmbədi ˌθɪŋk ˈtwɑɪs/	sprować, by ktoś dobrze się zastanowił
nurture an interest in	/ˌnɜːtʃə ən ˈɪntrəst ɪn/	wzbudzać zainteresowanie czymś
philosophical	/ˌfɪləˈsɒfɪkəl/	filozoficzny
pull the emotional strings	/ˌpʊl ðɪ ɪˌmɒʃənəl strɪŋz/	grać na emocjach
spark intrigue	/ˌspɑːk ɪnˈtriːɡ/	intrigować
static	/ˈstætɪk/	statyczny
subconscious	/ˌsʌbˈkɒnʃəs/	podświadomy
target	/ˈtɑːɡɪt/	kierować coś do kogoś
urge	/ɜːdʒ/	nakłaniać
vibrant	/ˈvaɪbrənt/	żywy, dynamiczny
voice-over	/ˈvoɪs ˌəʊvə/	głos lektora

LISTENING

cite one's sources	/saɪt wʌnz ˈsɔːsɪz/	podać źródła informacji
counterfeit (v, adj)	/ˈkaʊntəfɪt/	fałszować; podrabiany, fałszowany
genuine	/ˈdʒenjuɪn/	oryginalny
get credit for	/ˌget ˈkredɪt ˈfɔː/	zdobyć uznanie za
in the public domain	/ɪn ðə ˌpʌblɪk ˈdɒm ˈmeɪn/	w domenie publicznej
infringe copyright	/ɪnˌfrɪndʒ ˈkɒpiˌraɪt/	naruszyć prawa autorskie
influential	/ˌɪnfluˈenʃəl/	wpływowy
intellectual property	/ˌɪntəˌlektʃʊəl ˈprɒpəti/	własność intelektualna
make out	/ˌmeɪk ˈaʊt/	twierdzić, udawać
pass on	/ˌpɑːs ˈɒn/	przekazać, podać dalej
plagiarism	/ˈpleɪdʒəˌrɪzəm/	plagiat
take out a patent	/ˌteɪk ˌaʊt ə ˈpætənt/	uzyskać patent

GRAMMAR 2

aggravated	/ˈægrəˌveɪtɪd/	zdenerwowany
get engrossed in	/ˌget ɪnˈgrɒst ɪn/	wciągnąć się w coś
give vent to sth	/ˌɡɪv ˈvent tə ˌsʌmθɪŋ/	dać czemuś upust
murmur	/ˈmɜːmə/	szeptać

USE OF ENGLISH

contrary to popular belief	/ˌkɒntrəri tə ˌpɒpjələ bɪˈliːf/	wbrew powszechnemu mniemaniu
find common ground	/ˌfaɪnd ˌkɒmən ˈgraʊnd/	znaleźć wspólny język, znaleźć nić porozumienia

WRITING

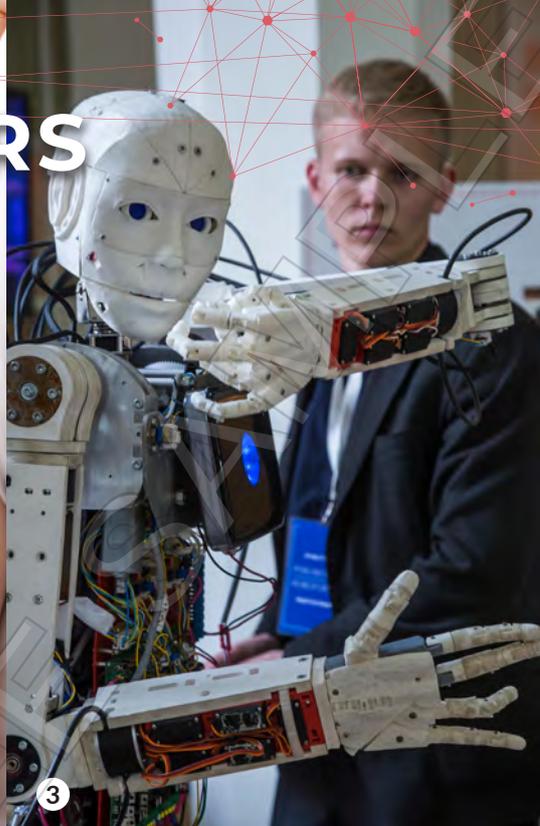
appealing	/əˈpiːlɪŋ/	pociągający
critically acclaimed	/ˌkrɪtɪkli əˈkleɪmd/	chwalony, uznany
easily accessible	/iːzɪli əkˈsesəbəl/	łatwo dostępny
far-fetched	/ˌfɑː ˈfetʃt/	naciągany, nieprzekonujący
impenetrable	/ɪmˈpenetrəbəl/	niezrozumiały
ingenious	/ɪnˈdʒiːniəs/	pomysłowy
innovative	/ɪˈnɒvətɪv/	innowacyjny
intricate	/ɪnˈtrɪkət/	zawity, skomplikowany
outstanding	/aʊtˈstændɪŋ/	wyróżniający się, wybitny
overwhelming	/ˌəʊvəˈwelɪmɪŋ/	przyłtaczający
phenomenal	/fəˈnɒmɪnəl/	fenomenalny
superb	/səˈpɜːb/	znakomity

REVISION

plaque	/plɑːk/	pląta, tablica
pull down	/ˌpʊl ˈdaʊn/	zburzyć
reflective	/rɪˈfleksɪv/	odbłaskowy
subsequent	/ˈsʌbsɪkwənt/	kolejny, późniejszy
tile	/taɪl/	kafelek

2

SCIENCE MATTERS



SPEAK Look at the photos and read the quote. Answer the questions.



The most exciting phrase to hear in science, the one that heralds new discoveries, is not 'Eureka!' but 'That's funny ...'.

Isaac Asimov

(American biochemist and writer, 1920–1992)

- What aspects of science do the photographs represent? Which interests you the most? Why?
- Which photograph would you choose for a science poster for a primary school classroom? Why?
- What do you think the quote means? How far do you agree?

1 **SPEAK** How many different branches of science can you name in one minute?

biochemistry, ...



2 **SPEAK** Complete the statements with the correct forms of the verbs from the box. Do you agree with the statements? Why/Why not?

carry collect do draw follow keep make

- 1 No one written records of test results these days.
- 2 It is really important to instructions when you're a scientific experiment.
- 3 All the most important scientific discoveries have already been .
- 4 out scientific research is a relatively quick and straightforward job.
- 5 Scientists should never conclusions before and analysing evidence.

3 Read the text. How has research science changed in recent years?

SHIFTING TIMESCALES

Research scientists are often pictured carefully **scrutinising** bacteria under a microscope or analysing a blood sample in a test tube. But although scientists do use these basic **procedures** for **conducting research**, this image does not reflect the great complexity of their work.

Originally, scientific research involved collaboration over many years to suggest hypotheses, test theories, **collate evidence**, plan and **execute experiments** and publish the conclusions. Take, for example, finding new drugs or vaccines to help combat diseases and illnesses. From the initial, exciting **major breakthroughs** to actually bringing the drugs to the market, there are enormous **obstacles** to **overcome**, the final stage being human trials. Having **demonstrated the possibility** of using the drug to treat a certain condition, scientists then need to **process** huge amounts of **data** from **diverse sources** before the drug is **deemed safe** for use. This involves the collaboration of scientists from various **fields of study**, which is why the whole process used to take many, many years. However, recent times have seen this normal timescale speeded up dramatically as a result of **global collaboration**, motivation, **adopting** different **approaches**, as well as vast improvements in equipment and technology. Here in the third decade of the twenty-first century, the science fast-forward button has been pressed.



4 KEY WORDS ✍️ Replace the underlined words with the correct forms of some of the highlighted words and phrases from exercise 3.

- The research was done in the Mojave Desert.
- The animals were closely watched on camera.
- The site of the explosion was isolated until it was decided that there was no danger.
- We gathered proof to show that our theories were correct.
- It will probably take several hours to check through the information.
- The Chinese team used a way of thinking about the research which gave interesting results.
- Scientists in this subject area don't usually work in a laboratory.
- These observations clearly show there is a chance that Einstein's ideas were incorrect.
- The results are a(n) big discovery in medical research.
- This method of operating provides the most accurate outcomes.
- Ellen's work gives facts and physical signs of changes in the behaviour of penguins.
- Dr Muller took her information from a range of different places.

5 🎧 **1.14 KEY WORDS** ✍️ Complete the text with the correct forms of the highlighted words and phrases from exercise 3. Then listen and check.

It was undeniably one of the major ¹ [] of the twentieth century. Since Alexander Fleming first ² [] mould on bacteria and developed the first antibiotic, these drugs have saved countless lives. However, overuse of these medicines and the growth of resistance against them means that their effectiveness has shrunk, and scientists have been ³ [] research for many decades to find replacements. They have ⁴ [] data obtained from ⁵ [] sources, including soil, but no real answers have been found. Remarkably, recent studies have demonstrated the ⁶ [] that new antibiotics could very well come from a surprising source – our own bodies. Our immune systems already fight bacteria, but it appears that enzymes from several areas of the body, including the digestive system, could be harnessed and modified to create new antibiotics. There are still a multitude of ⁷ [] to overcome before new drugs are ⁸ [] to be used, but with potential global ⁹ [], this could become a reality.

6 SPEAK ✍️ Think of three important research topics for scientists in the fields below. Then decide which topic should be prioritised in each category and why. Use the highlighted words and phrases from exercise 3.

electronics health the environment transport

7 KEY WORDS ✍️ Match highlighted words 1–6 and a–f to make collocations connected with science.

- | | |
|----------------------|------------------|
| 1 trial and | a leap |
| 2 side | b error |
| 3 light years | c pig |
| 4 guinea | d science |
| 5 quantum | e ahead |
| 6 rocket | f effects |

8 ✍️ Complete the sentences with the correct forms of the highlighted collocations from exercise 7.

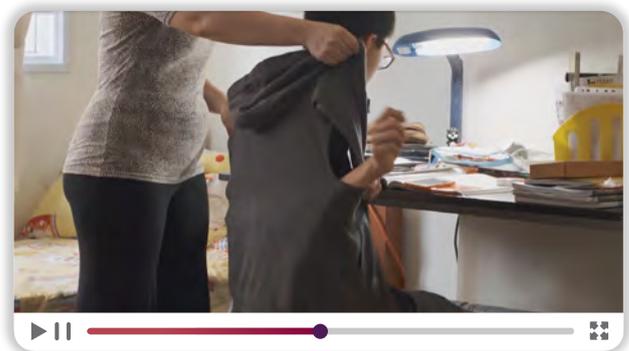
- In comparison to what we're used to, this new technology is [].
- The medication he's taking has some unpleasant [].
- The discovery of a new planet would mean a [] for astronomy.
- Our experiments involve a lot of [] – we're learning from our mistakes.
- Fixing a printer is not [] – it's not that you need special knowledge to do it!
- They used a group of students as [] in their telepathy experiments.

9 🎧 **1.15 Listen to a conversation and choose the correct option.**

- Which is not true according to the girl?
- Children with sensory issues benefit from robot toys.
 - Pet robots help patients overcome different obstacles.
 - Neuroscientists are no longer conducting research into ways of de-stressing people.



10 SPEAK Look at the video still. It shows a boy who has autism and can be overstimulated by sight and sound. Describe the video still and answer the questions.



- How do you think the boy is feeling? Why?
- What uses of wearable technology have you heard of?
- How important is hugging and being hugged?

🕒 **FAST FINISHERS**

✍️ Imagine you could meet any inventor or famous scientist from the past or present. Make a list of five questions you would ask him/her. Then make up and write down the scientist's possible answers to two of your questions.

2.2 Grammar 1

Modals and alternatives to modals

1 **SPEAK** Discuss what scientists:

- should have done a long time ago,
- don't have to focus on anymore,
- might start working on in the near future.

2 1.16 Read the text and match the headings below to paragraphs 1–3. There is one extra heading. Then listen and check.

- Daydreaming
- Overstimulation
- Fidgeting
- Talking to yourself



THREE THINGS YOU MIGHT NEVER HAVE THOUGHT WERE GOOD FOR YOU

1

^aWe're always told we are required to sit still. ^bHowever, sitting for long periods of time is bound to lead to serious health problems, such as heart disease. ^cScientists who carried out research at Michigan State University and the University of Michigan have succeeded in showing that stretching or wriggling may reduce the damaging effects of sitting for a long time.

2

The last time you lost your keys you were probably thinking, ^d'I'm sure I didn't leave them in my coat.' Or, 'Oh, no! ^eI was supposed to always put them back in the key cabinet!' Or even, ^f'Is it possible that I dropped them?' ^gIn fact, saying the word 'keys' out loud is likely to help you find them. A study conducted at the University of Michigan suggests that thinking aloud makes it possible to get a picture of the object you need to find.

3

^h'We are obliged to pay attention. ⁱWe aren't allowed to spend time thinking about pleasant things instead of focusing on what we're doing.' We've all heard this at some point in our lives, but mind-wandering may help you to be more creative, and it might even benefit motivation.

3 Study the grammar table and complete it with examples a–i from exercise 2.

4 Choose the correct options. If both are possible, choose both.

- 1 It was *obliged* / *necessary* to carry out a few more experiments, so we were *required* / *meant* to stay in the lab until the end of the day.
- 2 It's *possible* / *prone* that I didn't check the answers before I handed in my exam paper.
- 3 Imogen was *supposed* / *required* to get a scholarship for university, but something went wrong.
- 4 I don't know why I *wasn't allowed* / *was forbidden* to chew gum. It was actually *meant* / *supposed* to help me concentrate.
- 5 Kenny is *likely* / *bound* to be the last one to arrive, as always.
- 6 Scientific research says owning a dog is *necessary* / *meant* to be good for your health.

5 Rewrite the sentences using alternatives to modals.

- 1 You must have enjoyed the science museum visit.
- 2 Other scientists might take a different approach to the problem.
- 3 Paddy should have called me by now.
- 4 They don't have to follow the same procedure as us.
- 5 Helen needn't have been so frightened – it was only a small spider.
- 6 I can't go out this weekend.

6 What would you say to people who have these problems? Write 2–3 sentences for each situation using alternatives to modals.

- 1 I'm completely broke.
- 2 I never hand in my assignments on time.
- 3 I need to do research for my project, but I don't know how to get started.
- 4 My parents don't listen to me.

FAST FINISHERS

Imagine you are a pop star and you are supposed to write the lyrics to a song called *We are meant to be ...* Write the first four lines of the song.

Key Grammar

Modals and alternatives to modals

Some modal verbs can be replaced with other verbs or phrases which express a particular modality. These modal alternatives can be used in various tenses, e.g. *You are/were/will be supposed to come on time.*

Modality	Modal verbs	Alternatives
obligation and necessity	have to/must/need to	<i>It was necessary</i> for all students to register a week in advance. ¹ , ²
no obligation or necessity	not have to/ not need to	<i>There is no need to</i> read the whole document. <i>It was unnecessary to</i> involve the space agency.
advice and recommendation	should/ought to	<i>We are meant to</i> adopt a particular approach. ³
ability and willingness	can/be able to	<i>The therapist managed to</i> calm down the patient. ⁴
speculation	may/might/could/must/can't	<i>The machine is</i> very delicate and prone to break down. ⁵ , ⁶ , ⁷ , ⁸
permission	can/could/may	<i>Are we allowed to</i> talk about the experiment in public? <i>You are permitted to</i> leave the room.
prohibition	mustn't/can't/couldn't	<i>Tom was forbidden to</i> publish his paper. ⁹

Agreeing and disagreeing

1 **SPEAK** Answer the survey questions.

- 1** Are you happy with the length and quality of your sleep? Why/Why not?
- 2** Do you regularly remember your dreams? If so, what sort of things do you dream about?
- 3** Would you say that your sleep affects your general health and performance the following day? Why/Why not?

2 **SPEAK** Read the website advertisement. Would you consider going to one of the talks or signing up for a sleep study? Why/Why not?



Do you love your sleep? Do you feel you get enough – or are you sleep-starved?

We are setting up a series of **seminars and talks** about sleep, sleep myths and dream therapies.

Come along!

Or why not volunteer for one of our **sleep studies**?

There are options to take part in some in-house experiments where you stay over, or surveys, questionnaires and tests you can do at home. These will contribute to data being collected on sleep quality and its connection to memory.

Follow the **links** for more information.

3 **1.17** Listen to a conversation about the advertisement from exercise 2. What do the people agree on? What do they disagree about?

4 **1.17** Study the Key Phrases box. Then listen to the conversation again. Which Key Phrases did you hear?

Key Phrases	
Agreeing and disagreeing	
<p>Agreeing</p> <p>Absolutely!</p> <p>I'm totally with you on that!</p> <p>I've got to agree with you.</p> <p>You can say that again.</p> <p>You're definitely not wrong there.</p> <p>You've got that right.</p> <p>I couldn't agree more.</p> <p>Disagreeing</p> <p>Sorry, but I just don't think it's right.</p> <p>I'm sorry, I just don't agree with you here.</p> <p>I'm afraid I (would) have to disagree with you on that.</p> <p>I'm afraid I cannot completely agree.</p> <p>Hmm, I'm afraid I'm not so sure.</p> <p>You really think so?</p> <p>Seriously?</p> <p>Sorry, I don't think it's for me.</p> <p>Quite the contrary. I would say ...</p>	<p>Partially agreeing</p> <p>You're right, of course, but ...</p> <p>I know that's true, but ...</p> <p>You've got a point, though ...</p> <p>I agree in so far as ..., but ...</p> <p>I guess you're right, though ...</p>

5 Read the comments on an article about the value of keeping a dream journal. Complete the comments using the Key Phrases. Do you agree with either poster? Why?



Oilly05

Having read the article, I'm afraid I cannot ¹ [redacted]. While I agree in ² [redacted] reading about old dreams can be fascinating, just as the entries in any diary can be, I would ³ [redacted] with the writer's opinion that it can help us understand issues we have or help with our psychological well-being. Quite ⁴ [redacted]. I would think re-reading about nightmares could be counterproductive.



Sleepyhead17

I've ⁵ [redacted] with the author. Writing down your dreams as soon as you wake up is a great idea. Otherwise, they disappear really rapidly. I also think he's got it ⁶ [redacted] in saying that we can get inspiration from our dreams. Paul McCartney of The Beatles dreamed the melody for the famous song 'Yesterday' and wrote it down when he woke up. And when the author says we can learn a lot about our feelings from dreams – I couldn't agree ⁷ [redacted]! Dream on!

6 **SPEAK** Read the instructions and do the speaking task. Student A, look at page 156. Student B, look at page 160.

FAST FINISHERS

Write a short blog post or an online review about your experience volunteering on the sleep study in exercise 2.

2.4 Reading

An article about supersenses



1 SPEAK Answer the questions.

- Which of your senses is the strongest/the weakest? How does it affect your everyday life?
- Do any sensory experiences bring back particular memories? Consider the things below.

sights smells sounds tastes things you touch

- Look at the pictures. Have you come across the term *synaesthesia* before? If yes, what does it mean? If no, guess what it might mean.

2 1.18 SPEAK Listen and check your ideas about synaesthesia in exercise 1. Then answer the questions.

- How do scientists explain synaesthesia?
- What examples does Kayla give of multisensory perception?
- What is Kayla's final question? Answer it.

3 1.18 Read the article on page 27 about people with rare medical conditions. Which 'supersenses' are mentioned?

4 WATCH OUT | SKILLS Read the article again and match sentences A-E to gaps 1-4 in the text. There is one extra sentence.

- Clinicians studying the case believe she must have been born with four types of cone cells (cells that respond differently to light wavelengths) in her retina instead of the usual three.
- In addition to this, without the restriction of pain, people indulge in risky and dangerous behaviour.
- Years later, at a patients' support group, Joy picked up the same smell on others suffering from the same disease.
- After this kind of procedure, patients usually need strong painkillers, but doctors were astonished to find that their patient experienced little or no discomfort.
- On the contrary, such conditions have remained undiagnosed until serious symptoms emerge.

WATCH OUT | SKILLS

Links

When matching sentences to gaps, look for references in the text fragments preceding and following the gap. These could be words like *he*, *she*, *this* or *however*, as a result, etc. The sentence may also exemplify something stated before.

5 Read the article again and complete the sentences.

- Ashlyn's eye problem was bewildering because _____.
- Insensitivity to pain is dangerous, as it can leave _____.
- When attending _____, Joy noticed a smell she was familiar with.
- What the people described in the article have in common is that _____.

6 KEY WORDS Match the highlighted words and phrases from the article on page 27 to definitions 1-8 below.

- _____ - causing severe weakness
- _____ - unaware of something
- _____ - ease
- _____ - go to see
- _____ - extremely sensitive, increased
- _____ - was identified/discovered
- _____ - worsening
- _____ - happened

7 Complete the sentences with the correct forms of some of the highlighted words from the article.

- Some visually impaired people report a(n) _____ sense of hearing.
- After the accident, Tanya experienced _____ pain and could hardly walk across the room for several weeks.
- Massage can _____ sore muscles and promote relaxation.
- I have no idea, I am as much _____ as everyone else.
- It recently came _____ that research into the condition was halted because of the expense.

8 Answer the questions.

- How does a person benefit from a 'sensory superpower' - a particularly strong sense of touch, sight, hearing, smell or taste? Are there any disadvantages?
- Do you think humans can have a 'sixth sense'? What could it be?

FAST FINISHERS

Which of your senses do you value most? Think of three reasons.

Find information about someone famous who has/had a form of synaesthesia. Share your findings with the class.



SUPERSENSES HELPING US TO DISCOVER MORE

There's still so much within medical science that we don't understand, in particular related to the brain. But, with the help of some people with rare sensory conditions, scientists have made some important discoveries that could affect how such maladies are treated in the future.

When American Ashlyn Blocker was six months old, her parents observed a nasty inflammation in her left eye which, although distressing to look at, did not appear to be causing any noticeable discomfort. Ashlyn had always been a quiet baby – she seldom cried – but the worried parents **paid a visit** to a doctor. After tests, Ashlyn's very rare condition **came to light** – she could not feel any pain.

Another person who experiences no pain is Jo Cameron, a retired teacher from Scotland, who didn't discover she was different until the age of sixty-five, when she had to have an operation on her hands because of arthritis. ¹ Researchers at University College London analysed samples of Jo's DNA and found that she had a genetic mutation that reduces her pain sensation.

The condition, congenital insensitivity to pain, only affects a few hundred people worldwide, and premature death among sufferers is common. The reason is clear – pain is the body's warning sign that something is wrong, and without this warning, severe problems such as appendicitis remain unidentified and can be left untreated. ² They never learn how to modify their physical activity and ultimately damage their bodies. Researchers now hope to be able to learn more about this mutation in order to develop more effective pain treatments.

Genetic studies like this are becoming more and more widespread as scientists attempt to unlock the mysteries of our DNA. The human eye can normally make out around one million different colours, but a genetic mutation enables the Australian-born artist Concetta Antico to distinguish one hundred times that number. ³ Scientists hope that research into her condition may lead to a major breakthrough in understanding how the brain processes colours, which might help us to understand colour-blindness, affecting around eight percent of men and one in two hundred women.

Concetta Antico is not alone in possessing a sensory 'superpower'. Joy Milne, from Perth in Scotland, is a 'super smeller'. She has a **heightened** sense of smell, which allows her to detect smells that other people can't. Joy has been working with researchers on a test that could help doctors with early detection of a **progressive** brain disorder. It all **came about** when she noticed an unusual odour on her husband, a Parkinson's disease sufferer, which she knew couldn't have had anything to do with his personal hygiene. ⁴ With Joy's help, researchers have been able to identify specific compounds on the skin of people who suffer from this **debilitating** condition.

The new field of study into human DNA has provided an understanding of rare sensory conditions and their causes, which scientists had previously been completely **in the dark** about. Now, owing to people like Joy and Jo, scientists and researchers can potentially make great strides in treating and **alleviating** the symptoms. And there are certainly more fascinating discoveries to be made.



Concetta Antico The Swans

2.5 Vocabulary 2

The universe

1 **SPEAK** Answer the questions.

- 1 Imagine the sky on a clear night, away from the light pollution of cities. What can you see?
- 2 Look at the words and phrases from the box. Can you name one example for each?

astronaut astronomer comet constellation
dwarf planet galaxy planets of the Solar System
space mission telescope

2 **1.20** Listen to a podcast about a documentary series. Why is the speaker impressed by Brian Cox?

3 **1.20 KEY WORDS** Complete the sentences from the podcast with the highlighted words and phrases below. There is one extra word. Then listen to the podcast again and check.

asteroids • **atmospheres** • **black holes** • **eclipse**
meteorites • **Northern Lights** • **orbit** • **outer space**
shooting star

- 1 His commentaries take you on imaginary journeys to , during which you  far-distant planets and learn about their  and characteristics.
 - 2 This man can explain the creation of  with seeming ease.
 - 3 And he himself is still excited by the dramatic visual effects of the , or a partial , or a(n) .
 - 4 Films like *Don't Look Up* bring the terrible destructive power of comets and  to our screens.
- 4  **1.21** Look at the photos. What do you think they show? Read and listen to the article and check your ideas.



Telescopes come in all shapes and sizes, but nothing compares to the James Webb Space Telescope that is now positioned in outer space a million miles from

Earth, ready to start exploring the depths of **the cosmos**. Astronomers hope that it will help them look into the past and find out about how galaxies were formed.

Telescopes have always been astronomers' main tools to see further and further into the vastness of space, more and more light years away, and try to **piece together** the nature, structure and future of the **observable universe**. This latest telescope has been in development for over thirty years, the launch having been delayed several times, and it has involved the global collaboration of thousands of scientists, engineers and technicians. It is a **groundbreaking** achievement built on **collective knowledge**. It has a sunshield roughly the size of a tennis court, protecting its primary mirror from the Sun's heat. The mirror, with a total width of 6.5 metres, is made up of eighteen hexagonal, gold-coated segments. It is used to collect **infrared light**, which will allow the telescope to see deep into space, into **interstellar clouds**, where star systems form. The first full-colour images from the JWST showing far-flung galaxies as

5 **KEY WORDS** Translate into English. Use some of the highlighted words and phrases from exercises 3 and 4.

- 1 Collaboration, co-creation and  (*wiedza zbiorowa*) are increasingly important in designing, developing and deploying 'smart' initiatives and technologies.
- 2 However much we learn about the observable universe,  (*nasza nienasycona ciekawość*) will lead to more telescopes, more exploration and  (*więcej przelomowych osiągnięć*).
- 3 A complete understanding  (*kosmosu*) as a harmonious and orderly system is probably impossible.
- 4 Visitors to the Space Station marvel at the changing views as they  (*okrążają Ziemię*).
- 5 Astronomers are trying to  (*złożyć w całość*) the history of Mars and find out how the sister planet to Earth became a red, dusty desert.
- 6 In science-fiction films, it is quite common for people to launch missions to  (*niszczyć asteroidy i komety*) that threaten Earth.

6 **SPEAK** Answer the questions.

- 1 Do you think it is more crucial to study outer space or the depths of the oceans on Earth? Why?
- 2 What do you think is likely to result in more scientific progress: global collaboration or competition? Why?
- 3 Imagine it's the year 2080. What have astronomers discovered? What are they actively researching?

FAST FINISHERS

 Make a list of five things of personal interest that you would take on a six-month space mission.

Search the web for information about the failed Apollo 13 mission. Find out what went wrong, what the cause of the failure was, how it was fixed and how the mission ended.

they were thirteen billion years ago were released in July 2022. President Joe Biden described the moment as 'historic'. Now the burning questions are: how much will the Webb Telescope be able to tell us? What wonders will the next, even bigger and further-reaching telescope bring us? And will man's **insatiable curiosity** about his place in the universe ever be indulged?



A talk about prosthetics

1 **SPEAK** Answer the questions.

1 How easy is it for people with disabilities to get around in your area? Think about:

shopping learning entertainment transport

2 What could be done to make your area more accessible? Who should be responsible for carrying out the changes?

2 **1.22 KEY WORDS** Complete the highlighted phrasal verbs with the correct particles. Check in a dictionary if necessary. Listen and check.

- 1 A service engineer came to the lab to **hook** the computer to the printer.
- 2 The engineers **looked** different ways to make the robotic hand move.
- 3 I wasn't sure whether to **bring** the subject of his injury.
- 4 Everyone found it difficult to **take** all the information - it was way too complicated.
- 5 The pill managed to **take** the pain, but the patient still couldn't eat anything.
- 6 Did you **plug** the mouse?
- 7 The child was changing so rapidly that no one could predict whom he would eventually **take**.
- 8 You'll have a chance to **show** your computer skills later on.
- 9 Let's **go** the calculations again to make sure they're correct.
- 10 Can we **rely** your brother to help us with the experiment?

3 **WATCH OUT** Read the **WATCH OUT** box below. Then look back at exercise 2, find sentences which contain separable phrasal verbs and rewrite them, moving the direct object before or after the preposition.

1 A service engineer came to the lab to hook the computer up to the printer.

WATCH OUT

Phrasal verbs

Transitive phrasal verbs (those which take a direct object) can be separable or inseparable.

Separable: ✓ The pill takes the pain away.
 ✓ The pill takes away the pain.
 ✓ The pill takes it away.

BUT: ✗ The pill takes away it.

Inseparable: ✓ Do you rely on your parents?
 ✓ Do you rely on them?

BUT: ✗ Do you rely your parents on?
 ✗ Do you rely them on?

4 **1.23** Listen to the extract of a talk about prosthetics. Which three disabilities does the speaker mention?



3D-printed exoskeleton prototype



Angel Giuffria

5 **1.23** Listen again and complete the sentences.

- 1 When she was a child, Angel Giuffria's prosthetic hand had rubber 'skin' in order for it to _____.
- 2 After getting her new arm and doing an ad, Angel managed to get some parts in _____.
- 3 The German engineers developed the exoskeleton with Juliano and _____ people.
- 4 Juliano wears a backpack which contains _____ the exoskeleton.
- 5 The glasses that Fran wears have a camera which is _____ on a mobile phone.
- 6 For the time being, Fran can only see shapes in _____.

6 **1.23** Listen again and answer the questions.

- 1 Why does Angel prefer her new prosthetic arm to the previous one?
- 2 How did Juliano show off his exoskeleton in 2014?
- 3 How did Fran's disability develop?
- 4 What does Fran's 'bionic eye' enable her to do at the moment?
- 5 Why is Fran currently receiving training?

7 **1.24** Read the **WATCH OUT** box below. Then listen and repeat the phrasal verbs from exercise 2.

WATCH OUT

Stress in phrasal verbs

Phrasal verbs can have two different stress patterns:

- stress on the main verb, e.g. 'care for
- stress on the particle, e.g. go a'way turn 'on

8 **SPEAK** Answer the questions.

- 1 Which of the three examples of advances in prosthetics do you think is the most remarkable? Why?
- 2 Do you think scientists will eventually be able to transplant all the organs in the human body? Why/Why not?
- 3 Which do you think scientists should prioritise: the prevention of disease and disabilities through genetic engineering, or treatments and ways of dealing with them? Why?

FAST FINISHERS

Write a forum post with a short review of a cutting-edge device that you have recently bought.

Find out about the latest developments in prosthetics for one of the impairments mentioned in the recording. Share your findings with the class.



Speculation and deduction (past, present and future)

1 **SPEAK** What are the most important characteristics of a good scientist?

2 **1.25 SPEAK** Read and listen to the text and answer the final question.



Scientists **may** still **be holding** the centuries-long dispute on how research should be conducted. According to Peter Achinstein, the author of the book *Speculation: Within and About Science*, in the past even the most famous among researchers showed contradictory attitudes towards the role of assumptions in science. Isaac Newton, for example, condemned the use of hypotheses and would urge fellow scientists to establish experiment-based facts. In contrast, Albert Einstein would encourage researchers to speculate freely in order to create theories they could later test and provide evidence for or refute. He **must have been** a truly open-minded scientist, to the point that he **may have** occasionally **missed** the mark in his own speculations. So, should speculation be a part of science? Making wild hypotheses before running an experiment **might** actually **be** a good idea as it **could open up** completely new possibilities. And, as long as they research the topic properly later on, it **definitely won't cause** any trouble if a scientist is creative and imaginative. Do you agree?

3 **Study the grammar table and find examples for rules 1-4 in the text in exercise 2.**

Key Grammar

Speculation and deduction (past, present and future)

Speculating is making a logical deduction about the past, present or future. The choice of modal demonstrates the degree of certainty of the speculation.

1 We use **must / may (not) / might (not) / could (not) / can't + have + past participle** to speculate about past states and events:

She **must have been** very lonely. (= I'm sure she was.)
Sara **may/might/could have forgotten** the formula.
(= It's possible that she did.)
Ben **can't/couldn't have conducted** it all by himself.
(= It's impossible that he did.)

2 We use **must / may (not) / might (not) / could (not) / can't + infinitive** to speculate about present states:
You **must think** I'm foolish. It **can't be** true.

3 We use **must / may / might / could / can't + be + gerund** to speculate about ongoing events:
Rachel **must be sleeping**.
Ron **can't be talking** to them.
They **might be crossing** the border as we speak.

4 We use **may (not) / might (not) / could + infinitive** and **will probably / definitely or probably / definitely won't + infinitive** to make speculations about the future:
Pets infected with this virus **may or may not get** sick.
We **will definitely publish** your valuable works.

Grammar Reference >> 36 Irregular verbs >> 158-159

4 **Complete the sentences with one word in each gap.**

- Larry is really good at science. He will study physics at university.
- This is a superb presentation. They have done a lot of research.
- The baby almost didn't cry at all when they gave her the injection. It have hurt very much.
- Let's face it - the exam questions turn out much more difficult than we expect.
- Pam looks nervous, and to be honest, she may not telling us the whole truth.
- Clive can't expected to get away with plagiarism and forging research results.

5 **Complete the sentences using modal verbs and the correct forms of the verbs in brackets. There may be more than one correct answer.**

- You haven't answered any of my questions correctly. You (read) the article before class.
- Be careful. Using these chemicals in your experiment (be) extremely dangerous.
- I heard a noise, and I was sure one of the metal chairs (fall) over.
- You (not see) me in town yesterday - I was in the library all day.
- This research was very thorough - it (take) a pretty long time.
- It's not working. I suspect we (use) the wrong procedure.

6 **SPEAK** Work in pairs. Look at the photo and speculate about what the scientist might have already done/discovered, what she could be doing and what she may/will achieve.



#BRAINTEASER

It can be held without touching or using your hands. It might be difficult to catch once you stop running.



FAST FINISHERS

Think of a series you are watching at the moment and make speculations about the plot. Write four sentences.

1 **SPEAK** If you were a world-famous scientist, what field would you want to make a major breakthrough in? How would it be useful?

2 Match the words from box A to the words from box B to make collocations.

A alleviate be in black come to light outer partial pay piece shooting

B a visit eclipse holes light space stars the dark the symptoms together years

3 Translate into English. Use some of the collocations from exercise 2.

- Can at-home self-care measures help (złagodzić objawy) of COVID-19?
- (Nie ma potrzeby składać wizyty) to the clinic unless the matter is really urgent.
- Look how surprised he is! He (z pewnością nic nie wiedział) about the counterfeit products.
- They (niemożliwe, żeby nadal składali w całość) the circumstances of the crime. It's been a month!
- (Mieliśmy oglądać spadające gwiazdy), but the night was too dull and we didn't see a single spark.
- The concept of (łat świetlnych nie może być tak trudny) to understand.
- When (jesteśmy zobowiązani oddać) the project about black holes?

4 **1.26** Complete the text with the words from the box. There are two extra words. Listen and check.

analyse approach breakthrough conducting demonstrate evidence making procedure processing scrutinising

How many planets are there in the Solar System? Most people would answer 'eight', since we now know that Pluto is a dwarf planet. But astronomers are still trying to figure out our planetary system, and some are ¹ research into a possible 'Planet Nine'. A scientist at the California Institute of Technology, Konstantin Batygin, is attempting to ² the possibility of the existence of this ninth planet by carefully ³ the orbits of objects beyond Neptune. Batygin is trying to provide ⁴ that a massive invisible planet is pulling these objects towards it. Several experts who have read Batygin's work agree that this might be a major ⁵ in astronomy. To look for this mysterious ninth planet, astronomers have to follow a basic ⁶ , which is to ⁷ millions of telescope images, but ⁸ this amount of data could take years.

5 Choose the correct options.



Laughter therapy in the park

I thought I ¹ when I saw a group of people standing in the local park, all laughing out loud. It looked very odd. I watched for a while to try to work out what was going on. The ages of the people in the group ² from twenty to sixty years old, and I thought the person in the middle could be the organiser or a therapist. I discovered from another passer-by that it was a 'laughter yoga' group. She told me that everyone was ³ to join in, and all you were ⁴ to do was to start laughing. Your deliberate laughing would turn into spontaneous, uncontrollable laughter. This type of yoga is based on the belief that laughter boosts your health. Studies indicate that laughter increases blood flow, and therefore it ⁵ you against heart disease. There is also evidence that laughter can reduce pain and even burn calories. My grandmother always used to say laughter is the best medicine – she ⁶ right.

- | | |
|-----------------------------|---------------------------|
| 1 A must have been dreaming | B had to be dreaming |
| C must have been dreamt | D had to dream |
| 2 A might be ranging | B might have ranged |
| C could've been ranged | D could range |
| 3 A meant | B likely |
| C bound | D allowed |
| 4 A necessary | B forbidden |
| C permitted | D supposed |
| 5 A could have protected | B may have been protected |
| C may protect | D could be protected |
| 6 A can't have been | B might have been |
| C could be | D will definitely be |

6 **SPEAK** Write down your opinion on the following issues. Then read out your opinions to each other and take turns to agree or disagree. Use the Key Phrases on page 25.

- higher salaries for scientists
- the influence of scientific progress on our future
- more hours of biology, physics and chemistry per week in secondary schools

FAST FINISHERS

Write a forum post in which you disagree with one of your partner's opinions from exercise 6.

2.9 Writing

A for-and-against essay

- 1 **SPEAK** Would you like to join a private space mission if money was not an issue? Why/Why not?
- 2 Read the essay. What do you think the task may have been? Which arguments do you find more convincing – *for* or *against*?
- 3  Read the essay again and answer the questions.
 - 1 Where can you find the thesis?
 - 2 Which pattern does the main body of the essay follow: a or b?
 - a Paragraph 2: argument 1 'for' + explanation, argument 2 'for' + explanation
Paragraph 3: argument 1 'against' + explanations, argument 2 'against' + explanation
 - b Paragraph 2: argument 'for' + explanation + examples
Paragraph 3: argument 'against' + explanation + examples
 - 3 Does the author give his/her opinion?
 - 4 Which sentences are true?
 - a It is enough to give one argument of each kind as long as it is developed and supported with examples.
 - b If you give several arguments in a paragraph, it is enough to enumerate them.
 - c You can give two arguments 'for' and three arguments 'against' as long as both sides of the issue are still balanced.
 - d In the conclusion, you have to say which arguments are more convincing.
 - e The conclusion repeats the thesis, but in different words.

- 4 Study the Key Phrases box. Which Key Phrases did the writer use in their essay?

Key Phrases

A for-and-against essay

Introduction

It is often/widely claimed/suggested that ...

... has been generating considerable publicity.

It is generally believed/held that ...

Some/Many people/experts/scientists/critics ... are in favour of/against ..., while others ...

Presenting benefits and drawbacks

There is/could be an element of truth to the idea that ...

There is some legitimacy to the idea ...

To a certain/major extent ...

A definite plus ...

The advocates argue that ...

One outstanding advantage is ...

There are substantial/significant gains for ...

The opponents of ... may claim that ...

A major stumbling block might be that ...

The principal/most serious drawback ...

This could seriously undermine ...

Conclusion

Overall, ...

... seem right up to a point.

All things considered, ...

Having considered all the arguments/analysed both lines of argumentation, ...

All in all / On balance, ...

The commercial space industry has been generating considerable publicity and has triggered a discussion between those who consider privatised space exploration beneficial and those who mainly see its downsides. Let us take a closer look at the arguments of both sides.

The advocates argue that there is some legitimacy to the idea of private funds supporting space agencies. It is common knowledge that space exploration involves enormous costs, which might be borne by private equities. What is more, such companies are very competitive, which actually favours developing new technologies. With the involvement of innovative entrepreneurs, research conducted by agencies such as NASA might progress faster.

The opponents claim that the principal drawback of commercial space exploration is the fact that companies are always driven by profitability. While private institutions may claim they get involved for the sake of research and the future of mankind, their ventures still need to be financially rewarding. In addition, commercialisation of space travel may take a wrong turn and lead to space journeys being organised at the whim of billionaires. This could seriously undermine decades of research of space agencies.

Having considered both sides, the arguments from supporters and those against commercial space exploration seem right up to a point. Although the private sector may contribute to rapid advances in the field, at the same time company bosses set their sights on boosting their profits.



5  **Translate into English. Use the Key Phrases.**

- 1  (*Przeciwnicy tych zmian sugerują*) that scientists aren't well-paid, yet they can make a real difference to people's lives.
- 2  (*Jest nieco prawdy w twierdzeniu*) that scientific subjects, such as computer engineering or biochemistry, are the fields of the future.
- 3  (*Najpoważniejsza wada studiowania przedmiotów ścisłych*) is that education can take many years, which extends the tuition fees to be paid.
- 4  (*Ogólnie uważa się*) that analytical skills make the prospects for work pretty good.
- 5  (*Po przeanalizowaniu wszystkich argumentów*), I can say that not everyone should consider a career in science.
- 6 Some scientists who publicly advocate their views (*są przeciwni zmianom podczas gdy inni*)  see the potential benefits.
- 7 Publishing the latest research results (*mogłoby poważnie podważyć*)  the government's policy.

6  **Read essay topics 1–2 below and write down arguments for and against each of them. Think about how you could develop the arguments and what examples you could give.**

- 1 The advantages and disadvantages of having more maths lessons per week.
- 2 Are electric cars a real blessing? Discuss.

7  **Look back at the main body patterns in exercise 3. Then use your notes from exercise 6 to develop the beginnings of paragraphs below, following pattern a in one and pattern b in the other.**

- 1 On the other hand, introducing more maths lessons per week would be demotivating for many students.
- 2 To begin with, electric cars mean substantial gains for the environment.

8  **Read the introduction to a for-and-against essay and write the conclusion.**

In the last few decades, we have witnessed numerous scientific advances in the areas of medicine, industry and technology, some of which were real breakthroughs. We were led to believe that all of those developments would make our lives better. However, it is not necessarily true, as the discoveries and innovations may have both benefits and drawbacks.

9   **Do the writing task. Follow the steps in the Writing Planner.**

Niektórzy ludzie decydują się na udział w płatnych badaniach klinicznych. Napisz rozprawkę na 200–250 słów, w której przedstawisz dobre i złe strony takiej decyzji.

WRITING PLANNER 

THINK

Think about who might organise paid clinical trials (e.g. a pharmaceutical company testing a new drug, a research institute experimenting with a new form of treatment) and their reasons for doing so. Make a list of arguments for and against participating in them (e.g. for: supporting medical research, helping humankind, health benefits from the new treatment, considerable financial profit; against: health risk, physical and emotional strain, long-time commitment, could be time-consuming). Then add an explanation or an example to each argument.

PREPARE

Organise your notes into four paragraphs:

- 1 introduce the thesis; state that there are two sides to the argument,
- 2 provide arguments for/against with reasons and/or examples,
- 3 provide arguments for/against with reasons and/or examples,
- 4 mention the topic again and touch upon your arguments, but do it using different words.

WRITE

Write your essay. Remember to use formal language and a variety of expressions to introduce arguments.

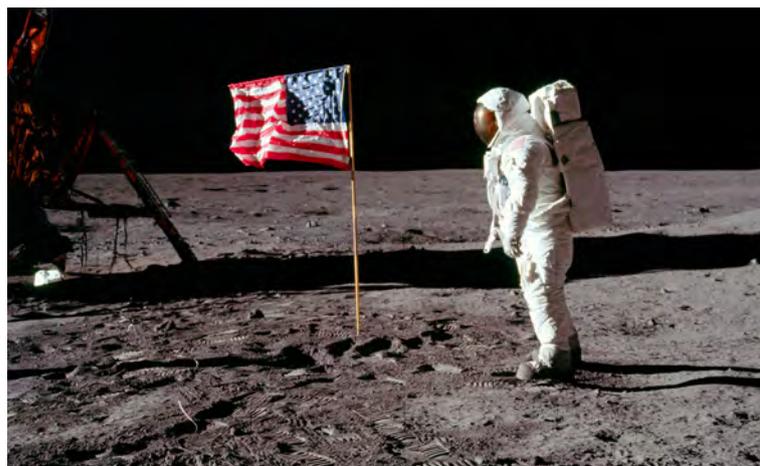
CHECK

Read your essay and answer the questions:

- Have you organised your essay into four paragraphs?
- Have you included and developed both sides of the argument?
- Is your text within the word limit (200–250 words)?
- Have you checked your essay for spelling mistakes?

 **FAST FINISHERS**

 **Imagine you are Neil Armstrong and it's 1968. You have just been offered the chance to command Apollo 11, the first manned mission to the Moon. Make a list of arguments for and against accepting this offer.**



VOCABULARY

- 1 Complete the sentences with the verbs from the box. Then search the web to answer the question in the last point.

adopt go over hook up orbit overcome
process take away test

- Our maths teacher would like to the quadratic equations with us again.
- Dr Carney tried to explain the theory to us, but it was so complicated that no one was able to all the information.
- Did you manage to your theory and determine whether it holds true?
- At the outset of the research, none of us expected there would be so many obstacles to .
- For our experiment, we wanted to a different approach from everyone else.
- We tried to the computer to the projector, but the HDMI cable wasn't long enough.
- Patients might be administered a sedative to the feeling of distress and help them to calm down.
- Does the ISS the Earth faster or slower than the Earth's own rotation?



- 2 Complete each pair of sentences with the same word.

- When the results of this experiment come to , you will become famous.
 - Rheumatologists have used infrared to alleviate pain and inflammation.
- I need to take notes carefully – how else would I in all this information?
 - People say I after Aunt Lucy, but I can't see any resemblance, to be honest.
- The whole team was really great strides to finish the project on time.
 - Helen was squinting her eyes, out what the lecturer had written on the board.
- Oh, come on, just plug the fan ! Clearly the battery has run out.
 - We have all been the dark about the real purpose of the experiments.

GRAMMAR

- 3 Correct the mistakes in the sentences.

- These pills are obliged to alleviate the pain after the operation.
- Dr Smith must be awfully disappointed when the experiment failed.
- The researchers will probably observing the animals for the next two months to collect enough data.
- Look at the dog running over there. It could have been Mrs Doyle's new puppy.
- My teacher told me there was no necessary to adopt a different approach.
- Is Frederick likely to drawing any conclusions any time soon?
- Their results might relied on incorrect data.
- You can't have been hooked up the equipment properly – otherwise it would work.

- 4 Complete the second sentence so that it means the same as the first one. Use the words in capitals.

- You should have written a report about the experiment, not the results. **WERE**
You a report about the experiment, not the results.
- Do you think it's possible that scientists have had messages from aliens? **COULD**
Do you think scientists from aliens?
- A lot of people were extraordinarily interested in that experiment. **MUST**
That an extraordinarily interesting experiment.
- It's impossible that we are taking the biology test today. **CAN'T**
We the biology test today.
- We mustn't enter the lab unaccompanied. **FORBIDDEN**
We into the lab unaccompanied.

USE OF ENGLISH

1 2 3 4 5 6 7 8

- 5 Choose the correct options.

HOW DIET CHANGED THE WAY WE TALK

How did humans develop the ability to speak a language? And what causes certain sounds to exist in different languages? Scientists from different ¹ of study have been pursuing the matter for decades. A recent study ² the possibility that changes in human language may be connected to the rise of agriculture. Scientists ³ that eating different foods ⁴ the shape of our mouths to ⁵ differently. Then they ⁶ detailed research into how diet-induced changes in the human bite affect language. A team of analysts followed a complex ⁷ , which involved sampling ⁸ amounts of data and ⁹ the findings together. Finally, they ¹⁰ prove that certain sounds were easier to pronounce for speakers who ate softer food. The study led to a major ¹¹ in our thinking about the role that diet, culture and human biology have played in the evolution of language.

- | | |
|--------------------------------------|---------------------------------|
| 1 A places
C approaches | B varieties
D fields |
| 2 A explored
C designed | B resulted
D approached |
| 3 A analysed
C observed | B conducted
D processed |
| 4 A may have caused
C might cause | B will cause
D can cause |
| 5 A emerge
C capture | B orbit
D evolve |
| 6 A conducted
C analysed | B observed
D followed |
| 7 A approach
C range | B procedure
D system |
| 8 A divergent
C substantial | B insatiable
D ingenious |
| 9 A showing
C breaking | B hooking
D piecing |
| 10 A succeeded in
C were prone to | B managed to
D were bound to |
| 11 A approach
C breakthrough | B obstacle
D source |

LISTENING

6 1.27 Listen to a podcast about weird science stories and choose the correct options.

- What would cause an earthquake if Earth was made of blueberries?
 - The rise in temperature.
 - The change in gravity.
 - The expulsion of elements into space.
 - The disappearance of the Earth's core.
- What causes the smell in Uranus's atmosphere?
 - The high concentration of ammonia.
 - The drastically low temperatures.
 - The lack of light in the atmosphere.
 - The abundance of hydrogen sulphide.
- What was the cause of the orange snow?
 - A rare phenomenon in North Africa.
 - Desert sand from the Sahara.
 - Unusually low temperatures in North Africa.
 - Warm air in the atmosphere.
- Which is true about the manager of a local bat colony near Sydney?
 - She was forced to leave the sanctuary.
 - She managed to rescue a lot of bats.
 - She made frequent visits to the colony to observe the situation.
 - She kept a record of the number of bats that had died.
- Which of the following is stated in the podcast as a fact, not an opinion?
 - The research Anders Sandberg did had pedagogical value.
 - The planet Uranus emits a foul odour.
 - The mysterious precipitation in Romania, Bulgaria and Russia resembled the surface of Mars.
 - The Australian animal rescuers were overwhelmed.

SPEAKING

7 Describe the photos and answer the questions.

Uczeń A



- What do you think motivated these women to participate in this event?
- In what areas of your life is technology important?
- Describe a situation in which you or someone you know achieved something with the help of technology.

Uczeń B



- What are the potential threats of creating robots?
- Which of your daily duties would you like to have done by a robot or a machine?
- Describe a situation in which a machine failed you.

WRITING

8 Read the instructions and do the task.

Coraz więcej osób uważa, że smartfony powinny być wykorzystywane przez uczniów do nauki podczas zajęć lekcyjnych. Napisz rozprawkę na 200–250 słów, w której przedstawisz dobre i złe strony takiego rozwiązania.

2.2 Modals and alternatives to modals

Znaczenie typowe dla czasowników modalnych można wyrazić również za pomocą pewnych utartych wyrażań.

Modal verbs	Alternatives	
Obligation or necessity		
<i>must/have to</i> + infinitive	<i>be obliged to</i> + infinitive	In some countries, people are legally obliged to report a crime.
<i>need to</i> + infinitive	<i>be required to</i> + infinitive	All new arrivals are required to check in at the front desk.
	<i>be necessary to</i> + infinitive	It was necessary for candidates to bring their CV to the interview.
No obligation or necessity		
<i>not have to</i> + infinitive	<i>there be no need to</i> + infinitive	There's no need to call Mum. I'm sure we can figure this out on our own.
<i>not need to</i> + infinitive	<i>be unnecessary to</i> + infinitive	It was unnecessary to file a complaint because they gave us a refund.
	<i>not be obliged/required/necessary to</i> + infinitive	Teachers are not required to reply to messages on social media.
Advice and recommendation		
<i>should/ought to</i> + infinitive	<i>be meant to</i> + infinitive	We were meant to sing a cappella during the auditions.
<i>had better</i> + infinitive	<i>be supposed to</i> + infinitive	All employees are supposed to follow the new procedures.
Ability and willingness		
<i>can</i> + infinitive	<i>manage to</i> + infinitive	Although we tried our best, we didn't manage to complete the final task.
<i>be able to</i> + infinitive	<i>succeed in</i> + gerund	Mike's team succeeded in proving that the initial hypothesis was wrong.
Deduction and speculation		
<i>may/might/could</i> + infinitive	<i>be prone to</i> + infinitive	She's prone to make some spelling mistakes in her essay.
	<i>be possible (that)</i> + clause	It's possible that I've left the car keys on my desk.
<i>must/can't</i> + infinitive	<i>be likely / unlikely to</i> + infinitive	Jon is unlikely to have found an academic position so soon.
	<i>be bound to</i> + infinitive	If you are one of those people who just cannot sit still, at some point somebody is bound to have told you not to wriggle about.
	<i>be sure (that)</i> + clause	I'm sure you'll pass the test; you've studied a lot!
Permission		
<i>can</i> + infinitive	<i>be allowed to</i> + infinitive	Are we allowed to use a dictionary during the test?
<i>may</i> + infinitive	<i>be permitted to</i> + infinitive	Are students permitted to leave the school premises during the break?
Prohibition		
<i>mustn't</i> + infinitive	<i>be forbidden to</i> + infinitive	Nurses at this hospital are forbidden to wear high heels.
<i>can't</i> + infinitive	<i>not be allowed/permitted to</i> + infinitive	We were not allowed to go to the forest on our own as kids.
<i>may not</i> + infinitive		

2.7 Speculation and deduction (past, present and future)

Za pomocą czasowników modalnych: *must*, *may*, *might*, *could* oraz *can* możemy spekulować na temat przeszłości, teraźniejszości i przyszłości. Czasowniki te występują wówczas w następujących konstrukcjach:

- *must / may (not) / might (not) / could (not) / can't + have + past participle* – w odniesieniu do czynności i stanów z przeszłości, np.:
Someone **must have** moved the documents. They were just here!
The theatre was very crowded, so he **may not have** seen you.
It **can't have** been Janice's fault. She wasn't involved in that project at all!
- *must / may (not) / might (not) / could (not) / can't + infinitive* – w odniesieniu do aktualnych stanów, np.:
You **must be** exhausted! Lie down and relax.
She **could be** wrong, of course, but I don't think she is.
This **can't be** Jerome's paper. His handwriting is much neater.
- *must / may / might / could / can't + be + gerund* – w odniesieniu do wydarzeń, które są aktualnie w toku, np.:
Can you hear Ian? He **must be** practising for the talent show.
Don't call Meredith just yet. She **might be** interviewing candidates.
Mr Jenkins **can't be** talking on the phone. The line isn't engaged.

- *may (not) / might (not) / could + infinitive* – w odniesieniu do czynności i stanów z przyszłości, np.:
He **might** go on to study medicine at university.
It all depends on his exam results.
If you work hard, you **could** get into the school rugby team.
- *will probably / definitely won't + infinitive* – w odniesieniu do czynności i stanów z przyszłości, np.:
Fred is good at biology, so he **will probably** get an A.
My parents **definitely won't** sell their flat in the city centre.

UWAGA!

Jeśli jesteśmy czegoś niemal pewni, możemy użyć czasownika *will*:

- w odniesieniu do przeszłości: *will + have + past participle*, np. As you **'ll have** noticed, the master bedroom has been refurbished.
- w odniesieniu do teraźniejszości: *will + infinitive*, np. 'Can you hear footsteps?' 'That **'ll** be Bill. He's staying over tonight.'

- KEY WORDS

VOCABULARY 1

adopt an approach	/əˈdɒpt ən əˈprəʊtʃ/	przyjąć podejście
collate evidence	/kəˈleɪt ˈeɪdɪns/	zbierać i analizować dowody
combat	/'kɒmbæt/	zwalczyć, pokonać
complexity	/'kɒmˈpleksəti/	złożoność
conduct research	/'kɒnˌdʌkt ˈriːsɜːtʃ/	przewodzić badanie
deem sth safe	/'diːm ˌsʌmθɪŋ ˈseɪf/	uznać coś za bezpieczne
demonstrate the possibility	/'demənˌstreɪt ðə ˌpɒsəˈbɪləti/	dowieść, że coś jest możliwe
diverse sources	/'daɪˌvɜːs ˈsɔːsɪz/	różnorodne źródła
execute experiments	/'eksɪkjʊːt ɪkˈsperɪmənts/	przeprowadzać doświadczenia
field of study	/'fiːld əv ˈstʌdi/	dziedzina nauki
global collaboration	/'glɔːbəl kəˌlæbəˈreɪʃən/	ogólnoświatowa współpraca
guinea pig	/'ɡɪni piɡ/	świnka morska; tu: królik doświadczalny
harness	/'hɑːnɪs/	ujarzyć
human trials	/'hjuːmən ˈtraɪəlz/	badania kliniczne z udziałem ludzi
light years ahead	/'laɪt jɪəz əˈhed/	lata świetlne do przodu
major breakthrough	/'meɪdʒə ˈbreɪkθruː/	przełom, punkt zwrotny
mould	/'məʊld/	pleśń
not rocket science	/'nɒt ˌrɒkɪt ˈsaɪəns/	żadna wielka filozofia
overcome obstacles	/'əʊvəˌkʌm ˈɒbstəkəlz/	pokonywać przeszkody
procedure	/'prəːsiːdʒə/	procedura
process data	/'prəʊses ˈdeɪtə/	przetwarzać dane
quantum leap	/'kwɒntəm ˈliːp/	krok milowy, skok, przełom
scrutinise	/'skruːtɪnaɪz/	badac, obserwować
sensory issues	/'sensəri ˈɪʃuːz/	zaburzenia sensoryczne
side effects	/'saɪd ɪˈfekts/	skutki uboczne
test tube	/'test ˌtjuːb/	probówka
timescale	/'taɪmˌskeɪl/	czas na wykonanie czegoś
trial and error	/'traɪəl ənd ˈerə/	metoda prób i błędów

GRAMMAR 1

fidget	/'fɪdʒɪt/	kręcić się, wierzcić się
mind wandering	/'maɪnd ˌwɒndərɪŋ/	dekoncentracja, błądzenie myślami
overstimulation	/'əʊvəstɪmjuˈleɪʃən/	przebodźcowanie
prone to wriggle	/'prəʊn tə ˈrɪŋɡəl/	podatny na wyginać się

READING

alleviate	/'æliːviət/	łagodzić
appendicitis	/'æpendɪˈsaɪtɪs/	zapalenie wyrostka robaczkowego
arthritis	/'ɑːθraɪtɪs/	artretyzm, zapalenie stawów
bewildering	/'biːwɪldərɪŋ/	zdumiewający
colour-blindness	/'kʌlə ˌblaɪndnəs/	daltonizm
come about	/'kʌm ə ˈbɑːt/	zdarzyć się
come to light	/'kʌm tə ˈlaɪt/	wyjść na jaw, wyjść na światło dzienne
compound	/'kɒmpaʊnd/	związek chemiczny
congenital	/'kɒŋdʒɪnəl/	wrodzony
debilitating	/'diːbɪlɪteɪɪŋ/	wyniszczający, osłabiający
distressing	/'dɪstresɪŋ/	niepokojący
halt	/'hɔːlt/	przerwać
heightened	/'haɪtənd/	wzmocniony
in the dark	/'ɪn ðə ˈdɑːk/	w nieświadomości
indulge in sth	/'ɪnˌdʌldʒ ɪn ˌsʌmθɪŋ/	oddawać się czemuś
inflammation	/'ɪnfləˈmeɪʃən/	zapalenie, stan zapalny
make great strides	/'meɪk greɪt ˈstraɪdz/	robić znaczne postępy
make out	/'meɪk ˈaʊt/	dostrzegać, widzieć
odour	/'əʊdə/	woń, odór
pay a visit	/'peɪ ə ˈvɪzɪt/	złożyć wizytę
procedure	/'prəːsiːdʒə/	zabieg chirurgiczny
progressive	/'prəʊˈɡresɪv/	postępujący
retina	/'retɪnə/	siatkówka (oka)
sensation	/'senˈseɪʃən/	doznanie, uczucie
wavelength	/'weɪvˌleŋθ/	długość fali
widespread	/'waɪdˌspred/	rozpowszechniony

VOCABULARY 2

asteroid	/'æstəˌrɔɪd/	asteroida
atmosphere	/'ætməʃˌfiə/	atmosfera
black hole	/'blæk ˈhəʊl/	czarna dziura
collective knowledge	/'kɒlektɪv ˈnɒldʒ/	wiedza zbiorowa
deploy	/'diːplɔɪ/	wdrażać
dwarf planet	/'dwaːf ˈplænɪt/	planeta karłowata
eclipse	/'ɪklyps/	zaćmienie
far-distant/far-flung	/'fɑː ˈdɪstənt/ˌfɑː ˈflʌŋ/	odległy
groundbreaking	/'graʊndˌbreɪkɪŋ/	przełomowy
indulge	/'ɪnˌdʌldʒ/	zaspokoić
infrared light	/'ɪnfərəˌred ˈlaɪt/	promieniowanie podczerwone
insatiable curiosity	/'ɪnˌseɪəbəl ˌkjʊəriˈɒsəti/	nienasycona ciekawość
interstellar cloud	/'ɪntəˌstɛlə ˈklaʊd/	obłok międzygwiazdowy
marvel at sth	/'mɑːvəl ət ˌsʌmθɪŋ/	dziwić się czemuś
meteorite	/'miːtɪərɪt/	meteoryt
Northern Lights	/'nɔːðən ˈlaɪts/	zorza polarna
observable universe	/'əbˌzɜːvəbəl ˈjuːnɪˌvɜːs/	widzialny wszechświat
orbit (n; v)	/'ɔːbɪt/	orbita; okrążyć
outer space	/'aʊtə ˈspeɪs/	przestrzeń kosmiczna, kosmos
piece together	/'piːs təˈɡeðə/	składać w całość
shooting star	/'ʃuːtɪŋ ˈstɑː/	spadająca gwiazda, meteoroid
sunshield	/'sʌnˌʃɪld/	osłona przeciwsłoneczna
the cosmos	/'ðə ˈkɒzmos/	kosmos
vastness	/'vɑːstnəs/	bezkres

LISTENING

bionic eye	/'baɪˌɒnɪk ˈaɪ/	sztuczne oko
bring up	/'brɪŋ ˈʌp/	poruszać (np. temat)
exoskeleton	/'eksəˌskelɪtən/	szkielet zewnętrzny
genetic engineering	/'dʒɛnɪtɪk ˌendʒɪˈnɪərɪŋ/	inżynieria genetyczna
go over	/'gəʊ ˈəʊvə/	powtórzyć
hook up	/'hʊk ˈʌp/	podłączyć
impairment	/'ɪmˈpeəmənt/	upośledzenie, uszkodzenie
look at	/'lʊk ət/	analizować
plug in	/'plʌŋ ɪn/	wpiąć, podłączyć wtyczką
rely on	/'riːlaɪ ɒn/	polegać na
show off	/'ʃəʊ ɒf/	zaprezentować, popisać się
take after	/'teɪk ˈɑːftə/	być podobnym do, wdać się w
take away	/'teɪk əˈweɪ/	usunąć, odjąć
take in	/'teɪk ɪn/	przyswoić, zapamiętać

GRAMMAR 2

condemn	/'kɒnˈdem/	potępić
hold a dispute	/'həʊld ə ˈdɪspjuːt/	spierać się, dyskutować
refute	/'riːfjuːt/	obalić (np. teorię)

WRITING

advocate	/'ædvəkət/	obrońca, osoba wspierająca
at the whim of sb	/'æt ðə ˈwɪm əv ˌsʌmbədi/	zależnie od czyjegós kaprysu
craft	/'kraːft/	statek/statki, np. kosmiczne
forge	/'fɔːdʒ/	fałszować
generate publicity	/'dʒenəreɪt ˌpʌb ˈlɪsəti/	powodować rozgłos
legitimacy	/'liːdʒɪtəməsi/	słuszność, zasadność
private equity	/'praɪvət ˈekwɪti/	prywatny kapitał
stumbling block	/'stʌmblɪŋ ˌblɒk/	przeszkoda
undermine	/'ʌndəˈmaɪn/	podważać

REVISION

abundance	/'əˌbʌndəns/	duża ilość
bite	/'baɪt/	zgrzyz
expulsion	/'ɪkˈspʌljən/	wydalenie, wypuszczenie
foul	/'faʊl/	odrażający
induce	/'ɪnˌdjuːs/	wywołać, spowodować
precipitation	/'priːsɪpɪˈteɪʃən/	opady atmosferyczne
persue	/'pɜːsjuː/	drażnić, badać
quadratic equation	/'kwɒdrætik ɪˈkweɪʒən/	równanie kwadratowe
sample	/'sɑːmpəl/	badac, przeprowadzac
sedative	/'sedətɪv/	wyrwykowe badania
		środek uspokajający