Séquence proposée par Jeanne Evrard, professeur d'anglais
Mise en œuvre au lycée Edouard Herriot à Voiron (Isère 38)

Seconde
Niveau de classe A2+ / B1
Activité langagière dominante : expression écrite

Notion du programme Visions d'avenir : créations et adaptations

Thématique L'innovation, le progrès technique

Problématique *Why do we invent new things? Are there limits to invention?*

Objectifs culturels:
Quelques grandes inventions et inventeurs du monde anglo-saxon (Edison, Vint Cerf), les défis du vivre ensemble contemporain (*climate change, antibiotic resistance*). Les limites éthiques et écologiques des grandes inventions d'aujourd'hui et d'hier. Le gothique littéraire (*Frankenstein*).

Tâche intermédiaire (expression écrite)	Tâche finale (expression écrite)
You are a fiction writer. In your new novel, write a dialogue between the two main characters:	
You are a time traveller. You are back in the 19th century and you explain to someone what the Internet is and what we use it for.	We are in 2080. You are an old man or woman. After a man-made disaster, the human world as we know it doesn't exist anymore. You are one of the few survivors. You are discussing with a child who was born after the disaster. You tell him about great inventions that existed before the catastrophe.

Objectifs lexicaux : lexique de l'invention et de l'innovation, lexique de l'environnement et de l'écologie. Unités de mesure (*miles, feet, gallons, pounds*).

Objectifs grammaticaux : prétérit simple (*used to*), superlatifs et comparatifs (rebrassage), forme passive, marqueurs temporels, ordre des adjectifs (rebrassage), prépositions, modal *should*.

Objectifs phonologiques : prononciation du lexique important (*machine, creature, environment, practical*) règles de prononciation de la graphie <u> (*useless, creature, tube, pub*).

Objectif citoyen : faire réfléchir aux enjeux des avancées scientifiques du monde contemporain et à leur l'impact sur l'humanité.

Supports	
Wallace and Gromit The Snoozatron The Turbo Diner The Wrong Trousers	Trois courtes vidéos du célèbre duo anglais Wallace et Gromit. Dans The Snoozatron, Wallace a mis au point une machine qui l'aide à s'endormir en cas d'insomnie. Le dispositif est amusant, avec des bras articulés qui rend le lit mobile, qui amène une bouillotte à Wallace mais c'est aussi au détriment du pauvre Gromit, qui doit enfiler un costume de mouton et rebondir sur un trampoline pour que Wallace puisse compter les moutons. L'invention s'avère ingénieuse mais relativement contraignante. La vidéo est animée, très colorée. Peu de dialogue, beaucoup de comique visuel. Documents intéressants pour introduire une séquence car ils montrent un Wallace tyrannique qui oppresse Gromit et lui fait subir ses inventions. → intérêt: les tâtonnements des inventeurs, de l'utilité à la contrainte
The Genius of Invention (50 premières secondes)	3 personnes présentent le début d'une émission, appelée The Genius of Invention, sur BBC2. Ils sont à Drax, une centrale thermique à charbon qui alimente en énergie 7% du Royaume Uni. C'est la nuit, on peut entendre du bruit, peut-être de l'eau autour. Les présentateurs doivent parler fort. Ils interpellent le spectateur sur l'importance de ces centrales de production d'énergie pour notre vie quotidienne. On ne sait pas de quel type de centrale il s'agit. Une vue sur une longue cheminée fait penser à une centrale nucléaire. C'est le début d'une émission sur les inventions et le génie de quelques inventeurs qui ont façonné le monde dans lequel nous vivons aujourd'hui. Plus spécifiquement, sur la production d'énergie (centrale électrique) → intérêt: lien entre notre vie quotidienne et les innovations technologiques qui la rendent possible
3 textes sur Edison (différenciés)	Trois textes qui présentent une grande invention des 19 et 20è siècles : l'ampoule, par un inventeur de génie, Edison. Montre où Edison est allé chercher son inspiration (les grandes inventions ne naissent pas de rien), les moyens qu'il a mis en œuvre, les conséquences de cette invention sur notre époque, mais aussi l'enfance d'Edison (qui n'est jamais allé à l'école). → intérêt: texte très biographique et factuel, d'accès facile, facilement différenciable, qui explique comment une grande invention a vu le jour, avec, en trame de fond, la vie d'un grand inventeur et la naissance du premier laboratoire d'inventions à grande échelle (spécificité d'Edison).
2 extraits de *Frankenstein* par Mary Shelley	Les deux extraits représentent deux points de vue narratifs : celui du créateur et celui de la créature. Les deux textes sont relativement difficiles en raison du niveau de langue. Le premier texte est plus long que l'autre (différenciation possible). Dans l'un, le créateur explique son horreur et son dégoût le jour où la créature voit le jour, dans l'autre la créature raconte comment, après avoir trouvé le journal de bord de sa création, il ne supporte plus son existence. → Intérêt : les différences de points de vue et d'émotions (horreur, désespoir,

	rejet/besoin d'amour et de reconnaissance), la question des limites éthiques qui se posent dans le domaine de la création scientifique.
Un extrait de *The Island of Dr Moreau* par H. G. Wells	Dans une discussion avec Dr Moreau, le narrateur découvre avec horreur quels types d'expérimentations ont lieu sur l'île : la vivisection et l'«assemblage» d'espèces différentes. Il exprime son dégoût, tandis que Dr Moreau rationalise son activité scientifique. → intérêt : les limites éthiques dans le domaine de l'invention. Fait écho à la manipulation du vivant et à la génétique
Un extrait du film *The Island of Dr Moreau* (1996)	Adaptation du livre de Wells, la scène en question décrit la découverte, par le narrateur, de ce que fait le Docteur sur l'île, sauf qu'il s'agit désormais de manipulation génétique. C'est, au fond, la même scène que dans le livre, mais les différences sont nombreuses (autre époque). Les « enfants » de Moreau sont présents. La scène représente une inversion de valeurs : les « créatures » de Moreau et Moreau lui-même sont très civilisés, tandis que le narrateur se montre particulièrement odieux à leur égard, très impoli, ne les considère pas comme des êtres humains. →intérêt: limites éthiques et conséquences éthiques. Une situation qui n'est pas manichéenne. Différence entre le texte original et l'adaptation (vivisection/génétique), et donc impact du progrès technologique sur la création artistique.
Vidéo Kids React on the Internet	Des jeunes de 17-18 ans commentent un tutoriel sur Internet datant des années 90. Leur première réaction, dans l'ensemble, est de trouver la vidéo ringarde et obsolète et de se moquer des enfants du tutoriel. Dans un second temps, cependant, on leur pose des questions sur comment fonctionne Internet et leur connaissance est, au fond, moins précise que celle des jeunes des années 90 : ils ne savent quasi rien du fonctionnement d'Internet alors qu'ils le manipulent tous les jours. A la fin de la vidéo, ils réalisent qu'ils en savent finalement moins et se montrent plus « humbles » et moins moqueurs vis-à-vis du tutoriel. → intérêt: montrer aux élèves qu'ils utilisent quelque chose que beaucoup ne comprennent pas et que Internet fait partie des inventions qui sont omniprésentes dans nos vies mais dont on ne connaît pourtant quasiment rien.
3 textes sur Internet (différenciés)	Un texte factuel sur Internet et son histoire, facilement découpable en trois parties → intérêt: fournit des informations aux élèves sur comment fonctionne Internet et son histoire
Article du Guardian sur les déchets électroniques	L'article de John Vidal rappelle que derrière nos innovations technologiques et leur constant renouvellement, on doit faire face à une pollution d'un nouveau type que l'on appelle en anglais *e-waste*. Les produits chimiques et les métaux lourds présents dans nos outils technologiques sont difficiles à recycler de façon écologique, et la plupart sont recyclés de façon illégale dans des pays en voie de développement, avec de lourdes conséquences sur la santé des habitants. → intérêt : l'impact de notre mode de vie sur la planète et les pays les plus pauvres, les conséquences négatives des hautes technologies
Un dessin humoristique sur la résistance aux anitbiotiques	Le dessin, humoristique présente le superbug comme une grosse créature verte, couverte de seringues appelées « antibiotiques ». En légende : « Ce qui ne me tue pas me rend plus fort ». → intérêt : le problème posé par la résistance aux antibiotiques.

	Une découverte qui a sauvé des millions de vie dans le passé, et qui est peut-être sur le point d'en tuer des millions d'autres dans le futur. Découverte d'enjeux contemporains importants et de l'Organisation Mondiale de la Santé (OMS).
Jeu collaboratif de la NASA *The Moon Landing Game*	Un jeu créé par la NASA. Une expérience où les joueurs doivent ranger dans un ordre d'importance 15 objets utiles pour faire un trajet de 200 miles sur la lune. → intérêt : le vocabulaire de la conquête de l'espace, le rappel d'une invention majeur du 20ème siècle. Le jeu, organisé en deux temps, permet une comparaison entre le classement individuel des objets et le classement en équipe, et montre (généralement) qu'on pense mieux à plusieurs => l'intérêt de la collaboration pour résoudre un problème.

Grille d'évaluation de tâche finale

Expression écrite	A1 /11	A2, A2+ /14	B1 et + /20
Grammaire	Je peux écrire des phrases simples que j'ai apprises par cœur, mais mes phrases ne sont pas toujours compréhensibles.	Je peux écrire des phrases simples sans réciter, mais je fais beaucoup d'erreurs (confusion des temps, oubli de l'accord…). Le sens reste néanmoins clair.	Je peux écrire des phrases simples sans réciter, et sans faire beaucoup d'erreurs.
Vocabulaire	Mon répertoire est élémentaire	Mon vocabulaire est restreint mais suffisant pour m'exprimer sur des sujets familiers	Bonne maitrise du vocabulaire
Orthographe	Je peux copier de courtes expressions et des mots familiers.	Je peux copier de courtes expressions sur des sujets courants. Je peux écrire avec une relative exactitude phonétique (mais pas forcément orthographique) des mots courts qui appartiennent à mon vocabulaire oral.	Je peux produire un écrit suivi généralement compréhensible tout du long. L'orthographe, la ponctuation et la mise en page sont assez justes pour être suivies facilement le plus souvent.
Ecriture créative: Sujet d'invention, écrire un dialogue	Je peux écrire des phrases et des expressions simples sur moiTmême et des personnages imaginaires, où ils vivent et ce qu'ils font. Je n'ai pas encore la maîtrise des codes du dialogue.	Je peux faire une description brève et élémentaire d'un événement réel ou imaginé, mais mon travail n'est pas encore tout à fait cohérent et fluide. Je maîtrise partiellement les codes du dialogue.	Je peux écrire la description cohérente et fluide d'un événement, un voyage récent, réel ou imaginé. Je peux raconter une histoire. Je maîtrise les codes du dialogue.

Timeline Lesson 1

STEP	Task	Time
0	Nouveau lexique : les élèves prennent une feuille volante vierge qu'ils garderont pendant toute la séquence et sur laquelle ils répertorieront le nouveau lexique en le classant en 4 catégories : *Verbs, Adverbs, Adjectives, Miscellaneous.*	2
1	Présentation Wallace and Gromit Accès aux vidéos sur https://padlet.com/jnnvrrd/piiae85a4l6c feuille de travail pour tous les élèves donnée la séance précédente.	10
2	*Guess what we're going to talk about* + présentation de la séquence à venir : tâche intermédiaire et tâche finale	5
3	Jeu Times Up = la classe est divisée en deux groupes, Les élèves reçoivent chacun une image représentant une invention. Chaque groupe doit faire deviner toutes ses images aux membres de son groupe le plus rapidement possible. Feuille différenciation pour élèves en difficulté.	15
4	The least useful invention I can think of is… The most useful invention I can think of is…	7
5	Point phonologique sur la graphie <u> à partir de *useful*. Lecture individuel des mots, puis à la chaîne (chaque élève doit prononcer un mot)	5
6	Watch the first 45 seconds of this episode of The Genius of Invention (BBC2) https://www.youtube.com/watch?v=cqxlGMIWFbw and fill in the grid.	2

Worksheets Séance 1

Wallace and Gromit

Name of the machine	Description of the machine	What works well? What goes wrong? What happens to them?

Times Up!

NEED HELP to present your object?

It is a (big/round/square/…) object

We use it to...= on s'en sert pour…

It can be useful to…= cela peut être utile pour…

 Matches	 Umbrella	 Fridge
 Pen	 Vaccine /ˈvæk.siːn/	 Screw /skruː/
 Bicycle /ˈbaɪ.sɪ.kəl/	 Soap /səʊp/	 Phone
 Plane /pleɪn/	 knife and fork	 Washing machine /ˈwɒʃ.ɪŋ məˌʃiːn/

 Cinema	 High Speed Train	 Computer
 Car	 Printer	 Scissors /ˈsɪz.əz/
 Vacuum Cleaner /ˈvæk.juːm ˌkliː.nər/	 Chemical Weapons /ˌkem.ɪ.kəl ˈwep.ən/	 Light bulb /ˈlaɪt ˌbʌlb/
 X-ray /ˈeks.reɪ/	 Atomic Bomb /əˈtɑm·ɪk ˈbɑm/	 Gun

Paste your invention here.

Evaluate your invention: where would you place the cursor?

inoffensive, innocuous	⟷	extremely dangerous
low-tech	⟷	high-tech
eco-friendly green ecological	⟷	toxic polluting pollution-causing eco-destructive
useless	⟷	useful

Make at least 3 sentences on the same model, using different adjectives:

The least **useful** invention I can think of is …. *the Internet*

The most **eco-friendly** invention I can think of is …. a *solar-powered device*

REMEMBER

When an adjective is three syllables long, you use **the most** or **the least + ADJ** to turn it into a superlative. When it is shorter than three syllables, you add -**EST** at the end.

EX: **It is the most polluting** invention of the entire human history.
He is the brightest inventor of all time.

<u>

useful usual used /ˈjuːs.fəl/ /ˈjuː.ʒu.əl/ /juːst/

blue glue flu tube pollution /bluː/ /fluː/ /gluː/ /tʃuːb/ /pəˈluː.ʃən/

creature feature texture /ˈkriː.tʃɚ/ /ˈfiː.tʃɚ/ /ˈteks.tʃɚ/

unusual uncommon unhealthy pun fun /

ʌnˈjuː.ʒu.əl/ /ʌnˈkɑː.mən/ /ʌnˈhel.θi/ /pʌn/ /fʌn/

cure jury /kjʊə/ /ˈdʒʊərɪ/

put /pʊt/

injury /ˈɪn.dʒər.i/

Practice

Find the words for each phonetic transcription:

/dɪˈstrʌk.tɪv/ = ……

/ˌmɪsˈjuːz/ = ……..

/ˈjuːs.ləs/ = ……

Homework

1) Describe the scenery:
Who are the three people talking? Where are they?

2) Describe *how* they talk

3) List all the words you have understood:

What I am sure of	What I am not sure of	What I am really not sure of

Timeline Lesson 2

STEP	Task	Time
0	The Genius of invention (45 first seconds) https://www.youtube.com/watch?v=cqxlGMIWFbw	5
1	PAIR WORK Edison → D'abord groupes de niveau sur chaque texte. Consigne : Read the texts. Agree on what the 4 main pieces of information are. →Puis groupes hétérogènes de 3 élèves avec chaque texte. Consigne : Answer the questions using the 3 texts. Beware: the information you need are dispatched in the three texts. → Correction	30
2	Encadré: repérage des prepositions (individual work) Prépositions: Match the images with the correct prepositions Invent as many sentences as you can, using the prepositions.	15

Texte 1

Many people think that inspirations such as the electric light bulb come to the inventor in a sudden flash, but this was not the way it happened for Thomas Edison. As part of his research, Edison often went to expositions where new inventions were displayed. In 1878, he went to an exhibition where an invention called the arc lamp was being shown. This was a simple but inefficient invention in which a strong electric current was brought in from a strong wire to a thin copper wire. When the circuit was connected, the thin wire heated up and began to glow white-hot causing a bright light or incandescence. Because copper has a low melting point the wire quickly burned up and the light went out in just a few moments. All in all, the arc light was fascinating but could not be used in any practical application.

Inspired by the exhibition, Edison boldly announced that he would soon invent a cheap, long lasting, and esthetically pleasing source of light. It took him months of experimenting, and testing but on October 21, 1879, Edison demonstrated the carbon filament lamp. He had done thousands of experiments on all kinds of rare and exotic fibers from all over the world in search of the perfect filament. It is said that some of Edison's researchers were sent to South America in search of exotic fibers. In the end he found what he needed right there at home–a spool of ordinary cotton sewing thread that happened to be in his lab. The thread when baked would turn stiff and carbonize, making the perfect filament material–carbonized cotton.

Edison also found that in order for the light bulb filament to burn for a long time, he needed to remove all of the oxygen from the light bulb. Without oxygen, the material in the filament would not burn away so fast. First he tried pumping all of the air out of the bulb, creating a vacuum. But the air pressure surrounding the bulb pushed in on the empty space, causing it to implode. To solve this problem, Edison decided to try pumping an inert gas into the bulb in place of the air. Inert gases, also known as the noble gases on the periodic table of the elements, do not burn. When Edison demonstrated what he called the carbon filament lamp, he had sucked out the air and filled the bulb with helium, an inert gas.

The first bulb burned for over 40 hours and was considered a huge success. Soon Edison perfected the light bulb and it was able to burn for over 1,000 hours!

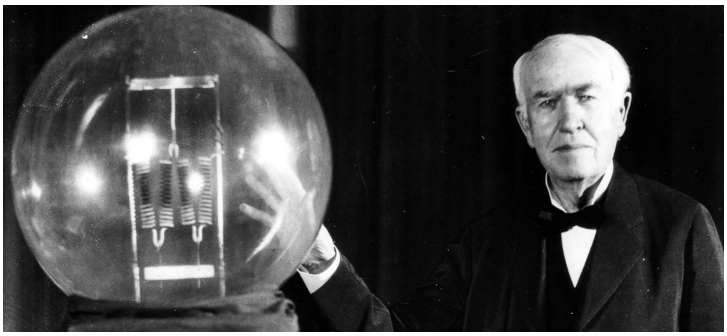
Text 2

The development of a practical incandescent, electric light was Edison’s greatest challenge. The idea of electric lighting was not new, and a number of people had worked on, and even developed forms of electric lighting. But up to that time, nothing had been developed that was practical for home use. Edison's eventual achievement was inventing not just an incandescent electric light, but also an electric lighting system that contained all the elements necessary to make the incandescent light practical, safe, and economical. After one and a half years of work, success was achieved when an incandescent lamp with a filament of carbonized sewing thread burned for thirteen and a half hours. The first public demonstration of the Edison's incandescent lighting system was in December 1879, when the Menlo Park laboratory complex was electrically lighted. Edison spent the next several years creating the electric industry. In September 1882, the first commercial power station, located on Pearl Street in lower Manhattan, went into operation providing light and power to customers in a one square mile area; the electric age had begun.

Text 3

Thomas Alva Edison was born on February 11, 1847 in Milan, Ohio; the seventh and last child of Samuel and Nancy Edison. Edison had very little formal education as a child, attending school only for a few months. His mother taught him reading, writing, and arithmetic, but he was always a very curious child.

Edison began working at an early age, as most boys did at the time. At thirteen he took a job as a newsboy, selling newspapers on the local railroad that ran through Port Huron to Detroit. He seems to have spent much of his free time reading scientific, and technical books, and also had the opportunity at this time to learn how to operate a telegraph. By the time he was sixteen, Edison was good enough to work as a telegrapher.



Describe the picture. What do you think Edison is the inventor of?

EDISON: PAIR WORK (3). Using the three texts, answer these questions.

When was Edison born, and where?

How long did he go to school?

What was his first job? When did he start?

What was he doing during his free time at that time?

What was his job when he was sixteen? What was his job consisting of?

What gave Edison the idea of inventing a long lasting light bulb?

Where did he send his researchers, and what was he looking for?

Why did he decide to pump the oxygen out of the bulb? Did it work?

What did he pump into the bulb instead?

When was Edison's first public exhibition? Where was it? What was the name of Edison's laboratory?

How long did the first bulb burn for?

Did he invent a simple electric bulb, or something more complicated?

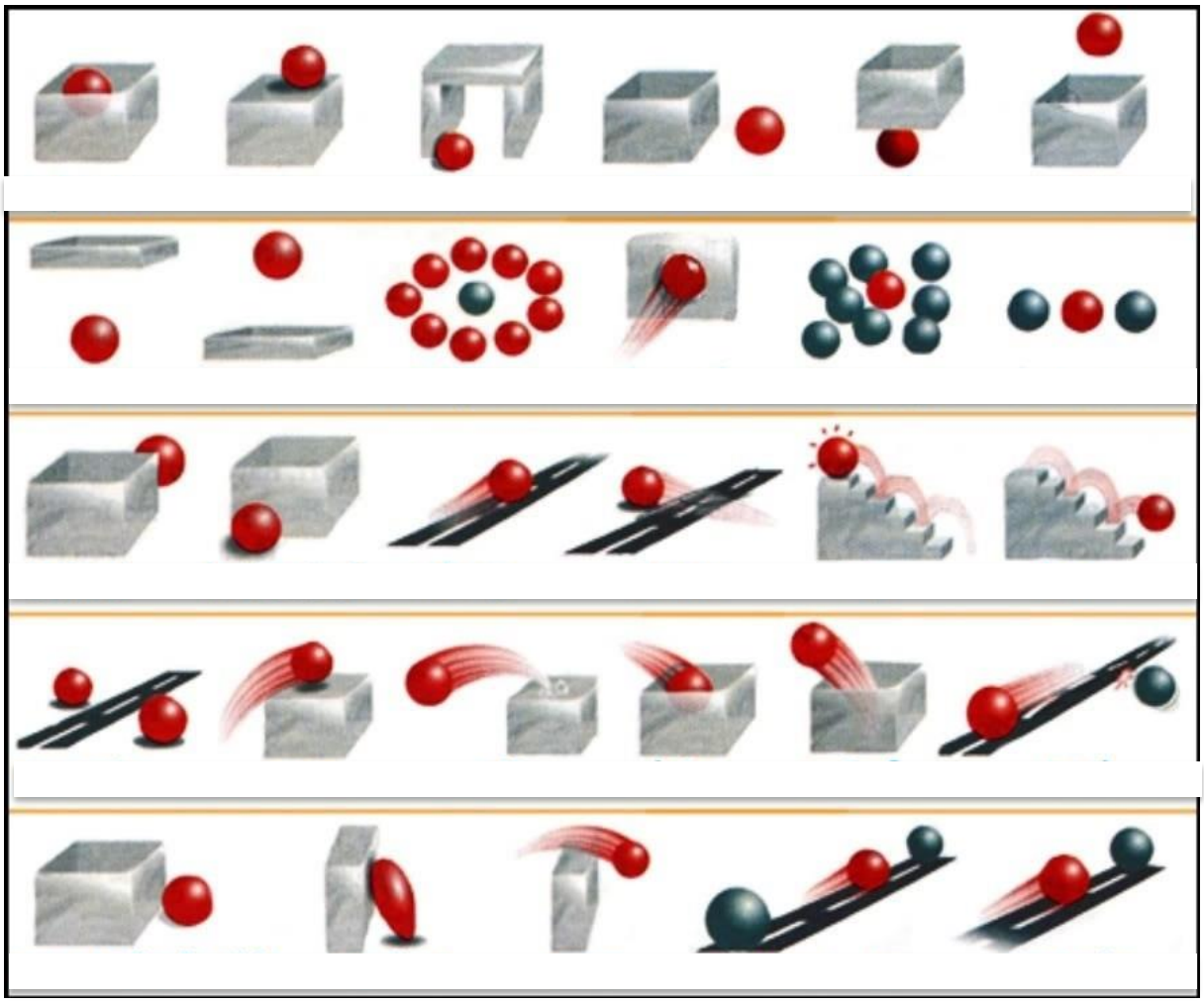
Where was the first commercial power station?

How far did it provide electricity?

Can you identify the prepositions in this quotation?

"First he tried pumping all of the air out of the bulb, creating a vacuum. But the air pressure surrounding the bulb pushed in on the empty space, causing it to implode. To solve this problem, Edison decided to try pumping an inert gas into the bulb in place of the air."

Prepositions: Match the prepositions with the images.



in/inside	on	at	near	under	over
below	above	round/ around	through	among	between
behind	in front of	along	across	up	down
opposite	onto	off	into	out of	past
next to/by/beside	against	over	from…to	towards	

Timeline Lesson 3

STEP	Task	Time
0	Test sur les prépositions	10
1	GROUP WORK différencié (7*3) Frankenstein Instructions : 1) What genre does this text belong to? 2) How would you describe the language in that text: modern or old? In your opinion, when was this text written? Justify your answer by quoting the text. 3) Identify the emotions. In which state of mind is the narrator? Reading the text, what are your emotions? 4) This story is very famous. Who is the narrator? **5) Write a brief presentation of your text**	20
2	Dr Moreau (excerpt) The Island of Dr Moreau http://www.imdb.com/video/screenplay/vi325517337 Instructions: Analysis of the title: what can we expect? 1st worksheet (without sound) Associate as many key words to the set of characters as you can. 2d worksheet (with sound) What are their relationships? Discuss with your neighbour: in your opinion, what kind of experiment is Dr Moreau doing?	15
3	3rd worksheet : Should there be limits to science? + Homework	10

I had worked hard for nearly two years, for the unique purpose of infusing life into an inanimate body. For this I had deprived myself of rest and health. I had desired it with an ardour that far exceeded moderation; but now that I had finished, the beauty of the dream vanished, and breathless horror and disgust filled my heart. Unable to endure the aspect of the being I had created, I rushed out of the room (…) I threw myself on the bed in my clothes, endeavouring to seek a few moments of forgetfulness. But it was in vain: I slept, indeed, but I was disturbed by the wildest dreams. (…) I started from my sleep with horror; a cold dew covered my forehead, my teeth chattered, and every limb became convulsed: when, by the dim and yellow light of the moon, as it forced its way through the window shutters, I beheld the miserable monster whom I had created. He held up the curtain of the bed and his eyes, if eyes they may be called, were fixed on me. His jaws opened, and he muttered some inarticulate sounds, while a grin wrinkled his cheeks. He might have spoken, but I did not hear; one hand was stretched out, seemingly to detain me, but I escaped, and rushed down stairs. I took refuge in the courtyard (…) where I remained during the rest of the night, walking up and down in the greatest agitation, listening attentively, catching and fearing each sound as if it were to announce the approach of the demoniacal corpse to which I had so miserably given life.

Oh! no mortal could support the horror of that countenance. A mummy again endued with animation could not be so hideous as that wretch. I had gazed on him while unfinished he was ugly then; but when those muscles and joints were rendered capable of motion, it became a thing such as even Dante could not have conceived.

I discovered some papers in the pocket of the dress which I had taken from your laboratory. At first I had neglected them; but now that I was able to decipher the characters in which they were written, I began to study them with diligence. It was your journal of the four months that preceded my creation. You minutely described in these papers every step you took in the progress of your work; this history was mingled with accounts of domestic occurrences. You, doubtless, recollect these papers. Here they are. Everything that bears reference to my accursed origin is in them; the whole detail of that series of disgusting circumstances, which produced it, is displayed; the minutest description of my odious and loathsome person is given, in language which painted your own horrors and rendered mine indelible. I sickened as I read. 'Hateful day when I received life!' I exclaimed in agony. 'Accursed creator! Why did you form a monster so hideous that even you turned from me in disgust?

1) What genre does this text belong to?
2) How would you describe the language in that text: modern or old? Justify your answer by quoting the text. In your opinion, when was this text published?
3) In which state of mind is the narrator? Identify the emotions.
Reading the text, what are <u>your</u> emotions?
4) This story is very famous. Who is the narrator?
5) Write a brief presentation of your text.

Associate key words to these characters

Discuss with your neighbour:

What are the relationships between these characters?
……
……

In your opinion, what kind of experiment is Dr Moreau doing on his island?
……
……

Should there be limits to scientific research?

Do you think Frankenstein or Dr Moreau have gone too far? Why?

.....
.....
.....

Frankenstein and Dr Moreau are fictional characters. Could you think about real inventions that are **crossing the limits**?

.....
.....

What kind of limits are we talking about?

.....

HOMEWORK
What are you more afraid of? Circle and justify your answer.
Nuclear physics
Artificial intelligence and robotics
Chemical weapons
Genetic engineering (or genetic modification)

.....
.....
.....
.....

Timeline Lesson 4

STEP	Task	Time
0	Correction Homework: What are you more afraid of? Recap repetition chorale (feuille 1)	10
1	The Island of Dr Moreau (text)	20
2	Write the end of the dialogue (Group Work)	20
3	Rendu et correction test prépositions	5

Creative /kriˈeɪ.tɪv/
Laboratory /ləˈbɒr.ə.tər.i/
*Experiment /ɪkˈsper.ɪ.mənt/
Invention /ɪnˈven.ʃən/
Exposition /ˌek.spəˈzɪʃ.ən/
Exhibition /ˌek.sɪˈbɪʃ.ən/
Oxygen /ˈɒk.sɪ.dʒən/
*Ability əˈbɪl.ə.ti/
Study /ˈstʌd.i/
*Care /keər/
*Human genes /ˈhjuː.mən dʒiːnz/
*Scientific studies/ˌsaɪənˈtɪf.ɪkˈstʌd·iz/
*Design /dɪˈzaɪn/
Technical books /ˈtek.nɪ.kəl bʊks/
Practical /ˈpræk.tɪ.kəl/
Electric light bulb /iˈlek.trɪk
ˈlaɪt ˌbʌlb/
Home use /həʊm juːz/
Economical /ˌiː.kəˈnɒm.ɪ.kəl/
Lamp /læmp/
Industry /ˈɪn.də.stri/
Power /paʊər/

The Island of Dr. Moreau, 1896, H. G. Wells

The creatures I had seen were not men, had never been men. They were animals, humanised animals, —triumphs of vivisection.
‘You forget all that a skilled vivisector can do with living things,’ Moreau said. ‘For my own part, I’m puzzled why the things I have done here have not been done before. Small efforts, of course, have been made, —amputation, tongue-cutting, excisions.’
‘Of course,’ I replied. ‘But these foul creatures of yours—’
‘All in good time,’ said he, waving his hand at me; ‘I am only beginning. Those are trivial cases of alteration. Surgery can do better things than that.’
‘Monsters manufactured!’ I shouted. ‘Then you mean to tell me—’
‘Yes. These creatures you have seen are animals carved and wrought into new shapes. To that, to the study of the plasticity of living forms, my life has been devoted. I have studied for years, gaining in knowledge as I go. I see you look horrified, and yet I am telling you nothing new.

Read the text. Identify who the characters are.
Which one is the narrator? How do you know?

The narrator is learning something in this dialogue. What is it exactly?

What is the narrator’s reaction? How do you know?

What is the difference between Well’s book and the film adaptation you have seen?
How can you explain such a difference?

Pay attention to the highlighted sentence. What is the role of quotation marks? Why is said I not in the quotation marks? What is the role of the dash (—) here?

Write the end of the dialogue (10 lines)

Timeline Lesson 5: the Internet

STEP	Task	Time
0	Video Kids and the Internet (coupée et éditée) Video complète sur https://www.youtube.com/watch?v=d0mg9DxvfZE&list=PLs0PtdFfzX3yc8q nSBsgmIcGDBuHUlK-U&index=3 Step 1 (classe divisée en deux) →→ GROUP 1 Describe the people making the tutorial. In your opinion, how old is this tutorial? →→GROUP 2 Describe the reactions of the teenagers from today. + retour collectif	20
1	Write your own tutorial →→ Réécriture collective	15
2	Point prononciation browser/brother (projection tableau) Mettre vocabulaire à jour sur feuille.	10
3	Mots croisés	10

1

GROUP A

Describe the people making the tutorial.

In your opinion, how old is this tutorial?

GROUP B

Describe the reactions of the teenagers from today.

2

Can you make a better tutorial?

With your neighbour, write your own tutorial about what the Internet is and

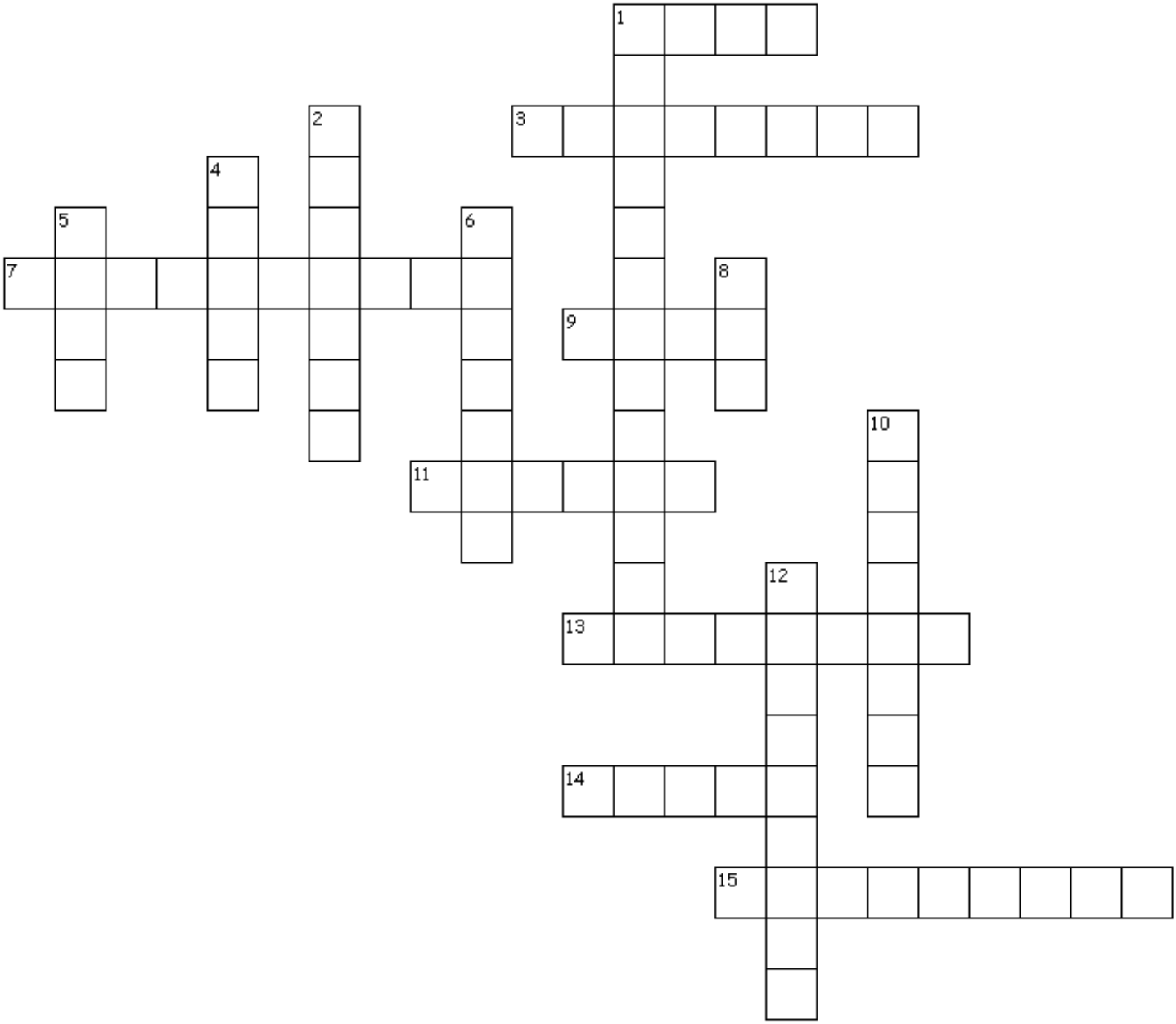
How to surf the Net (7 minutes)

HELPFUL VOCABULARY

a browser: un navigateur
a server
a network: un réseau
Wireless: /without wire/ sans fil
the Wi-Fi: a wireless local network
A computer
Communicate

Data: données

CROSSWORDS: THE INTERNET



Across 1. the co-inventor of the Internet 3. a machine that sends, receives, calculates, and stores information 7. Happening in all parts of a country 9. a wireless system for connecting to the Internet 11. an increase in size, amount, or degree 13. system of computer networks 14. Wide Web used at the beginning of website addresses 15. space vehicle that travels around Earth.

Down 1. the activity of exchanging information 2. a computer program for searching the Internet 4. device to provide shared computer processing resources 5. information 6. a group of connected things 8. the smallest unit of memory in a computer 10. to make larger 12. a fast connection between the computer and the Internet

Active or Passive?

At that time hackers ..... the network every
week (attack). Vint Cerf and Bob Kahn ……the
Internet (create).
We …….. progress in the fight against cyber criminality (make).
Facebook.....by a lawyer for failing to remove fake news
(sue=take to court)

Turn the previous sentences into their opposite form

→→ At that time the network …….
→→ The Internet ……
→→ For failing to remove fake news, a lawyer…….

According to you, what will happen in the future? Use Will + Verbe.

The Internet is very useful nowadays
In the next few years the Internet.....

Today hackers are difficult to catch.
Tomorrow……
……

In 2017 some people still don't know how to use
the Internet. In 10 years'
time everyone……..

There are quite a few problems with privacy on the Internet.
Tomorrow there……..

Timeline Lesson 6: the Internet

	STEP	Task	Time
1	Pair Work What is the Internet? Lecture individuelle puis travail par groupe de trois →→ répondre au questionnaire + correction.		20
2	Brainstorming Passive/active form Exercise passive/active form + rebrassage Will		15
3	Texte Tess Winlock + une écoute Audio https://www.youtube.com/watch?v=ZhEf7e4kopM		15
4	Point tâche intermédiaire : réviser les marques du dialogue		

TEXT 2

It has revolutionized our lives with its technical capabilities, but how did the Internet originate and how did it manage to spread across the world and reach more than a billion users?

The Internet is a global network of computers that works much like the postal system, only at sub-second speeds. Just as the postal service enables people to send one another envelopes containing messages, the Internet enables computers to send one another small packets of digital data.
For that to work, they use a common 'language' called TCP/IP (Transmission Control Protocol/Internet Protocol). If you are on the net, you have an IP address.

How it works

When you send a letter, you don't need to know about the vans, trains and planes that carry it to its destination, or how many post offices it passes through on the way. Nor do you need to know how your packets of Internet data are transmitted through a variety of cables, routers and host computers on the way to their destination.
However, different packets can take different routes, which makes the Internet relatively resilient. The failure of a particular node or host generally makes little or no difference to the rest of the system.
When you put an envelope in the post, it can contain many different types of data: a love letter, an invoice, a photograph, and so on. The Internet's data packets also carry different types of data for different applications. Common types include web pages, email messages, and large files that might be digital videos, music files or computer programs.
Today, the web is often used to provide an easy-to-use interface for numerous applications, including email, file transfer, Usenet newsgroups, and messages (Internet Relay Chat). This makes the web and the Internet appear to be the same thing. However, these applications existed before the web was invented, and can still run without it.

TEXT 1

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Origins of the net

The Internet traces its origins to the ARPAnet, created by the US Defence Department's Advanced Research Projects Agency in the 1960s. Many other networks were developed - some by commercial companies, some in different countries - but they couldn't easily talk to one another.
Vint Cerf and Bob Kahn developed TCP/IP, 'A Protocol for Packet Network Interconnection' (in 1974), to connect different networks. The Internet was thus a 'network of networks', although the Internet Protocol (IP) came to dominate networking.
At the end of 1969, there were only four computers on ARPAnet, and they were all at US universities. This grew to 5,000 Internet hosts in 1986, after which the number of users grew rapidly into the millions and then hundreds of millions.

TEXT 3

It has revolutionised our lives with its technical capabilities, but how did the internet originate and how did it manage to spread across the world and reach more than a billion users?

The Internet is a global network of computers that works much like the postal system, only at sub-second speeds. Just as the postal service enables people to send one another envelopes containing messages, the Internet enables computers to send one another small packets of digital data.

For that to work, they use a common ’language’ called TCP/IP (Transmission Control Protocol/Internet Protocol). If you are on the net, you have an IP address.

Global domination

The main reasons for this massive increase of users were the opening of what had been an academic and government network to commercial users, and its rapid spread from the US to the rest of the world.

Allied factors were the huge growth of the personal computer market in the 1980s, the invention of the World Wide Web by Tim Berners-Lee in the early 1990s, and the widespread adoption of broadband in the 2000s.

Web browsers have made the Internet easy enough for anyone to use. With relatively spread personal computers and the benefits of broadband, more than a billion people are using it.

Now that Internet access is becoming popular on mobile phones, the next billion users should be online fairly soon.

PAIR WORK

What was the network before the Internet? What was it called? Who created

it? Who invented the World Wide Web, and when?

How many people are using the Internet today?

What is transmitted via the Internet?

What made the Internet easy to use?

How many computers were connected to the network in 1969? Where were they?

What allowed the Internet to become so big?
1)
2)
3)
4)

Why is the Internet so resilient?

How the physical infrastructure of the Internet moves information.

https://www.youtube.com/watch?v=ZhE4kopM

There's also the question of what sort of cable to send these messages over and how far the signals can go. For the Internet to work all around the world, we need to have an alternative method to send bits really long distances, like across oceans.

So what else can we use? What do we know that moves a lot faster than just electricity through a wire? Light. We can actually send bits as light beams from one place to another using a fiber optic cable. A fiber optic cable is a thread of glass engineered to reflect light. When you send a beam of light down the cable, light bounces up and down the length of the cable until it is received on the other end. Depending on the bounce angle, we can actually send multiple bits simultaneously, all of them traveling at the speed of light. So fiber is really really fast. But more importantly the signal doesn't really degrade over long distances. This is how you can go hundreds of miles without signal loss, and that is not possible with copper cable. This is why we use fiber optic cables across the ocean floors to connect one continent to another.

In 2008 there was a cable that was actually cut near Alexandria, Egypt, which really interrupted the Internet for most of the Middle East and India. So we take this Internet thing for granted but it's really a pretty fragile, physical system. And fiber is awesome but it's also really expensive and hard to work with. For most purposes, you're going to find copper cable.

Tess Winlock

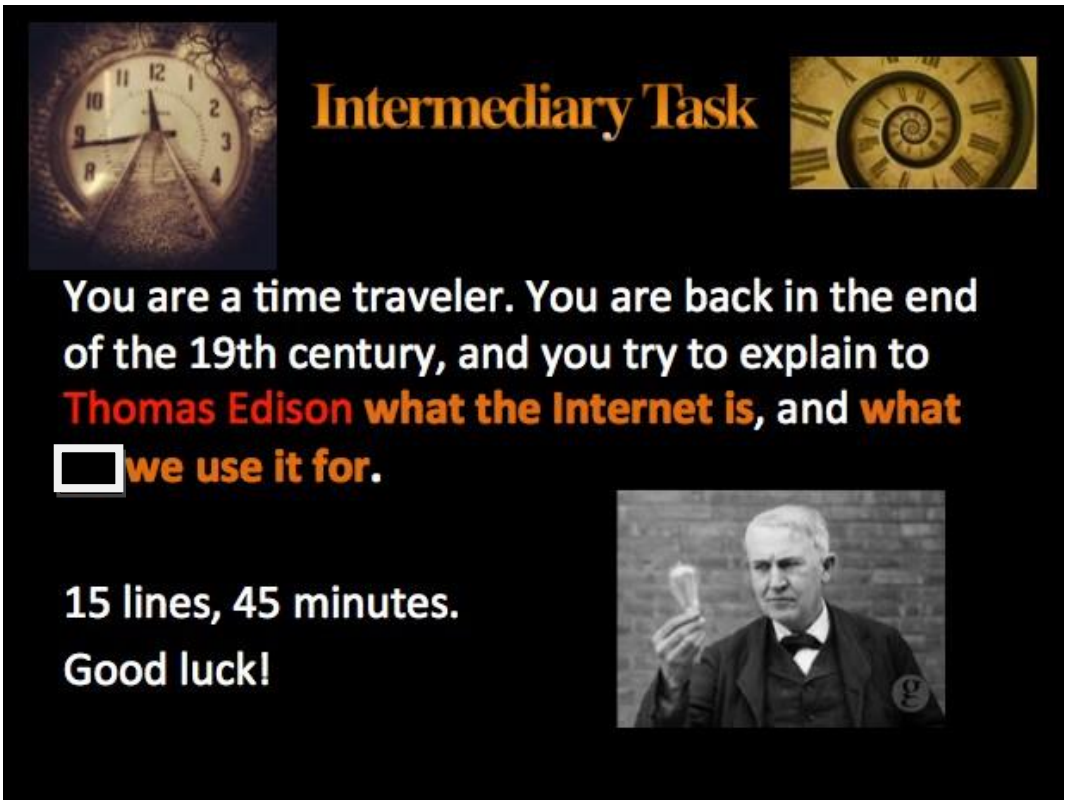
1) Describe the image

……
……
……
……

2) Find in the text the information relating to…

Copper cable	Fiber optic cable

Timeline Lesson 7: tâche intermédiaire



Timeline Lesson 8: E-waste

STEP	Task	Time
0	Texte E-Waste Individual work then compare your answers with your neighbour's	15
1	What should we do to tackle e-waste? (Group Work)	10
2	Exercise Should+ base Verbale et Should + have + V-en	15
	Rendu tâche intermédiaire. Exemple pris sur de bonnes copies d'élèves (Find a positive and a negative point in this dialogue. With your group, enrich the dialogue tags.	10
3	Homework Rendu tâche intermédiaire : Lire les éléments de correction de la tâche intermédiaire sur l'ENT (Powerpoint) Dans votre copie, trouvez une erreur correspondant à chaque rubrique et corrigez-la.	3

1) In the following text, underline…
…the words relating to high technologies (blue)
…. the words relating to toxicity (red)
2) Underline the passive verb forms.
3) List the 4 main pieces of information of the text.
4) What can you say about the ING form in "developing countries"?

Millions of mobile phones, laptops, tablets, toys, digital cameras and other electronic devices bought this Christmas are destined to create a flood of dangerous "e-waste" that is being dumped illegally in developing countries, the UN has warned.

The global volume of electronic waste is expected to grow by 33% in the next four years, when it will weigh the equivalent of eight of the great Egyptian pyramids, according to the UN's Step intitiative, which was set up to tackle the world's growing e-waste crisis. Last year nearly 50m tonnes of e-waste was generated worldwide – or about 7kg for every person on the planet. These are electronic goods made up of hundreds of different materials and containing toxic substances such as lead, mercury, cadmium, arsenic and flame retardants. An old-style CRT computer screen can contain up to 3kg of lead, for example.

Once in landfill, these toxic materials seep out into the environment, contaminating land, water and the air. In addition, devices are often dismantled in primitive conditions. Those who work at these sites suffer frequent bouts of illness.

John Vidal, The Guardian, 2014

SHOULD + Base Verbale

Affirmative	Negative
We should + Base verbale **Ex: We should buy more repairable electronics.**	**We shouldn't (should not) + Base Verbale** **Ex: We should not change our cell phone every year.** `

What should we do to tackle e-waste? (Group Work)

We should….
……
……
……
……
……
……
……
……
……

Exercise : SHOULD OR SHOULDN'T?

We ……..better care: E-waste is becoming a global epidemic with serious consequences. (take)

Most of the e-waste is shipped to developing countries for recycling *illegally*.
We ……. better control over shipping. (exercise)

Certain elements of e-waste are extremely toxic and have devastating effects on humans handling it in primitive conditions. We …… that to happen (allow).

The atmosphere, animal and marine life are also victims to toxins and pollutants coming from e-waste. We ……. them! (protect)

We …….. more about others: it is reported that 80% of all Asian children have high levels of lead in their systems as a result of massive handling of e-waste without proper protection measures. (care

SHOULD + have + V-en

→ permet d'exprimer le regret et le fait qu'on aurait dû faire autrement.

Ex: I should not have eaten so much chocolate. I feel sick.
ATTENTION:
Après should ou shouldn't, on utilise toujours HAVE + Participe Passé pour exprimer le regret dans le passé, jamais le preterit.
~~We should went there~~* →→ We should **have gone** there.

Affirmative	Negative
We should + Present Perfect **Ex: We should have bought more repairable electronics.**	**We shouldn't (should not) + Present Perfect** **Ex: We shouldn't have changed our cell phone every year.**

Change these sentences into past tense:

Ex: We should take better care: E-waste is becoming a global epidemic with serious consequences.
→ We should have taken better care: e-waste is becoming a global epidemic with serious consequences

Most of the e-waste is shipped to developing countries for recycling *illegally*.
We should exercise a better control over shipping.
→

Certain elements of e-waste are extremely toxic and have devastating effects on humans handling it in primitive conditions. We should not allow that to happen.
→

The atmosphere, animal and marine life are also victims to toxins and pollutants coming from e-waste. We should protect them!
→

We should care more about others: it is reported that 80% of all Asian children have high levels of lead in their systems as a result of massive handling of e-waste without proper protection measures.

→

How to write a dialogue: Find a positive and a negative element in this text.

Positive point: …ex: the quotation marks are correctly used……..

Negative point: …the dialogue tags are sometimes missing and we can't say who is speaking to whom……

Enrich your dialogue tags

To enrich your writing, you can diversify the verbs of your dialogue tags and use adverbs to describe the characters' attitude. Don't overuse them, though.

Ex: 'I love you', I whispered tenderly.
'Me too', he replied with tears in his eyes, and sat down in the sofa.
'I won't let you down', I said fiercely.

VERBS		
Ask	Say	Object
Reply	Tell	Suggest
Answer	Whisper	Remark
Shout	Insist	

ADVERBS and others		
Adverbs	**With + noun**	**V+ing**
Politely	With disgust	Looking sad
Angrily	With joy	Looking disappointed
Proudly	With a smile on her face	Waving his hand
Softly…	…	…

Exercise:
With your group, enrich the dialogue tags of your text.

Correction tâche intermédiaire (exemples en fonction des rendus).
Pour chaque rubrique, identifier une erreur dans votre copie et corrigez-la.

1. Attention

'I'd like to meet you', **said I**
est moins courant désormais que
'I'd like to meet you', **I said.**
Privilégiez la seconde forme de Dialogue Tag pour écrire un dialogue.

Temps de la narration: **simple past** quand on raconte, divers temps possibles lorsqu'on est dans les guillemets…

He …….. at me in disbelief (stare) →→ stared
'I …… (joke)', I …….. (reply). →→ 'I'm joking', I replied.

2. Question directe ou indirecte ?

Directe→→ What is it?
Indirecte→→ I'm going to tell you ~~what is it~~ what it is.
Attention également à bien inversion sujet auxiliaire dans les questions directes.

→→ How are you?
→→ How does it work?
→→ What do you mean?
→→ Are you crazy? (cas spécial be/ pas d'auxiliaire)
→→ Was he happy with his invention?
→→ Will they be famous for creating the Internet?

3. I will really like / I would really like

-> différence futur et conditionnel (J'aimerai/J'aimerais)
I will be there →→ je serai là
I would like to be there →→ j'aimerais être là

4. What's wrong with…

Internet→→ **The** Internet
For exemple→→ For ex**a**mple
Usefull →→ useful**l**
It look's like →→ It loo**ks** like
That's sound→→ That soun**ds**
Informations →→ Information (même pluriel)
Very fantastic→→ ~~Very~~ Fantastic
Very incredible→→ ~~Very~~ Incredible
Very cool→→ ~~Very~~ cool
Persons →→ People
Make a research: research (simply), or do some research

5. En général, l'anglais privilégie les formes verbales.

It's a gain of time*, cela ne se dit pas vraiment.
It saves time ←← YES.

6. Finally

To connect **to** the Internet
To listen **to** music
Play ~~**at**~~ video games
To explain **to** yo

	In your paper…	Correction
1		
2		
3		
4		
5		
6		

Timeline Lesson 9

STEP	Task	Time
-1	Cartoon Superbug What do you think that big green stuff is? What is the meaning of what is said in the bubble? What do you know about antibiotics? About antibiotic resistance?	10
0	Listen and repeat	2
	Quiz	10
1	Exercice should/shouldn't active/passive form	10
2	Point sur USED TO Group work: We are in 2090. A global pandemic killed 90% of the population. You are two historians, discussing about what could have been done to avoid the pandemic. Write a dialogue. Objectif : manipulation SHOULD/USED TO	15
3	Questions before Final task	5
4	Homework: read the game instructions for next time	2'

What do you think that big green thing is?
What is the meaning of what is said in the bubble?
What do you know about antibiotic resistance?

Quiz: How much do you know about antibiotic resistance?
By the World Health Organization (WHO).

1 Antibiotics are powerful medicines that kill:

- Viruses
- Bacteria
- All microbes

2 Antibiotic-resistant bacteria can spread to humans through:

- Contact with a person who has an antibiotic-resistant infection
- Contact with something that has touched a person who has an antibiotic-resistant infection (e.g. a health-workers' hands or instruments in a health facility with poor hygiene)
- Contact with a live animal, food or water carrying antibiotic-resistant bacteria.
- All of the above

3 Stop using antibiotics as soon as you feel better

- True
- False

4 What can happen if I get an antibiotic-resistant infection?

- I may be sick for longer
- I may have to visit my doctor more or be treated in hospital
- I may need more expensive medicine that may cause side effects
- All of the above

5 Antibiotic resistance is already out of control and it's only getting worse. There's nothing I can do.

- True
- False

6 I can help tackle antibiotic resistance if I:

- Stop taking antibiotics when I feel better
- Get antibiotics as soon as I feel sick - either directly from the pharmacy or a friend
- Keep my vaccinations up to date

1. Listen and repeat

superbug	/ˈsuː.pə.bʌg/
superbacteria	/ˈsuː.pə.bækˈtɪə.ri.ə/
cure	/kjʊər/
virus	/ˈvaɪə.rəs/
antibiotic resistance	/ˌæn.ti.baɪˈɒt.ɪk rɪˈzɪs.təns/
infection	/ɪnˈfek.ʃən/

disease	/dɪˈziːz/
health	/helθ/
illness	/ˈɪl.nəs/
sick	/sɪk/
side effects	/saɪd ɪˈfekt/

2. Should or Shouldn't ? Active or Passive form?

<u>Conjugate the verb using should or shouldn't. Passive or active: which form will you choose?</u>

Example: You (reuse) antibiotics: you won't have a sufficient dose for them to work and they may not work for your infection a second time.

→→ You **shouldn't reuse** antibiotics: you won't have a sufficient dose for them to work and they may not work for your infection a second time.

The misuse and overuse of antimicrobials is accelerating the process: we (overuse and misuse) antibiotics in people and animals.
→→
Antibiotics (give) without professional oversight.
→→
Antibiotics (take) by people with viral infections like colds and flu.
→→
Antibiotics (give) by people with bacterial infection.
→→
Antibiotics (give) as growth promoters in animals and fish.
→→
You (avoid) taking unnecessary antibiotics.
→→

Vocabulary:

Misuse: mal utiliser
Overuse: trop utiliser
Oversight: supervision
Growth promoters: agent de croissance

GROUP WORK
We are in 2090. A global pandemic killed 90% of the population. You are two historians, discussing about what could have been done to avoid the pandemic. Write a dialogue.
TOOLS: SIMPLE PAST, USED TO, SHOULD + HAVE + V-EN, your notebook for the vocabulary.
15 lines

How to talk about HABITS IN THE PAST?

When we talk about things that happened in the past but don't happen anymore, we can do it in at least two different ways.

We can use the **SIMPLE PAST**
→→ I **went** to the same beach every summer, until it was too polluted to swim in.
→→ We **took** antibiotics for viral infection. Resistant superbugs developed quickly. In 2037, a global pandemic killed millions of people.

We can use **USED TO + BASE VERBALE (active or passive form)**
→→ We **used to take** antibiotics for viral infections. Resistant superbugs developed quickly. In 2037, a global pandemic killed millions of people.
→→ Antibiotics …….…….. (give) for viral infections.

BEFORE FINAL TASK on INVENTIONS
Important vocabulary

Nouns:
Inventor
Invention, innovation
Gadget
Device
Design
Wire, cable
Vacuum
Achievement
Computer
Network
Electric age
Electric lighting system
Climate change
Waste, e-waste
Dump
Trash, Garbage
Landfill
Satellite
Laboratory
Experiment
Industry
Exhibition
Human genes
Ability
Study, studies
Research project
Communication
Artificial intelligence
Robotics
Chemical weapons
Nuclear physics
Data
Growth
Browser ≠ brother
Software
The Internet
Information
The Wi-Fi
Bug, superbug
Antibiotics
Pollutants
Environment
Cell phone
Microbial resistance
Cure
Medicine
Vaccine

Adjectives
Useful≠ useless
Be convenient, effective, practical
Safe, harmless, innocuous ≠dangerous
Low-tech ≠ high-tech
Toxic
Polluted, polluting, eco-destructive
Green, eco-friendly, ecological
Obsolete
Worldwide
Creative
Puzzled: confused
Huge ≠ small
Widespread
Wireless
Devastating

Verbs:

Care
Spend time
Manufacture, make
Create (an object)
Decipher
Design
Be able to
Communicate
Search (information)
Connect **to** the Internet
Listen **to** music
Explain **to** someone
Play video games
Research
Grow
Increase
Pollute
Cross the limits
Go too far
prevent
Take (better) care
Trash (the planet)
Have devastating effects
Recycle
Waste/Garbage/Trash
E-waste
Dump
Throw away
Improve (our lives)
Pay attention to
Repair, fix
Cure
Provide

Miscellaneous:
Be made of (something)

Grammar
→→ We use it to, it can be useful to…
→→ Questions directes/indirectes :
Directe→→ What **is it**?
Indirecte→→ I'm going to tell you what **it is**.
→→ SHOULD + have + V-en (pour exprimer un regret dans le passé = Captain Hindsight)
→→Prepositions
→→Superlatifs/comparatifs
→→ USED TO

Homework

You are a member of a space crew scheduled to rendezvous with a mother ship on the lighted surface of the moon. However, due to mechanical difficulties, your own ship was forced to land at a spot 200 miles from the rendezvous point.

During landing, much of the equipment aboard was damaged and, since survival depends on reaching the mother ship, **the most important items** available must be chosen for the 200-mile trip.

15 items are listed as being intact and undamaged after landing. Your task is to rank them in terms of their importance for your crew, to allow them to reach the rendezvous point. Place the number 1 by the most important item, the number 2 by the second most important, and so on through to number 15 for the least important.

Timeline Lesson 10

STEP	Task	Time
2	Jeu The Moon Landing Game: Could you survive on the moon? Can you do as good as NASA? **ENGLISH ONLY is part of the game.** 1. Provide a 'moon landing ranking chart' for every member of your group. 2. Ask each young person to take 7 minutes to decide their own rankings, and record the choices in the left-hand column. **3.** Groups of 3-4. Discuss your individual choices and refine their rankings based on the collective thoughts of the team. Record the group rankings in the second column (team rankings). **English only (French speaking will cost points to your team)** 4. Display the NASA 'expert' rankings. Compare your individual and group answers with the correct answers and determine a score. 5. For each item, mark the number of points that your score differs from the NASA ranking and then add up all the points. **The lower the total, the better your score.** Which team has the lowest score?	25
2	Compréhension écrite Eugene A. Cernan	20

Moon Landing Ranking Chart

My ranking	Salvaged items	Team ranking
	Box of matches	
	Food concentrate	
	50 feet of nylon rope	
	Parachute silk	
	Two .45 caliber pistols	
	One case of dehydrated milk	
	Two 100-pound tanks of oxygen	
	Stellar map	
	Self-inflating life raft	
	Magnetic compass	
	Five gallons of water	
	Signal flares	
	First aid kit containing injection needles	
	Solar powered FM receiver	
	Portable heating unit	
Score		Score

Food concentrate

50 feet of nylon rope

Parachute silk

Two .45 caliber pistols

Two 100-pound tanks of oxygen

Stellar map

Self-inflating life raft

Portable heating unit

Magnetic compass

Signal flares

First aid kit containing injection needles

Solar powered FM receiver

A foot is equal to 30 centimetres
A gallon is equal to 3,7 litres
A pound is equal to 0,5 kilos
A mile is equal to 1,6 kilometres.

NASA Expert Analysis

Item	NASA Ranking	NASA's Reasoning
Box of matches	**15**	Virtually worthless -- there's no oxygen on the moon to sustain combustion.
Food concentrate	**4**	Efficient means of supplying energy requirements.
50 feet of nylon rope	**6**	Useful in scaling cliffs and tying injured together.
Parachute silk	**8**	Protection from the sun's rays.
Portable heating unit	**13**	Not needed unless on the dark side.
Two .45 caliber pistols	**11**	Possible means of self-propulsion.
One case of dehydrated milk	**12**	Bulkier duplication of food concentrate.
Two 100 lb. tanks of oxygen	**1**	Most pressing survival need (weight is not a factor since gravity is one-sixth of the Earth's -- each tank would weigh only about 17 lbs. on the moon.)
Stellar map	**3**	Primary means of navigation - star patterns appear essentially identical on the moon as on Earth.
Self-inflating life raft	**9**	CO_2 bottle in military raft may be used for propulsion.
Magnetic compass	**14**	The magnetic field on the moon is not polarized, so it's worthless for navigation.
5 gallons of water	**2**	Needed for replacement of tremendous liquid loss on the light side.
Signal flares	**10**	Use as distress signal when the mother ship is sighted.
First aid kit, including injection needle	**7**	Needles connected to vials of vitamins, medicines, etc. will fit special aperture in NASA space suit.
Solar-powered FM receiver-transmitter	**5**	For communication with mother ship (but FM requires line-of-sight transmission and can only be used over short ranges.)

Scores

00 - 25	**Excellent.**	You and your crew demonstrate great survival skills!
26 - 32	**Good.**	Above average results. Yes, you made it!
33 - 45	**Average.**	It was a struggle, but you made it in the end!
46 - 55	**Fair.**	At least you're still alive, but only just!
56 - 70	**Poor.**	Sadly not everyone made it back to the mother ship!
71 +	**Very poor**	Oh dear, your bodies lie lifeless on the surface of the moon!

Eugene A. Cernan, the commander of the Apollo 17 lunar-landing mission and the last human to walk on the moon, died on Monday in Houston. He was 82. His death was announced by NASA.

Three and a half years after Neil A. Armstrong took mankind's first step onto the lunar surface in 1969, Mr. Cernan, a Navy captain and one of the nation's most experienced astronauts, landed with a geologist-astronaut near the Sea of Serenity.

His mission was a technological triumph. While Ronald E. Evans, a Navy commander, piloted a command ship in lunar orbit, Captain Cernan and Harrison H. Schmitt, the first scientist to go to the moon, descended to the airless, soundless surface in a four-legged lander that settled in a narrow valley of craters. After a 250,000-mile voyage from Earth, they put down 300 feet from their target. He and Dr. Schmitt found themselves in a desolate but recognizable landscape near the Taurus Mountains and the Littrow Crater, a region of hills and cliffs littered with rocks.

After establishing a nuclear-powered base station, they set up scientific experiments and began three days of explorations on foot and in a battery-powered rover mounted with a television camera. The astronauts collected rocks four billion years old, drilled eight-foot heat-probe holes and journeyed to a 7,000-foot mountain called the South Massif and to the edge of a deep crater.

QUIZ.

Pick up the words describing the surface of the moon (nouns, group of words and names). /5

Circle the right answer:

When did Cernan walk on the moon? /1

1. in 1972 2. In 1969 3. 1982

Who was he with? /1

1. Amstrong 2. Ronald E Evans 3. Harrisson H. Schmitt

How long was their trip from Earth? /1

1. Approximately 400 000 kilometres 2. Approximately 800 000 kilometres

What did they do? /2

1. They did scientific research 2. They explored the surface of the moon for 8 days
3. They brought back samples of stones 4. They went to a big volcano
5. They set up a base camp 6. They climbed up a mountain.

Tâche finale