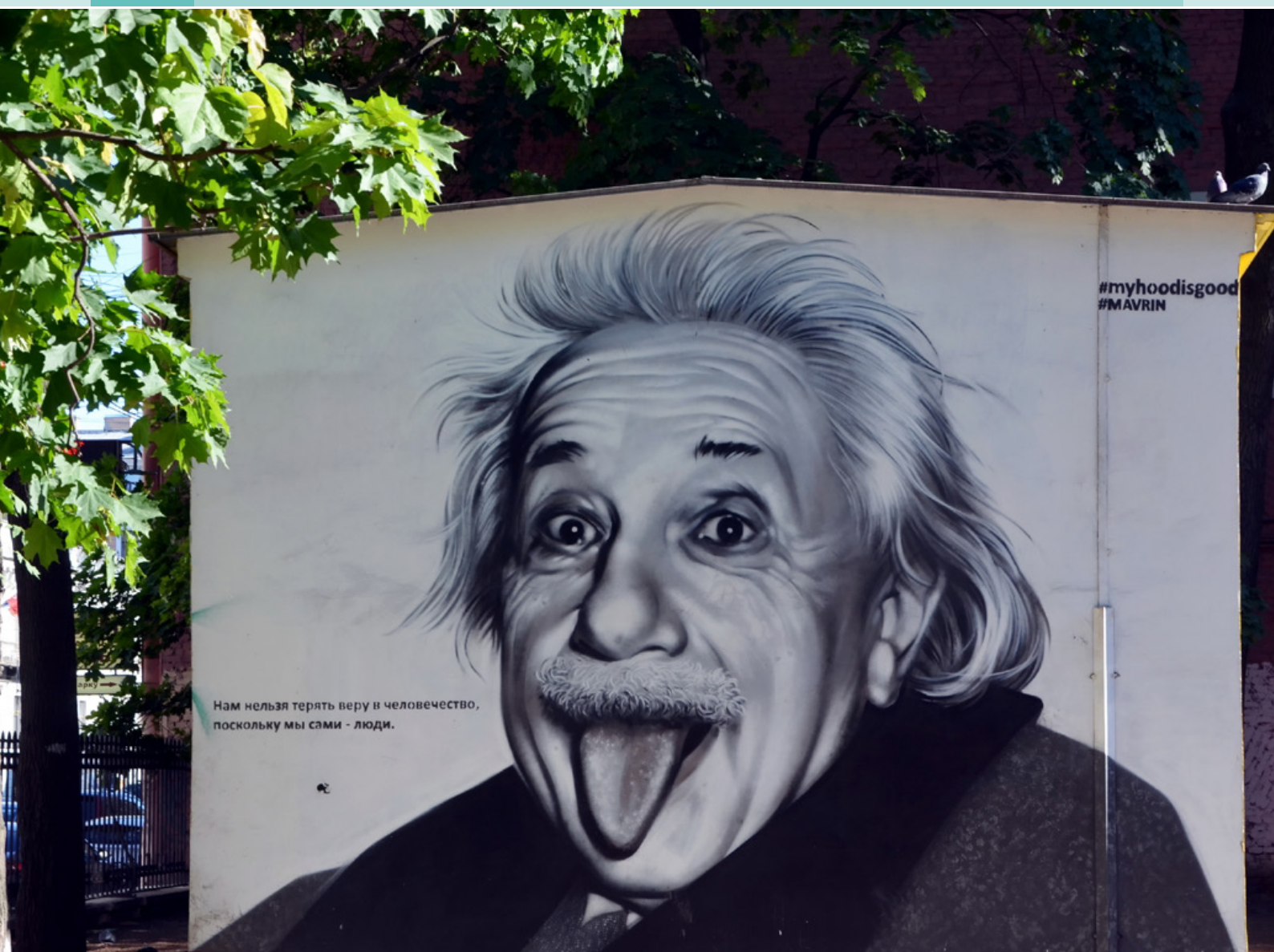




1 2 3 **4** 5

Unit 4 A Curious Mind

In this unit we take a look at the world of science and technology and people who use their creativity to fuel their innovative ideas. It features inventions, drones, robots and solar-powered cars. What's not to like?

LESSON 1: READING & LISTENING	134
The innovative spirit	
LESSON 2: READING	139
Early childhood and an introduction to maths	
LESSON 3: SPEAKING	147
A new drone. Now what?	
LESSON 4: READING & LISTENING	154
Five reasons to teach robotics in schools	
LESSON 5: WRITING	161
World Solar Challenge update	
STUDY BOX	166

1

YOU'LL BE ABLE TO

- understand the main theme and arguments in simple texts
- understand announcements and messages about concrete and abstract subjects
- understand most documentaries and other audio material and identify the speaker's mood and tone
- write short, simple essays on topics of interest

Grammar

- tenses

Vocabulary

You can learn the vocabulary with the Study box (p. 166) and the vocab trainer.

Strategies

- preparation

TEXT

The innovative spirit

Teenage inventor Alexis Lewis thinks that kids have the solutions to the world's problems. With a patent to her name and probably more on the way, the 15-year-old has made it her mission to inspire young innovators



1 Benjamin Franklin invented swim flippers when he was 12 years old. Frank Epperson, age 11, and 16-year-old George Nissen thought up a trampoline.

Alexis Lewis, a 15-year-old inventor in Chapel Hill, North Carolina, wants children across the country to know that an inventor isn't something you have to be when you grow up. You can be one now. Lewis holds a patent for a travois, a type of wheeled sledge, a triangular load-carrying device with a bamboo frame and a bed of netting that she designed to serve Somali refugees, who need to transport their children many miles to camps and hospitals.

2 Why should more people invent?

"I think not only is it important to tell people that they can invent but it's important also to tell them that they should be inventing because they have their own unique perspective on the world. Everybody has lived a different life, everybody has seen the world slightly differently and I think everybody has a slightly different take on each problem. And I think if we all work

together, we can solve a tremendous number of problems."

3 What motivates you to invent?

"My inventions are motivated by one or two things usually. One, it's a issue, basically people who aren't getting the help they need, people who are dying unnecessarily when they could be saved. Another reason that I often invent is that I'll get myself absolutely buried in a piece of physics, just learning about it obsessively."

4 Has the environment you grew up in impacted you as an inventor?

"My mom would always read to the family about various world issues. When hurricane Katrina hit, I was 5 years old then, we learned all about what a hurricane was, how it worked, the effects of hurricane Katrina itself, what they were doing to help clear out floodwaters, all sorts of fascinating stuff. I was encouraged to learn about the science of everything, and I was a greedy

reader. Starting young is an advantage in that I have the ability to look at something and not think, 'Oh this is a problem that can't be solved,' but instead think maybe we've been looking at it just a little bit wrong. Kids, since they haven't been told this is something that would never work over and over, have the ability to do that."

5 What is Inventing 101? Why is it important to you?

"It's a class I hope to have administered to middle school students across the country that would basically tell them that they are capable of inventing. If people aren't told when they're young that they can invent, it's going to be much harder to convince them that they can. I had this idea when I was looking back at the stuff I had done, at my inventions and realizing that these are some simple designs. People are stunned when they hear what I've done. But these are things that I know for a fact a lot of people can do. So I thought there's got to

be some way to awaken that self-confidence in people to enable them to do that.

People think that the inventors of the world are the crazy mad scientists and white lab coats working long hours developing crazy new technologies. But inventors are basically anybody and everybody who's ever tried to solve a problem."

Based on: www.smithsonianmag.com

*"if we all work together,
we can solve a
tremendous number
of problems"*

READING

- 1 Skim the text by reading just the introduction, the headings and the first sentence of each paragraph. Then, write down the number of the paragraph that each title refers to. In which paragraph does Alexis Lewis ...

- explain what drives her to invent things? 3
- say that she was curious to understand the world around her? 4
- claim that more people need not wait to become inventors? 1
- explain why children should try to become inventors? 2
- dwell on a project aimed to convince children that they are able to invent things. 5

- 2 (§1) What is Alexis's purpose?

- ☒ To get rid of a possible misunderstanding.
- ☐ To illustrate being young is the ideal age for inventing.
- ☐ To show that children can be inventors if they really want to.

- 3 (§2) Complete the following sentence so that it is in accordance with the information in this paragraph.

Alexis stresses the fact that people approach life / the world / problems differently.

- 4 (§3) Which of the following fits the gap in this paragraph?

- ☐ financial
- ☒ humanitarian
- ☐ political
- ☐ technical

- 5 (§4) Explain what possible good came of hurricane Katrina for Alexis personally. Quote the first two and last two words of the phrase(s) in which you have found the answer.

She learned everything about hurricanes including the effects and was encouraged to learn about science. "When hurricane ... fascinating stuff." and "I was ... of everything."

- 6 (§5) Quote the first two and last two words of the phrase / sentence that illustrates that Alexis does not see her actions as unique or special.

"But these ... can do."

- 7 (§1 and §5) What message do these two paragraphs have in common?

People (should know they) are able to invent things while they are young.

LISTENING

STRATEGY Preparation

 strategies - oriënteren op de tekst - p. 14

Always prepare yourself before you start watching and/or listening. What do you already know about the subject? Do you know the speaker? Make guesses about what you may learn. Guessing helps you focus on the assignment. It doesn't matter if your guesses are right or wrong.

- 8 Watch the video online and do the assignment that you find there. You may use the writing space below.

☐	<i>Go to the online assignment to find these answers.</i>
☐	
☐	
☐	
☐	
☐	
☐	
☐	

VOCABULARY

- 9 Fill in the correct verb and use the right form. Choose from the list. There are two words too many.

attribute – administer – assemble – come across – explore – grapple with – measure – postpone – predict

- a Alexis had *attributed* her initial interest in science to Hurricane Katrina.
- b If you are working on an invention, it's logical you have to *grapple with* problems.
- c Is it hard to *measure* the length of a rainbow?
- d It is difficult to *predict* a hurricane a week in advance.
- e Alexis had had to *postpone* her interview with a paper because she was ill.
- f Tomorrow she will *administer* a science class to some 13-year-olds.
- g Is it more difficult to take a machine apart than to *assemble* it?

GRAMMAR

Tenses

 grammar - 1 t/m 9 - p. 54 t/m p. 62I **had** this idea when I **was looking** back at the stuff I **had done**.People **are stunned** when they **hear** what I've **done**.

- 10** Read the interview with Wayne Fromm, a Canadian inventor who's one of the main inventors of the selfie stick. First, underline the adjunct of time in each sentence if there is one. Then, fill in the correct *tense*.

Can you tell us about yourself?

Wayne Fromm: I live in Toronto, Canada. I (a to be) have been an inventor and entrepreneur for most of my life. More than 25 years ago I (b to invent) invented the world's first talking toy that had original actors' voices, Disney's Beauty and the Beast Magic Talking Mirror.

How (c you – to get – first) did you first get the idea for the selfie stick?

I (d to travel) was travelling in Italy one day and suddenly (e to grow) grew tired of asking strangers to take a photo of me and my daughter. When we (f to walk) were walking, I (g to think) thought of a telescopic monopod that was lightweight, waterproof and would go through airport security.

What's your personal interest and involvement in photography?

Since I (h to be) was seven years old I (i to be) have been fascinated with photography. I used to develop my own film, (j to get) got an enlarger and experimented with special effects. After I (k to be) had been in the analogue age for I don't know how many years I moved into the digital age with the original Sony Mavica.

(l you – to own) Do you own a patent for the selfie stick?

Yes, there are two patents on the selfie sticks that I (m to invent) have invented.

(n you – to have = moeten) Have you had to take legal action against anyone trying to infringe your patent so far?

On the whole, my company (o not – to disclose) does not disclose information about legal action that is not available publicly. But, personally, I'm sure that we (p to have) will have a few problems in the next few years.

When it first saw the light of day, (q you – to expect) did you expect the selfie stick to take off the way (r it – to take off) it has taken off over the past few years? What factors do you think (s to lead) have led to the craze?

I (t never – to expect) had never expected it until I saw it with my own eyes. It's like anything, good things take time.

While some people love selfie sticks, others absolutely hate them. Why do you think opinions can differ so much?

If it was used as I (u to intend) *had intended* all along, to allow the photographer to be included with friends and families, there would be greater acceptance. The average person only (v to see) *sees* a person taking their own photo at the expense of the safety of others in crowded areas.

WRITING



- 11** Think of a new invention that will make the world a better place. Write a proposal (220-260 words). Use one paragraph for each of the following aspects:
- Introduction.
 - Clear explanation what the invention does and how it can be used.
 - Explanation how it may be important for (certain) people, and in what different ways.
 - Explanation what obstacles there might be in trying to manufacture this invention and what might be done to avoid or limit these obstacles.
 - Conclusion and recommendation.

EXTRA LISTENING & WRITING

- 12** Listen to an interview (20-40 minutes) with an inventor. Go about it as follows.
- Search for a ‘podcast of an interview with an inventor’. Write down the name and the URL of the podcast.
 - While listening make notes of the questions as well as the answers.
 - You are free to use the pause button.
 - Use short notes, not complete sentences.
 - Save your notes and below them write a 350- to 400-word summary based on these notes.
 - After your summary add your 150- to 200-word comment on the following:
 - How much did you like the interview? Why?
 - What do you think of the invention(s) that is/are mentioned?
 - What word of advice would you like to give to the interviewee?

2

YOU'LL BE ABLE TO

- search in longer texts for information of interest to you
- quickly identify the relevance of articles and reports on professional issues
- describe the plot of a book or film and your reactions to it

Grammar

- *moeten* and *willen* auxiliaries
- the continuous form of the tenses

Vocabulary

You can learn the vocabulary with the Study box (p. 167) and the vocab trainer.

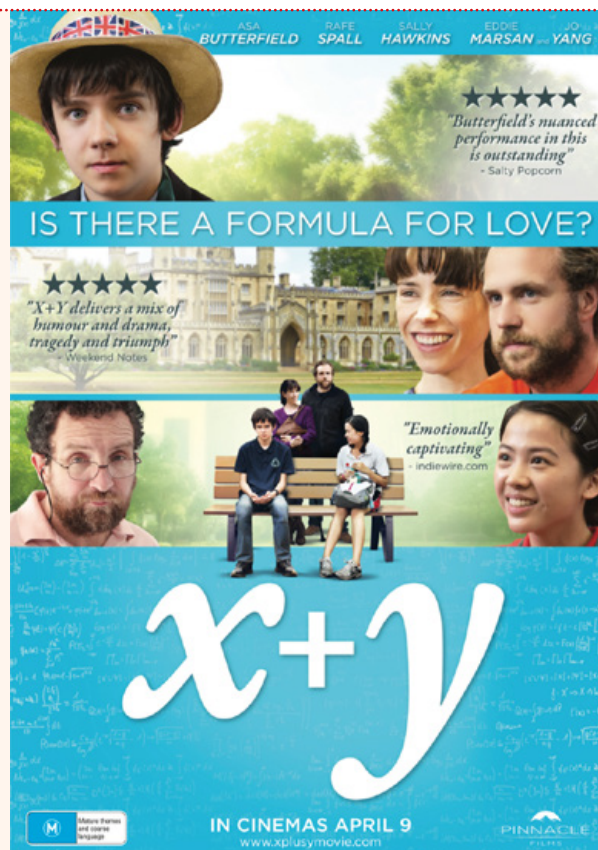
TEXT

Early childhood and an introduction to maths

By Daniel Lightwing

1 Maths forms the major underlying context of the film *X plus Y*. The primary character – Nathan – is largely based on myself during my teenage years participating in maths competitions. Both Nathan and myself felt that doing maths was the entire purpose of life. As I once said in the documentary *Beautiful Young Minds*: most subjects we study at school are totally irrelevant outside human society. Only science helps us to know those truths beyond human society; everything in our observable universe. But maths is surely even stronger; it also helps us to understand truths beyond observation, beyond the universe. I often think about where a talent in mathematics comes from? Is it a side effect of having Asperger's? If I can't understand the society around me, maths might seem like the easiest subject to relate to. A pure subject, untainted by human bias.

2 But the truth is not so simple. Before the age of nine, I had no particular attraction to mathematics. I learnt to read very young, before attending primary school. And I did read all kinds of things – books aimed at children 5-10 years older. At primary school, I read the entire library. In my family, we were also strangely talented at 'geography' – or rather, knowledge of place names, regions, capitals, populations, mountain names and so on. Perhaps because my dad secretly wished to be a geography teacher, there were countless poster maps and globes lying around the house. We were obsessed



with maps. Even today, the same is true for my baby brother, who often tries to catch me out with obscure flags I have long forgotten.

I fondly remember reading atlases in bed, trying to memorise the location of all the rivers in England, or all the states of India.

But it didn't end there for me. The positions of all the nearest stars or all the roman emperors, for that matter. I'd try to memorise any information I could extract from the world around me, especially lists.

3 Teachers at primary school were a little perplexed what to do with me. I wasn't learning anything I didn't already learn before starting. I was five years beyond my class. Anyway, around age eight, my parents decided to send me to a private school in York.

It is worth noting that at this stage, there was still no realisation that there was anything unusual about me. And I still did not take to maths. That shift happened during my second year at the school.

That year, there was a teacher who taught most of my lessons – I hated her. She forced me to sit under her desk and be ridiculed for no reason I can remember. One day I got extremely angry and jumped on top of the desk to denounce her. After that, she often put me down in front of my classmates.

Teachers at primary school were a little perplexed what to do with me

4 I still respected many of the other teachers. But one teacher in particular – my maths teacher – suggested that I have a special ‘one-to-one’ class in maths. I really enjoyed those classes and found them to be the only exciting part of going to school. I certainly felt ‘special’. Before long, I had made my mind up that maths was what I wanted to do.

But perhaps maths ability is a lucky gene I have inherited separately from Asperger’s? My mum often tells an anecdote about when I was three years old, when she asked me how many tiles there were on the ceiling; I told her almost instantly. I had realised that you could multiply height by width. This seems obvious to an adult, but it wasn’t the first time I discovered something by myself.

5 Aged eleven, I had to do a homework project about finding a formula for a quadratic sequence. I pointed out how there must be infinitely many formulas for any sequence. My maths teacher (a different one) went berserk. She gave me a low mark because she said my mum must have helped me. I was so angry about this, I started to view many teachers as inferior; and to idolise ‘real’ scientists and mathematicians.

6 Incidentally, a few years later I did an IQ test as part of a psychological evaluation. I scored the maximum, 180, on the numerical part. The test was about finding the next term in a sequence. I argued with the teacher that the test was meaningless because any sequence would have infinitely many formulas, and therefore every one of the multiple choice answers was correct. Surely, I should have the highest score? She kindly explained to me that I ‘couldn’t’ understand the maths behind the sequences. I was angry, again, but had no way to show it.

7 So, once more, I was just diagnosed with ‘genius’ IQ, and nothing else. Perhaps Asperger’s wasn’t known or recognised at this time? She arranged for me to have counselling sessions at school, during which I talked about my frustrations with the teachers not listening to my theories. Nothing useful came out of it.

It got even worse when, aged 13, I emailed a professor on an American ‘Dr Maths’ forum about the problems I was facing. This was one of the first things I did after discovering the internet. The very long email – during which I elaborated on my ‘theories’ – was actually quite bizarre. Of course, he replied that I was ‘a crank’ and berated me about ‘real maths’. This had a massive impact on me.

8 One final example that heavily influenced me was when I went to a maths summer camp for gifted children at York university. One evening, I discovered how cubic equations could be solved by using trigonometry. I was so excited, I worked overnight to write it up, and I rushed to show the professor the next morning. Once again, I was accused of copying from somewhere else. After all, how could this child have figured out how to do it by himself? I had idolised mathematicians at university but now I felt totally disillusioned.

I had idolised mathematicians at university but now I felt totally disillusioned.

9 Around this time, I felt very confused about my future. Could I really cope with being a mathematician? Thankfully, at an ‘Intermediate Maths Olympiad’ competition, I came in the top 5 nationally. This drew the attention of the British ‘Maths Olympiad’ coaches, who drafted me into their very different training system. Things would never be the same again.

I have always wondered what would have happened if I’d had a different set of teachers when I was nine years old. If I’d been treated more fairly, I might have felt school to be less like a prison. Perhaps one day I might have become interested in a completely different field of study?

10 In *X plus Y*, Nathan has a simplified relationship with mathematics. But, of course, his interest has its own trigger. His teacher – Mr Humphries – is a wonderful and inspirational character. While fictional, he lightens up and adds a new dimension to the entire film.

Based on: www.huffingtonpost.co.uk

READING

- 1 Find the words in the text that mean the following. There is one word in each paragraph and the words are in the order of the text.

description

word in text

§1 completely unimportant

totally irrelevant

§2 cause me to make a mistake

catch me out

§3 made me look stupid

put me down

§4 soon I had decided

before long, I had made up my mind

§5 explained

pointed out

§6 the highest

the maximum

§7 gave more details about

elaborated on

§8 absolutely disappointed

totally disillusioned

§9 attracted the interest

drew the attention

§10 whole

entire

- 2 Are these statements about §1 true or false? Quote the relevant words to support your answer. In case of a sentence, you may quote the first and last two words.

- a Most of the things we learn at school do not apply to the parts in the world around us where there are no people.

True. "... most subjects ... human society."

- b Daniel Lightwing is convinced his head for maths is related to his disorder.

False. "Is it ... having Asperger's?"

- c People are troubled by prejudice; maths is not troubled by prejudice.

True. "(A pure subject), untainted by human bias."

- 3 Complete the sentence so that it matches the information in §2.

It is clear that his entire life Daniel Lightwing has wanted to acquire ...

information / knowledge

- 4 In §3 there are phrases in which surprise is mentioned or implied. Quote three of them.

"a little perplexed" / "It was worth noting" / "there was still no realisation" / "And I still did not take to maths" / "for no reason"

- 5 How else could the first sentence of §4 ("I still ... in maths.") begin without changing the meaning of the sentence?

- ☒ However, I ...
☐ Therefore, I ...
☐ Though, I ...
☐ What's more, I ...

- 6** Complete the sentence so that it matches the information in §5.

The teacher clearly underestimated Daniel by claiming that ...

his mum must have helped him.

- 7** Compare §5 and §6. Explain if and why they are essentially similar or different.

They are essentially similar because they both show how Daniel is not believed / underestimated by his teacher.

- 8** What does Daniel mean by “and nothing else” in §7?

- ☒ It would have been something else if Daniel had been diagnosed with Asperger's.
☐ School had started to treat him differently from other pupils once he'd been diagnosed with Asperger's.

- 9** Which sentence in the previous paragraphs is a contrast to the last sentence of §8 (“I had ... totally disillusioned.”)? Write down the number of the paragraph and the first two and last two words of this sentence.

§5: “I started ... and mathematicians.”

- 10** How can the sentence “Things would never be the same again.” in §9 begin without changing the meaning of the sentence?

- ☐ As to be expected, things ...
☒ Fortunately, things ...
☐ Surprisingly, things ...
☐ Unfortunately, things ...

- 11** Are these statements about §10 true or false? In case of ‘false’ explain your answer.

- a** The character of Mr Humphries is modelled on a real character from Daniel's school career.

False. Explanation: The word ‘fictional’ suggests the character did not exist in reality but was invented.

- b** ‘While’ can be replaced with ‘although’ without changing the meaning of the sentence: “While fictional, he lightens up and adds a new dimension to the entire film.”

True.

VOCABULARY

- 12** Fill in the correct word. Choose from the list. There are two words too many.

additional – berserk – current – dismayed – disdainful – harsh – major – renowned – uptight

- a** The teacher went *berserk* when the children refused to stop talking in class.
b You have to learn to laugh more instead of getting *uptight* about things.
c He's often *disdainful* of people who are not good at mathematics.
d To be able to answer your questions we need *additional* information.
e There was no need for the teacher to be so *harsh* on Lisa for looking out of the window.

- f Albert Einstein was a *renowned* scientist in the first part of the 19th century.
- g Daniel was *dismayed* that his teacher didn't believe he'd done his homework by himself.

VOCABULARY EXTRA



13 Match the phrasal verbs with their descriptions.

phrasal verb	description	
1 to bring up (a child)	a to kill because it's old or ill	1 + <i>d</i>
2 to bring up (an idea / suggestion)	b to mention	2 + <i>b</i>
3 to come across (a schoolmate)	c to start an activity or hobby	3 + <i>f</i>
4 to come across (as emotional)	d to raise	4 + <i>h</i>
5 to put (somebody) down	e to have a friendly relationship	5 + <i>g</i>
6 to put down (an animal)	f to meet by chance	6 + <i>a</i>
7 to get along (at school)	g to humiliate somebody	7 + <i>j</i>
8 to get along (with somebody)	h to seem to have a particular characteristic	8 + <i>e</i>
9 to take up (a suggestion)	i to proceed to deal with something	9 + <i>i</i>
10 to take up (a sport)	j to deal with a situation or make progress	10 + <i>c</i>



14 Write sentences with the phrasal verbs from the previous exercise. Use the words that have been given and make sure the meaning of the verbs becomes clear from the context.

- a She – to bring up – herself.

She is bringing up her children all by herself.

- b We – to come across – at – last night.

We came across some old friends at a party last night.

- c I – to bring up – your – manager.

I will bring up the matter / your plan with the manager.

- d Hillary – to put – classmates – down, which I

Hillary sometimes puts down people, which I really hate.

- e Vince – to come across – but he

Vince may come across as serious, but he can be really funny.

- f How – to get along – school project?

How are you getting along with the school project?

- g Though – divorced – get along

Though they are divorced, they still get along with each other.

- h cat – put down – because

Our cat had to be put down because it was very ill.

i My mum – take up – because

My mum has taken up tennis because she wanted to be in better shape.

j I – bring up your – meeting – and I – phone you

I will bring up your suggestion / idea in the meeting, and I will phone you about it afterwards.



15 Complete the second sentence, using the keyword given, so that it has a similar meaning to the first sentence. Use 3-6 words, including the keyword.

a Mr Simmonds appears to be a strict man, but he can be very funny, too.

Mr Simmonds *comes across* as a strict man, but he can be very funny, too. (*across*)

b Following music lessons is a good idea if you want to become a professional singer.

Taking up music lessons is a good idea if you want to become a professional singer. (*up*)

c It doesn't matter that he was rude; you shouldn't have shouted at him.

However rude he was, you shouldn't have shouted at him. (*however*)

d My best friend was raised by her grandparents after her parents died.

My best friend was *brought up* by her grandparents after her parents died. (*up*)

e I have never seen a greater football player than Messi.

Messi is *the greatest football player* I've ever seen. (*the*)

f He stayed under water for five minutes, and he didn't even have to breathe.

He stayed under water for five minutes *without even having* to breathe. (*without*)

GRAMMAR

Auxiliaries (*moeten and willen*)

grammar - 25 & 26 - p. 77 & p. 78

Surely, I **should** have infinite score?

Aged eleven, I **had to** do a homework project about finding a formula.

She claimed that my parents **must** have done my homework.

I **didn't mind** helping classmates who had problems with maths.

16 Read about Ann Reynolds' relationship with mathematics. Give the English for the words in brackets.

Me, myself and mathematics

I started to dread arithmetic back in the third grade because I (**a wilde niet**) *didn't want* to memorise the multiplication tables. I (**b wilde best, use: to mind**) *didn't mind* learning how to read, but studying maths seemed to have no purpose other than to give me massive headaches and shattered nerves. The alphabet was a wonderful code, which I (**c hoefde niet**) *didn't have to* work hard to memorise. Before I could read I (**d had willen**) *had wanted* to have access to stories that would reveal all kinds of secrets about the world.

Multiplication tables, on the other hand, just told me how much six times nine was. There was no joy in knowing that and I (**e wilde liever**) *would rather* spend my time differently. Although even in third grade I understood that I shared with many other students a terrible fear and hatred of mathematics, I drew little comfort from that fact. Since then, I (**f heb moeten**) *have had to* struggle with maths for a number of reasons.

I especially began to hate maths when Sister Celine (**g liet ons – niet: to let**) *made us* participate in her sadistic counting contests. We (**h moesten**) *had to* stand in rows after which this jolly nun would shout problems at us: “Forty-eight divided by three? ... Nine times twelve?” The students who called out the correct answers fastest would win; those of us who answered wrong or not at all (**i moesten ons niet**) *shouldn't* worry, she said, but they (**j moesten**) *had to* sit down. To be honest, losing never bothered me that much.

Rather, it was that feeling in the pit of my stomach before and right after she called out the numbers. As I grew older, maths grew worse, like a persistent headache that (**k laat – niet: to let**) *makes* you want to scream to relieve the pain. Negative numbers, I thought, were simply insane. You either have *some* or *none*, I figured – not *negative some*. Fortunately, my older brother (**l wilde wel / was best bereid**) *didn't mind* talking me through the steps when helping me with my homework. Often, the rest of the class moved on to something only after they (**m hadden moeten**) *had had* to wait for me to be ready as well.

As a matter of fact, I (**n zal nog moeten**) *will still have* to understand the point of the game. Who on earth cares about determining the departure times of trains or figuring how long it will take Arthur to walk to the playground?

Though I'm nearly through with maths classes now and I (**o hoef niet**) *won't have to* carry a calculator in my purse in the future any more, I bought a book called *Mathematics for People Who Hate Math*, the other day. And I (**p zou graag willen**) *would like to* say that I've actually been enjoying the book. In architecture and engineering, in physics and electronics, even in art and music, mathematics *does* have a purpose and a meaning, so maths (**q moet wel**) *must* be important. Like the letters of the alphabet, numerical signs *can* tell stories and reveal secrets about the world. I (**r had moeten weten**) *should have known* this sooner. You know, I might even enjoy learning more about maths – on my own terms, at my own pace.

GRAMMAR

The continuous form of the tenses

 grammar - 2 & 4 & 6 & 8 - p. 55 & p. 56 & p. 57 & p. 58

Quiet, please. Daniel **is trying** to phone his parents to tell them about the Mathematical Olympiad. Daniel **emailed** a professor on an American 'Dr Maths' forum about the problems he **was facing**. For years I've **been participating** in maths competitions. When you called, I **had been trying** to find a formula for a quadratic sequence.

- 17** In this exercise you will practise the *continuous form* again. First underline the adjunct of time that determines what tense has to be used. Then fill in the correct (*continuous*) verb form.
- a When I (to watch) was watching *X plus Y* yesterday, the main character reminded me of a classmate.
 - b For 15 minutes now Daniel (to try) has been trying to convince his teacher he has found the formula for a quadratic sequence without any help.
 - c Next week Daniel (to fly) is flying to Japan for a maths contest.
 - d Look! Daniel (to jump) is jumping on his desk because he's angry with the teacher.
 - e For half an hour Daniel (to talk) had been talking about his frustrations with the teachers for not listening to his theories, when the headmaster told him he got the message.
 - f Since Daniel was accused by his professor of copying something he (to feel) has been feeling increasingly ill.
 - g When his mother entered his room, Daniel said he (to work) had been working on a trigonometry problem for two hours.

READING

- 18** Read two reviews of the film *X plus Y*. Pay attention to the words the reviewers use to describe their reactions to aspects of the film, as in the examples given. Write down seven more reactions. You may use them in the next exercise.

EXAMPLES

This *heartwarming* very British drama.

The treatment of the love affair between Nathan and Zhang Mei, the young Chinese girl he meets at maths training camp in Taiwan, is handled in *slightly sugary* fashion.

The performances are *absolutely lovely*.

SPEAKING

- 19** Give a 4- to 5-minute talk about a novel you have read. It may be a novel you have read in another language than English, as long as you liked the book. You are allowed to have a list of 25-30 keywords in front of you. Be a real reviewer and use words like the ones you've written down in the previous exercise. To help you structure your book talk, include the following.
- Title, author (plus nationality), year of publication, language of book.
 - Genre. What type of story is it? E.g. crime story, love story, horror, thriller, sci-fi, fantasy.
 - Setting. Where and when does the story take place? How important is the setting to the story?
 - Main characters. Describe them, comment on their personality, behaviour, relationships and how they change as a result of their experiences.
 - Plot. Summarise what happens; do not bore your audience with every detail.
 - What personal meaning does the book have for you? Describe your personal reactions to two scenes, the descriptions of two characters, and two others aspects of the book (the story, the ending, the theme, etc.).
 - Conclusion. Sum up what you liked about the book. Did it have any weak points?

Note!

Each of the other pupils will write down one question based on what they have heard. After the talk some pupils will put their question to the pupil who gave the talk.

3

YOU'LL BE ABLE TO

- express your own point of view and opinions clearly in a meeting, but not yet in a debate
- ask for clear factual information and pass it on
- briefly give reasons and explanations for opinions, plans and actions
- follow main points of complex academic or professional lectures, speeches and reports
- understand clearly written instructions

Grammar

- genitive: 's / s' / of
- word order

Vocabulary & expressions

You can learn these with the Study box (p. 168) and the vocab trainer.

TEXT

A new drone. Now what?



1 So you're one of the more than one million lucky souls, the *Federal Aviation Administration* (FAA) estimates, who got a drone this Christmas. Congratulations! Now what?

With most consumer drones these days, you can head straight out the door and have your new toy in the air in a matter of minutes. And your new toy would probably be in the air *only* a matter of minutes.

If you'd prefer your first time flying a drone not to include close-up shots of leaves, we suggest taking a deep breath, slowing down, and doing a few things before your maiden flight.

2 First and foremost, rip into that plastic bag holding the manual and pull it out. Then, actually read the thing. Seriously. Pay special attention to two items. First, memorize the button or sequence of buttons that initiates the 'return home' feature of the drone. This varies between manufacturers and models, but newer versions tend to have some kind of single button feature that will send the drone back to where it started. When you're first learning, this will be your most used flight control. This is also a good place to suggest you consider joining the Academy of Model Aeronautics for \$75, which, in addition to a magazine subscription, will get you some basic insurance cover should you crash.

3 The second most important part of the manual is the start-up procedure. Some drones need the controller turned on first, some the drone itself. Whatever the case with your model, make sure you know the sequence so that your drone can acquire satellites for GPS features and connect to whatever Wi-Fi or flight control system it uses.

4 Next, update the firmware. Even new drones often leave the factory without the latest updates, and you might be able to get some new features. In most cases, updating the firmware is just a matter of plugging the drone into your PC via a USB cable. Since the process varies by drone, check the manual (again, read the manual) or manufacturer's website for the precise firmware update method. Most consumers' questions will also be answered on the FAQ section of the site.

5 Okay, now you're ready for your first flight. Launch in an open, treeless area and head up a hundred feet or so right away. On most drones this means pushing the left control stick up for a few seconds. Then release and just sit there for a minute, keeping your eye on the drone. At this elevation, you should be clear of any obstacles.

6 Start by getting a feel for the basic flight manoeuvres: up, down, left, right. Pay special attention to how much the drone dips when you accelerate: With most models, you'll likely find you want a bit of acceleration as you head forward to maintain a constant altitude. Try some basic manoeuvres like a circling around in box, circle, and figure eight. This will help you understand how fast your drone responds to your input. Every drone is different, but the common thread in my experience with half a dozen different models is that gentle, slow movements are the best, safest way to fly. The last thing to remember when your drone is in the air is to relax. Small corrections, slow movements, and a cool head go a long way to making your drone a lot more fun!

Based on: www.wired.com

*Even new
drones often
leave the
factory
without the
latest
updates*

READING

- 1 (§1) The author of this text uses the phrase "a matter of minutes" twice to ...
 - ☐ emphasise the time it usually takes to launch the drone.
 - ☐ point out how easy it is to fly a consumer drone nowadays.
 - ☒ tell you with some irony that rushing to fly your drone is not effective.
- 2 (§1) What would be the correct paraphrase of the last sentence ("If you'd ... maiden flight.")?
 - ☐ For really good pictures you have to take your time and focus.
 - ☒ If you don't prepare before you start your drone may end up in a tree.
 - ☐ It is necessary to be very calm when you control your drone the first time.
- 3 (§2) What is the first thing you should learn from the manual?
 - ☒ How to make your drone fly back to you.
 - ☐ In what order you need to push a series of buttons.
 - ☐ Which version of the drone you have.
- 4 (§2) Why does the author mention the Academy of Model Aeronautics?
 - ☐ He says the Academy helps you learn to control your drone.
 - ☒ He advises that the Academy provides basic insurance and a magazine for a good price.
 - ☐ He points out that the Academy offers you help in case of an accident.
- 5 (§3) What is essential for the start-up procedure according to paragraph 3?
 - ☐ Check whether your drone has the GPS capability.
 - ☐ Check the Wi-Fi connection to control your drone.
 - ☒ The correct order of actions for your drone.

- 6** (§4) To get updates for your drone you'd better ...
- ☒ get some information from the manual or the website first.
 - ☐ get a USB cable and connect it to your drone and computer.
 - ☐ check the website if there are any new features that you want.
- 7** (§5) For your first flight you should go to ...
- ☐ a high place where there are no obstacles and sit down and enjoy.
 - ☐ any place where there are no trees and release your drone and watch it.
 - ☒ an open area and get your drone high up into the air immediately.
- 8** (§6) To keep your drone at the right altitude it is necessary to ...
- ☒ find out how much extra speed your model needs when you are moving it.
 - ☐ try making some basic manoeuvres like circles and eights when you've got it up.
 - ☐ use smooth and not too quick movements and make only small corrections.
- 9** What, according to the text, is the most important advice for beginners? Get yourself ...
- ☐ some insurance.
 - ☒ enough information.
 - ☐ lots of practice.

VOCABULARY

- 10** Fill in the right words. Choose from the list. There are two words too many.

accelerate – acquire – button – cover – estimate – launch – manual – manufacturer – sequence – tend to – toy – subscription

Ten tips for a smooth flight



-  Every drone that you buy on this website comes with a manual that contains important information.
-  Mind you, this is not a toy for children, so be careful with it at all times!
-  If you want your drone to fly, you first have to push the on/off button on the controller.
-  When you launch your drone, make sure there are no trees which your drone could hit.
-  Some specialists estimate that sales figures will rise spectacularly in the next few decades.
-  If you're not satisfied with your drone, contact the manufacturer and ask for assistance.
-  You might want to insure your drone. If so, take care that you find insurance with excellent cover.
-  Some models tend to dip when you are making manoeuvres, so make sure you keep your speed up.
-  If your aircraft goes down, you only have to accelerate to keep it up.
-  Get a subscription to the magazine of the Academy of Model Aeronautics to stay informed.

GRAMMAR

Genitive: 's / s' / of

 grammar - 18 - p. 70

Check the manufacturer's website.

Consumers' questions will be answered in the FAQ section of the site.

First, memorise the button or sequence of buttons.

11 Put the words in the right form. Use: 's, s' or of.

- a Last week I met my old friend Will in the London Underground and I decided to go to his place with him, which is next to (de bakker) the baker's in Edgware, about (een uur lopen) an hour's walk from the station.
- b He told me that he'd bought (het speeltje van zijn buurman) his neighbour's toy, a silver coloured drone in (de stad Chester) the city of Chester, which I think is very cool as I don't like (meisjeskleuren) girls' colours.
- c The reason his neighbour, whose name is Josh, wanted to sell it was a silly accident that happened in (de tuin van zijn ouders) his parents' garden.
- d He'd read in the manual that in order to control the (vlucht van zijn drone) flight of his drone he had to use the joystick located on (de linkerkant van de controller) the left side of the controller.
- e Well, he tried that, but when he accidentally touched (een van de knoppen van het controle paneel) one of the buttons of the control panel / one of the control panel buttons the drone dropped and fell into (de verjaardagstaart van zijn zus Jess) his sister Jess's birthday cake.
- f You can imagine (de reactie van iedereen) everyone's reaction / everybody's reaction. They were appalled! Especially his sister and his mum who were just having (een kopje thee) a cup of tea. He had really spoiled (de middag van de vrouwen) the women's afternoon.
- g By then (het enthousiasme van Josh) Josh's enthusiasm had declined considerably and when he checked the website, he discovered that (de vragen van de meeste mensen) most people's questions were about similar accidents.
- h The funny bit was that the drone had taken (een paar foto's van de taart) a few pictures of the cake / some pictures of the cake before it landed in it. You should have seen (het gezicht van Will) Will's face when he told me!

Word order

grammar - 13 - p. 63

You can have your new toy **in the air in a couple of minutes**.Even new drones **often** leave the factory without the latest updates.**12** Put the words and phrases in the right order to make complete sentences.**a** [decided] [Jack and I] [last week] [a drone] [on the internet] [to buy] [.]*Jack and I decided to buy a drone on the internet last week.***b** [at Jack's] [at seven o'clock] [last night] [met] [We] [.]*We met at Jack's at seven o'clock last night.***c** [always] [doing] [have] [in the evenings] [liked] [things] [together] [We] [.]*We have always liked doing things together in the evenings.***d** [didn't accelerate] [enough] [first] [he] [launched] [probably] [the drone] [When Jack] [.]*When Jack first launched the drone, he probably didn't accelerate enough.***e** [after a few minutes] [dropped] [into the pond] [It] [.]*It dropped into the pond after a few minutes.***f** [he told me] [that the repairs would cost fifty pounds] [this morning] [to Jack] [When I talked] [.]*When I talked to Jack this morning, he told me that the repairs would cost fifty pounds.***g** [a drone] [bought] [have] [I] [if I had known] [never] [the financial consequences] [would] [.]*I would never have bought a drone if I had known the financial consequences.*

EXPRESSIONS

13 **PAIR WORK** Work with a classmate. Have the conversation. Use the expressions (p. 173) for the words in italics. When you have finished, change roles, but this time use different variants of the expressions.**a** Statement: Drones are also used in wars.Reaction: (*Vraag om verduidelijking.*)**b** Statement: It is an unmanned aircraft that can take pictures and drop bombs.Reaction: (*Geef aan dat je twijfelt of ze gebruikt zouden moeten worden in een oorlog.*)**c** Question: Why do you think the use of drones is not a good idea?Reaction: (*Geef je mening: er zijn te veel onschuldige slachtoffers.*)**d** Statement: I would like to know more about drones.Reaction: (*Adviseer om op internet te gaan kijken.*)**e** Statement: Oh boy, I think I've lost my phone. Now I can't look on the internet.Reaction: (*Stel gerust en zeg dat hij/zij de jouwe kan gebruiken.*)**f** Question: Ah, thanks! I've found some pictures here. Do you know what a drone looks like?Reaction: (*Beschrijf dat hij de vorm heeft van een vliegtuig.*)**g** Statement: We should do something with this information.Reaction: (*Stel voor een artikel te schrijven voor de schoolkrant.*)**h** Statement: I think that's a great idea.Reaction: (*Geef aan dat je tevreden bent met deze reactie.*)

SPEAKING

14 PAIR WORK This exercise is a game which you can play several times. You describe an object.

USEFUL EXPRESSIONS

It's a sort of ...

It has the shape of a ...

It's what you ... to ...

It's made of ...

It has ...

EXAMPLES

Question: Is your object made of paper?

Answer: No, my object is made of light weight material.

Question: Is it a gadget that you can use in the house?

Answer: No, it isn't. It is used outside.

- Your classmate asks questions. Change roles after every turn.
- Think of an object and make a few notes of its characteristics. Also prepare some questions. You'll need them when it's your turn to ask questions. Write them down.
- Your classmate has to guess what your object is. He/she is going to ask yes/no questions in order to get clues from you. Further questions to clarify what you said may be necessary. Write down the number of questions he / she needs.
- You'll give short answers in complete sentences. Always add a clue.

Tip!

Don't give the answer away too easily. The more questions your classmate needs, the more points you get.

- Once the object's been guessed you count the number of questions your classmate has needed. These are your points.

LISTENING

15-17 Watch the video online and do the assignments that you find there. You may use the writing space below.

☐	<i>Go to the online assignment to find these answers.</i>
☐	
☐	
☐	
☐	
☐	
☐	
☐	
☐	
☐	
☐	
☐	

- 18** **GROUP WORK** You're going to have a group discussion about drones. After the discussion one of you is going to present the outcome of the discussion to the rest of the class. Then you are going to evaluate the presentation.

First make groups of three to four. Discuss the following points and take notes.
Make sure everybody gets a chance to give their opinion on all aspects.

- What are drones used for?
- Where and when are they used?
- What new purposes for this technology can you think of (e.g.: for safety, environment, companies, games)?
- What rules for the use of drones may be necessary?

Then, one of your group presents your findings to the rest of the class.

For the presenter:

- Give a summary of what you've just discussed in your group.
- Tell your class what you think of the quality of the discussion in your group. Give arguments.
- Pay some attention to your body language. Remember the tips in the video on body language.
- What does the body language of your audience tell you?

For the others:

Watch the presentations and pay special attention to body language.

REFLECTION

- 19** **GROUP WORK** You are going to evaluate the presentation. First, on your own, answer the following questions. Then discuss your answers with your group members.
- To what extent are you satisfied with your role in the discussion / presentation?
 - What would you do differently next time?
 - What did you miss in the presentation of your group?
 - What positive and negative points did you hear and see in the presentations of other groups?
 - What advice would you give your classmates who did the presentations?

4

YOU'LL BE ABLE TO

- understand important factual information in short texts
- understand the main theme and arguments in simple texts
- follow the main points of complex academic or professional lectures, speeches and reports
- write simple notes and reports passing on relevant information to friends, educators, suppliers etc.
- understand a clearly structured lecture and take notes

Grammar

- prepositions

Vocabulary

You can learn the vocabulary with the Study box (p. 170) and the vocab trainer.

TEXT

Five reasons to teach robotics in schools



“experience in trying to build and program robots gives appreciation of their capabilities and strengths”

The Wakamaru robot, designed for helping children and the elderly, leads a counting lesson.

1 Technology is critical to innovation, yet schools struggle to get students interested in this area. Could teaching robotics change this?

What is robotics?

2 Robotics is the science of designing and building robots. Essentially, a robot is a mechanical device that can be programmed to follow a set of instructions. The robot has a processing unit, sensors to perceive its environment, and motors and actuators to move its limbs or wheels. It may speak, make other sounds, or flash with lights and colours in response to the environment in accordance with the instructions.

Why should robotics be taught in schools?

3 There are a great many personal stories that students respond well in subjects involving programming of robots. Plenty of resources are available on the internet for parents and teachers to learn this, for example, robot kits such as Lego Mindstorms and Vex Robotics, simple programmable robots such as Sphero balls, and lesson plans. Sophisticated, engaging robots such as the NAO robot are also obtainable. Robots also lend themselves to do-it-yourself activities in schools. For example, a colleague builds robots using a 3D printer and uses her smart phone as an interactive device to communicate with the printed robot. Looking more closely into the why of teaching robotics in schools, I would like to list five reasons.

Reason 1: Children find it fun

4 In my experience, one of the most engaging ways of introducing IT in the curriculum is robotics. There are several robotics competitions for a range of age groups that can channel competitive instincts in a positive way. For example, asking children to build a Lego robot and then running a race to see which robot goes fastest works well.

Reason 2: It is an effective way of introducing programming to students

5 Robotics helps address the growing demand for teaching science, technology, engineering and maths in schools. As well as exemplifying technology directly by programming the robot, students learn about these subjects and get an understanding of how they link together. However, programming may be too abstract. By having to control a physical robot, students learn what robots can and can't do. On top of that, they learn the need for precise instructions.

Reason 3: It provides skills useful in future employment

6 There is no doubt that there will be a need for people to be involved in programming mechanical devices in the foreseeable future. The drone industry has taken off, to name but one example. According to *The Economist*, more than 15,000 drones are being sold in the US each month. By programming robots, students can discover if they have aptitude and interest in a job market of the future.

Reason 4: It is suitable for children with a range of abilities

7 There is considerable evidence that robots are particularly suitable for engaging with children on the autism spectrum. For instance, NAO robots have been developed to teach autistic children, who respond positively to the calm, clear, consistent interactions that robots can provide. Repetition, predictability and clear emotions work well with children on the spectrum.

Reason 5: It demystifies a complex technology

8 Many stories in the media concern robots. A report by the Committee for Economic Development of Australia warned that robots could replace 40% of Australian jobs by 2025 – which equates to around 5 million jobs over the next two decades. Understanding what machines can and can't do is the best way to address fears like these. What's more, experience in trying to build and program robots gives appreciation of their capabilities and strengths.

9 Personally, I am looking forward to more robotic help in the future.

Leon Sterling, Professor Emeritus at Swinburne University of Technology who works with The Brinary, a distributor of NAO robots in Australia

Based on: www.theconversation.com

READING

- 1 Skim the text. Look at the picture and read the title, the subheadings, the information under the picture, the first and last paragraph and the information on the author. Then answer the questions.
 - a This text ...
 - ☐ presents information and opinions about more than one side of an issue.
 - ☐ tells the reader how to do something.
 - ☐ makes clear how or why things are the way they are.
 - ☒ puts forward a particular point of view.
 - b The aim of the author is to have more ...
 - ☐ schools teach more practical lessons.
 - ☒ schools teach robotics.
 - ☐ students choose science over languages or humanities.
 - ☐ students enrol at Swinburne University of Technology.
 - c The picture of the robot and the students ...
 - ☐ explains what an educational robot is.
 - ☐ has no clear relation to the text.
 - ☒ presents one type of robot used in education.
 - ☐ shows what robots do best: teaching languages.

d Which part of the text is least developed in this text?

- ☐ the introduction
- ☐ the main body
- ☒ the conclusion
- ☐ none of the above: all parts are fully developed

2 Read the text in detail. Are the following statements true or false? Find evidence in the text for your answer. Write down the first two and the last two words of the relevant phrase or sentence. If the evidence is in one word you may write that down.

a §1 implies there may be too few students to make our society 'future proof'.

True. "schools struggle ... students interested."

b According to §2, a robot only acts and reacts in the way it was programmed by people.

True. "It may... the instructions."

c In §3 you can find the NAO robot as an example of a simple programmable robot.

False. "sophisticated"

d §4 claims that Information Technology can teach children to handle competition.

True. "can channel ... positive way."

e §5 says robotics is a concrete and thus appealing way to learn how to program.

True. "programming may ... can't do."

f According to §6, learning how to program will offer job security.

False. "have aptitude ... job market." (so no job security)

g §7 describes a range of children with various abilities.

False. "particularly suitable ... autism spectrum."

h §8 says knowing more about robotics leads to realising the true value of robots.

True. "experience in ... and strengths."

3 Answer the questions.

a Which of the five reasons for teaching robotics given in the text would you think is most convincing? Explain why.

E.g.: Reason 4 is very important because I think that all children need to get the education that suits them best.

b What do you think the author finds the most important reason. Why?

E.g.: Reason 5. He gives two arguments why this is important. What's more, the last point is usually the most important.

c What are the "fears like these" in §8? Does the author have these fears too? Explain.

The fears are that, because of the use of robots, many people will lose their jobs. The author doesn't agree, because he thinks that people are still needed to do the things that robots can't. Programming for example. "Understanding what ... address fears ..."

d Why can't Professor Sterling discuss robotics in schools independently?

He works with the distributor of NAO robots. That's one brand.

He has lost his independence by choosing to work with a distributor.

VOCABULARY

4 Find the synonyms in the text. To help you the paragraph numbers have been added.

- | | |
|---|-----------------------|
| a (§2) basically | <i>essentially</i> |
| b (§3) available information | <i>resources</i> |
| c (§3) sets of materials | <i>kits</i> |
| d (§3) refined, complex | <i>sophisticated</i> |
| e (§3) can be bought | <i>obtainable</i> |
| f (§4) study programme, contents of the lessons | <i>curriculum</i> |
| g (§5) illustrating | <i>exemplifying</i> |
| h (§6) talent | <i>aptitude</i> |
| i (§7) especially | <i>particularly</i> |
| j (§7) possibility to foresee | <i>predictability</i> |
| k (§8) explain | <i>demystify</i> |
| l (§8) is the same as | <i>equates</i> |

VOCABULARY EXTRA

Prefixes

Prefixes are short parts that are added to the beginning of a word to change the meaning. For example the word 'prefix' consists of 'pre-' (before) and 'fix' (connect). If you know the meaning of a prefix, it can help you determine the meaning of a word.



5 Every prefix has a general meaning. For example:

- | | |
|--------------------|--|
| <i>de, dis, un</i> | → do the opposite of, reverse the meaning, not |
| <i>inter</i> | → between, among |
| <i>mono</i> | → one |
| <i>mis</i> | → bad(ly) or wrong(ly) |
| <i>poly</i> | → many |
| <i>over</i> | → too much |
| <i>out</i> | → more or better |
| <i>pre</i> | → before |
| <i>re</i> | → again |

Create the words that match the description. Use a prefix (de, dis, inter, mis, mono, out, over, pre, re, un) and one of the words below.

act – appear – arranged – cultivated – informed – lasted – syllable – worked – write

- | | |
|--|---------------------|
| a could be used longer than something else | <i>outlasted</i> |
| b have been given the wrong information | <i>misinformed</i> |
| c not very refined | <i>uncultivated</i> |

- d pick up your pen and make another copy rewrite
- e short word monosyllable
- f taken care of by others prearranged
- g vanish disappear
- h when you have a burnout you're overworked
- i work together interact



6 Change the words given so that they fit in the gaps.

- a This robot is really overpriced (price). \$ 400? You must be joking!
- b Did you preheat (heat) the oven before you put in the meat?
- c You don't need to add the salt now. I think that's a misinterpretation (interpret) of the recipe.
- d This robot doesn't work. I think it needs reprogramming (program).
- e My friends are not interested in science. They dislike (like) technology.
- f There is an international (nation) conference on robotics in Florida next month.
- g You need a decoder (code) in order to watch these TV programmes.
- h This robot looks mean. It has an unfriendly (friend) face.

GRAMMAR

Prepositions

grammar - 32 - p. 85

In my experience, one **of** the most engaging ways **of** introducing IT **in** the curriculum is robotics.
Irobi can teach English conversation **through** installed programs.
There will be a need **for** people to be involved **in** programming.



7 Choose the right *prepositions*.

You should try this (at / in / from) home.
Have you ever made a robot (before / towards / since)?
Here are the parts you'll need to make one pocket-sized drunken robot.
I've had so much fun (during / for / over) the last few years!
And (among / between / without) doubt, you will have fun too.
Why not have a go (during / over / within) the holidays?

Step 1: Get your parts and tools

- 1 vibration motor (at / in / from) a pager or cell phone. You can find a similar motor on the internet though it seems distributors keep selling (from / off / out). Just about any tube-shaped vibration motor (on / with / without) two metal tabs will work.
 - 1 AG13 button cell battery.
 - 1 square inch (from / of / off) sheet tin, copper or other easy to work (about / from / with) metal sheeting. I'll be using 0.008" sheet tin (for / by / from) the local hobby store.
 - The PDF template
 - Pliers
 - Tin snips (or old crafty scissors you don't mind messing (on / over / up) to cut some tin.)
- Now that you have everything, let's get started!

Step 2: Cut the tin

Print (of / off / out) the template from step 1. Be sure to print it (against / at / to) 100% and transfer the design (at / in / to) your piece of tin. Cut it out and glue it (in / on / to) with some temporary adhesive.

Please be careful. Sheet metal can get really sharp. If you're afraid (for / of / off) hurting yourself, put on your gloves and safety goggles (before / for / since) you start.

Step 3: Make the holder for the battery

We want to make a solid connection (at / of / to) the side and bottom (at / of / off) the battery. To do that first bend the piece of tin up (at / in / into) right angles. Then place the battery (at / in / to) the middle and fold the arms (about / above / around) so it holds it securely.

Step 4: Prepare the motor

Our pager motor has two leads. One needs to be connected to each side of the battery (before / for / to) the motor to work.

If you're using a different motor, say one (at / by / with) wires, then you might need to use a soldering iron. Do not solder directly (at / in / to) the battery. Applying that much heat is dangerous and can cause the battery to burst.

Step 5: Mount the motor

Now we're going to complete the circuit (by / in / through) crimping the motor (*lightly!*) (into / from / off) the top pair of tabs. This will complete our circuit.

Then place the motor so that the bottom lead is (at / in / into) firm contact (at / to / with) the battery while the other lead is pressed (above / against / up) the metal of our tabs. (You might want to put a piece of paper or tape (near / over / towards) the top of the battery to keep our robot quiet for now.) Very carefully crimp this closed. You want the motor to stay (in / into / on) place.

Step 6: Enjoy!

If everything is working right, let it go. It should vibrate (around / beyond / over) drunkenly and only occasionally fall (about / behind / over). Make several, and have fun with them when you're (among / between / beyond) friends.

If you want to keep your robots ready (before / in front of / for) instant action, slide a piece of paper (among / against / between) the top of the battery and the motor lead. Pull it (off / on / out) when you're ready to see them go.

And don't forget: there's the robot club (at / by / with) Tim's in Leeds (at / in / on) Fridays!

LISTENING **8-12**

Watch the videos online and do the assignments that you find there. You may use the writing space below.



Go to the online assignment to find these answers.



☐	
☐	
☐	
☐	
☐	
☐	
☐	
☐	
☐	
☐	
☐	
☐	
☐	

WRITING

- 13** Choose an interesting TED talk about an innovative product. Write a short text of 75-100 words for your school paper about this product. Describe the product that you've seen in the TED talk and make clear why you find that product interesting.

EXTRA READING & WRITING

- 14** Find information on a product that is innovative and new. One long text or two shorter online texts of at least 700 words together. This could be something technical, but also a new medicine, a new type of fabric or any interesting new idea.
First write down the topic that you've chosen and the URL(s) of the site(s).
Then make a summary of the main positive aspects of the product or idea in 75-100 words.

5

YOU'LL BE ABLE TO

- write personal letters giving news and expressing thoughts about abstract or cultural topics
- read and grasp the meaning of correspondence related to your field of interest

Grammar

- indefinite pronouns: 'some' and 'any'

Vocabulary & expressions

You can learn these with the Study box (p. 171) and the vocab trainer.

Strategies

- reader orientation

TEXT

From: news@worldsolarchallenge.org

Subject: **World Solar Challenge update**

Dear Sir/Madam,

1 Traditionally, we make a big announcement about the future of the World Solar Challenge on World Environment Day. In this mailing, we will inform you about our new website, introduce our sponsors, and provide details about the next World Solar Challenge.

2 Welcome to our new home at worldsolarchallenge.org, which announces a new and exciting phase in our history. In addition to extensive information about our organisation, our website offers you the possibility to experience the World Solar Challenge more fully from your home. Take for instance the online Team Tracker, which allows you to closely follow the progress of the teams during the Challenge.

3 Our pioneer sponsor, the South Australian Tourism Commission, has once again provided seed funding for our next event. South Australian Tourism, together with the Government of the Northern Territory of Australia have ensured that together we can show the world that the bright young people of the planet are addressing the challenge of finding cleaner and greener solutions to our demand for personal mobility. We also welcome Internode, one of Australia's largest internet service providers, who have demonstrated their commitment to the event by renewing their important sponsorship contribution.

4 Since Adelaide was the host city for our first Solar Race, World Environment Day has become the key date for us to announce details of the next World Solar Challenge. Whilst the arrangements have yet to be ratified by the Board, it is proposed that the dates of the following World Solar Challenge Races will be based on the second Sunday in October. This means that preparation facilities will be available in Darwin from the first Sunday in October, and the awards event will be held on the third Sunday of the same month.

5 We can also announce that there will be no major structural changes to the design of the Challenge Class solar cars, although some areas are still to be more clearly defined. Should there be any new developments concerning design issues, they will be communicated immediately.

6 We hope you will show renewed interest in the race and we are looking forward to seeing you again.

Chris Selwood,
Event Director World Solar Challenge

READING

- 1 Read the email about the *World Solar Challenge* and answer the questions.
- a (§1) What is the function of §1 for readers? It describes ...
- ☐ an anecdote about previous editions to get the readers' attention.
 - ☒ the main topics of the letter.
 - ☐ the plans for World Environment Day.
- b (§2) The word 'our' in "our history" refers to:
- ☒ World Solar Challenge.
 - ☐ World Environment Day.
 - ☐ The South Australian Tourism Commission.
- c (§2) "Take for instance the online Team Tracker, which allows you to closely follow the progress of the teams during the Challenge." What is the Team Tracker an example of?
- ☐ The large amount of information that can be found on the website.
 - ☒ The possibilities for being involved in the World Solar Challenge from a distance.



- 2 Which two things are not yet certain in the programme for this year's World Solar Challenge? Quote the (parts of) the sentences in which these uncertainties are mentioned.

1 *The dates for this year's World Solar Challenge: "Whilst the arrangements have yet to be ratified by the Board, it is proposed that the dates of the following World Solar Challenge Races will be based on the second Sunday in October."*

2 *The design of the solar cars: "We can also announce that there will be no major structural changes to the design of the Challenge Class solar cars, although a number of areas are still to be more clearly defined."*

GRAMMAR

Indefinite pronouns: 'some' and 'any'

grammar - 21 - p. 72

I have been here for four days now. In **some** ways it seems a lot longer.
Does **anyone** know if emission taxes are effective?
Anyone can tell you that Australia is an immense country.

- 3 Read about the history of Tesla. Fill in the blanks using 'any', 'some' or a compound or phrase that contains one of these words.

Tesla Motors, Inc. is an American automotive and energy storage company. (Wie dan ook)

Anyone knows that Tesla first gained widespread attention following their production of the Tesla Roadster, the first fully electric sports car. It was named for the famous inventor and electrical engineer Nikola Tesla.

It must have escaped hardly *anyone* that Tesla Motors has seen an enormous growth over the last few years. The company's sales have increased by *some* 1000% over the last three years. Anyone who ever drives a Tesla, will be impressed by its luxury and its power. There isn't *any* car to match it at the moment.

Tesla currently builds *somewhere* in the range of 4000 cars a month. It was founded in 2003 by Martin Eberhard and Marc Tarpenning, who played an important role in the company's early development, until *someone* called Elon Musk took over the main

executive functions. Somehow Tesla has grown ever since, and is currently a thriving company. It seems that Tesla can be successful anywhere in the world, since it now has factories in North America, Asia and Europe.

Based on: www.wikipedia.org

VOCABULARY

4 Complete the sentences below with one of the following words. There are three words too many.

agriculture – announcement – appoint – arrangement – assure – board – ensure – exhausted – propose – startle – sue

- a I need you to assure me that you will pay me back my money this week. I want to ensure that I'll have enough money for the festival next weekend.
- b After a long meeting, the board has decided to put the plans into effect.
- c My employer and I have agreed on a(n) arrangement about how many hours of working overtime are acceptable per month.
- d Our school is going to appoint a new English teacher.
- e I need to go now. I propose that we continue this conversation tomorrow.
- f The computer company is going to sue him for stealing online data.
- g It won't be long until all the world's oil reserves have been exhausted.
- h I'm sorry for barging in like this! I didn't mean to startle you.

EXPRESSIONS

5 Learn the expressions (p. 173), then do the assignment. Use the expressions you've learned to formulate the following fragments of an email about solar energy.

- a Begin een *formele brief*: leg uit dat je schrijft naar aanleiding van het krantenartikel over zonne-energie.

I am writing with reference to the newspaper article on solar energy.

- b Schrijf dat je vindt dat deelnemers aan de *World Solar Challenge* erg veelzijdig moeten zijn. Onderbouw je mening met het voorbeeld dat ze iets moeten weten van auto's, maar ook andere talen moeten spreken. Schrijf vier varianten van deze zin op, dat wil zeggen: druk de onderbouwing van je mening op vier verschillende manieren uit.

Participants in the World Solar Challenge have to be very versatile.

– Take for example the fact that they need to know about cars, but also have to speak some other languages.

– To give you an idea: they need to know about cars, but also have to speak some other languages.

– For example: they need to know about cars, but also have to speak some other languages.

– For one thing, they need to know about cars, but also have to speak some other languages.

- c** Het is goed is dat de *World Solar Challenge* bestaat. Het probleem is echter dat de meeste mensen nog in auto's op fossiele brandstof rijden. Schrijf twee varianten van deze zin; beschrijf twee manieren om het probleem te *benadrukken*.

- It is a good thing that the World Solar Challenge exists. But the real problem, however, is that most people still drive cars on fossil fuels.

- It highlights the problem that most people still drive cars on fossil fuels.

- d** Iemand schrijft: "The *World Solar Challenge* is a great way to promote environmental awareness." Je wilt aangeven dat je het *ermee eens bent*, maar *maak een kanttekening* dat sommige deelnemers meer geïnteresseerd zijn in winnen dan in het milieu. Schrijf vier varianten van deze *kanttekening*.

- I agree, but I'd like to remark that some participants are more interested in winning than in the environment.

- Mind you, I do think that some participants are more interested in winning than in the environment.

- On the other hand, some participants are more interested in winning than in the environment.

- That may be so, but some participants are more interested in winning than in the environment.

- e** Druk uit *dat je zeker bent* dat de *World Solar Challenge* een positief effect heeft op milieubewustzijn.

Certainly, / Undoubtedly, / Doubtless, / Definitely, / There's no doubt that ... the World Solar Challenge has a positive effect on environmental awareness.

- f** Je vindt dat de *World Solar Challenge* het beste technische evenement ter wereld is. Druk je *mening* op vijf manieren uit.

In my opinion, / In my view, / For me, / To my way of thinking, / It seems to me ... that the World Solar Challenge is the best technical event in the world.

- g** Laat weten dat je *ernaar uitziet zijn antwoord te ontvangen* en schrijf een passende afscheidsgroet.

I look forward to receiving your reply. Best wishes, naam (your name) / Kind regards, (your name) / Yours, (your name) etc.

WRITING

- 6** You are going to write an email about the *World Solar Challenge* to a friend who is doing a teaching internship at a secondary school.
- Beschrijf (in de subjectregel) het onderwerp van de e-mail in maximaal vier woorden.
 - Schrijf een passende aanhef.
 - Schrijf in de eerste alinea dat je schrijft om informatie te geven over een evenement genaamd de *World Solar Challenge* en waarom je dat doet: je denkt dat het voor haar een interessant evenement is.

- d Schrijf dat de *World Solar Challenge* een opwindende race is met auto's die rijden op zonne-energie, over 3000 kilometer. Benadruk dat het echter vooral gaat om te laten zien wat er technisch allemaal mogelijk is met duurzame energie. Schrijf dat de race daarom ook erg interessant is voor scholen. Noem als voorbeeld het zogenaamde Schools Programme, waarmee leerlingen zelf leren werken met zonne-energie.
- e Schrijf dat de *World Solar Challenge* op de eerste zondag in oktober begint in Darwin en eindigt in Adelaide op de derde zondag in oktober. Schrijf dat de race daartussenin negen Australische plaatsen aandoet, zoals Alice Springs en Port Augusta. Schrijf dat je graag wilt opmerken dat de *World Solar Challenge* dus ook mogelijkheden biedt om meer te weten te komen over Australië. Schrijf dat je zeker bent dat leerlingen de *World Solar Challenge* interessant zullen vinden.
- f Als er nog iets is dat de ander nog wil weten, dan geef je graag nog meer informatie.
- g Schrijf een passende afsluiting.

STRATEGY Reader orientation

To decide which information to include, you can ask yourself the following questions:

- How much does the reader already know about the topic?
- Which information is absolutely necessary for the reader? Which information is not necessary, but nice to know? And which information is irrelevant?

- 7** You are going to write an email in which you give information about an event or product which you think is very innovative.

First, plan your letter (a, b, c), then write the email (d).

- a Write down the name of the event or the product you would like to write about.
- b Write down whom you would like to inform about this event. For instance: a friend, the editor of the school newspaper, the administrator of your favourite website, etc.
- c Decide which information to include in your email. Write down at least three points of information.
- d Write the email that you planned.
 - Follow the guidelines for writing emails.
 - Write an introductory paragraph in which you explain your purpose for writing and give a short description of the main topics (= points of information) of your letter. Write at least three sentences.
 - Write a paragraph for each point of information. Write at least three paragraphs with a total of at least twenty-two sentences.

REFLECTION

- 8** **GROUP WORK** Work together with three classmates. Read each others emails (assignment 7).
- a Work individually first. Provide feedback for each of the emails written by your group members for structure and for reader orientation.
 - b As a group, select the best of the four emails in your group. Make a short presentation in which you:
 - describe the structure of the best email: the topic of each paragraph;
 - show how the information in the email is relevant to the reader;
 - divide roles: who will say what during the presentation?
 - c As a group, present the best email to the class.
 - d Revise your own email for structure (each paragraph should have a specific topic and/or function) and language, taking into account the feedback of your classmates.

Study box unit 4

Lesson 1

ENGLISH

The nurse will administer the drugs to the patient.
Have you assembled that model plane all by yourself?
Don't attribute everything to bad luck.
Scientists have made a new medical breakthrough .
You might come across some old friends at the reunion tomorrow.
That scientist is committed to helping young inventors.
This invention dates back to the first decade of the 21 st century.
I am sure that you will enjoy yourself to your heart's content .
Don't give up too soon, just explore your opportunities.
Solar panels generate energy.
Some parts of the world grapple with overpopulation.
Improvement in technology helped Tesla succeed.
That inventor is known for his innovative solutions.
Do you have any other projects in the works ?
This is the machine that measures your heart rate.
He couldn't finish his invention on account of money issues.
I am afraid that things are going at a rather slow pace .
He wants to take out a patent on his new invention.
Because of the weather we had to postpone our plans.
Is difficult to predict who will win the young inventors award.
Your remark that the experiment has failed is a bit premature .
The jury was stunned by the teenager's invention.
What is your take on her new plan?
We left home at eight and arrived towards ten.
The invention will be used for vehicles , especially trucks.

DUTCH

toedienen
in elkaar zetten
toeschrijven
doorbraak
toevallig tegenkomen
zich inzetten voor
decennium
volop genieten
verkennen
opwekken
kampen met
verbetering
vernieuwend
in de planning
meten
vanwege
tempo
octrooi
uitstellen
voorspellen
voorbarig
stomverbaasd
mening over
tegen
voertuig

DUTCH

aankomen
aanpakken
aanwijzingen
afspraken hebben met
afspreken
afwisseling
balie
beledigend
benaderen
beschouwen als
d.w.z.
eigenwaarde
enorme invloed
gemeentehuis
goed van pas komen
huisarts
ijdel
(markt)onderzoek
merk
met betrekking tot
methode

ENGLISH

I always put on a few pounds during the holidays.
As a teacher you sometimes have to handle difficult situations.
We gave directions to the driver.
Why does she date older boys?
Let's arrange to meet in front of the station.
I like a holiday with a lot of variety .
Perhaps the man behind the counter can give us that information.
I'm fed up with your offensive comments.
There are more ways to approach this problem.
She regarded his remark as an insult.
I want a more realistic price, i.e. (that is) one that is lower.
Being good at school may boost your sense of self-esteem .
His grandfather's death had an impact on him.
The post office is opposite the town hall .
An umbrella would come in handy now.
I'm going see my GP about my headache.
She's too vain to wear glasses.
We are doing a survey on smoking.
What make of car does your dad have?
How's your interest with regard to world politics?
He had a unique approach to solve certain maths problems.

ondernemer	She's a successful entrepreneur with an eye for business opportunities.
onverschillig	She was indifferent to him, which was rather painful.
opladen	Can you charge my battery for me, please?
overschatten	Sorry, but I think the work of that artist is highly overrated .
oversteken	We can cross the street over there.
overstroming	The flood had reached the first floor of most houses.
serie	I'm following an exciting series on TV.
spijbelen	If you play truant , you will be severely punished.
uitbuiting	Inventors are often victims of exploitation by big companies.
verminderen	In my street cars must reduce speed to 30 km/h.
vermogen	He has the ability to put people's minds at ease.
voetganger	This is a pedestrian -only boulevard.
voordeel	What are the advantages of being an inventor?
voordringen	She tried to jump the queue at the cash desk.
vorderingen	Is Alexis making any progress on her new invention?
vreemd	Nobody understands his odd ideas.
wilskracht	Running a marathon is also a question of willpower .
zelden	We rarely see each other these days.

Lesson 2

ENGLISH

DUTCH

Is this the price we have to pay or are there additional costs?	extra
Tim is better at arithmetic than at foreign languages.	rekenen
When my mum finds out, she'll berate me for it.	een uitbrander geven
Our decision should be free of bias and based on facts.	vooordeel
Dad tried to catch me out with his questions but I stuck to my story.	iemand op een fout/leugen betrappen
She called him a crank because of his strange theories and ideas.	rare vogel
The current prices of houses are quite high.	huidig
Most countries denounce terrorist acts.	veroordelen
She was annoyed and looked at him with a disdainful look.	minachtend
We were dismayed by the exam results.	ontsteld
Can you elaborate on that terrible statement you've just made?	dieper ingaan op
Can you explain this difficult equation for me, please?	vergelijking (wiskunde)
He intends to extract all information from the world around him.	halen uit
She'll go berserk when she hears she's failed her exam.	door het lint gaan
He plays one of the two major roles in the film.	belangrijkste
He pointed out to us that we might return later than expected.	erop wijzen
These works of art that must be kept for posterity .	nageslacht
Daniel hated to be put down by his teacher.	vernederen
The vet had to put down our 15-year-old dog.	afmaken
I've read an interview with that renowned mathematician.	beroemd en gerespecteerd
He is a resident of the Isle of Man.	inwoner
The songs will be played in a random sequence .	volgorde
Sometimes they simplify novels so that children can also read them.	vereenvoudigen
The company tried to sweep the evidence under the carpet .	(iets) in de doofpot stoppen
He is known for his skills and untainted reputation.	smetteloos

DUTCH

ENGLISH

(zich) aanpassen	She can easily adapt to new circumstances.
benadrukken	I want to stress the importance of learning languages.
beu zijn	I'm fed up with your excuses for being late all the time.
de moeite waard	This is a worthwhile film about Asperger's.

duidelijk	It's obvious that we will lose if we play as badly as this.
een bezoek brengen	Let's pay Steve and Ava a visit .
een op een	He had a one-to-one class in maths.
erop staan dat	I insist that you let me buy you a drink.
erop wijzen	I'd like to point out that there are a few risks with that plan.
gaan doen aan (sport, hobby, etc.)	When I stop playing tennis I'll take up running.
gehoorzamen	That child doesn't obey her parents at all.
gekochte	My recently purchased phone is not working properly.
harder zetten	Can you turn up the radio, please? It's my favourite song.
het verhaal speelt zich af	The story is set in the south of England.
hoofdpersoon	Who is the main character in the film <i>X plus Y</i> ?
immers	Why call Rick? After all , he won't join us anyway.
in goede conditie blijven	What do you do to keep in shape nowadays?
in plaats daarvan	We didn't go to the pub. Instead , we went to the cinema.
integendeel	Do you hate this music? – On the contrary , I love it.
minderheid	Only a minority of people have been to see that film.
opdagen	He didn't turn up at the party until 11.39 p.m.
oppakken (figuurlijk)	We will take up your suggestion and carry it out.
opvoeden	He's had to raise his children all by himself.
overweg kunnen	How are you and Dennis getting along ?
plaknotitie	Put sticky notes on the most important pages of your book.
prikkelbaar	She's rather touchy today so be careful what you say.
spanning	Is there a lot of suspense in the film you saw last night?
spoedig	I'm sure the others will follow us before long .
stoornis	A mental disorder is usually first diagnosed in childhood.
ter sprake brengen	I hope he will bring up the matter with his boss.
toevallig (zien, tegenkomen)	You may come across some old friends at the reunion tomorrow.
toevallig	Incidentally , I met your brother at a party last night.
uiteenlopend	The problems we're facing are diverse .
uitzonderlijk	Winning a medal in a maths Olympiad is an exceptional achievement.
verdragen	I can't bear the suspense!
verkwisten	Sorry, but I think they waste a lot of time on meetings.
verzonnen	All of the characters in the story are fictional .
voorspellen	It's hard to predict the outcome?
vorderen	How's the band you play in getting along ?
waardevol	My teacher has given me some valuable advice.
zich aanmelden (voor iets)	Why don't you sign up for our digital newsletter?

Lesson 3

ENGLISH

This car has excellent **acceleration**.

He had underestimated the **backlash** from his angry fans.

There was a **collision** of two drones in the sky.

There was a **complimentary** bottle of wine in our hotel room.

The **decline** of the economy led to a lot of poverty.

We were given info about the **elevation** and the speed of our plane.

I don't fully **grasp** what the manual says. Can you help me?

Not being allowed to enter his school is a **harsh** punishment for him.

The police have not given any information about the **inquiry**.

We made a tour of a **medieval** castle.

He took out a **mortgage** to finance his film.

DUTCH

versnelling

negatieve reactie

botsing

gratis

achteruitgang

hoogte

begrijpen

streng

onderzoek

middeleeuws

hypotheek

I can't say that your bedroom looks neat and tidy, son.	netjes
He couldn't finish his invention on account of money issues.	vanwege
Lots of employees change their sitting posture .	lichaamshouding
Drones are predominantly bought by men.	voornamelijk
Unemployment rates have gone up this year.	cijfers
Do you recollect the time we flew in a helicopter?	zich herinneren
My dad had some reservations about buying a drone.	twijfels
The novel, on which the film is based, retails for €20.	te koop zijn voor
When he fought his opponent, he was ruthless .	meedogenloos
She tried to squeeze all the juice from the orange.	persen
On the motorway there was a 5-kilometre tailback .	file
Are you always so uptight before an exam?	zenuwachtig
Can you wrap this present in paper for me, please?	inpakken

DUTCH

ENGLISH

aan een verzoek voldoen	I am afraid we cannot comply with your request .
aandacht besteden aan	The program will cover two subjects.
aangesloten	Take care that the device is plugged in .
abonnement op	Do you have a subscription to the newspaper?
bedieningspaneel	Do you know how to operate this control panel ?
besturing	Now, activate the drone's control .
betaalbaar	The longer you wait, the more affordable drones will become.
bij voorkeur	He wants to move to another part, preferably the South.
bovenal	First and foremost , read the manual before using the drone.
dekking	I only have some basic insurance coverage .
een belangrijke bijdrage leveren	Small donations can go a long way .
fabrikant	Manufacturers have produced 15% more cars this year.
geneigd zijn om	Deborah tends to be emotional when she talks about her children.
handleiding	To operate the drone first read the manual .
kenmerk	What are the characteristics of a military drone?
knop	Press the red button for take-off.
lanceren	I usually launch my drone in a treeless field.
luchtvaart	As a pilot he works in the aviation industry.
mild en voorzichtig	Start the massage with gentle movements.
minder belangrijk	We only have a few, minor problems.
omlaag gaan	Manufacturers expect sales not to dip .
onbemand	Lots of aircrafts are unmanned nowadays.
ongetwijfeld	He will undoubtedly come round if he promised to do so.
reeks	On the control panel there is a sequence of buttons.
rode draad	Expertise and service form a common thread through our activities.
scheuren	She was eager to rip the bag open.
schoolkrant	In the school paper there are articles about computer science.
speeltje	For a lot of adults a drone is an interesting toy .
tegenwoordig	I don't often see Ralph these days .
ten goede	The situation hasn't changed for the better .
tenminste	At least , that's what I think.
uitrusting	Do you take your diving equipment when you go on holiday?
variëren	The diamonds vary in size.
verbieden	Do you think they should ban drones in residential areas?

verder, bovendien	She's kind. Furthermore , she's talented.
vergelijkbaar met	The situation in the Netherlands is comparable to that in England.
verkrijgen	By offering great service a company can acquire a good reputation.
versnellen	Manufacturers are trying to find ways to accelerate the process.
vrij van	Today the car park has to be kept clear of cars.
woonwijk	I live in a residential area of a busy town in Spain.

Lesson 4

ENGLISH

DUTCH

To study robotics interest and aptitude would be welcome.	aanleg
Good English fluency is an asset if you want to work for this company.	voordeel
There are a lot of jobs at stake with the coming of robots.	op het spel
I don't understand her aversion to technology.	afkeer van
This school caters for children with learning difficulties.	bedienen
Soon a robot will do my chores in the house, I hope.	taken
Robotics has seen consistent high growth.	constant
Will robotics become part of the school curriculum ?	leerplan
This book aims to demystify the complex world of robotics.	verduidelijken
Do you derive much pleasure from playing music?	ontlenen aan
Will there be fewer drawbacks of living alone if you have a robot?	nadeel
Customers equate the name of this product with quality.	gelijkstellen
Success does not always equate to wealth.	gelijk staan aan
That young man's invention will exceed the experts' expectations.	overtreffen
These new buildings exemplify the city's economic growth.	als voorbeeld dienen
You need to gather more information before you start.	verzamelen
During the building of this machine his advice was invaluable .	van onschatbare waarde
You can take a band aid from that medical kit over there.	doos, pakket
The prices they charge for their service are absolutely outrageous .	buitensporig
A robot can perceive its environment by means of sensors.	waarnemen
My mum complains my dad is too much preoccupied with his work.	in beslag genomen door
I have no reason to question her side of the story.	in twijfel trekken
Have you been able to resolve the conflict?	oplossen
He's supposedly ill, but I have my doubts.	zogenaamd
Does the figure have the shape of a circle or a triangle ?	driehoek

DUTCH

ENGLISH

aanpakken	It won't be easy to address that problem efficiently.
aantrekkelijk	I'm told social robots have appealing advantages.
afstandsbediening	Can you pass me the TV remote control , please?
bedoeling	Sorry, it was not my intention to hurt you.
betreffen	Many articles in the papers nowadays concern robots.
bezwaar maken tegen	Why do you object to your son buying a robot?
boeiend	Visiting a factory of social robots was an engaging experience.
communiceren met	These robots are used to engage with elderly people.
ernstig	She sometimes suffers from severe headaches.
geduld	Teachers should have patience with their pupils.
handig	Having a robot to do the household chores is convenient .
heeft een enorme vlucht genomen	The drone industry has really taken off .
herstellen	We've been able to restore our damaged relationship.
in dienst hebben	These two companies employ 2,500 people.
in wezen	Essentially , school subjects should be useful and not fun.

keuze	Failure is no option in this company.
kijker	How many viewers have seen the documentary?
knipperen (van licht)	Why is he flashing the lights of his car?
ledematen	A motor enables a robot to move its limbs .
middel	A school should have enough resources to educate its pupils.
mogelijkheid om te ontwikkelen	He's got a lot of potential .
nabij	We will see sophisticated devices in the foreseeable future.
neerkomen op	The damage will amount to \$700.
niets vermoedend	Unsuspecting internet users were being hacked.
opscheppen	She likes to boast about her children's achievements.
overslaan	I think I'll skip breakfast today.
perron	The train leaves from platform 6b.
rekenen op	Can we always rely on a robot in the house?
verkeerd ingelicht	I'm afraid you have been misinformed because it's not true.
verkrijgbaar	These books are no longer obtainable , I'm afraid.
vernieuwing	Real innovation creates value for which customers will pay.
volgens	According to the minister, lots of jobs will be created.
volgens (wet, regel)	You should have acted in accordance with the instructions.
voorspelbaarheid	The predictability of evening rain around here is high.
waarschuwen	I'd like to warn you against the risks of cybercrime.
worstelen	Some schools struggle to survive because they have so few pupils.
zich lenen voor	Will robots also lend themselves to activities in water?
zielig	I find the way you bullied her really pathetic .

Lesson 5

ENGLISH

DUTCH

Drive carefully because there's a sharp bend in the road over there.	bocht
He made a bold attempt to break the previous record.	dapper
I can't see well through this blurred screen.	wazig
I don't quite comprehend these technical details.	begrijpen
The newspaper had distorted his words.	verdraaien
The driver of the car was distracted by a mosquito in his car.	afgeleid
Please, enclose a passport photo when you write us.	bijsluiten
The intern seemed far too young to be competent.	stagiaire
Turn left at the junction .	kruispunt
I was talking to a solar car manufacturer .	fabrikant
I need some pincers to cut these wires.	nijptang
We can't take that preposterous accusation seriously.	belachelijk
How do we proceed from here?	verder gaan
We'd like to propose a few necessary changes.	voorstellen
It's not wise to take rash decisions.	overhaast
When will two companies ratify the renewed contract?	bekrachtigen
There are a number of rules and regulations for owners of solar cars.	voorschrift
You have to be resourceful to come up with an original solution.	vindingrijk
We stayed in a self-catering cottage during the holidays.	met een keuken
Are the new changes temporary or structural ?	blijvend
Please, submit your application form before 1 July.	indienen
The angry customer said he'd sue the car manufacturer.	aanklagen
The driver jumped out of the racing car whilst he was still driving.	terwijl
She had prepared a lot for that exam. Yet , she didn't pass it.	niettemin

DUTCH

ENGLISH

aanklagen	They're going to sue him for cheating.
aankondiging	Have you seen the announcement about the solar race?
aanstellen	I hope they'll appoint a better manager than the previous one.
afhankelijk zijn van	We depend on the weather.
afpraak	Arrangements about the yearly payments have been made.
afval	Please, put your rubbish in that bin over there.
autoband	Oh, dear. I've got a flat tyre .
bestuur	The board has ordered the plans to be carried out immediately.
broeikaseffect	The greenhouse effect is a serious environmental problem.
duurzaam	A bike is the most sustainable means of transport.
evenement	Is the World Solar Challenge an annual event ?
garanderen	The government has ensured that polluters will pay more tax.
gereedschap	What tools do you need to repair my bike?
gewas	They grow crops like lettuce and tomatoes.
iets ongestraft kunnen doen	Did he really get away with fraud?
kernafval	Where does the nuclear waste from the power plant go?
landbouw	How much of the land is used for agriculture ?
mensheid	Mankind has always been fascinated by fire.
miezeren	I love Paris in the winter when it drizzles .
milieubeschermer	Environmentalists are against drilling for oil.
milieu	We should do more to keep the environment clean.
mits	We will proceed as planned, provided it doesn't start to rain.
omzet	What's the annual turnover of this company?
ondertussen	It was raining. In the meantime , we had to wait.
ontwijken	Please, don't try to evade the question.
oogst	I hope we'll have a good harvest this year.
opgeschrikt worden	I don't like to be startled by sudden noises.
opwindend	Wearing VR glasses was a thrilling experience.
schaars	Tomatoes are scarce this year, due to the weather.
schadevergoeding	Are you going to claim damages against them?
(laten) schrikken	I didn't mean to startle you.
spuiten	They always spray chemicals on crops, don't they?
stage	I'm doing an internship in Leeds to improve my English skills.
stuur (auto)	Keep your hand on the wheel while driving!
ten goede komen van	The new government plans are expected to benefit the environment.
tenzij	We will proceed as planned, unless it starts to rain.
uitdaging	It's a challenge to have less pollution each year.
uitgeput	The drivers were exhausted after the Solar Race.
uitlaatgassen	Emission gases will make the greenhouse effect worse.
uitvoeren	When are they going to carry out their plans?
veelzijdig	She's a versatile actress who can play any role she is asked to play.
vervuiling	Factories are responsible for much of the pollution in the world.
voorstellen	It is proposed that the Solar Challenge Races are in October.
zogenaamde	I don't believe his so-called accident as an excuse for being late.
zonne-energie	More and more, solar energy will replace fossil fuels.

EXPRESSIONS

Adviseren *Giving advice*

You should ...

We'd better ...

If I were you, I'd ...

I'd like to suggest we ... (put the trip off until tomorrow.)

May I give you some advice?

Benadrukken van een probleem *Emphasising a problem*

It raises the problem that ...

The real problem is ...

It highlights the problem that ...

Beschrijven van een voorwerp *Describing an object*

It's a sort of ...

It has the shape of a ...

It's what you ... to ...

It's made of ...

It has ...

It is used to ...

Brieven: een formele brief beginnen en eindigen *Letters:*

starting and ending a formal letter

I am writing with reference to ...

I look / am looking forward to receiving your answer.

Geruststellen *Reassuring somebody*

Surely, it can't be that bad.

Don't worry.

There's no need to be upset.

Everything is all right.

You'll be fine!

Gesprek beëindigen *Ending a conversation*

I hope you don't mind, but ...

It's been very interesting talking to you, but ...

... I really must be off now.

... I'm afraid I'll have to go now.

Look after yourself! / Take care! / See you next week! / Bye!

Kanttekening maken *Making a critical remark*

I'd like to remark that...

Mind you, I do think that ...

On the other hand...

That may be true, but ...

Mening geven *Giving your opinion*

In my opinion ...

I think ...

I'm sure that / convinced that ...

I'm of the opinion that...

As far as I'm concerned ...

In my view, ...

To me, ...

It seems to me that, ...

Voorbeeld geven bij een mening *Giving an example to support your opinion*

For example / for instance, ...

Take for example, ...

Take the way (he) ...

For one thing, ...

To give you an idea ...

Tevredenheid uitdrukken *Expressing satisfaction*

I'm pleased with ...

I'm satisfied about ...

I like ...

I'm happy ... (with the result.)

Twijfel uitdrukken *Showing doubt*

I doubt if ...

I wonder if ...

I'm not sure if ...

It's doubtful / uncertain if ... (legalisation of gambling is a good idea.)

Verduidelijkende vragen *Asking for clarification*

I beg your pardon?

Would you mind repeating that, please?

Sorry, I don't follow you / didn't get your point.

What was that again?

Could you say that again/ Could you be more explicit, please?

Do you mean ...?

Does this mean ...?

Why is it that ...?

Can you explain why ...?

You lost me, I'm afraid.

Iets voorstellen *Suggesting something*

What about ... (telling him the truth?)

What if we ... (asked Mary?)

We might ... (tell him the truth.)

Why don't we ... (ask Henry?)

Let's ... (try once more.)

Zekerheid uitdrukken *Expressing certainty*

I'm (utterly) convinced ... (you'll solve the problem.)

I'm (absolutely) sure ...

I'm certain that ...

There's no doubt that ...

Certainly, ...

Of course, ...

Undoubtedly, ... / Doubtless, ...

Definitely, ...

GRAMMAR

Tenses

 grammar p. 54-64

Auxiliaries (*moeten* and *willen*)

 grammar p. 77 & 78

The continuous forms of the tenses

 grammar p. 55-58

Genitive

 grammar p. 70

Word order

 grammar p. 63

Indefinite pronouns 'some' and 'any'

 grammar p. 72

Notes