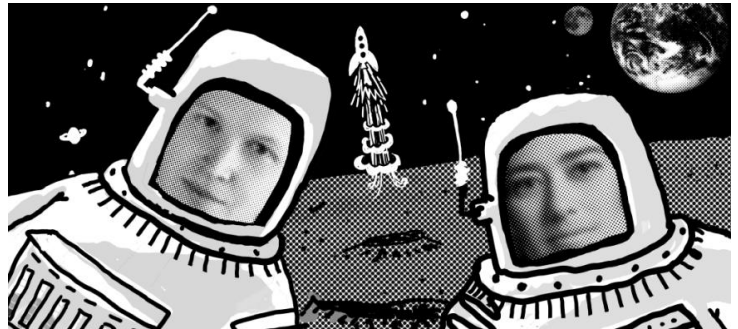




The “3.71” in the title refers to the acceleration due to gravity on Mars. NASA plans to land astronauts on Mars by the year 2030. That is not very far away.

**EXPEDITION 3.71** is about two young people, Tim and Tracy, who spend a night together stargazing. They share their knowledge about the universe, discuss private and government schemes to set foot on Mars and explore different aspects of such a mission. They create their own space fantasy. They imagine what life would be like for astronauts and their families, switching back and forth from being Tim and Tracy to the other characters.



## CHARACTERS

**Liz Erber** performs the following roles.

**Tracy:** Mid-twenties. American. Studied astronomy at university for 3 semesters. Now studies Ethnology. Plays violin. Likes travelling, music and dancing.

**Emily:** Ex- NASA astronaut. Great scientist. Very ambitious. Married. Has one son.

**Sarah:** Roscoe’s mother. Doesn’t want to lose her son. Very critical of Mars One.

**Joshua Spriggs** performs the following roles

**Tim:** Mid-twenties. British. Started studying law. Currently doing an internship in a kindergarten as part of his social work course. Playful. Enjoys life. Musical.

**Roscoe:** Mars One astronaut. Enjoys a challenge and getting attention from the media.

**John:** Emily’s husband

## ACTIVITY 1

Discuss the following statements either in pairs or as a class. Find arguments for and against the statements. These topics can also be used to have a proper debate.

⇒ **Space exploration is a worthwhile endeavor.**

**Women have a greater responsibility for raising children as men.**

⇒ **It is valid to risk one’s life for a worthy cause.**

## ACTIVITY 2

Divide into pairs. Read the scene with your partner.



## Mother and Son

*This scene takes place in Roscoe's room. At the beginning of the scene Roscoe is alone in his room. He is conducting a video blog (Vlog).*

Roscoe: So my video blog is coming to an end.

*looking at his laptop screen*

I see here we have 20, 212 viewers from 30 countries tuned in today. Fantastic. Last week it was 18,336. Word is spreading.

Just to recap, in this week's blog I shared news about my preparation for my forthcoming Mars mission and now we have enough time for two more questions. This has just come in from Professor Gustavsson, who lives in Malmö in Sweden.

*reads from screen*

"How will you deal with changes in sleep patterns due to being in zero gravity?" Good question! I'm experimenting now with poly sleep patterns. I'm managing on 3 x 20 minute naps during the day and a 3½ hour sleep at night, which means I'm getting four and a half hours in 24 hours, but I don't feel at all tired. This is proving to be great training for my journey into outer space where the human body clock gets confused. I am feeling more energized and have more time for the training. This last question has just come in from Theresa in Ghana, thank you Theresa. "How is your miniature greenhouse going?" Well Theresa, the green house is going really well, the mushrooms are slowly growing despite the limited amount of oxygen and water that they are getting. For the past five days, my special space diet has included the soy beans which I've been cultivating in there too and as you can see, I am alive and well.

Mother *Roscoe's mother enters Roscoe's room*

Roscoe ...!

Roscoe Come over here Mum. This is Sarah, my wonderful mother.

Mother Hi ... Roscoe ... please.

Roscoe Without Sarah, I wouldn't be sitting here today.

Mother Roscoe ...!

Roscoe So, that's it for today for today everyone. This is Roscoe Newton signing off, see you next week, same time, same place Heading for the future ...

*closes lap top*

Mum, please don't interrupt me like that. I was in the middle of my weekly live



blog.

Mother Why is this live blog so important?

Roscoe I had over 20, 000 viewers just now, 20,000, from all over the world. I've got the highest ratings, all these people believe in me Mum. My fan base is growing every day and the more fans I have the better my chances are of being chosen.

Mother So having lots of followers qualifies you to go to Mars does it?

Roscoe Not exactly, but it helps.

Mother This facebook stuff is so superficial. You may be communicating brilliantly with 20,000 people out there but you're not communicating with the person you're living with. Me!

Roscoe Mum!

Mother Ever since you signed up for the Mars One mission you've changed. You're not yourself anymore and you have got bags under eyes, you look pasty, you have lost weight ...

Roscoe You don't understand! I'm in the final hundred.

Mother You've become obsessed with this stupid idea of going on a one way mission to Mars You've given up your studies, you've given up your girlfriend ... your life is Mars One.

Roscoe So what? I don't want that kind of life anyway. Going to university, getting a degree, getting a boring job, having a wife, a dog , a kid and a nice country house.

Mother Maybe it's partly my fault. I want us to see a therapist together.

Roscoe I do not need a therapist. Maybe you do though.

Mother These Mars One people are manipulating you.

Roscoe I am not being manipulated. I want to go to Mars, no-one is forcing me.

Mother These Mars One people are very clever. First they get huge amount of attention in the press with their half-baked idea.

Roscoe What do you mean half baked?

Mother There's no substance to their idea. It has no scientific base. The media laps it up, word spreads like wildfire through facebook and young people like you get the crazy idea that they can go to Mars.



- Roscoe It's not just young people who have applied. There are even old people like you ... lawyers, doctors, engineers.
- Mother All misguided fools.
- Roscoe Misguided fools? What about all the other people in history who dreamed of doing things that no-one else had done. Hmm? Mum, there is a chance for me to be the first person to land on Mars.
- Mother You may not even survive the flight to Mars. And if you survive the flight you won't survive when you're there. You're not even trained.
- Roscoe The organization will train me and you know how good I am at fixing things.
- Mother Space travel is very dangerous. Lots of Astronauts have already died in Space.
- Roscoe Sometimes you have to die for a good cause.
- Mother Landing on Mars is not a good cause. What you're getting involved in is just a huge, money making media spectacle.
- Roscoe Mars One is a private organization. They don't have the luxury of using up taxpayers' money. They have to get money to finance the technology.
- Mother To finance the technology for a suicidal venture, which is going to sacrifice human life.
- Roscoe No, it's a venture which is going to advance mankind. Why are you getting so worked up about this?
- Mother I can't sit back and see you being abused like this.
- Roscoe No-one's abusing me.
- Mother You just don't realize you're being abused, but that's typical for victims of abuse.
- Roscoe Will you call in the police?
- Mother If I thought for one minute that you were happy doing all this I may see things differently but I don't see you as being happy. You never have friends dropping in, you don't go out ... Will you come to the therapist with me?
- Roscoe Thanks but no.
- Mother It's your life.



### ACTIVITY 3

After reading the scene, discuss with a larger group or the whole class.  
Here are a couple of points for discussion:

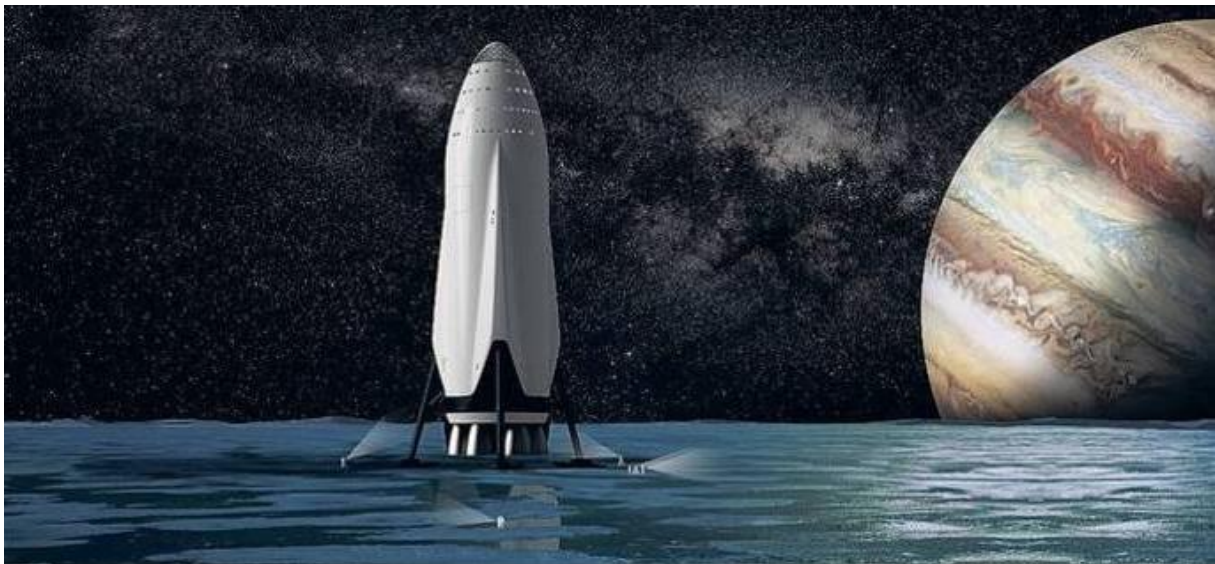
- ⇒ Why does Roscoe's mother try and talk him out of what he wants to do?
- ⇒ Would you do what Roscoe wants to do?
- ⇒ Is it appropriate for Mars One to use social media to recruit and to advertise?

### ACTIVITY 4 - Mediation Exercise (Choose one passage)

Read the following article, published on 28.9.16 in Der Tagesspiegel and written by Ralf Nestler: "Raumfahrt Mit Riesen-Raumschiffen zum Mars - und weiter"  
<http://www.tagesspiegel.de/wissen/raumfahrt-mit-riesen-raumschiffen-zum-mars-und-weiter/14615440.html>

①

Elon Musk hat einen ambitionierten Plan: Er will mit Raumschiffen für 100 Passagiere den Mars besiedeln. Schon 2024 könnte es losgehen - behauptet er.



Für Elon Musk ist der Fall klar. Eines Tages wird die Menschheit auf der Erde zugrunde gehen. Um zu überleben, müsse sie weitere Lebensräume erschließen und zu einer „multiplanetaren Spezies“ werden, wie es der Chef der US-Technologiefirmen Tesla und SpaceX nennt. Als ersten Schritt dazu sieht er die Besiedlung des Mars. Auf dem Astronautenkongress in Guadalajara (Mexiko) stellte er jetzt seine Pläne vor, wie es gelingen kann, Menschen dorthin zu bringen. Natürlich mit den Erzeugnissen seiner Raumfahrtfirma SpaceX.

Zentrales Element des „Interplanetary Transport System“ ist ein Raumschiff, das mindestens 100 Passagiere samt Gepäck fassen soll. Dieses wird von einer starken Rakete in eine Erdumlaufbahn gebracht und dort geparkt. Die Rakete kehrt zurück zur Erde, wird überholt und steigt erneut auf – mit einem großen Treibstofftank an der Spitze. Dieser koppelt an das Raumschiff an und befüllt es. Hat es genügend Sprit gefasst, macht es sich auf den Weg zum Roten Planeten. Musk zufolge soll das Schiff dort auch aus



eigener Kraft wieder starten können. Zum Beispiel, um weitere Kolonisten zu holen. Dafür soll es sogar mit Treibstoff vom Mars betrieben werden: Methan, das aus Wasser und Kohlendioxid hergestellt wird.

②

122 Meter - größer als die Apollo-Mondrakete

Die Dimensionen von Rakete und Raumschiff sind gewaltig, mit 122 Meter Gesamthöhe werden sie die Mondrakete „Saturn V“ übertreffen. Allerdings werden auch die Kosten gigantisch sein. Bisher gibt es keine seriöse Schätzung, was ein bemannter Flug zum Mars – etwa bei einer Kooperation von Nasa und weiteren Raumfahrtagenturen – einschließlich aller Vorbereitungen kostet. Ein „zweistelliger Milliardenbetrag“ müsste das sein, heißt es oft. Musk teilt die Einschätzung und sieht Kosten von „zehn Milliarden Dollar pro Person“. Dank SpaceX-Technik, die stark auf Wiederverwendbarkeit setzt, sowie der großen Kapazität des Raumschiffs will er die Kosten auf unter 200 000 Dollar pro Passagier bringen

Bereits in vier Jahren könnte das Raumschiff so weit gediehen sein, dass erste Tests beginnen können. Parallel dazu werden für die – noch nicht existierende – Superrakete gerade Triebwerke mit dem Namen „Raptor“ (Räuber) entwickelt. Seinen früher geäußerten Plan, 2024 den ersten bemannten Marsflug zu starten, um 2025 dort zu landen, bestätigte Musk. Mit Verzögerungen müsse jedoch gerechnet werden, deutete er an. Aber es werde „nicht wesentlich später“.

③

Musk hat es auf Staatsgeld abgesehen

Zwar sind Verzögerungen in der Raumfahrt nicht ungewöhnlich, doch ein Start selbst in zehn Jahren erscheint extrem wagemutig. Zum Vergleich: Die Nasa, die ebenfalls bemannt zum Roten Planeten fliegen will, rechnet nicht vor „Mitte der 2030er Jahre“ mit einer solchen Mission.

Und SpaceX hat gerade ganz andere Sorgen: Die Entwicklung der Schwerlasttrakte „Falcon Heavy“ stockt. Die kleinere „Falcon 9“, die Fracht zur Internationalen Raumstation ISS und Satelliten ins All bringt, ist derzeit nicht einsatzbereit, nachdem kürzlich eine dieser Raketen vor dem Start explodierte.

Abgesehen von den damit verbundenen Problemen bei Technik und Image ergeben sich auch finanzielle: Die Flüge bringen Geld, das auch ins Mars-Programm gehen soll. Offenbar hat es Musk zudem auf Staatsgeld abgesehen: Letztendlich werde die Reise zum Mars eine „große Public-private-Partnership“, zitiert ihn das Fachmagazin „SpaceNews“.

### For everybody

Ein Überleben auf dem Mars ist äußerst schwierig

Ob die Agenturen tatsächlich etwas geben, muss wohlüberlegt sein. Weder hat SpaceX – wegen Verzögerungen – bisher beweisen können, dass die Firma Astronauten sicher transportieren kann, noch gilt den Agenturen ein Marsflug ohne Wiederkehr derzeit als ethisch vertretbare Option. Dabei geht es nicht nur um eine glückliche Landung, sondern um eine echte Überlebensperspektive auf einem lebensfeindlichen Himmelskörper. Diese erfordert Wohnmodule, Strahlenschutz, Techno-Landwirtschaft und vieles mehr, das bisher noch nicht vorhanden ist.



Der Mars ist nicht das einzige Ziel. Das Interplanetary Transport System soll Astronauten zu weiteren Himmelskörpern bringen, etwa den Monden der Planeten Saturn und Jupiter.

**SOME WORDS AND EXPRESSIONS, used in the play, that you may not know**

mind-boggling .....	intellectually or emotionally overwhelming
to be riddled with .....	to be full of or pervaded by something undesirable
potential .....	possible but not yet actual
contribute .....	to give something, often money
half baked idea .....	plan that has not been considered carefully enough
lap (something) up .....	enjoy something very much, devour
spreads like wildfire .....	news becomes quickly known by lot of people
misguided .....	poorly conceived or thought out
endeavor.....	a purposeful activity intended to do or achieve something
suicidal venture.....	new activity that involves uncertainty, risk of death
victim of abuse.....	someone who has been treated cruelly
superficial .....	of little substance or significance
courageous.....	able to face or deal with danger and fear without flinching
ambitious .....	having a strong desire to succeed
determined.....	unwavering, resolute, nothing will stop me
tenacious .....	persistent
disciplined.....	trained mentally or physically by instruction or exercise
appendix .....	a small part of internal organs near intestines
opposite .....	completely different
driving someone insane.....	to make someone very upset or annoyed
addicted .....	compulsively or physiologically dependent
ignore.....	disregarded
pisses me right off .....	makes me very angry
convince .....	make someone understand the truth of something
exhausted .....	depleted of energy and strength
apparently.....	evidently, it seems
contaminated .....	to make something less pure or poisonous
supplies .....	food and other ordinary goods needed by people
equipment.....	the set of necessary tools for a particular purpose
sample .....	a small part of something
recap.....	to recapitulate, go back over, revise

**SPACE/SCIENCE VOCABULARY**

- constellations..... a group of stars in the sky
- astronomy..... the scientific study of matter in the universe
- gravity..... the force that causes things to fall towards the Earth
- zero gravity ..... the state or condition of weightlessness.
- oxygen..... a colourless, tasteless chemical that is found in the air
- capsule..... a part of a spacecraft
- radiation..... a type of dangerous and powerful energy that is produced by radioactive substances and nuclear reactions
- surface..... the outer or the topmost boundary of an object.
- deploy..... to put into use or action
- parachute..... a device for slowing the descent of a person or object
- rockets..... a vehicle propelled by one or more rocket engines
- brace for landing..... prepare for the act of returning to the ground
- habitat (hab) ..... a house for a controlled physical environment in which people can live under surrounding inhospitable conditions
- solar panel..... equipment that uses the sun's light to create electricity
- wind turbine ..... a modern windmill for generating electricity

**INTERESTING WEB SITES ON SPACE TRAVEL AND MARS**

NASA: [www.nasa.gov](http://www.nasa.gov)

European Space Agency: [www.esa.int](http://www.esa.int)

State Corporation for Space Activities: [www.roscosmos.ru](http://www.roscosmos.ru)

Mars Project: [www.marsproject.com](http://www.marsproject.com)

Mars One Information: [www.mars-one.com](http://www.mars-one.com)

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