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Space Conquest: A hidden agenda? Citizenship and Scientific innovation: Space has always triggered our imagination, with more or less fantasy.	
	Is space conquest a necessity for the survival of our species or does it obey to other rules ?
At the end of the Unit, I will	Write a story about space conquest
What vocabulary will I need ?	- space - conquest - progress
What grammatical structure will I need ?	- comparatif - supposition - expression du désir
What documents will be used ?	**1- The Representation of Space Conquest** 1a- O'Neill Cylinder, Gerard O'Neill, 1946 1b- Martian base ,illustration, unamed, 2017 **2- The Origin of Space Conquest** 2a- Man on the moon, July 1969 (photo) 2b- John F Kennedy's Moon speech - September 12, 1962 ANNEXE : "Why go to the moon?" - John F. Kennedy at Rice University **3- The necessity of Space Conquest** 3a-Stephen Hawking on Space Exploration | National Geographic (vidéo) 3b- A brief Answer to the Great Questions, Stephen Hawking, 2018 (manuel Hit the Road) 3c- 2022's extraordinary cosmic revelations and moments in space exploration **4- The Danger of Space Expansion** 4a- Elysium, movie poster by Neill Blomkamp 2013 4b- Elysium, screen play movie by Neill Blomkamp 2013 (manuel hit the road) 4c- Avatar screenplay script, movie by James Cameron 2009 (manuel Hit the Road) 4d- Avatar, the way of the water, movie by James Cameron, 2023 4e- "Avatar 2" bites off more than it can chew, by Divyanshi Srivastava, March 2, 2023, the times delphic 4f- Martian Chronicles, Off Season, Les Edwards, 1999 4g- February 2002 The Locusts Martian Chronicles, Ray

	Bradubury, 1950 - 4g - FEBRUARY 2002 The Locusts, Martian Chronicles, Ray Bradubury, 1950 - - **5- The future challenges of space Conquest** 5a- The History, and Future, of Space Suits, SciShox Space, 2014 (video) 5b- How SpaceX Mastered Space Suits, Primal Space, 2023 (video) 5c - Elon Musk's SpaceX: How the world's richest person leads the space rocket pionee, Pete Syme, Marianne Guenot, and Morgan McFall-Johnsen Mars 29, 2024 5d- India lands spacecraft near south pole of moon in historic first, Amrit Dhillon , Wed 23 Aug 2023 for the Guardian.com 5e- Timeline of b lunar missions, Guardian graphic. Source: Reuters, Nasa Space Science Data Coordinated Archive, wed 23 Aug 2023 **6- Space conquest paradox** 6a- Moon Landing Fact checking by proflegrand78 on Genially 6b- the Fermi paradox 6c - The Fermi paradox explained, video by LAB
What will I learn about ?	- know more about Space Conquest history - how our perception of space has evolved all through the years - how there is still some space for new conquest
Final Task :	Space Conquest, the next step. You will need to write a chapter for you next short story.

Instructions for your Final Task :

1) You will bave an hour full to write your story

2) You may bring some notes to help and an illlustration

3) You will need to take into account some ideas that wll be given on D-Day

4) Make sure to use at least 3 elements as seen in class

5) You may leave the story unfinished, you may give it an end

6) don't forget to give a title to your story or chapter

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1- The Representation of Space Conquest

1a- O'Neill Cylinder, Gerard O'Neill, 1946
1b- Martian base ,illustration, unamed, 2017

travail sur les deux illustrations: suppositions sur les raison et la façon de fonctionner des deux éléments (quels difficultés)

2- The Origin of Space Conquest

doc 2a : Man on the moon, July 1969
travail sur la photo: The Soviet Union launched the first human, Yuri Gagarin, into space on April 12, 1961, beating both Alan Shepard to space and John Glenn to orbit. Within days of the Soviet achievement, President John F. Kennedy asked Vice President Lyndon Johnson to identify a “space program which promises dramatic results in which we could win.” A little over a month later, on May 25, 1961, Kennedy stood before a joint session of Congress and called for human exploration to the Moon
East / West : retour sur image Man on the moon’s oncstruction : East block vs West block => we saw how important it was to win the war of the Space conquest

2b- John F Kennedy’s Moon speech - September 12, 1962 (video + text)
travail sur le texte

Refaire la vidéo à partir de l'original: https://www.youtube.com/watch?v=QXqlziZV63k

3- The necessity of Space Conquest

3a-Stephen Hawking on Space Exploration | National Geographic (vidéo) introduction: CO proposition https://www.youtube.com/watch?v=2a_NAouiG_E
=> les faire réagir à la vidéo (insister sur l’importance de l’intonation + le fait de surmonter son handicap.

3b- travail sur le texte p 193 manuel Hit the Road 1-re: Brief Answers to Big Questions: travail sur le texte en group work à 2 : lecture et résumé en 3 mots => mind mapping trouver des arguments pour ou contre ce que dit Stephen Hawking

passage oral à 4: improvisation: un journalist, un en faveur, un contre.
ébat: les mettre en groupe et les faire réfléchir à des arguments en fonction de leur rôle. Puis lancer les débats en temps limité

1) interviewer
2) a scientist who worked with Hawking and shared his vision (niveau plus faible)
3) an anti Hawking who thinks we need to heal our planet before leaving it
4) somebody who doesn’t believe in a possible future for humanity rôle attribué au hasard ou en pédagogie différenciée

Les groupes sont mélangés au hasard
remise en groupe d'origine, 5 mots pour résumer les arguments entendus (par le journaliste). Liste des mots mélangés, recap écrit à 3 en utilisant les 5 mots

3c - 2022's extraordinary cosmic revelations and moments in space exploration :
afficher le descriptif puis expliquer : pair work chacun va recevoir un bout du texte avec un élément à expliquer. Interdiction de donner le titre, besoin d 'en trouver un autre et d'expliquer ce qu'on a compris de cette grande découverte de 2022
échange en groupe work pendant un temps limité, prise de note puis titres sont donnés: à chacun de trouver à quoi correspond le passage qu'il a entendu
passage au tableau et correction

https://edition.cnn.com/2022/12/27/world/year-in-space-discoveries-moments-scn/index.html

4- The Danger of Space Expansion

4a- Elysium, movie poster 2013 (manuel p 194)
4b- Elysium, movie summory, wwwSonypictures.com
4c- Avatar screenplay, 2009; movie by James Cameron

travail sur les 3 documents en parallèle quelle image donnée à Space expansion? Pourquoi?

4c- Avatar the Way of Water : movie trailer => What issues are raised?
https://www.youtube.com/watch?v=d9MyW72ELq0

4e- "Avatar 2" bites off more than it can chew, by Divyanshi Srivastava, March 2, 2023, the times delphic- articles de critique : lecture, appropriation et question à James Cameron => imaginez ces questions et les réponses.
Passage oral aléatoire.

4e- Martian Chronicles, Off Season, Les Edwards, 1999 travail sur le tableau: quel critique? Pourquoi?

4f – Martian Chronicles, Ray Bradubury, 1950 : travail sur le le texte, repérage, // avec le tableau
possibilité de faire faire l'illustration à partir d'une autre nvelle de Ray Bradbury ou écriture de la suite de l'histoire ou histoire d'avant puis faire faire illustration par un autre groupe

5- The future challenges of space Conquest

5a- The History, and Future, of Space Suits, SciShox Space, 2014 (video) : prise de notes par rapport aux challenges relevés par les space Suits
// avec Space X:

5b- How SpaceX Mastered Space Suits, Primal Space, 2023 (video)
-découpage à prévoir, travail sur les porgrès en question, comment ils ont répondu à cette demande
-

5c - Elon Musk's SpaceX: How the world's richest person leads the space rocket pionee, Pete Syme, Marianne

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-travail sur le texte, // secteur privé, secteur public, impossibilité de faire sans

5d- India lands spacecraft near south pole of moon in historic first, Amrit Dhillon , Wed 23 Aug 2023 for the Guardian.com

6b- the fermi paradox illlustrated: faire faire deviner ce qu'est le Fermi paradox 5c- The Fermi paradox explained: video by LAB https://www.youtube.com/watch?v=wMccKnLld7g&t=281s => 3 reasons: 1- we are not developped enough, we haven't finish evolving yet and still have the last Barrier to cross – has any other civilization managed to do so or are we doomed touse all our energy and die?
2- we are observed by more advanced civilization who do not wish to interfer (being colonialist is not something seen in other civilizations)
3 – despite the wideness of the Universe and the many given possibility, we are indeed all alone
4- we are all evolving at the same rhythm
5- no civilization is developped enough, yet.

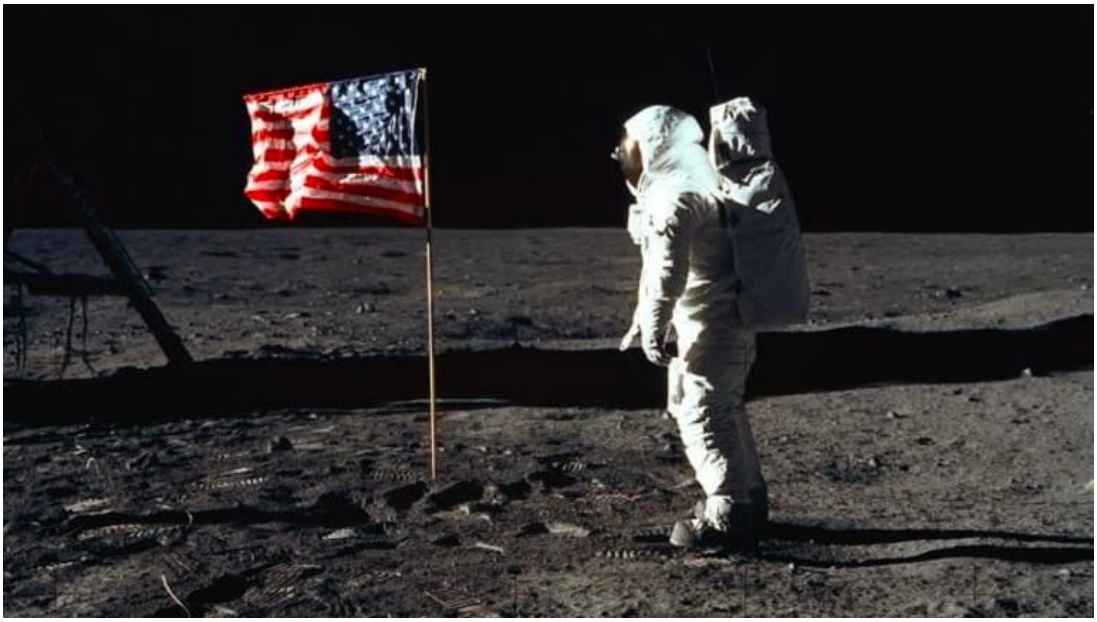
6- Space conquest paradox

6a- conspiracy theory illustrated : genially avec les théories conspirationniste a- Moon Landing Fact checking by proflegrand78 on Genially
https://view.genially.com/5ef1ca4f4a737d0d34d2ead0/interactive-image-moon-landing-fact-checking

6b- the Fermi paradox
6c - The Fermi paradox explained, video by LAB
the fermi paradox illlustrated: faire faire deviner ce qu'est le Fermi paradox 5c- The Fermi paradox explained: video by LAB https://www.youtube.com/watch?v=wMccKnLld7g&t=281s
-=> 3 reasons: 1- we are not developped enough, we haven't finish evolving yet and still have the last Barrier to cross – has any other civilization managed to do so or are we doomed touse all our energy and die?
-2- we are observed by more advanced civilization who do not wish to interfer (being colonialist is not something seen in other civilizations)
-3 – despite the wideness of the Universe and the many given possibility, we are indeed all alone
-4- we are all evolving at the same rhythm
-5- no civilization is developped enough, yet.

doc 2a

Anne-Charlotte Legrand – Académie de Versailles



Doc 2b : John F Kennedy’s Moon speech - September 12, 1962

No man can fully grasp how far and how fast we have come, but condense, if you will, the 50,000 years of man¹s recorded history in a time span of but a half-century. Stated in these terms, we know very little about the first 40 years, except at the end of them advanced man had learned to use the skins of animals to cover them. Then about 10 years ago, under this standard, man emerged from his caves to construct other kinds of shelter. Only five years ago man learned to write and use a cart with wheels. Christianity began less than two years ago. The printing press came this year, and then less than two months ago, during this whole 50-year span of human history, the steam engine provided a new source of power. Newton explored the meaning of gravity. Last month electric lights and telephones and automobiles and airplanes became available. Only last week did we develop penicillin and television and nuclear power, and now if America's new spacecraft succeeds in reaching Venus, we will have literally reached the stars before midnight tonight.

This is a breathtaking pace, and such a pace cannot help but create new ills as it dispels old, new ignorance, new problems, new dangers. Surely the opening vistas of space promise high costs and hardships, as well as high reward. (…)

We set sail on this new sea because there is new knowledge to be gained, and new rights to be won, and they must be won and used for the progress of all people. For space science, like nuclear science and all technology, has no conscience of its own. Whether it will become a force for good or ill depends on man, and only if the United States occupies a position of pre-eminence can we help decide whether this new ocean will be a sea of peace or a new terrifying theater of war. (...)

We choose to go to the moon in this decade and do the other things, not because they are easy, but because they are hard, because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win. (…)

To be sure, all this costs us all a good deal of money. This year’s space budget is three times what it was in January 1961, and it is greater than the space budget of the previous eight years combined. That budget now stands at $5,400 million a year--a staggering sum, though somewhat less than we pay for cigarettes and cigars every year. Space expenditures will soon rise some more, from 40 cents per person per week to more than 50 cents a week for every man, woman and child in the United Stated, for we have given this program a high national priority (...)

But if I were to say, my fellow citizens, that we shall send to the moon, 240,000 miles away from the control station in Houston, a giant rocket more than 300 feet tall, the length of this football field, made of new metal alloys, some of which have not yet been invented, capable of standing heat and stresses several times more

than have ever been experienced, fitted together with a precision better than the finest watch, carrying all the equipment needed for propulsion, guidance, control, communications, food and survival, on an untried mission, to an unknown celestial body, and then return it safely to earth, re-entering the atmosphere at speeds of over 25,000 miles per hour, causing heat about half that of the temperature of the sun--almost as hot as it is here today--and do all this, and do it right, and do it first before this decade is out--then we must be bold. (...) However, I think we're going to do it, and I think that we must pay what needs to be paid. I don't think we ought to waste any money, but I think we ought to do the job. (…) And it will be done before the end of this decade. Many years ago the great British explorer George Mallory, who was to die on Mount Everest, was asked why did he want to climb it. He said, "Because it is there." Well, space is there, and we're going to climb it, and the moon and the planets are there, and new hopes for knowledge and peace are there. And, therefore, as we set sail we ask God's blessing on the most hazardous and dangerous and greatest adventure on which man has ever embarked.
Thank you.

3a- Script stephen Hawking
Stephen Hawking – video on space exploration

Professor SH is arguably our greatest living cosmologist, diagnosed in his twenties with a progressive motor neurone disease or Lou Gehrig's disease. Now he is almost entirely paralysed and can only communicate using a speech synthesizer. But when prof. H speaks, NASA listens.

I fear for our future. Our planet earth is threatened with an ever expanding population and only finite resources. We need a plan B if our species is to survive the next hundred years, let alone a thousand. It is imperative we (go?) into the blackness of space to colonize new worlds across the cosmos. The ISS is pioneering space exploration. Without this knowledge, travel into deep space is impossible. Within 50 years, I have no doubt there will be settlements on the moon and by the end of the century, I truly hope humans will be living on Mars. I think the crew members of the ISS will take a new generation of human space explorers into our solar system and beyond.

3b- A brief Answer to the Great Questions, Stephen Hawking, 2018 (manuel p 198)

Why should we go into space? What is the justification for spending all that effort and money on getting a few lumps of moon rock? Aren't there better causes here on Earth? The obvious answer is because it's there, all around us. Not to leave planet Earth would be like castaways on a desert island not trying to escape. We need to explore the solar system to find out where humans could live.

In a way, the situation is like that in Europe before 1492. People might well have argued that it was a waste of money to send Columbus on a wild goose chase[1]. Yet the discovery of the New World made a profound difference to the Old. [...]

This would be a long-term strategy, and by long term I mean hundreds or even thousands of years. We could have a base on the Moon within thirty years, reach Mars in fifty years and explore the moons of the outer planets in 200 years. By reach, I mean in spacecraft with humans aboard. We have already driven rovers on Mars and landed a probe[2] on Titan, a moon of Saturn, but if we are considering the future of the human race we have to go there ourselves. [...] There will be those who argue that it would be better to spend our money solving the problems of this planet, like climate change and pollution, rather than wasting it on a possibly fruitless search for a new planet. I'm not denying the importance of fighting climate change and global warming, but we can do that and still spare a quarter of a per cent of world GDP[3] for space. Isn't our future worth a quarter of a per cent? [...]

I was quoted at the time as saying that I feared the human race is not going to have a future if we don't go into space. I believed it then, and I believe it still. And I hope I demonstrated then that anyone can take part in space travel. I believe it is up to scientists like me, together with innovative commercial entrepreneurs, to do all we can to promote the excitement and wonder of space travel.

1 quête futile • 2 sonde • 3 PIB

Brief Answers to the Big Questions,
Stephen Hawking, 2018

FEBRUARY 2002 The Locusts

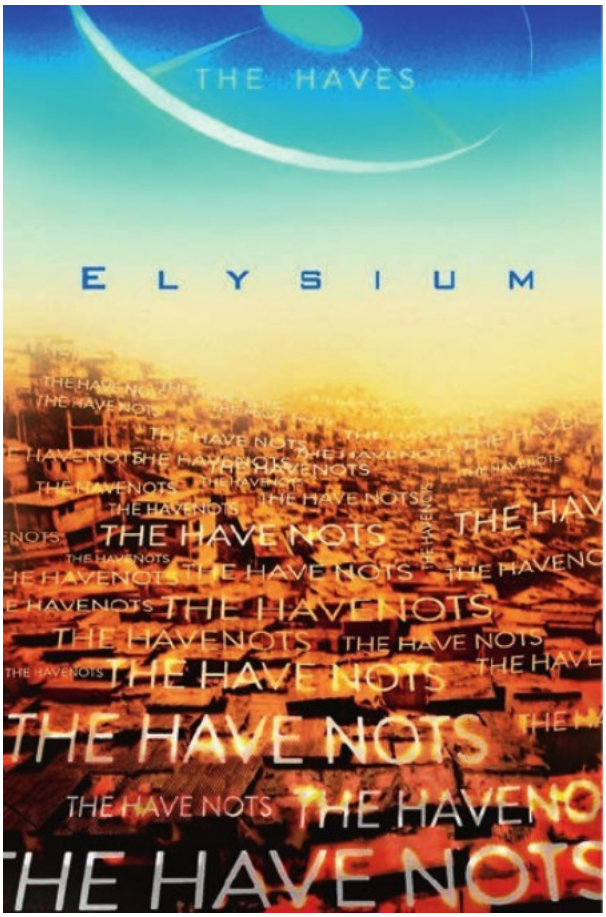
The rockets set the bony meadows a fire, turned rock to lava, turned wood to charcoal, transmuted water to steam, made sand and silica into green grass which lay like shattered mirrors reflecting the invasion, all about. The rocketscame like drums, beating in the night.
The rockets came like locusts,swarming and settling in blooms of rosy smoke. And from the rockets ranmen with hammers in their hands to beat the strange world into a shape that was familiar to the eye, to bludgeon away all the strangeness, their mouths fringed with nails so they resembled steel-toothed carnivores, spitting theminto their swift hands as they hammered up frame cottages and scuttled overroofs with shingles to blot out the eerie stars, and fit green shades to pullagainst the night. And when the carpenters had hurried on, the women came in with flower-pots and chintz and pans and set up a kitchen clamour to cover the silence that Mars made waiting outside the door and the shaded window.
In six months a dozen small towns had been laid down upon the nakedplanet, filled with sizzling neon tubes and yellow electric bulbs. In all, someninety thousand people came to Mars, and more, on Earth, were packing their grips ...

a- Elysium vs Avatar :
GROUPE A :

In the year 2159 two classes of people exist: the very wealthy who live on a pristine[1] man-made space station called Elysium, and the rest, who live on an overpopulated, ruined Earth. Secretary Rhodes, a hard line government official, will stop at nothing to enforce anti-immigration laws and preserve the luxurious lifestyle of the citizens of Elysium. That doesn't stop the people of Earth from trying to get in, by any means they can.

1 *immaculé*

www.sonypictures.com


THE HAVES
ELYSIUM
THE HAVE NOTS

A colony of humans, led by head administrator P. Selfridge, is cutting down the trees of Pandora (a far-away planet inhabited by the Na'vi) in order to mine a valuable mineral called unobtainium. Dr. Grace Augustine, a biologist who has been living with the natives, disapproves of the administrator's methods...

GRACE: Those trees were sacred to the Omaticaya in a way you can't imagine.

SELFRIDGE: Tch. Oh, you know what? You throw a stick in the air around here, it's gonna land on some sacred fern, for Christ's sake!

GRACE: I'm not talking about some kind of pagan voodoo here. I'm talking about something real, something measurable in the biology of the forest.

SELFRIDGE: Which is what exactly?

GRACE: What we think we know... is that there is some kind of electrochemical communication between the roots of the trees. Like the synapses between neurons. And each tree has ten-to-the-fourth connections to the trees around it. And there are ten-to-the-twelfth trees on Pandora.

SELFRIDGE: Whi-which is a lot, I'm guessing.

GRACE: It's more connections than the human brain. Get it? It's a network. It's a global network, and the Na'vi can access it. They can upload and download data. Memories. At sites like the one you just destroyed. Yes.

SELFRIDGE: What the hell have you people been smoking out there? They're just goddamn trees!

GRACE: You need to wake up, Parker.

SELFRIDGE: No. You need to wake up.

GRACE: The wealth of this world isn't in the ground. It's all around us.

Avatar (screenplay), 2009

Groupe B :

proposer activité manuel :

A. Group work. Each group will present a film dealing with the limits of space colonisation.
Group A works on *Elysium* and group B works on *Avatar*.
B. Then together explain what the limits of space exploration are:
Who benefits from it? What will happen to the colonised worlds?

HELP!
*slums: *bidonvilles*
*wheel: *roue*

Group A

Read the summary of *Elysium* (2013) and study the poster.
- What type of world is depicted in the film? Justify.
- What is man's progress responsible for?
- Give a presentation of the poster, focusing on its contrasts and meaning.

Group B

Read the conversation between two characters of J. Cameron's *Avatar*.
- What do you learn about Pandora?
- Explain what Selfridge's attitude reveals about the history of mankind and the limits of space conquest.

James Cameron's "Avatar 2: The Way of Water," the sequel to the 2009 movie "Avatar," opens up with spectacular sweeping shots of a beautifully-crafted world and a montage of a growing family that serves as an emotional hook very few can resist.

"Avatar 2" starts strong with some great narration, stellar cinematography and the foundations of a premise that gets you hooked on this family that we first met 13 years ago. Unfortunately, it only goes downhill after that.

The screenplay is a major letdown – too much exposition, a rather unnecessary second act and an exceptionally predictable narrative make the film a tedious watch. Cameron deserves credit for going out of his way to properly develop some of his characters, even if it means adding an hour to a film that's severely lacking in plot to make up for its running minutes.
While the intention is praiseworthy, the execution is anything but. (…) However, none of these storylines are properly fleshed out.

This is where "Avatar 2" meets its biggest downfall —- trying to do too much with very little material, plot-wise. Cameron attempts to address themes of ecological conservation, the battle between man and nature, the convoluted and often toxic father-son dynamic that is promoted in society, the struggle of accepting one's identity, judging people based on their parent's crimes, human greed and animal poaching in a three-hour movie while also fully developing eight main characters and adding on several new supporting ones. In doing so, the film becomes a classic case of biting off more than you can chew.

With the title of the film, the massively powerful blue avatars and the concept of (a hilariously badly pronounced) "amrita" being central points of the screenplay, yes, you guessed it, the film borrows massively from Hindu mythology. It is more than "heavily inspired" by these legends and myths which it integrates into its screenplay without any sensitivity or cultural context.
This is not to say that the film doesn't have anything going for it – it is undoubtedly the best motion capture we've ever experienced on the big screen. The lighting and cinematography create an absolute visual spectacle, the production and character design is exquisite, the CGI and VFX teams deserve all the praise in the world for being pioneers in the field.

They are assisted by fleeting moments in the screenplay that are surprisingly poignant thanks to a very strong cast that tries their absolute best with the limited material they're given. The newcomers hold their own while performing next to legends of the business.

However, the run time of the film, at three hours and 12 minutes, makes it a tough watch even if you hold the nostalgia of its predecessor in your heart. Add the water-thin screenplay and narration and you have a movie that is a technical masterpiece but fails to evoke any

emotions in its viewers or even keep their attention. Ironically, in trying to explore the depths of this new world, “Avatar: The Way of Water” loses its soul.

byDivyanshi Srivastava, March 2, 2023, https://timesdelphic.com/

The Martian Chronicles; Off Season,
Les Edwards, 2009

5a - India lands spacecraft near south pole of moon in historic first

India has become the first country to successfully land a spacecraft near the south pole of the moon, in a historic moment that drew cheers at watching parties around the country.
The successful landing marks India’s emergence as a space power as the government looks to spur investment in private space launches and related satellite-based businesses. People

across the country were glued to television screens as the spacecraft approached territory that scientists believe could hold vital reserves of frozen water and precious elements.

“This is a victory cry of a new India,” said the prime minister, Narendra Modi, who was seen waving the Indian flag as he watched the landing from South Africa, where he is attending the Brics summit. “We are witnessing history.”

A wave of nervous excitement has gripped Indians in recent days as the scheduled descent approached. Temples and mosques held special prayers for a safe landing. On the banks of the River Ganges in Varanasi, Hindu monks bestowed blessings on the mission and blew conch shells.

At street parties on Wednesday evening, Indians celebrated the double triumph of being the first to land on the south pole and the fourth to land on the moon.

Chandrayaan-3 – “moon craft” in Sanskrit – took off from a launchpad in Sriharikota in southern India on 14 July, taking much longer to reach the moon than the Apollo missions in the 1960s and 70s, which arrived in a matter of days. India is using rockets much less powerful than the US did back then. Instead, the probe orbited Earth several times to gain speed before embarking on its month-long lunar trajectory.

If all goes to plan, a rover called Pragyaan, the Sanskrit word for wisdom, will roll out of the belly of the lander on a ramp then roam around the moon’s surface for two weeks. It has been designed to take pictures, conduct experiments on the geology and the origins of the Earth, and investigate the presence of water ice.

If found in significant quantities, water ice could allow future crew missions to set up base there as it could be used to extract oxygen and fuel. Some scientists believe that the south pole, which is hidden from Earth’s view and is full of craters and trenches, may be the most promising site for a future base.

India’s successful landing comes days after Russia said its first moon mission in 47 years, which also targeted the south pole, had failed after its Luna-25 spacecraft spun out of control and crashed. Russia’s head of the state-controlled space corporation, Roscosmos, attributed the failure to lack of expertise due to the long break in lunar research that followed the last Soviet mission to the moon in 1976.

The former Soviet Union, the US and China have already achieved a soft landing on the moon but in another region, near the moon’s equator.

With nuclear-armed India emerging as the world’s fifth-largest economy last year, Modi’s nationalist government is eager to showcase the country’s rising standing as a technology and space powerhouse. A successful moon mission dovetails with Modi’s image of an ascendant India asserting its place among the global elite and would help bolster his popularity ahead of a crucial general election next year.

The anticipation for a successful landing rose after Russia’s failed attempt and as India’s regional rival China reaches for new milestones in space. In May, China launched a three- person crew for its orbiting space station and hopes to put astronauts on the moon before the end of the decade.

Amrit Dhillon , Wed 23 Aug 2023 for the Guardian.com

DST: discours du ministre indien après échec

2b- John F Kennedy's Moon speech - September 12, 1962 (video + text)

President John F. Kennedy -Delivered in person before a joint session of Congress May 25, 1961

Finally, if we are to win the battle that is now going on around the world between freedom and tyranny, the dramatic achievements in space which occurred in recent weeks should have made clear to us all, as did the Sputnik in 1957, the impact of this adventure on the minds of men everywhere, who are attempting to make a determination of which road they should take. Since early in my term, our efforts in space have been under review. With the advice of the Vice President, who is Chairman of the National Space Council, we have examined where we are strong and where we are not, where we may succeed and where we may not. Now it is time to take longer strides--time for a great new American enterprise--time for this nation to take a clearly leading role in space achievement, which in many ways may hold the key to our future on earth.

I believe we possess all the resources and talents necessary. But the facts of the matter are that we have never made the national decisions or marshaled the national resources required for such leadership. We have never specified long-range goals on an urgent time schedule, or managed our resources and our time so as to insure their fulfillment.

Recognizing the head start obtained by the Soviets with their large rocket engines, which gives them many months of lead-time, and recognizing the likelihood that they will exploit this lead for some time to come in still more impressive successes, we nevertheless are required to make new efforts on our own. For while we cannot guarantee that we shall one day be first, we can guarantee that any failure to make this effort will make us last. We take an additional risk by making it in full view of the world, but as shown by the feat of astronaut Shepard, this very risk enhances our stature when we are successful. But this is not merely a race. Space is open to us now; and our eagerness to share its meaning is not governed by the efforts of others. We go into space because whatever mankind must undertake, free men must fully share.

I therefore ask the Congress, above and beyond the increases I have earlier requested for space activities, to provide the funds which are needed to meet the following national goals:

I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the moon and returning him safely to the Earth. No single space project in this period will be more impressive to mankind, or more important for the long-range exploration of space; and none will be so difficult or expensive to accomplish. We propose to accelerate the development of the appropriate lunar space craft. We propose to develop alternate liquid and solid fuel boosters, much larger than any now being developed, until certain which is superior. We propose additional funds for other engine development and for unmanned explorations--explorations which are particularly important for one purpose which this nation will never overlook: the survival of the man who first makes this daring flight. But in a very real sense, it will not be one man going to the moon--if we make this judgment affirmatively, it will be an entire nation. For all of us must work to put him there.

Let it be clear--and this is a judgment which the Members of the Congress must finally make--let it be clear that I am asking the Congress and the country to accept a firm commitment to a new course of action, a course which will last for many years and carry very heavy costs: 531 million dollars in fiscal '62--an estimated 7 to 9 billion dollars additional over the next five years. If we are to go only half way, or reduce our sights in the face of difficulty, in my judgment it would be

better not to go at all.

It is a most important decision that we make as a nation. But all of you have lived through the last four years and have seen the significance of space and the adventures in space, and no one can predict with certainty what the ultimate meaning will be of mastery of space.

I believe we should go to the moon. But I think every citizen of this country as well as the Members of the Congress should consider the matter carefully in making their judgment, to which we have given attention over many weeks and months, because it is a heavy burden, and there is no sense in agreeing or desiring that the United States take an affirmative position in outer space, unless we are prepared to do the work and bear the burdens to make it successful. If we are not, we should decide today and this year.