L3 English Course
UL3LVAN1

Student Booklet 2025-26

Mathematics
Physics
Computer Science
Electronics
Mechanics

Language Department

Contents

Introduction

The course for L3 students aims first and foremost at reinforcing the students' language skills (listening and reading comprehension, written and oral production, oral interaction) so that they can use them as efficiently as possible in the scientific field they specialize in and reach the B2 level of the CECRL.

Students are placed in different level groups on the basis of their score at the placement test they take at the beginning of the semester.

The course for L3 students consists of 12 two-hour classes. Students who miss a class must give their teacher an official written justification of their absence.

Evaluation

⇒ 60 %: end-of-term exams
- oral comprehension (20%)
- written comprehension (20%)
- essay (300- 350 words, 20 %)

⇒ 40 %: in class
- oral presentation (20%)
- essay (10%)
- classwork (10%)

The booklet

The articles, videos and audio documents used here are real-life sources. The worksheets are past exams that can be used in class to prepare for the various assessments and improve linguistic skills. Of course, other documents may be used towards the same goals.

Moodle

Please make sure to connect regularly on the LU3LVAN1 page to check for practical information and content (contacts, planning, methodology, activities…).

Language Certifications

Many students require official documentation certifying their language skills in order to candidate for a Master's or finding an internship abroad.

Several organisations (CLES, TOIEC, TOEFL, Cambridge English, IELTS…) provide certifications. Depending on your needs you might need to take a specific one as they offer different services for different recipients.

The university provides B1/B2 and C1 certifications with the CLES (more information on Moodle). These tests are organized on campus.

The Oral Presentation

The presentation will deal with a topic related to your specialization.

Your grade will be based on 3 criteria: **Content, Language, Presentation Skills**

- It will be a 10-min. presentation, 5 min. per student. Students will work in pairs.
- Speakers will not alternate but give their speech as a block.
- The presentation will be based on a slide-show that will contain only key-words and illustrations (no full sentences).
- Speakers will not be allowed to read from notes or an electronic device.
- A logical structure will be necessary (introduction, two parts minimum, a conclusion and a bibliography).
- Rehearsing is highly recommended.
- Questions will be asked by students and teacher after the presentation.

Writing an Essay

The introduction

You have to **analyse the subject** carefully and **present the problem** that leads to the question you are going to deal with in your essay. Then you **introduce the body of your essa**y as elegantly as possible.

The body of the essay

You have to highlight **the issue at stake** and its different **implications** that you will then try to clarify using various relevant **examples**.

1. You have to develop **a personal analysis** of the issue, exploring **different aspects** of the problem. The point is to develop ideas **in a logical way** (from the simplest idea to more complex interactions) and you will use **examples to illustrate your statements**.

2. You have to develop **at least two parts** in your essay. Make sure you always **stick to the subject**, and **do not get carried away** (do not dwell too long on one example, do not make radical or simplistic statements).

3. You should not make your essay sound like an ordinary conversation (do not use informal language).**Do not use contracted forms** in your essay (you're = you are; we mustn't = we must not; etc.)

The conclusion

Do not forget to **sum up the main ideas** developed in the essay and try to reach some sort of **conclusion** (it is the end of your demonstration!).

If possible, try **to link the issue at stake with another topic** that you feel merits further study.

MATTERS OF TRUST

LC: Integrity in Research

You will listen to the audio document three times.

The questions follow the order of the recording.

You must answer the questions as accurately as possible. You are allowed to quote.

1. Fill in the gaps: (4)

Scientists - like the rest of us I guess - do not always behave perfectly. They may sometimes cut _ _ _ _ _ _ _ _ _ _ _ _ or even occasionally commit _ _ _ _ _ _ _ _ _ _ _ _ _to keep their careers alive. The National Academy of Sciences, Engineering, and Medicine has standards for appropriate _ _ _ _ _ _ _ _ _ _ _ , and they've just _ _ _ _ _ _ _ _ _ _ them for the first time in _ _ _ _ _ _ _ years. NPR's Richard Harris says the new standards _ _ _ _ _ _ _ _ _ _ not just on individual bad actors. They also consider bad _ _ _ _ _ _ _ _ _ _ _ _ _within the _ _ _ _ _ _ _ _ _ environment.

2. What is Robert Nerem's job? (1)

3. What was he asked to do? (1)

4. He soon realized 'science had changed'.
   Complete the sentence: It is now _ _ _ _ _ _ _ _ _ _ _ _ _and _ _ _ _ _ _ _ _ _ _ _ _ _? (1)

5. What did scientists realize, not long ago, about scientific experiments? Why is that essential in science? (2)

6. Complete the sentence: In the US, research misconduct is formally defined as … (1.5)

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ of data, _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ or _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

7. Give 2 examples of detrimental research practices. (2)

8. Circle TRUE or FALSE for each of the statements below. (2.5)

a. TRUE / FALSE Nerem thinks detrimental research practices have a trivial impact on science compared with research misconduct.

b. TRUE / FALSE Gunsalus thinks that detrimental research practices can cause as much damage as research misconduct.

c. TRUE / FALSE Gunsalus says that valuable research can only be done by brilliant people working with high-tech equipment; the rest is a waste of time.

d. TRUE / FALSE A lack of funds can push researchers to behave in an inappropriate way.

e. TRUE / FALSE According to Gunsalus, the problem will be solved once researchers get rid of the bad apples.

9. What solutions have been put forward to solve the issue of research misconduct and detrimental research practices? Give 2 examples. (2)

10. Why does the scientific community feel science is 'under siege' in Washington? (2)

11. What are scientists determined to do? (1)

ESSAY

Instructions:

Choose **<u>one</u>** of the essay subjects and answer the question in at least 300 words (450 words maximum).

Use your own words: do not cut and paste from the column as this will be penalized.

1. Flat earthers, anti-vaxxers, climate change skeptics seem to be increasing: should scientists fight against their theories or should they ignore them?

2. To what extent is it necessary to question science to allow it to progress?

RC: From the anti-vaxxers to flat earthers: what makes people distrust science?

https://globalnews.ca/, March 2019

1.From the anti-vaccine movement to the belief that the earth is flat, there seems to a growing distrust of science and institutions, and experts say it's difficult to come up with an antidote to the erosion.

2. A distrust in scientific institutions and conspiracy theories are nothing new. Some say that *the moon landing was a hoax* and then there are those who insist shape-shifting lizards in human form are in **a plot** to rule the world.

3. But the recent rise of flat earthers, anti-vaxxers and climate change skeptics seems to have caught people's imagination and fueled wariness of science. Over the past few years, the flat earth community has sprung up online questioning the validity of a scientific fact — that the earth is round and rotates around the sun. And even though the link between vaccinations and autism has been scientifically debunked several times, some still question the institutions that provide this **evidence**. But are these movements on the rise or have they always been there?

4. Some researchers believe YouTube has contributed to a rise in the number of people who believe the earth is flat. A study by researchers at Texas Tech University interviewed people who had attended the Flat Earth International Conference in recent years, and *a majority credited YouTube as their gateway into the community*. According to the researchers, some attendees said that they had been watching flat earth videos in order to debunk them, but became **inadvertently** convinced.

5. Dr. Harry Dyer, a lecturer in education at the University of East Anglia, said the rapid growth of the internet has made it easier for conspiracy theorists to find each other.

6."I don't see distrust of science on the rise right now, I just see more people speaking out about the distrust," he said. "It used to be the **odd** person at the bar speaking about these things, but now these people have a platform."

7.Experts now have less power than they used to because *the traditional gatekeepers of knowledge* have been lifted through social media, he explained. For example, when rapper B.o.B[1] tweeted about his belief that the Earth is flat in 2016, *the post went viral*.

Dyer said on social media, everyone can have a say about the shape of the Earth. Whether it's B.o.B or a scientist like Neil deGrasse Tyson[2], both have equal footing online.

8."The control of knowledge had **previously** been in a few institutions. Now we are seeing the knowledge of people who **pry** away from those institutions, and there are several different realities. That is why it's hard to talk to flat-earthers — you cannot agree on basic facts," he said.

9.Humans have evolved to have cognitive biases, said Bastiaan Rutjens, a psychology professor at the University of Amsterdam. This brain tool was useful when we were hunters and gatherers, he explained.

10. "A consequence of this is that we too quickly think things are related, such as vaccines causing autism." Rutjens said. "This really **resonates** with people, as we do see an increase

[1] B.o.B is an American rapper who became a member of the Flat Earth Society in 2016.

[2] Neil deGrasse Tyson is an American astrophysicist.

in vaccinations and an increase in autism diagnosis, and then we are quick to believe they must be correlated."

11.But he said this is not the case for vaccines as the autism theory has been **debunked** several times.

12.This is the "correlation versus causation" effect. A famous example of this is that rates of violent crime and murder have been known to jump when ice cream sales do. Does this mean that eating cream causes us to commit violent crime? Probably not.

"We are jumping to conclusions too fast, and connecting events that are far more complicated," Rutjens said.

13.Take, for example, the anti-vaccine movement. The number of recorded measles[3] cases in Europe more than tripled between 2017 and 2018, marking the highest it's been in a decade, the World Health Organization said. And the rise in a measles outbreak in Europe and the U.S. (and even parts of British Columbia) is because of a steadily growing anti-vaccination movement, experts say.

14."Measles is incredibly infectious," Dr. Benjamin Mazer, a doctor at Yale-New Haven Hospital, said. "And the measles vaccine is also one of the most effective vaccines." He said there is a distrust of the profit motive in medicine and pharmaceutical companies, leading many to believe vaccines cause more damage than good, despite science saying otherwise.

15.Rutjens believes humanity is not doomed by this. Scientists just need to find new, creative ways to connect with people who are **distrustful**.

Getting **mad** at your family member or friend for believing the earth is flat or that vaccines cause autism isn't going to persuade them to stop thinking that way, Motta explained.

16."The reason why people hold these views is not that they are stupid, it's that they are motivated," Motta said. "So telling people 'You are wrong here,' is not going to win them over, but is actually going to backfire."

17.Rutjens believes that feeding people more information isn't likely going to change someone's mind. For example, political conservatives who are highly educated are especially skeptical about climate change, so giving them more knowledge, in this case, is not very helpful. "We have to start by taking seriously the moral issues people have on GMOs, vaccine and climate change and understand ways to work with their values rather than contradicting them," he said.

18."With anti-vaxxers, you cannot just say, 'You are just wrong and here are risks.' That is not going to cut it. You have to work with people, not against, and understand the psychology and political sources that may motivate their thinking," Rutjens said.

[3] measles = *la rougeole*

I. Using the information given in the article, answer the following questions in your own words. (14 points) COPYING AND PASTING THE TEXT = 0 MAKE COMPLETE SENTENCES

A. General Comprehension

1. What are the causes of the rising distrust of science and scientific institutions? (80 words) (3 points) Mention at least 3 reasons.

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2. According to the experts interviewed for the article when it comes to dealing with flat-earthers, climate change skeptics or anti-vaxxers, which strategies will NOT help change their minds? Which strategy will prove more effective? (50-60 words) (3 points)

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3. Explain the origin and the consequences of the anti-vaccine movement: why do some people refuse to have their children vaccinated against measles? What harm can it cause? (50-60 words) (3 points)

B. Detailed Comprehension

Explain the phrases/sentences below. Use your own words. For **e**, focus on the underlined portion of the sentence. (5 points)

a. the moon landing was a hoax.

b. a majority [of people] credited YouTube as their gateway into the community.

c. the traditional gatekeepers of knowledge.

d. the post went viral.

e. Whether it's B.o.B or a scientist like Neil deGrasse Tyson, <u>both have equal footing</u> online.

II. Decide whether the following statements are true or false.

Circle the right letter (T = True/F = False) and indicate where you found the information justifying your choice (Paragraphs + QUOTES) (6 points)

a. T F Scientists have demonstrated that there is a link between vaccines and autism.

b. T F The Flat Earth International Conference has been held at Texas Tech University more than once.

c. T F According to Dyer, there are not many more conspiracy theorists today but they are more visible because of the internet.

d. T F Rutjens thinks conspiracy theories will not lead humanity to its end.

e. T F According to Motta, contradicting flat-earthers or anti-vaxxers is not always enough but it is not counterproductive either.

f. T F When people have a college education, a few more science-based facts will convince them that climate change is real.

III. Rephrase the underlined portions of the sentences. (0.5 point per item) (5 points)

1. It's difficult to come up with an antidote

2. The recent rise of flat earthers […] seems to have […] fueled wariness of science

3. The flat earth community has sprung up online questioning the validity of a scientific fact.

4. Rates of violent crime and murder have been known to jump when ice cream sales do.

5. […] leading many to believe vaccines cause more damage than good, despite science saying otherwise.

IV. Choose the right synonym. (5 points)

1.	**a plot**			
a.	a scheme	b. a tale	c. a theory	d. a puzzle
2.	**evidence**			
a.	demonstrate	b. obvious	c. investigation	d. proof
3.	**inadvertently**			
a.	knowingly	b. accidentally	c. suddenly	d. unexpectedly
4.	**odd**			
a.	weird	b. occasional	c. insane	d. drunk
5.	**previously**			
a.	prior	b. yet	c. once	d. former
6.	**pry**			
a.	create groups	b. make speeches	c. flourish	d. make inquiries
7.	**resonates**			
a.	reverberates alarm	b. strikes a chord	c. is amplified	d. sounds the
8.	**debunked**			
a.	upheld	b. disproved	c. falsified	d. confirmed
9.	**mad**			
a.	crazy	b. wild	c. angry	d. foolish
10.	**distrustful**			
a.	suspicious	b. agnostic	c. gullible	d. ambiguous

A LIVEABLE PLANET FOR THE FUTURE

LC: Vertical Farming

BBC News, 22/09/2024

1. Fill in the blanks: /3

"With short summers and a cold climate and a landscape of lava fields and _____ , Iceland's not the first place you'd think of for farming, but _____ entrepreneurs are growing some surprising crops and doing it_____. Inside this _____ on the outskirts of Reykjavik is a _____ Farm. "Vaksa" means grow in Icelandic and they're cultivating leafy greens more like a _____ than a typical farm this is what's known as controlled environment agriculture."

2. Holmfiour Armadottir, sustainability manager, explains that everything is **optimized**. What aspects are being optimized exactly? (she mentions 4) /2

_____ _____ _____ _____

3. What kind of lights are being used to grow the plants? /1

_____

4. What seasons do the plants grow?

/1

_____

5. How do we call growing plants without using soil ? /1

_____

What is the benefit? /1

_____

Using Geothermal energy

6. What is the advantage of geothermal energy when it comes to innovation? /1

_____

Inside the "energy to food" platform

7. What do they grow inside these vertical units? /1

_____

8. Why it could be a 'food of the future': What does it contain?

/2

_____

_____

9. Is it part of our diet today? (circle the right answer) /1

YES NO

10. According to the manager, why is this system energy-efficient? /1

_____

11. What do they use AI for? /1

_____

12. Where does the energy come from? /1

_____

14. Fill in the blank /1

The algae, they are extremely efficient in changing light into _____

15. Fill in the blanks: /2

"it also _____ very fast and once _____ it looks like this which to be frank doesn't seem hugely _____ so time to_____."

RC: Data centers, backbone of the digital economy, face water scarcity and climate risk

August 30, 2022 ,By Michael Copley

1 Data centers are springing up around the world to handle the torrent of information from the expanding web of devices ingrained in people's lives and the economy. Managing that digital information gusher is big business. It also comes with hidden environmental costs.

For years, companies that operate data centers have faced scrutiny for the huge amounts of electricity they use storing and moving digital information like emails and videos. Now, the U.S. public is beginning to take notice of the water many facilities require to keep from overheating. Like cooling systems in large office buildings, water often is evaporated in data center cooling towers, leaving behind salty wastewater known as blowdown that has to be treated by local utilities.

2 That reliance on water poses a growing risk to data centers, as computing needs skyrocket at the same time that climate change exacerbates drought. About 20% of data centers in the United States already rely on watersheds that are under moderate to high stress from drought and other factors, according to a paper co-authored last year by Arman Shehabi, a research scientist at Lawrence Berkeley National Laboratory.

3 Yet relatively few companies have been willing to talk about the issue publicly because of the still-limited attention it gets. Sustainalytics, which assesses risks related to environmental, social and governance (ESG) issues, recently said it looked at 122 companies that operate data centers and found just 16% had disclosed information about their plans for managing water-related risks. "The reason there's not a lot of transparency, simply put, [is] I think most companies don't have a good story here," says Kyle Myers, a vice president at CyrusOne, a data center company. The challenge comes down to a basic tradeoff companies face in trying to keep data centers cool, Myers says. They can either consume less water and use more electricity. Or they can use less energy and consume more water. "Water is super cheap," Myers says. "And so people make the financial decision that it makes sense to consume water."

4 In addition to their own cooling needs, data centers rely on power plants that often require a lot of water to operate. Pushback is already emerging. In the United States, there are about 2,600 data centers, many of which are clustered around Dallas, the San Francisco Bay area and Los Angeles, according to a 2021 report by the U.S. International Trade Commission. All told, a mid-sized data center consumes around 300,000 gallons of water a day, or about as much as 1,000 U.S. households, says Shehabi of Lawrence Berkeley National Laboratory. Their direct, on-site consumption ranks data centers among the top 10 water users in America's industrial and commercial sectors. Water is "front and center on [the industry's] radar, for sure," says Todd Reeve, CEO of Business for Water Stewardship, which works with companies on water issues.

5 Recently, some data center companies have faced opposition from communities and water conservationists. In 2015, the city of Chandler, Ariz., passed an ordinance allowing officials to turn down requests for new water uses if they are not aligned with the city's plan for economic development. And in 2019, Google agreed to limit its use of groundwater in South Carolina after a two-year fight with local groups that had raised concerns that aquifers were being depleted. Companies "are developing tactics and strategies, in some cases changing their ideas and their plans for where they will operate or where they will construct data centers, in large part because of the emerging water issues," Reeve says. However, many companies won't talk about their activities, he says, in part because "this is a new and upcoming issue, [and] our knowledge of water stress is evolving very quickly."

6 The impacts of worsening drought are being felt throughout the global economy. Rivers that serve as crucial trade routes in Europe are running low. Factories in China have closed to save water and electricity. And American industries that rely on water from the Colorado River could see their supplies

shut off amidst a decades-long drought."Which sector is going to get the water? How [is] water going to be prioritized? So, these are the types of considerations, I believe, that will be important to consider more and more in the future," says Kata Molnar, a water expert at Sustainalytics. Among those in the data center industry willing to speak out are some of the world's biggest tech companies.

7 Google, Microsoft and Facebook parent Meta have all said they will replenish more water than they consume by 2030. Approaches being considered include working with local water utilities, better recycling of water data centers use and less water-intensive cooling methods. "Minimizing our water use, being transparent with our water data, and restoring water in high water stress regions are key pillars of our water stewardship program," Meta said in a statement. The company says most of its data centers reduce water consumption by using outdoor air for cooling.

8 In addition to using new technology, some experts have said companies can reduce their environmental footprint by building data centers in places with plenty of water. For now, however, real estate decisions appear to be primarily dictated by where customers are located."When we're siting[1], we look at the availability of power and we look at water," says Myers of CyrusOne. "But I don't think we're close to a world where we're just going to set up in an area that doesn't have a natural [business] advantage for data centers."

1. Multiple Choice Questions: Circle ONE ANSWER + JUSTIFY by quoting a few words (4 pts)

I. **The main purpose of using water in data centers is…**	II. **Water is also used by…**	III. **Regarding the water issue, data center companies…**	IV. **Three major tech companies are committed to…**
a) to maintain a reasonable level of moisture in the buildings. b) to make sure infrastructures do not get too hot. c) to avoid using a polluting energy source.	a) large office buildings. b) Lawrence Berkeley National Laboratory. c) power plants.	a) are usually silent but a few of the main ones accept to communicate. b) refuse to communicate. c) are open to transparency.	a) producing water before the end of the decade. b) replacing water with wind farms before the end of the decade. c) compensating for the water they will use before the end of the decade.
Justify	Justify	Justify	Justify

2. Answer the following questions using YOUR OWN WORDS:

REPHRASE Text, <u>DO NOT copy or quote.</u> (8 pts 4X2)

a. Which two aggravating factors make the present situation more and more worrying for data centers?

-

-

[1] to site: to look for a location

b. Which other method for cooling facilities do data centers have? Why don't they use it?

c. Summarize how Google, Microsoft and Meta plan to achieve their 2030 water management objective.

d. Give two of the three conditions that are essential for the location of data centers.

3. Explain the underlined phrases IN YOUR OWN WORDS. (5 pts)

a. Paragraph 1 – "Data centers are springing up around the world to handle the torrent of information"

b. Paragraph 1 – "For years, companies that operate data centers have faced scrutiny for the huge amounts of electricity they use"

c. Paragraph 4 - Water is "front and center on [the industry's] radar" (…)

d. Paragraph 5 – "(…) local groups that had raised concerns that aquifers were being depleted"

e.Paragraph 6 – "worsening drought"

4. True or False: Circle ONE ANSWER + Justify by quoting a few words (3 pts)

I. **The American data centers are scattered across the country.**	II. **Data center companies remain rigid in the face of local resistance.**	III. **Climate change affects industry and commerce worldwide.**
TRUE / FALSE	TRUE / FALSE	TRUE / FALSE
Justify:	Justify:	Justify:

ESSAY:

1. Is it possible to conciliate our use of digital devices and the protection of natural resources?
2. Water: a major issue of the future. How should we manage it in order to sustain life on earth?

BEYOND EARTH

LC: Life on Mars

1) What legal document is mentioned? /2

The _____ _____ _____ of _____

2) True or False? Circle your answer. /1

- True / False: Anybody can legally build a base on the Moon or Mars.

3) Fill in the blanks. /1.5

"First you would have to set up your _____ and probably initially it would be just like a _____ that got sent from Earth and you know _____ on a rocket to the surface of Mars."

4) What danger would you face in a geodesic dome? /2

-

-

5) Fill in the blanks. /3

"Most of the proposals I've seen _____ taking regolith, that dirt on the surface of Mars which is nasty, toxic, jagged stuff and _____ literally meters of it _____ your habitat. And that surprised me, I didn't _____ it would be living like _____ people. I thought it would be a more beautiful _____ than that."

6) What type of food will initially be available? /2

_____ _____ _____ of food

that you _____

7) True or False? Circle your answer. /1

- True / False: There is water on Mars but it is toxic

8) What does “yesterday’s coffee” refer to? /1

9) True or False? Circle your answer. /2

- True / False : You can use regolith to grow plants.
- True / False: You would have to be vegetarian.

10) Fill in the blanks: /1.5

“Mars only has _____ of _____

_____”

11) How does that affect Astronauts? /2

-

-

12) How is that a problem for pregnant women? /1

RC: Fifty Years on, Is there any Point in Returning to the Moon?

New Stateman By Tony Milligan, July 19, 2019

In the five decades since Buzz Aldrin and Neil Armstrong first set foot on the moon, our philosophical reasons for going into outer space haven't become any clearer.

Going to the Moon is a bit like going south with Ernest Shackleton to the Pole, or rowing across the Atlantic in a dinghy. Such endeavours may take a great deal of courage, effort and dedication, but *the reasons we undertake these dangerous feats remain unclear*. Doing them twice is even harder to understand.

Nasa points to "spin-offs", or technologies that benefit life on earth and justify space exploration. Freeze drying, cordless vacuums, enriched baby food and scratch-resistant lenses were all **pioneered** through space travel.

But no human ever *needs* to go deeper into what Aldrin called the Moon's "magnificent desolation" in order to drive technological innovation or economic growth. The story of the Apollo mission is not primarily one of economic efficiency or technology, but something deeper and more human.

Consider Richard Branson, for example. **To date**, his promotion of commercial space tourism in sub-orbital flights has been an enormous hole into which he has poured a great deal of his own money and that of other investors. So why has Branson persisted?

No doubt he would like to make money **eventually**, and one day his company, Virgin Galactic, may **do so**. But part of his motivation is more difficult to explain. It transcends economic reasoning. Branson wants to go into space, and he wants others to have this same opportunity. What does he hope we might gain from doing so?

To understand the reasons for space travel, we can think of it according to three lines of argument: one ethical, one educational and one colonial. The ethical argument goes like this: we need a new frontier, or a grand challenge to focus on, in order see humanity and the Earth from a different perspective – to understand our own planet as one small rock within a larger system, and to comprehend the enormity of the universe beyond it.

Seeing the Earth from space has impacted positively upon the worldview of a number of astronauts who speak of an "orbital perspective", or "overview effect". The astronaut Ron Garan has described his experience of gazing out of a window of the International Space Station at the Earth and reflecting on the need for an interconnected response to global problems. Perhaps all world leaders should be exposed to this feeling.

The educational argument centres on the advancement of human knowledge, particularly scientific knowledge. The big prize here is knowledge about life itself. We currently have only a single example of the emergence of life on earth to work from. Yet there are many other places where life could look very different, and the discovery of historic traces of microbial life could be *a seminal moment in human history*.

Most of the media commentary around modern space travel **hinges on** Elon Musk's desire **to back up** the biosphere on Mars and Jeff Bezos' talk about limitless capitalist expansion with millions of humans living in free-floating space structures. This brings us to the third argument for space travel: colonisation, or settlement.

Suggestions that we could find a backup planet for life on Earth may also be confusing. We cannot literally back up the biosphere. Conditions on Mars will always be very different from those on Earth. On Mars, gravity is only a third of the strength of gravity on Earth; it's strong enough to hold us to the surface, but *the difference will affect the growth patterns of animals and crops*. Temperatures on Mars swing from the equivalent of a warm day in Scotland to 100 degrees below freezing point, even at the equator.

But there's a possibility that Mars and a limited number of other surfaces within the solar system could sustain life. This possibility could perhaps be enough to justify the idea that the Earth has a duty to extend life to such places – if the universe is in some way *better* with life in it. Our activities in space could then be what Harvard astronomer Martin Elvis calls "a vector for life", when no other life or vectors for actual life are known to exist.

The trouble with the idea of a vector for life is that it provides little justification for the flags and footprints of the first visit to the Moon, *let alone the grander visions of human settlement in space*. Putting humans back onto the lunar surface, or onto the surface of Mars, may be acts with powerful symbolism, but the spread and consolidation of life **is unlikely to be** in a human form. **Though** we may one day be able to send microbial forms of life to other galaxies, we cannot send people across vast distances in space without condemning them to death.

The author: Tony Milligan is a teaching fellow in ethics and the philosophy of religion at King's College London. He is the author of *Nobody Owns the Moon*.

I. According to Tony Milligan, one of the reasons for space travel is what he calls the 'ethical argument'. What does he mean by that? Why does he think that 'perhaps all world leaders' should experience the sensation of space travel? (60 words / 3 points).

II. What are the main arguments (mentioned in the article) for colonizing other planets? What reservations does Milligan express? (60 words / 3 points).

III. Explain in your own words (terms underlined in the text). (2 points)

- It [Part of his motivation] transcends economic reasoning. (1 point)

- Suggestions that we could find a backup planet for life on Earth may also be confusing. (2 points)

IV. Read the following phrases/sentences taken from the document very carefully (underlined and in italics in the text). Choose the best equivalent (there is <u>only one</u> right answer).

1-The reasons we undertake these dangerous feats remain unclear.

A. We should clarify the causes of past failures because they may cause damage again.
B. We still don't understand why humans like to behave recklessly.
C. We haven't been able to explain why we embark on such perilous missions.
D. We would like to know what risks this enterprise entails.

2- A seminal moment in human history.

A. A procreative moment in human history.
B. A defining moment in human history.
C. A rejuvenating moment in human history.
D. An exhilarating moment in human history.

3- […] let alone the grander visions of human settlement in space.

A. […] instead of the grander visions of human settlement in space.
B. […] unlike the grander visions of human settlement in space.
C. […] in spite of the grander visions of human settlement in space.
D. […] not to mention the grander visions of human settlement in space.

4-The difference will affect the growth patterns of animals and crops.

A. The difference will modify the distribution of animal and plant populations over a specific area.
B. The difference will cause a decrease in animal and plant populations.
C. The difference will have a detrimental impact on the reproduction rates of plants and animals.
D. The difference will alter the way animals and plants develop and thrive.

V. Find equivalents for the words in the dark font. (4 points)

1. Freeze drying, cordless vacuums, enriched baby food and scratch-resistant lenses were all **pioneered** through space travel.

2. **To date**, his promotion of commercial space tourism in sub-orbital flights […]

3. No doubt he would like to make money <u>eventually</u>, and one day his company, Virgin Galactic, may **do so**.

4. Most of the media commentary around modern space travel **hinges on** Elon Musk's desire **to back up** the biosphere on Mars.

5. The spread and consolidation of life **is unlikely to be** in a human form.

6. **Though** we may one day be able to send microbial forms of life to other galaxies […]

ESSAY WRITING

<u>Essay subject 1</u>: In your opinion, is there any point in returning to the moon?

<u>Essay subject 2</u>: The number of *private companies* engaged in *space exploration such as Virgin Galactic (Richard Branson) or Space X (Elon Musk),* has grown remarkably in recent years. In your opinion, is it a cause for concern?

WHEN SCIENCE SPRINTS

LC: Leaftronics

13) What new technology is being discussed on the podcast? /2

"Using _____ to make boards, the circuit-boards in electronics more _____."

14) What is a circuit board made up of? List the 3 elements mentioned. /1.5

-

-

-

15) What is the main characteristic of these boards? /1

16) Why is this characteristic important for electronics manufacturers? Give two reasons. /2

17) What other materials have been experimented ? /2

-

-

18) What physical propriety do these materials offer? /1

19) Fill in the blanks. /1.5

"But they're not all that great at _____ these

_____, you still have to _____ them with something

usually."

20) True or False? Circle your answer. /1

- True / False : Paper is a green solution.

21) Fill in the blanks: /1

"Nothing, I couldn't find anything that was better. There was always some reason that this new material was not as good as paper. Maybe it was more _____, maybe it couldn't be _____."

22) True or False? Circle your answer. /4

- True / False : The process requires injecting polymers in living cells.
- True / False: The plant is dissolved in a chemical to expose the structure.
- True / False: Some of the polymers used are made from natural elements.
- True / False: Companies intentionally limit their products' life span.

23) How long are electronic components designed to last? /1

24) Fill in the blanks. /1

"How easy is it to _____ or

_____ into that next generation of electronics?"

25) How is the recycling process an improvement on existing techniques? /1

RC: Behold the Decade of the Mid Tech

The New York Times, 29 March, 2025

(…) That is what I want to say every time someone asks me, “What about A.I.?” with breathless anticipation. I’m far from a Luddite. It is precisely because I use new technology that I know mid when I see it.

Academics are rarely good stand-ins for typical workers. But the mid technology revolution is an exception. It has come for us first. Some of it has even come from us, genuinely exciting academic inventions and research science that could positively contribute to society. But what we’ve already seen in academia is that the use cases for artificial intelligence across every domain of work and life have started to get silly really fast. Most of us aren’t using A.I. to save lives faster and better. We are using A.I. to make mediocre improvements, such as emailing more.

Mid tech’s best innovation is a threat.

Artificial intelligence is supposedly more radical than automation. Tech billionaires promise us that workers who can’t or won’t use A.I. will be left behind. Politicians promise to make policy that unleashes the power of A.I. to do … something, though many of them aren’t exactly sure what. Consumers who fancy themselves early adopters get a lot of mileage out of A.I.’s predictive power, but they accept a lot of bugginess and poor performance to live in the future before everyone else.

The rest of us are using this technology for far more mundane purposes. A.I. spits out meal plans with the right amount of macros, tells us when our calendars are overscheduled and helps write emails that no one wants. That’s a mid revolution of mid tasks.

Of course, A.I., if applied properly, can save lives. It has been useful for producing medical protocols and spotting patterns in radiology scans. But crucially, that kind of A.I. requires people who know how to use it. Speeding up interpretations of radiology scans helps only people who have a medical doctor who can act on them. More efficient analysis of experimental data increases productivity for experts who know how to use the A.I. analysis and, more important, how to verify its quality. A.I.’s most revolutionary potential is helping experts apply their expertise better and faster. But for that to work, there has to be experts.

That is the big danger of hyping mid tech. Hype isn’t held to account for being accurate, only for being compelling. Mark Cuban exemplified this in a recent post on the social media platform Bluesky. He imagined an A.I.-enabled world where a worker with “zero education” uses A.I. and a skilled worker doesn’t. The worker who gets on the A.I. train learns to ask the right questions and the numbskull of a skilled worker does not. The former will often be, in Cuban’s analysis, the more productive employee.

The problem is that asking the right questions requires the opposite of having zero education. You can’t just learn how to craft a prompt for an A.I. chatbot without first having the experience, exposure and, yes, education to know what the heck you are doing.

But A.I. is a parasite. It attaches itself to a robust learning ecosystem and speeds up some parts of the decision process. The parasite and the host can peacefully coexist as long as the parasite does not starve its host. The political problem with A.I.’s hype is that its most

compelling use case is starving the host — fewer teachers, fewer degrees, fewer workers, fewer healthy information environments.

Despite our reputation, most of the academics I know welcome anything that helps us do our jobs. We initially welcomed A.I. with open arms. Then the technology seemed to create more problems than it solved. The big one for us was cheating.

Academics initially lost our minds over the obvious threats to academic integrity. Then a mysterious thing happened. The typical higher education line on A.I. pivoted from alarm to augmentation. We need to get on with the future, figure out how to cheat-proof our teaching and, while we are at it, use A.I. to do some of our own work, people said.

A.I. is already promising that we won't need institutions or expertise. It does not just speed up the process of writing a peer review of research; it also removes the requirement that one has read or understood the research it is reviewing. A.I.'s ultimate goal, according to boosters like Cuban, is to upskill workers — make them more productive — while delegitimizing degrees. Another way to put that is that A.I. wants workers who make decisions based on expertise without an institution that creates and certifies that expertise. Expertise without experts.

That tech fantasy is running on fumes. We all know it's not going to work. But the fantasy compels risk-averse universities and excites financial speculators because it promises the power to control what learning does without paying the cost for how real learning happens.

Tech has aimed its mid revolutions at higher education for decades, from TV learning to smartphone nudges. For now, A.I. as we know it is just like all of the ed-tech revolutions that have come across my desk and failed to revolutionize much. Most of them settle for what anyone with a lick of critical thinking could have said they were good for. They make modest augmentations to existing processes. Some of them create more work. Very few of them reduce busy work.

Mid tech revolutions have another thing in common: They justify employing fewer people and ask those left behind to do more with less.

If you want to see the actual revolutionary use case for A.I., don't look to biological sciences or universities. Look at Elon Musk's so-called Department of Government Efficiency, which has reportedly considered using A.I. to help it find waste. The issue of whether workers and work is wasteful is a subjective call that A.I. cannot make. But it can justify what a decision maker wants to do. If Musk wants waste, A.I. can give him numbers to prove waste exists.

This sort of mid tech would, in a perfect world, go the way of classroom TVs and MOOCs. It would find its niche, mildly reshape the way white-collar workers work and Americans would mostly forget about its promise to transform our lives.

I. Overall comprehension /7

1. What benefits does AI promise? Quote three short passages from the article. /3

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-

-

2. What are the consequences of AI on society? Quote two short passages. /2

-

-

3. How does AI fail to deliver on its promise? Use your own words. /2

_____

_____

_____

_____

_____

_____

_____

II. Detailed Comprehension /7

Decide whether the following statements are true or false. Justify your answer with a direct quote from the text. /7

1. Apart from AI, teachers' experience of work is different from most people's.

True / False _____

_____

2. Using AI, anybody could outperform a traditional worker.

True / False _____

_____

3. AI's most interesting uses have a negative impact on the data it needs to operate.

True / False _____

_____

4. University teachers are reluctant to use new technologies.

True / False _____

_____

5. Tech companies are starting to focus on education to promote their products.

True / False _____

_____

6. It is the first time the author has experienced this kind of technological change.

True / False _____

_____

7. Most education technologies help reduce teachers' workload.

True / False _____

_____

III. Rephrase the underlined segments *(1pts for each segment)* **/6**

1. *"The rest of us are using this technology for far more <u>mundane</u> purposes."* (l.16)

_____

2. *"Hype isn't held to account for being <u>accurate</u>, only for being compelling" (l.26/27)*

_____

3. *"A.I.'s ultimate goal, according to <u>boosters</u> like Cuban"*

_____

4. *"the fantasy <u>compels</u> risk-averse universities."* (l.52/53)

_____

5. *"<u>mildly</u> reshape the way <u>white-collar workers</u> work."* (l.68)

_____