

Robots: for better... or for worse

Projects



You run a business.
Debate the introduction
of robots in your
company.



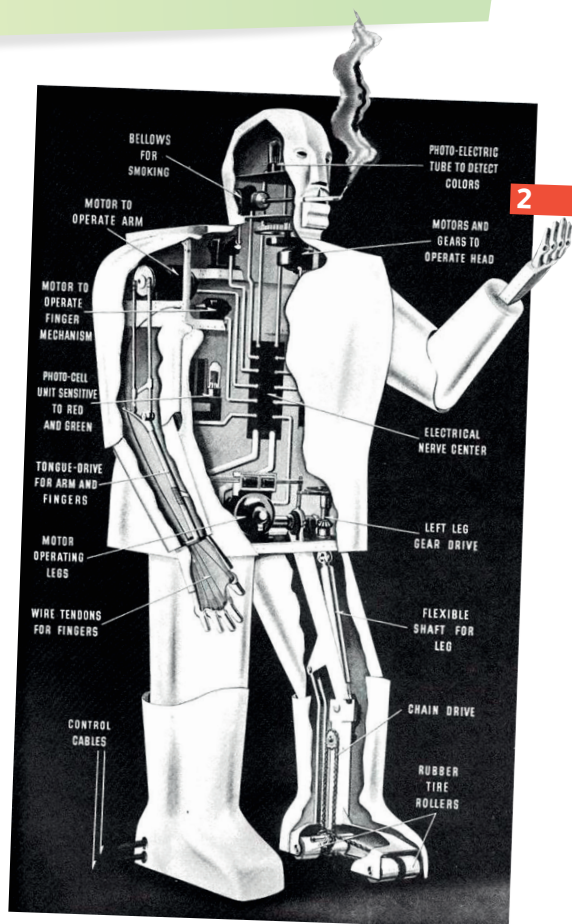
You are a journalist for a
science magazine. Write an
article on the impact of the
introduction of robots.

Rise of the robots

A Elektro & Steam man

1 In 1868, American author Edward S. Ellis wrote about a prodigy that constructed an automaton called the Steam Man, the first American robot.

"It was about ten feet in height, measuring to the top of the 'stove-pipe hat,' which was fashioned after the common order of felt coverings, with a broad brim, all painted a shiny black. The face was made of iron, painted a black color, with a pair of fearful eyes, and a tremendous grinning mouth. A whistle-like contrivance¹ was made to answer for the nose. The steam chest proper and boiler were where the chest in a human being is generally supposed to be, extending also into a large knapsack² arrangement over the shoulders and back. A pair of arms, like projections, held the shafts³ and the broad flat feet were covered with sharp spikes⁴, as though he were the monarch of baseball players. The legs were quite long, and the step was natural, except when running, at which



time, the bolt uprightness⁵ in the figure showed differed from a human being.

"In the knapsack were the valves, by which the steam or water was examined. In front was a painted imitation of a vest, in which a door opened to receive the fuel, which, together with the water, was carried in the wagon, a pipe running along the shaft and connecting with the boiler.

<https://www.syfy.com> ■

1 Look at the illustration. Describe Elektro and list what he can do.

2 Read the text. List what makes Steam Man look human and explain how he is powered. Draw your version of this robot.

3 **CONNECT.** Use both documents to comment on the way men imagined the first robots.

20 1. device 2. backpack 3. metal or wooden pieces attaching a horse to a vehicle 4. pointed objects 5. rigid straightness

B On the origins of robots



History of robots

Video <https://youtu.be/2GxbXcPGhDg>



e-worksheet

hatier-clic.fr/21amc1t-ns04



- 1 Watch the video and comment on the images of the montage and what they mean about the evolution of robots.
- 2 List the different stages of this evolution and give examples of robots. Explain how people view them.
- 3 Read *Let's focus on...* p. 42 and present the Turing test.
- 4 **Phonology** Listen and repeat the following words: *elaborate*, *navigate*. Which syllable carries the main stress?
- 5 Imagine and ask each other four new questions for the Turing test.

C Teaching robots right from wrong

You're rushing across the school parking lot to get to your first class on time when you notice a friend is in trouble. She's texting and listening to music on her headphones. Unawares¹, she's also heading straight for a gaping hole in the sidewalk. What do you do? [...]

To figure out the best solution, such a decision balances the effects of your choice. It's an easy decision. You don't even have to think hard about it. You make such choices all the time. But what about robots? Can they make such choices? Should a robot stop your friend from falling into the hole? *Could it?*

Not today's robots. They simply aren't smart enough to even realize when someone is in danger. Soon, they might be. Yet without some rules to follow, a robot wouldn't know the best choice to make.

So robot developers are turning to *philosophy*. Called ethics, it's a field in which people study differences between right and wrong. And with it, they are starting to develop robots that can make basic ethical decisions. [...]

Such research should help robots of the future figure out the best action to take when there are competing choices. This ethical behavior may just become part of their programming. That will allow them to interact with people in safe, predictable ways. In time, robots may actually begin to understand the difference between right and wrong. [...]

The most famous set of rules for robots comes not from research but from a science fiction story by Isaac Asimov. "Runaround," published in 1942, features two men and Robot SPD-13, nicknamed "Speedy." They're sent to the planet Mercury in the year 2015. Speedy is programmed with three basic rules:

- 1) A robot can't hurt a person or, through inaction, allow a person to get hurt.
- 2) A robot must obey people, as long as this doesn't break the first law.
- 3) A robot must protect itself, as long as this doesn't break the first two laws.

In later robot stories, Asimov added a "zeroth" law: A robot can't harm² humanity or, through inaction, allow harm to humanity.

Asimov's rules sound good. But the story shows that such simple rules may not be enough. [...]

These rules would certainly compel³ a robot to rescue your friend. But they wouldn't help a robot decide what to do if two people were about to fall and it could only save one. The robot also wouldn't try to rescue a kitten.

It's very difficult to write a set of rules that will apply in all possible situations. For this reason, some scientists instead build robots with the ability to learn ethical behavior.

Kathryn Hulick, *Science News For Students*, April 20th, 2017

1. not knowing 2. damage 3. force

- 1 Mime or draw what is happening in the first paragraph.
- 2 Rephrase Asimov's three laws of robotics and say if they are ethical or not.
- 3 Explain if today's robots are capable of making ethical choices.
- 4 **Grammar** Observe the following sentence: *Asimov's rules sound good. But the story shows that such simple rules may not be enough.* Pick out the modal auxiliary. Rephrase the sentence by using one of the following adverbs: *probably* – *certainly* – *perhaps*.
- 5 You are part of the ethics committee of a large robotics industry. Write five rules for today's robots.



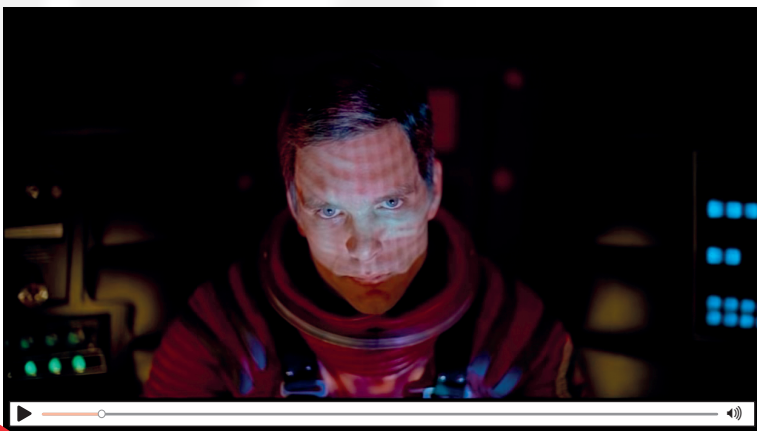
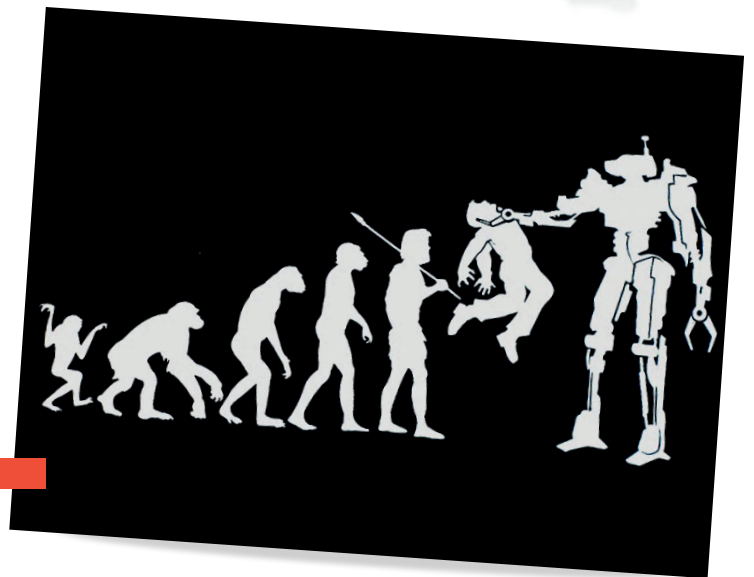
I'll be back



A Evolution or revolution?

PAIR WORK

- 1 Describe your document and comment on the layout, the colours, the characters. Highlight the evolution of the place of robots in our lives.
- 2 Share your findings with your partner and explain the message of your artist.



2001: A Space Odyssey (Stanley Kubrick, 1968)

Video <https://youtu.be/ARJ8cAGm6JE>

B "I'm sorry, Dave..."

- 1 Present the two characters in this extract.
- 2 Comment on the setting (colours, shapes, places) and the intonation of both voices. Describe the atmosphere they create.
- 3 Account for the superiority of one of the characters and explain the end of the scene.
- 4 Record Dave's message to his base where he explains the situation and warns them about what robots plan to do on earth.



C The rise of robots

Since the oldest times people have sought¹ for ways to save them from hard physical work and menial² activities. To find solutions they have invented new tools, domesticated animals, and created new machines. As new technological innovations were created, people quickly adopted them and assimilated them into their lives. While many of them understood that technology brings them new opportunities to improve their living standards and to grow their wealth, many others have started to fear what would happen once the robots will reach a certain level of intelligence. [...]

People don't like interacting with robots

Do you know what the Turing test implies? In 1950, Alan Turing established the benchmark for AI, if people are interacting with robots in conversation, and they cannot distinguish them from persons, they have to admit that the machines are capable of true intelligence.

No one could doubt people were dealing with machines when they had the first interactions, but in the present times when people can talk to their mobile phones via programs like Siri, they are no longer sure if they can distinguish them from persons.

Now people are having difficulties to integrate robots and AI into their lives because they no longer feel comfortable to interact with robots. It remains to be seen if people will see robots as part of their life, and they will decide to accept their presence or if they will continue to be frightened of machines.

Only because a thing does not make us feel comfortable it doesn't mean it's not good for us. No one can deny the incomparable advantages technology integration brings to both individuals and companies. By using machines, businesses are able to improve their business effectiveness and to protect their employees from hazardous³ activities. They count on robot software to create and control machines that help them grow their businesses without posing risks to the human workforce and the surrounding environment.

Fiction and movies were not kind to AI and robots

How did people create robots a bad image? The depictions of the media had an important role in influencing their impression. *Westworld*, *Alien*,

Matrix, and *Ex Machina* are only some of the movies that showed how things can go wrong if robots gain intelligence. From the earliest depictions⁴ of robots in science fiction the message was the same, robots have a single purpose to dominate the world. [...]

People are afraid that robots will take their jobs away

More and more people feel this immediate fear. For example, in the automotive industry, robots are used to assemble cars, but it doesn't mean that no human is working on the premises⁵. Humans have other tasks to accomplish, they no longer complete the jobs that would pose danger to their life, they are supervising the robots making sure they are 100% efficient. AI may threaten some jobs, but it leads to the growth and rise of others. [...]

People are afraid of the Uncanny⁶ Valley

It looks like human-like robots are the ones that generate the greatest fear among people. The perception gained the name Uncanny Valley and it describes the situation when people feel uncomfortable with the human-like traits of robots. They are not experiencing fear of robots, but fear of the robots that look like humans, the ones that are able to mimic a person.

Bogdan Butoi, www.techzone360.com, May 24th, 2019 ■

1. searched 2. unskilled 3. dangerous 4. portrayal
5. site 6. strange, supernatural

GROUP WORK

- 1 Group A: List the positive uses of robots. Group B: List the negative uses of robots.
- 2 Groups A + B: Share your findings and recap what you have found out about robots.
- 3 Read *Let's focus on...* Explain the role of robots in the four films mentioned.
- 4 Account for the negative vision people can have of robots.
- 5 React to this article. Write a post to give your opinion about the impact a robot could have on people's lives.



Good, better, the best

A Musk's quest for immortality

There will always be a myriad of ways our mortal forms can go wrong. And we've seen that physiological constraints seem set to always hold us back from drastically extending our lifespans¹ and remedying the root cause of ageing – if there even is one.

5 But on the border between science fiction and pioneering science rest exciting technological ideas that could perhaps unlock a different kind of immortality. Technology can already help us catch age-related defects early, but it holds the potential to become even better: what if we were able to circumvent² biological trade offs³ entirely?

10 Billionaire Elon Musk's company Neuralink is already on the march to set us down this transhumanist path. It envisages a future where humans are far more intimately connected with their electronic devices than we are today. It invites us to work towards a brain-machine interface that would fundamentally integrate us with our technology, achieving a truly symbiotic relationship.

15 The research is still in its early stages, but brain-machine interfaces are already in use in the form of ear and eye implants that can restore our senses, and brain implants that allow disabled people to remotely control computers and robots. Neuralink aims to take this a step further by seamlessly⁴ connecting us to electronic devices, the internet and even other humans. Essentially, we'd all have encyclopaedic information on hand and be able to communicate with one another telepathically.

To make this remarkable enhancement possible, a brain-machine interface would be injected into our bloodstream and travel to the brain. There it would self-assemble into a mesh⁵-like structure on the outside of the cerebral cortex, entwining technology to the core⁶ of our intelligence and sentience.

25 Despite the invasiveness of Neuralink's implants, there are already a host of healthy individuals who are eager for such artificial enhancement. Some have even gone so far as to perform surgery on themselves just to install a gadget of meagre real-world value. But this may be just the start.

30 Neuralink and the technology it inspires could become a gateway to a post-human future. Through research in this area, we may decipher the means to accurately translate our organic, chemical neuronal pathways into electronic data that could encapsulate them. And so we may, eventually, be able to capture our beings within a computer, living forever as digital memory accessed by a piece of software.

35 This might be an extreme solution to the question of how to live forever, but there are wealthy individuals, such as entrepreneur Dmitry Itskov, devoted to the idea of merging with a computer. Itskov's 2045 Initiative views brain-machine interfaces as just the first step in a four-part journey that culminates in an artificial brain housing a human personality that controls a hologram-like avatar.

40 Itskov and other futurists are promising immortality, but to attain it we'll have to make possibly the biggest trade off of them all, giving away one of our most precious and defining gifts: our human form. The organic brain has forever been the vessel of our soul. An artificial copy may go as far as capturing your entire network of 100 trillion connections, but would it truly be you?

James S. Horton & Nicholas K. Priest, "Silicon Valley's quest for immortality – and its worrying sacrifices", *The Conversation*, Dec. 12th, 2018 ■

1. lifetime 2. avoid 3. change 4. smoothly 5. web 6. center

1



1 Read lines 1 to 7. Give the main concern some human beings have about their bodies.

2 Read lines 7 to 25. List the different aims of Elon Musk's Neuralink project. Explain how they can answer the concern mentioned above.

3 Use the article to write a definition of transhumanism.

4 Read lines 35 to the end. Comment on our possible future selves, as seen by entrepreneur Itskov.

5 You work for Elon Musk. Present his new transhumanist project to a board of investors.



e-worksheet

hatier-clc.fr/21amc1t-ns05

B Half man, half machine



go rogue: cease to follow orders

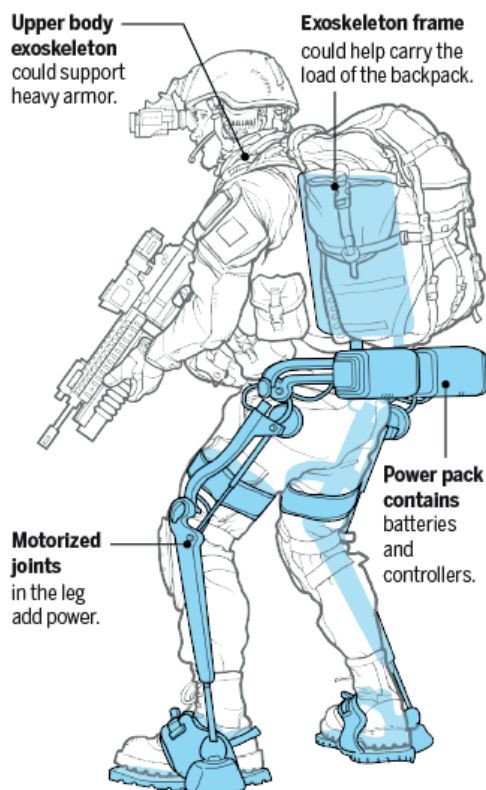


e-worksheet

hatier-clic.fr/21amc1t-ns06

2 Rigid exoskeleton

A rigid frame with motorized joints could greatly boost strength and load capacity.



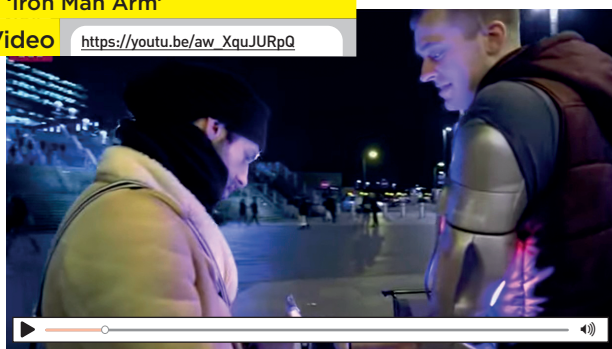
- 1 Describe the documents.
- 2 Give a definition of an exoskeleton.
- 3 List all the positive options it can give a soldier.
- 4 **CONNECT.** Use both documents to think of other fields where these exosuits can be used and list the advantages they offer.



C Real life Iron Man

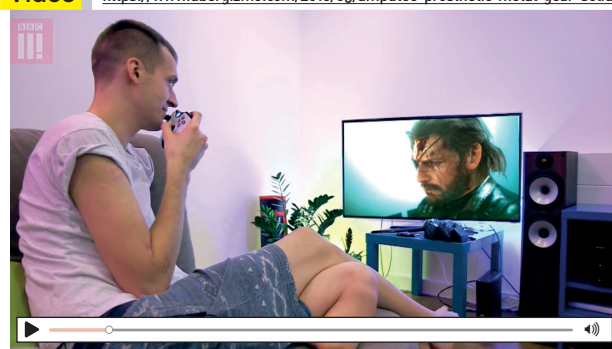
1 Amputee gamer shows off 'Iron Man Arm'

Video https://youtu.be/aw_XquJURpQ



2 Body hack - metal gear man

Video <https://www.ubergizmo.com/2016/05/amputee-prosthetic-metal-gear-solid/>



GROUP WORK

Student A on video 1 and student B on video 2.



e-worksheet

hatier-clic.fr/21amc1t-ns07

- 1 Watch your video and give details about James Young.
- 2 Share your findings and recap what you know about James Young.

- 3 Student A: You work for the computer games company. You are interviewing several candidates interested in your bionic prosthetics.
 Student B: You are one of the candidates for this prosthetics. Explain why you are interested. Make sure you will be selected.

In the news



Get your update on our website



TEXT

Elon Musk's brain-computer interface company Neuralink has money and buzz, but hurdles too

<https://www.cnn.com/2020/12/05/elon-musks-neuralink-bold-ideas-hurdles.html#close>

VIDEOS

Exoskeletons 2020

<https://youtu.be/KvN6PW0y2yk>

Robots of CES 2020 : The Good, the Bad, and the Ugly

<https://youtu.be/6Vmhc-efa6Y>

CARTOON

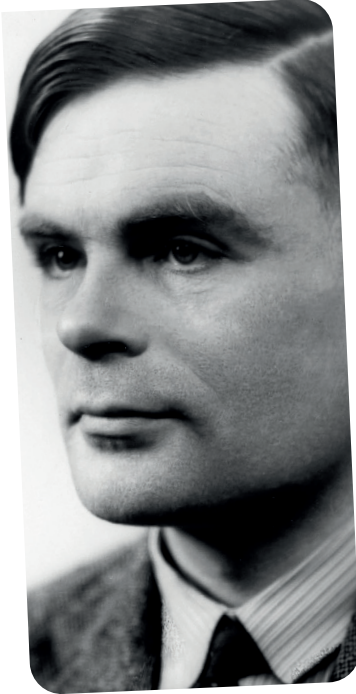
[Hatier-clic.fr/21amcXXX](https://www.weeklyhumorist.com/cartoon-robot-bargaining)

<https://www.weeklyhumorist.com/cartoon-robot-bargaining>



Let's focus on...

Alan Turing (1912-1954)



Alan Turing was a brilliant British mathematician who is considered the father of computer science and artificial intelligence. He broke the Nazi's Enigma Code which helped the Allies win WW2. In 1950 he imagined a set of questions known as the "Turing test", meant to test machine intelligence and distinguish human beings from robots. Being a homosexual, he also broke the social codes of the time and was forced to undergo chemical castration which led him to take his life at the age of 42.

Elon Musk (1971-)

Elon Musk is a South African-born American entrepreneur and businessman who founded many companies tackling different fields (X.com in 1999 which later became PayPal, SpaceX in 2002 and Tesla Motors in 2003). Elon Musk is a multimillionaire and he has always been ahead of his time. Since 2017, with Neuralink, Musk has intended to create devices to be implanted in the human brain and to help people merge with software.



Elon Musk's Neuralink human test of brain-computer interface.
2020

First applications of exoskeletons designed in the field of industry.
2014

First biomedical applications designed to assist mobility.
2001

IBM supercomputer Deep Blue beats world chess champion Kasparov.
1997

James Cameron directs *Terminator*, presenting one of the most iconic robots.
1984

First exoskeleton used for military purpose.
1965

First industrial robot, called UNIMATE for "Universal Automation", designed by American engineers.
1954

Alan Turing proposes the "Turing Test" to determine if a machine has gained the power to think for itself.
1950

American author I. Asimov popularises the term "robotics" and sets out his "three laws of robotics" in his story *Runaround*.
1942

Elektro, the first voice-controlled robot, is presented at New York world's fair.
1939

American author E. Ellis writes one of the first science-fiction novels, *The Steam Man in the Prairies*, featuring the first mechanical man.
1868

Bionic man

Hugh Herr: How we'll become cyborgs...

Video

https://youtu.be/PLk8Pm_XBJE



Exoskeletons

An exoskeleton (also called a power armor, an exoframe, a hardsuit or an exosuit) is a wearable device powered by different types of technologies. It goes around users' bodies or part of their bodies. Sensors monitor and respond to the users' motion. Exoskeletons can support the shoulder, waist and thigh, and assist movement for lifting and holding heavy loads, thus increasing the strength and stamina and lowering back stress. Exoskeletons are more and more common in both the industry and the army. In the medical field, they help patients with limb movements and even enable some people in wheelchair to walk again.

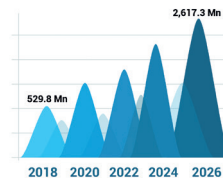
AI – Artificial Intelligence

Based on algorithms, Artificial Intelligence is a science which imitates the cognitive abilities of a human brain, such as learning and problem solving. It has led computers to perform increasingly complex tasks, which could previously only be delegated to a human being and do predictions. AI is both synonym of fear and fascination. British physicist and author **Stephen Hawking** warned that "the development of full artificial intelligence could spell the end of the human race." Entrepreneur and scientist **Elon Musk** calls AI humanity's "biggest existential threat."

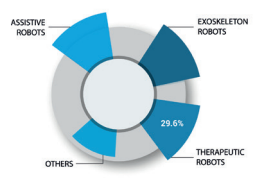
Robots for rehabilitation

REHABILITATION ROBOTS MARKET

Global Rehabilitation Robots Market Size (US\$ Mn), 2018 to 2026



Global Rehabilitation Robots Market Share, By Type, 2018



North America Rehabilitation Robots Market Size (US\$ Mn), 2018



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Science fiction and robots

Robots have always been at the core of science fiction films and made viewers dream or... freak out. Lucas's *Star Wars* features some of the most iconic robots. Asimov's laws of robotics inspired *I, robot*, released in 2004, starring Will Smith as a police officer investigating a murder. In Crichton's 1973 science-fiction thriller *Westworld* androids malfunction and kill visitors from an amusement park. Ridley Scott's 1979 *Alien* introduces one of the most terrifying killing beings who will wipe out the whole crew of a spaceship. *The Matrix* (1999) depicts a dystopian future in which computer hacker Neo discovers he is trapped in a simulated reality created by an evil cyber-intelligence. In the sci-fi psychological thriller *Ex Machina* (2014) a programmer is asked to have an intelligent humanoid robot take the Turing test.

Practice your grammar

Utiliser les modaux pour faire des prédictions

► Pour faire des prédictions, on utilise souvent **les modaux** pour exprimer des degrés de certitude divers :

C'est quasi certain.

will

One day, robots will replace us.

C'est possible ou vraisemblable

could / might

One day, robots could / might take over the world.

C'est incertain (= je ne sais pas).

may

In the future, robots may be able to cure cancer. I don't know.

► L'expression **be likely to + V** permet de dire qu'un événement futur est **très probable**.

Artificial intelligence is likely to improve our lives.

► On peut également associer l'un de **ces adverbess ou locutions à l'auxiliaire will** : *probably, certainly, maybe, perhaps, surely, in all likelihood...*

- 1 Reformulez ces phrases en utilisant un modal, un adverbe modal (**certainly, maybe, probably...**) ou **be likely to**. Produisez deux phrases chaque fois.
 - a. *I don't know if one day scientists will discover the secret of eternal youth or not.*
 - b. *I'm absolutely certain that the development of artificial intelligence will be a hallmark of the 21st century.*
 - c. *In a near future it is possible that scientists will use robots to repair damage to cells, muscles and bones.*
 - d. *In the years to come, our company will probably become a pioneer in artificial intelligence technology.*
- 2 Que seront capables de faire les robots dans l'avenir ? Produisez cinq phrases avec des degrés de certitude variés. Vous pouvez utiliser les compléments de temps suivants :
in the future • in a near / distant future • one day • sooner or later • in the years to come • very soon

Exprimer la permission ou l'interdiction

► Pour exprimer **une permission au présent**, il est possible d'utiliser les modaux **can ou may**. Le modal **could** peut être utilisé au passé :

May / Can I use your phone?

► Pour exprimer **une interdiction au présent**, il est possible d'utiliser **les modaux can't, mustn't ou may not**. Au passé, on peut employer **couldn't**.

A robot may not / can't harm a human being.

► Pour exprimer l'interdiction, il est également possible d'utiliser **l'impératif à la forme négative (do not / don't + V)** :

Don't hurt a human being!

► On utilise également la structure **(not) be allowed / être autorisé / to do sth** à tous les temps :

Scientists aren't / won't be / weren't allowed to clone other human beings.

► Les verbes **forbid (forbade – forbidden), ban et prohibit** se construisent avec **la préposition from** suivie d'un verbe au gérondif (V-ing) :

The First Law forbids / prohibits a robot from injuring a human being.

- 3 Reformulez chaque phrase en utilisant une structure qui exprime la permission ou l'interdiction. Produisez deux phrases chaque fois.
 - a. *You aren't allowed to tell anyone about the scientific project you are working on.*
 - b. *Politicians should write more laws restricting what scientists may or may not do.*
 - c. *Geneticists are forbidden from carrying out experiments on human embryos.*
- 4 Inventez vos propres lois de la robotique. Dites ce qu'un robot a le droit ou n'a pas le droit de faire. Produisez quatre phrases en utilisant chaque fois une structure différente.

Improve your pronunciation

La diphtongue /aɪ/

► La diphtongue que l'on retrouve dans *die* ou *my* est représentée par le **symbole /aɪ/**. Ce son est le plus souvent orthographié par la **graphie i ou y** dans les contextes suivants :

ie en fin de mot d'une syllabe	<i>die, lie, tie</i>
dans ild ou ind	<i>wild, child, behind, find</i>
dans igh	<i>night, might, light</i>
dans ign (on ne prononce pas le g)	<i>sign, align, resign</i>
y en fin de mot d'une syllabe ou si la syllabe finale est accentuée	<i>my, fly, rely, apply</i>
y dans des mots d'origine grecque	<i>hypothesis, hybrid</i>

! **Lorsqu'un i est suivi d'une consonne unique suivie d'un e (i + C + e) en position accentuée**, on le prononce /aɪ/ : *wine, line, device* (exceptions : *give* et *live* /ɪ/, *machine* /məʃiːn/).

1 Répétez les mots suivants.

while • write • biological • pioneer • mankind • scientific • despite • height

2 Pour chacun des mots suivants, trouvez un homophone. (Un mot qui ne s'écrit pas de la même manière mais qui se prononce de façon identique.)

write • cite • eye • night • by

3 Dans les phrases suivantes, relevez les mots contenant la diphtongue /aɪ/.

a. *Isaac Asimov is famous for his science fiction novels.*

b. *A cyborg is a hybrid creature, composed of organic elements and cybernetic devices.*

Prononciation et accentuation des mots en -ate

► La terminaison -ate peut avoir deux prononciations en fonction du type de mot :

/eɪt/	dans les mots d'une syllabe : <i>late, date, plate</i>
	si le mot est un verbe : <i>create, communicate</i>
/ət/	si le mot est un adjectif ou un nom de deux syllabes ou plus : <i>climate, immediate, elaborate</i> Exceptions : <i>debate, candidate, estate</i>

► Leur accentuation peut aussi varier :

- les **verbes de deux syllabes** sont accentués sur la **2^e syllabe** en anglais britannique : *create* ○○
- les **noms et adjectifs de deux syllabes** sont accentués sur la **1^{ère} syllabe** : *pirate* ○○
- Exceptions : *debate* et *estate*.
- les **mot de trois syllabes ou plus** portent leur accent principal sur l'**avant-avant-dernière syllabe** : *calculate* ○○○

► L'accentuation de ces mots restera la même si on leur ajoute les suffixes -ing, -ed, -or ou -ly :
calculate → *calculator*

4 Classez les mots dans un tableau en fonction de la prononciation de la terminaison -ate : /eɪt/ ou /ət/ ?

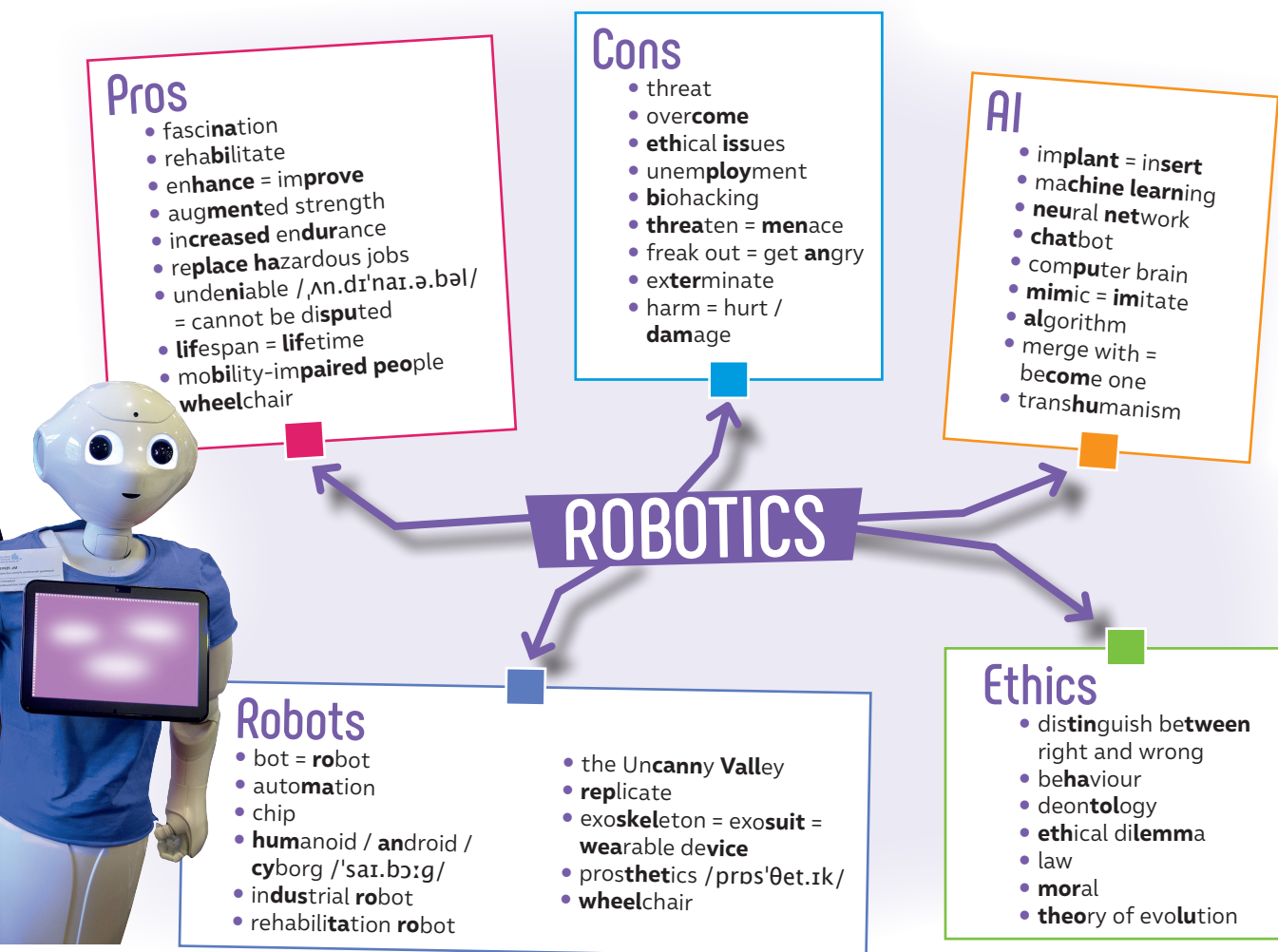
Justifiez votre choix.

dominate • debate • accurate • rehabilitate • private • desperate • intimately • translate • encapsulate • certificate

5 Recopiez les mots suivants et soulignez la syllabe accentuée. Justifiez votre réponse.

dominate • communicate • culminate • rehabilitate • debate • inappropriate • approximately

Build up your vocabulary



1 Draw this grid on your copy book and complete the missing words.

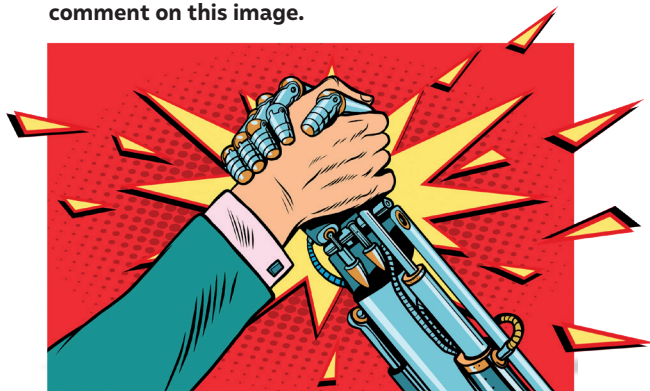
Nouns	Adjectives	Verbs
Behaviour		
		Enhance
Threat		
	Strong	

2 Complete these sentences with words from the boxes.

- Ethics is a science based on ... principles that govern a person's ... and help them ... between ... and
- A robot is a ... machine able to ... certain human movements and functions automatically. The ... refers to the development of ... robots that look so real and human they freak people out.
- A ... combines living and non-living systems.

- A powered ... is a ... mobile machine that is powered by a system of electric motors, pneumatics, levers, hydraulics, or a combination of technologies that allow for limb movement with ... strength and endurance.
- ... is the part of philosophy that studies moral duty.

3 Use ten words / expressions from the mindmap to comment on this image.



Projects

1



You run a business. Debate the introduction of robots in your company.

1 Choose your role.

Student A : you are the boss of the company.

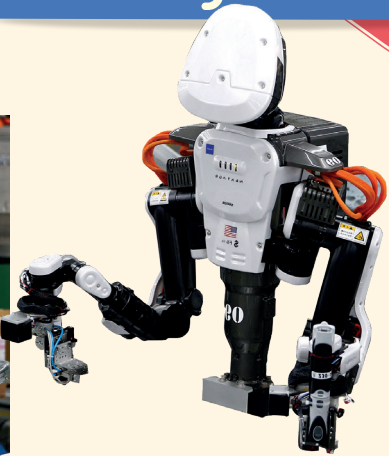
Student B: you are a young engineer in favour of robotics.

Student C: you are a 55-year-old engineer who fears for his job.

Student D: you are an employee working at the assembly line.

Student E: you are a trade union representative defending the workers' interests.

Student F: you are the sales manager from a robotics



company, invited to explain why robotics is the future.

2 Get ready

List the positive and negative impacts robots could have on your job.

Prepare arguments and imagine how to react to counter arguments.

Think about useful vocabulary to debate, give your opinion and convince.

3 Time to debate!

Help shy classmates enter the conversation if needed.

2

You are a journalist for a science magazine. Write an article on the impact / benefits / risks of using robots.

1 Prepare the content of your article.



- List the positive and negative impacts robots could have on companies, individuals and society in general.

- Choose the point of view you will adopt (for, against, mixed views).

2 Write your article.

- First paragraph: raise a question you will answer in your article.

- Body of the article: one paragraph = one idea = one or two examples.

- Last paragraph: raise another question to widen the subject.

- Use link words to organise your ideas.

- Choose specific vocabulary to make your article sound more technical and scientific.

- Find a title and choose a picture to illustrate your article.

