

JOURNEY TO SPACE



GUIDE FOR PARENTS

This is a story about a girl who dreams of going into space. A girl who realises that in order to achieve her dream, she is going to hurt the people she loves the most...

There's a lot of science involved, as your child becomes part of the team going on this dangerous mission. In the first chapter, though, we focus on memories and goodbyes; aspirations and disappointments.

All the video clips and links to information in this document could lead your child down a rabbit hole of discovery, or they may choose to ask only one or two questions and find out less. Be guided by them. If your child gets very interested (or even obsessed!) and wants to explore more, there are supplementary activities and a booklist at the end to keep the work going.

1. A CHILDHOOD BEDROOM

RESOURCES

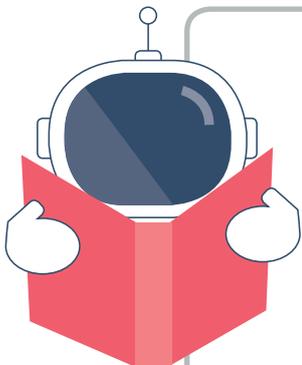
- Paper and pens

Our story begins in an ordinary house in an ordinary suburb on the outskirts of Manchester. The year is 2030. Our heroine – let’s call her Maria – is standing on the landing at the top of the stairs, outside the bedroom she had as a child. Let’s take a closer look and find out more...



ACTIVITIES

1. Look at the house. What assumptions might you make about the people who live here? Can your child offer reasons for their thoughts? Might you have expected a house in 2030 to look different? How might a house in 2030 be different inside to one today?



Narration: (you can read this to your child, or get them to read it out independently).

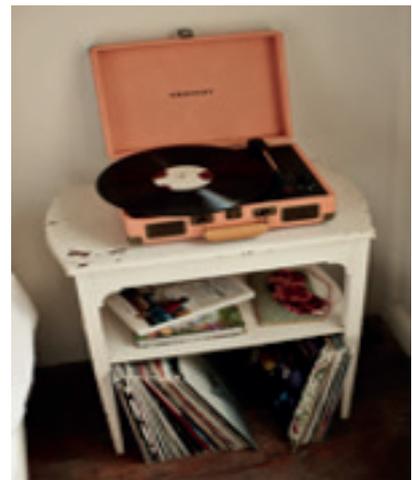
She stood with her hand on the handle of the door that she was opening, perhaps for the last time. The sign she had written as a stropy teenager and hammered to the door – more loudly than was strictly necessary – was still there.



Narration continued:

Smiling sadly, she took a deep breath in. Cleaning fluid, her mother's perfume, the lingering scent of the bacon her parents must have eaten that morning... a wave of memories rushed over her.

She opened the door and stepped inside. Nothing had changed! Literally nothing! It was like stepping back in time. How long was it now since she had left home? Ten years? No, eleven! And they'd moved nothing, everything was exactly as she had left it.



So many memories surrounded her like ghosts. There she is sitting at her little desk struggling with maths problems, and there slumped on the bed in a sulk – can't even remember why – and there chatting with her friends (or more like, shouting over the sound of the record player).

Here comes dad! "Turn it down! We can't hear ourselves think downstairs!"

"But they're your records! Rocket Man!" she sings, loudly and out of tune and throws a cushion at her dad.

He rolls his eyes and laughs and closes the door. How he loves his Rocket Girl.



Maria sat on the end of the bed she had last slept in in 2019 – eleven years ago. She had assumed it would have been decorated – her things in boxes in the loft, but no... everything was the same as it had been on the day she had left. It was weird how her parents had kept it like this – like a little museum. A lump came into her throat.

"You said you wouldn't cry," she told herself fiercely and stopped as her eyes rested on Fred – her childhood teddy. Without really thinking, she grabbed him and squeezed him tight.

Discussion: Why do you think Maria's parents have never changed her room? What does it suggest about the way they feel about her?

1. A CHILDHOOD BEDROOM continued

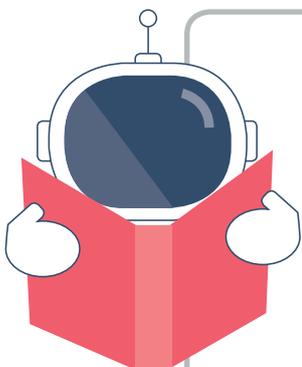


2. Maria's room is full of objects that she had collected during her childhood that have special memories for her. A seashell that she brought home from a family holiday. Books and posters and toys and photographs. Look – there's her old dog, Apollo, on the beach!



Take a piece of paper (ideally A3 or bigger, but an A4 piece will do). Imagine that the edges of the paper are the walls of her room. Draw a door and window (you might want to look at examples of floor plans – estate agents' websites have lots of them). How are floor plans drawn? What would be a normal size for a bedroom? You might measure your own. How much space does the furniture take up? You can try to draw the furniture in the room to scale.

What objects might we find in this room? You can label them on the drawing as numbers or letters and then write a list on the other side. What books would we find? Posters? What other photos does she have? What might we find in her wardrobe? Her drawers? If you want to, you might write some of her memories down or create some diary extracts for her. Here's an example of something in her room...



Narration:

On one wall was a photograph – it looked a little worn. In it was a young girl in pigtails. Sitting next to her, with his arm around her shoulders was an old man. They were both staring up at the night sky with rapt attention on their faces.

Maria took the photograph and held it close to her.

Narration continued:

“This photo...this photo. I remember it like it was yesterday. I must have been, what, six years old? It was August. The sky was clear and there was a beautiful shower of shooting stars in the sky - Pleiades - too many to count - so many wishes made!”

My granddad, he said to me:

“Child, there are worlds upon worlds upon worlds out there, all waiting to be explored. Maybe one day, you’ll be out there like a space age Christopher Columbus.”

I just laughed. Whoever heard of a girl going into space?

But it made me feel warm inside...



3. We are starting to get some ideas about what Maria might have been interested in as a child. She liked a record called ‘Rocket Man’; she loved looking at the stars with her granddad. Her dog was called ‘Apollo’ – the name given to the missions to the moon – you can read about them [here](#).

Why do you think she didn’t think girls could go into space?

Is it true?

(You might want to watch the film **Hidden Figures** later – it tells the story of how important women were to the success of the moon landings). [Here is a website](#) all about women in space.

And [here are lots of books](#) about women and space.

A SAD FAREWELL

Maria is sitting at the desk where she did her homework as a child and she is writing a letter – this is what it says.

Dear Mum and Dad,

By the time you read this. I'll be gone.

I wish I could have stayed and hugged you both one last time, but I have made promises that mean I can't do that. I can't tell you how sad that makes me. I am taking part in a secret mission - I can't talk to anyone about it, but suffice to say it's important and one day you'll know what it is.

Please be proud and glad for me. I would never hurt you lightly but it's important to tell you that I will probably never see you again. Please don't worry for me. I made this decision knowing full well the risks I was taking and I hope you'll understand. The future of the human race is at stake and I feel that this is the reason I was placed on this planet.

I love you both with all my heart.

Maria

P.S. I'm taking Fred with me - he reminds me of happy times we spent together and having him with me will make me feel like you are close.

Can you guess what her secret mission might be?
Why might she never see her parents again?

Narration: Maria got into her car with Fred on the front seat. She waited, looking in the rear view mirror until she saw her parents' car pull into their driveway. Back from the supermarket, regular as clockwork.

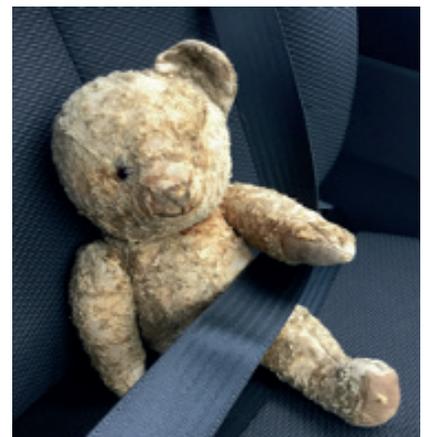
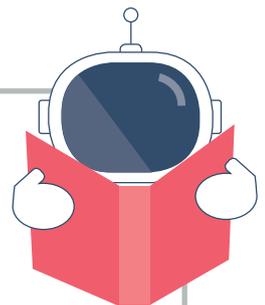
She pictured their confusion as they saw her note.
Delight thinking she was home.

Crushing disappointment as they processed her words.

Grief and disbelief.

With tears in her eyes, she turned the key in the ignition.

"Ok Fred. Off we go."



2. THE OLD FACTORY

RESOURCES

- Pens
- Paper
- Role on the wall template (see below)



Narration:

From the outside, no-one would have guessed that the factory was no longer abandoned. Decrepit and worn, as it had been for decades, sitting at the edge of the town, where no-one had any reason to go anymore, it had been the perfect place to hide in plain sight.

It had once been the heart of the town – the main employer in the area and people had flocked down the road to work. The sounds of machines had rung across the hills for almost a century. But no more. The factory had closed its doors and fallen silent many years before. People had found jobs elsewhere – many had moved to the city. Over time, most had forgotten the old factory.





ACTIVITIES

1. A mime machine. Standing up, take the position of the machines in the factory. Make a repeated movement as part of the machine and add an accompanying sound. Try to picture what your machine might do. Does it put the lid on a can? Does it spray paint on a label? Does it pour poison into a bottle? Does it crush, bang, stretch, compress? What is your machine called? How did it work?
2. Share your machines at work together, making a cacophony of noise. Now stop. Hold your position. Listen to the silence of the old factory.



Think of the people who once worked here and are long gone.

The friendships, the banter on the shop floor.

Clocking in. Clocking out.

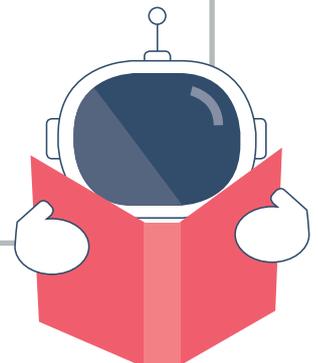
Hellos. Goodbyes.

Slowly change your position from machine to human.

Create a still image of a factory worker on his very last day of work – perhaps turning off his machine for the last time. Saying goodbye to the boss. Taking off his safety equipment. Knowing he'll never come back...

Narration:

The factory had crumbled for almost fifty years. Almost, but not quite, because in the past year, things had been happening in that place. No-one noticed the comings and goings. No-one heard the noises. Yes, from the outside, the old, abandoned factory looked as sad and tired as ever.



Narration continued:

But on the inside...



Maria stood, surveying her surroundings. Her new headquarters. She was all alone in this vast, futuristic laboratory.

Her team would soon arrive, but for now, she stood, feeling half excited, half terrified at the daunting task lying ahead.

She placed her hand on Fred – tucked out of sight in her bag. She didn't want the others to see him. What would they think? But his presence reassured her and made her feel less alone.

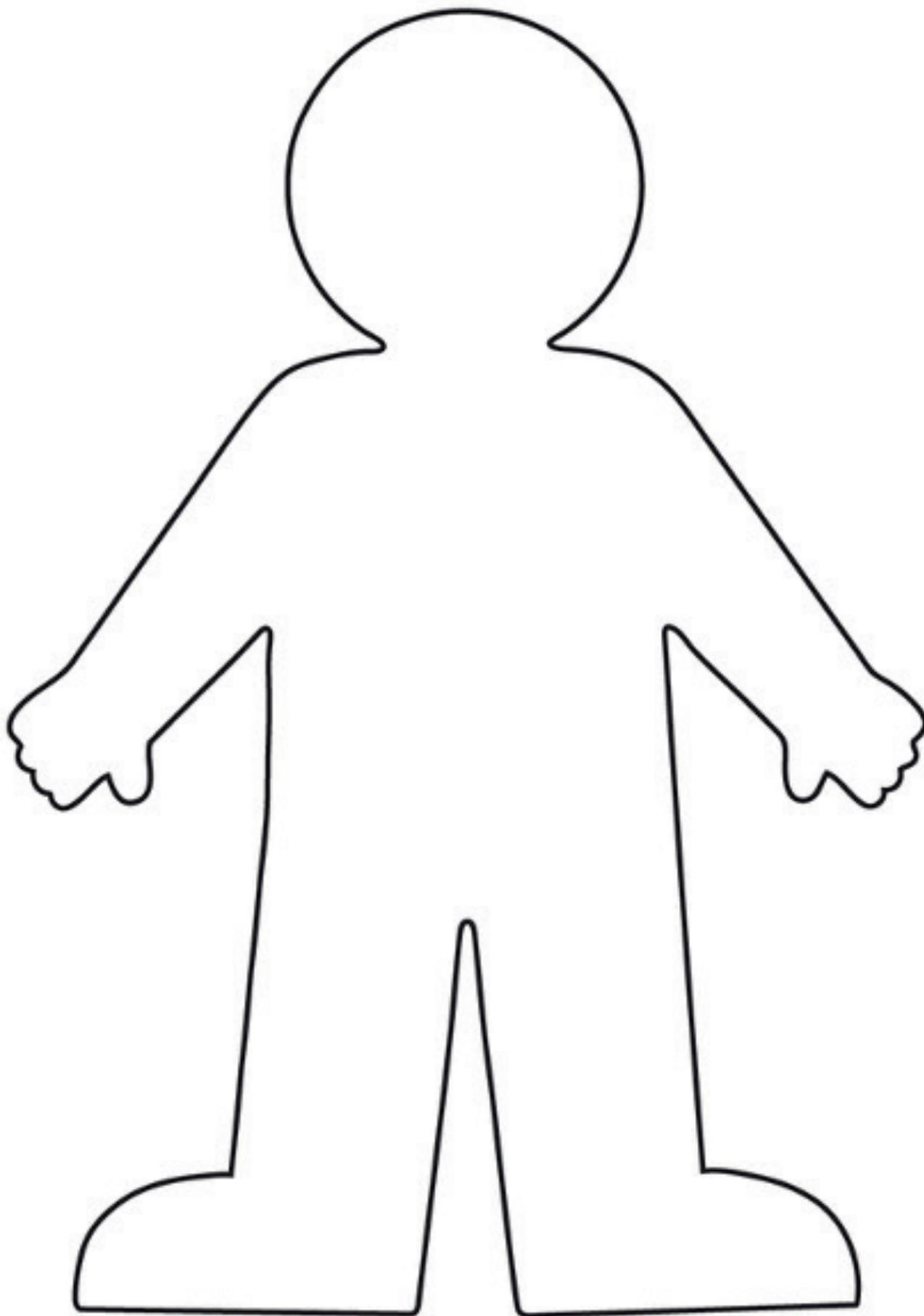
The silence was broken as a door opened and in came her new colleagues. She had never met them before, but this would be her core team. The people she relied on. They were finally here. Work could finally begin.

- 3.** Let's say... You are a member of this team. You don't yet know what your mission is, but you've been told to report here to find out. Why might an organisation have chosen you?

Using the template that looks like a gingerbread man on the next page, write on the inside the things about yourself that you think would make you a good member of a team on a secret mission. Imagine yourself as you, but as an adult.

Are you reliable? Well qualified? Honest? Knowledgeable? Hard working? What are your qualities and personality traits? What are you good at?

ROLE ON THE WALL



2. THE OLD FACTORY continued

4. Write four questions you would like to ask Maria about this mission. Try to ask questions that will help you to find out the things you really need to know. You can list them here:

1. _____

2. _____

3. _____

4. _____

See if the next part of the story helps you to answer your own questions.

Narration:

Maria stood and surveyed her new team. She'd been told they were the best and she hoped they were. They stared at her expectantly.

She cleared her throat and began to speak.

“Before I explain what we're here to do, I need to know that you understand the secret nature of this work. You must tell no-one of what is said here, what is done here and what is planned here. No-one at all. This is an international effort and it is top secret.

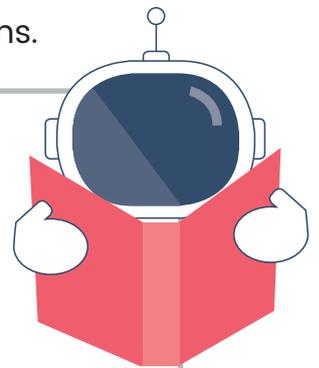
Our mission is dangerous. It has never been done before - attempted, but never successfully completed.

It has now been decided that it is necessary - in order to protect the future of our species - to try again. And we must not fail. We have to provide somewhere for humans to live in the future.

All of you have agreed that you are willing to take the risk that this will be a one-way trip. Once our preparatory work here is done, there is a high chance you'll never see Earth again.

But take heart. When we are ready and our mission can be shared, the eyes of the world will be on us and we will never be forgotten.

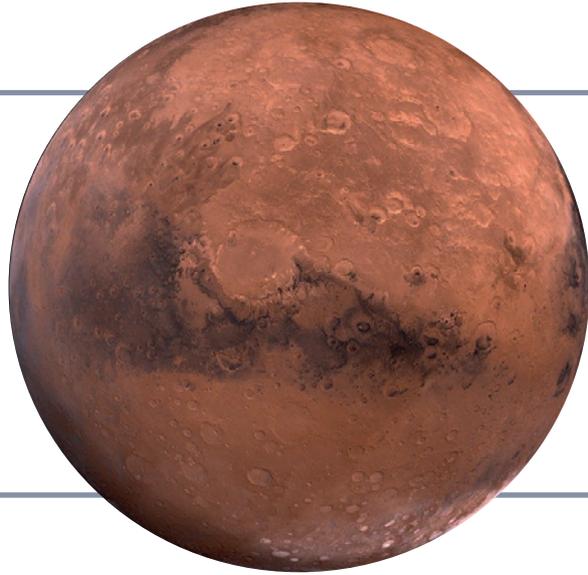
We will be the first human beings in the history of humankind to live on another planet.”



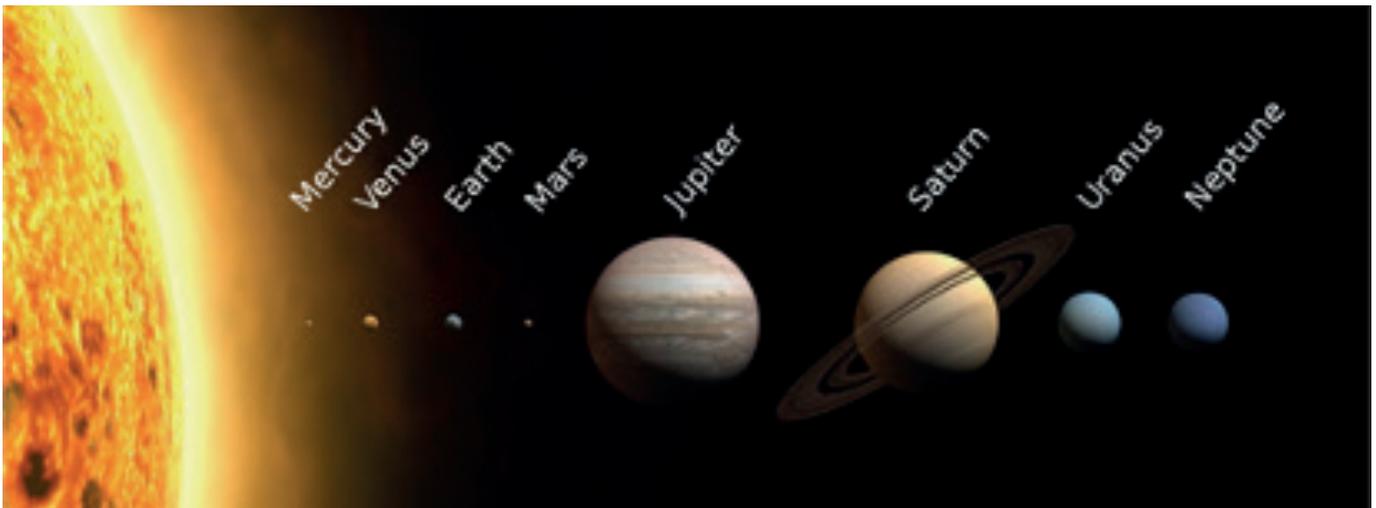
3. MISSION TO MARS

RESOURCES

- Pens and paper.
- Internet links (shared as we go along).
- You can show your child more images of Mars if you want to.



Maria has said goodbye to her parents forever and is now telling her colleagues to say goodbye to Earth. But why can't they come back? Just how far away from Earth is Mars?



ACTIVITIES

1. Stand up in your room. The wall to the left of you represents 100 years. The wall to the right of you represents less than 1 year. As if there was a line from one to the other, stand in the place that you think is the length of time it would take to get from Earth to Mars. Explain to an adult why you think it would take this amount of time.

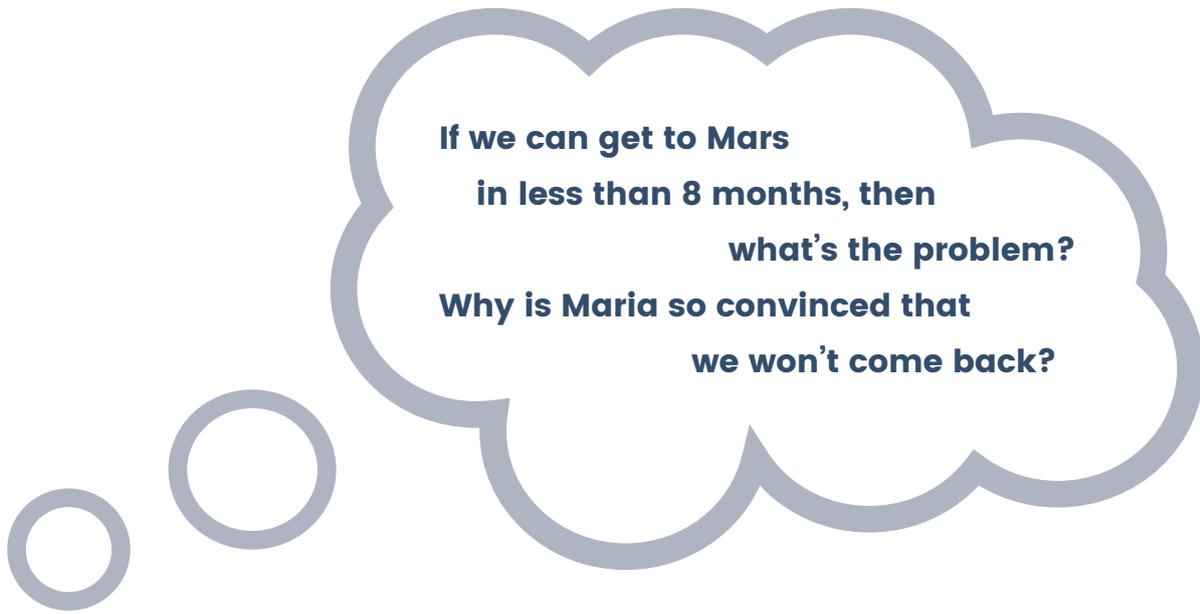
100 YEARS



LESS THAN
A YEAR

3. MISSION TO MARS *continued*

You can check whether you're right or not in this [NASA video clip](#).



2. If we were planning a mission to Mars, what problems might we encounter? Can you draw up a list of questions that we would need to answer in order to try to survive and make our mission a success? Here's one question as an example – can you add your own?

1. Can plants grow on Mars?

- 2.** _____
- 3.** _____
- 4.** _____
- 5.** _____
- 6.** _____
- 7.** _____
- 8.** _____
- 9.** _____
- 10.** _____

Can you try to answer your own questions by researching the answers online? [NASA Kids](#) is a great place to start.

3. MISSION TO MARS *continued*

This link outlines some of the major problems we'd have getting to Mars. It's an American clip so try to convert their measurements as you go through – for example, Fahrenheit to Celsius.

Here are some more video clips and website pages you might find helpful in your research:

1. A brief information **page about Mars** from NASA.
2. NASA also has a **Mars 'Fun Zone'** for kids with lots of games and activities that might help with your research.
3. And on **this page** there's a little more in-depth information about some of the questions you may have had. Click on the ones that interest you.

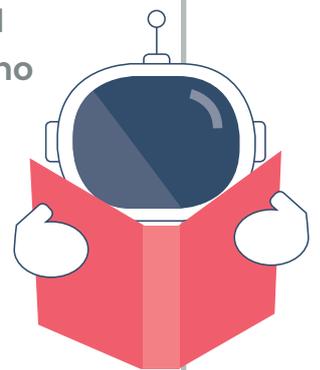
You may have found out that Mars once had an atmosphere that supported water and plants. I wonder what changed and why? Could that happen to Earth?

Narration:

Maria knew the task in front of her team was daunting and dangerous, but she also knew they were the right people for the job. They had already learned so much and there were things they thought about that she hadn't even considered. Her team thought it important that some memories of life on Earth went in the spaceship with them. That the best achievements of humankind were available to the people moving to Mars. They decided that as well as all the scientific equipment they would need, they would also take art, music and memory boxes of who they were and what mattered to them.

Up until this point, Maria had kept Fred well hidden from her colleagues, but she now brought him out.

“He may only have one eye and one leg. He may have lost all his fur. But all the memories I hold dear to me are attached to this bear. Meet Fred, everyone – our new mascot!”



NOTES AND PROMPTS FOR PARENTS:

Your child might need some help with the research for the Mars mission. In section 3, when we consider the problems we might face, you might want to guide them towards the following considerations:

1. **Temperature** (you might want to tackle misconceptions about planets being colder the further away from the sun they are. This holds true for most, but atmosphere is also a consideration, which is why Venus is actually warmer than Mercury).
2. **Protection from the sun** (there is no ozone layer to protect us from the sun's radiation on Mars).
3. **Gravity** – Mars has 38% less gravity than Earth. While this means that humans will be around 38% lighter, there are implications for our muscles and bone density – it's important to exercise in space.
4. **Soil** – the soil on Mars is red because of the high levels of iron in it. But there are other elements in the soil that make it toxic for humans and there are not enough nitrates to make it suitable for growing plants. How could we make the soil less acidic and more fertile? Watch the film **The Martian** (it's a 12 certificate, so make sure you watch it before your children).
5. **Water** – most of the water on Mars is frozen. There may be liquid water under the surface but no-one has found it yet.
6. **Dust storms** – brutal storms that cut out the light from the sun for months and sometimes years on end.
7. **Unknown bacteria and viruses** – we can't know what dangers these might pose to humans on Mars.
8. **Air quality** – 96% of Mars' atmosphere is made up of CO². Only a tiny 1% is oxygen. Humans can't breathe on Mars. If the soil could be improved, trees might be an answer to this. But it never rains on Mars – you need an atmosphere for that.

4. COLLECTING OUR MEMORIES



ACTIVITIES

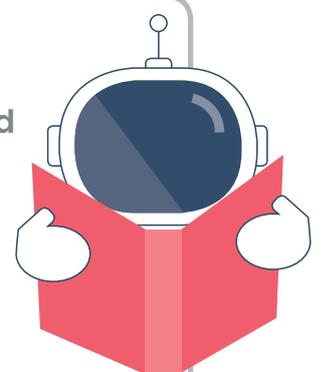
1. We know of two things Maria would take with her. But what would you put in your memory box? If you have a shoe box or cardboard box you could decorate it to make a memory box, but if not, perhaps you can gather your items into a bag.

How might you organise your memory box? You could make labels or tags for your items. You could write short accounts of why your objects matter.

Narration:

The team made and shared their memory boxes. They realised that they all had very different things to share and different experiences in their lives, but that they also had lots of things in common – childhood friends and family members they loved. As they shared their boxes and stories, Maria said:

“Perhaps we also need to collect music to play on our journey and on our way there. A Mission to Mars Soundtrack! I know I’d have Rocket Man on there – what about you?”



2. Which songs or pieces of music would you have on your Mission to Mars soundtrack? You could choose your favourite songs but try to find some space-related tracks too. If you have Spotify or another music streaming service, you could make your playlist and share it at home.

ACTIVITIES CONTINUED

3. What other things should we take to remember Earth by? Can you write a list of things we should take that would help us to remember the best things about living on Earth, or the best things that the people who have lived here have created?

- a. _____
- b. _____
- c. _____
- d. _____
- e. _____

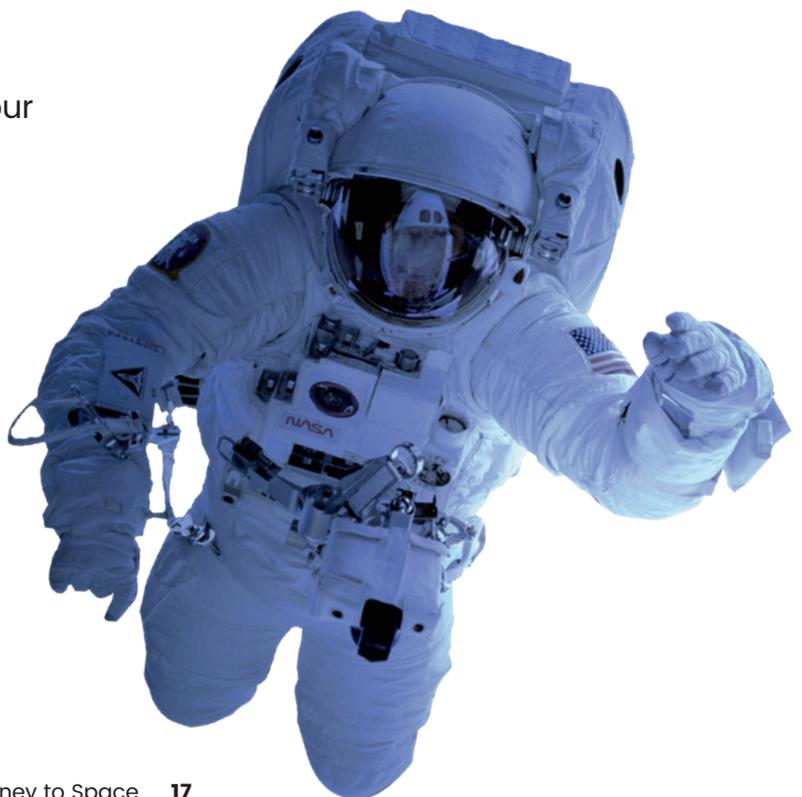
Perhaps you could talk to members of your family about your choices and see what they would have chosen if they had done the same task?

5. TROUBLESHOOTING AND PREPARING

Spacesuits back in 2020 were very bulky and not really suitable for daily life (see the image below). If our astronauts in 2030 are going to be able to live on Mars, we really need better designs. Could you design a spacesuit for our team?

Think about the following:

- What materials might help to keep our astronauts warm?
- If they have to carry oxygen with them where would it go on your spacesuit?
- Do spacesuits have to be white?
- To increase our weight on Mars, we might need to wear heavy footwear – but that doesn't mean it can't look good!
- Use your imagination – design our futuristic spacesuits!





In the image above we can see what NASA thinks a ‘home’ on Mars might look like. The inside would allow oxygen to be breathed so that we wouldn’t have to wear our spacesuits indoors. What else might we have in there? Can you design our Martian home? Could we grow plants in there? Here are some ideas to get you started.

- How will we let light into our home without letting oxygen out?
- What rooms will we have?
- What would a kitchen on Mars need to have if we can’t just shop at a supermarket?
- How will we keep our home warm?
- What materials will our home be made out of?
- How will we dispose of our waste?
- How will we power our homes?

Draw and label your designs and then think about writing a list of the materials and equipment we’d need to pack into our spaceship in order to build our homes. What other buildings might we need?

Could you create an equipment list of what we might need to take with us? You could also choose one of the questions you researched when we were first thinking of problems we might encounter and design a solution to that problem.

6. REVEALING THE SECRET

RESOURCES

- Pen
- Paper
- Paint or felt tipped pens

Our planning is done and we are ready to reveal our mission to the world.



ACTIVITIES

Could you write the press release (see notes below) to inform the media of what we are about to do. We are setting off in two days (pick two days from now but in 2030). Our launch will be filmed and broadcast live across the whole world. What do we want people to know?

Firstly, you'll have to think of a good name for our organisation and mission. NASA used Apollo, the Greek God, as a name for their Moon landings. He was the God of Archery – perhaps they wanted their spacecraft to fly like an arrow! What would be a good name for our mission to Mars (remember Mars itself is named after a God – this time a Roman God – the God of War)?

NOTES

A press release is a statement given to the press, which they will use to make their news reports. It usually has the following information in it and is written to put the organisation in the best possible light – so should sound positive.

- **What** – what is the name of your mission and what are you doing (very briefly like a title)?
- **When** – the date and time of the launch.
- **Where** – where is the rocket being launched from?
- **Who** – who is going and who has organised this mission – you might want to put Maria's details in here, but what is the name of your space organisation?
- **Why** – what is the purpose of your mission and what do you intend to do when you get there? Why might humans need to leave this planet and live on another one? How long is it going to take you to set up a colony before other humans can come and join you?

6. REVEALING THE SECRET continued

Read out your press release and imagine there is an audience of journalists in front of you. There are cameras clicking and people asking questions but you just read the statement, slowly and calmly.

Perhaps an adult could film you making this statement?

Narration:

As Maria read the statement, her team all around her, she felt both excited and nervous. Telling the world somehow made it feel more real. As she read the statement, she scanned the room and there, sure enough at the back of the room, with tears streaming down their faces, but smiling with pride, were her parents. Her dad gave her a thumbs-up sign.

She read on and stopped for questions from the audience. It was only then that she noticed the man in the doorway.

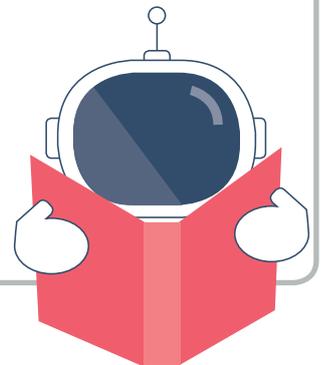
He was tall with his arm in the air. At first she thought he wanted to ask a question, but then she realised that his arm was raised and his fist was clenched. Around his wrist was a chain and that chain was attached to a padlock and the padlock was fastened to the lock on the door of the room. He had locked everyone in!

She looked around to see if anyone else had noticed, then back at the man. He was glaring directly at her. Realising that she had fallen silent and seeing the look of confusion on her face, the rest of the room turned to see what she was looking at.

The man was wearing a t-shirt with the letters XR on it. And as everyone stared, he said in a loud, clear voice.

“Oh no you don’t! You don’t get to ruin one planet and then simply go and live on another one! Take responsibility.”

And at that point several security guards ran forwards, cut the chains free and bundled him out of the building...



What do you think just happened? Who was the man? And was he right? Is it ok to spoil one place and go and live in another one? Perhaps you could discuss this one with your family.



MORE ACTIVITIES

Could we think of things we could do to protect the planet we live on? You could group them under these three headings:

Reduce (things we could use less of)

Recycle (things other people can make new things from)

Reuse (things we can use again or repurpose for new uses)

Perhaps while you're at home, you could get some RRR projects going. Here are some ideas for you:

1. Make new plant pots with old plastic containers and paint. What do you think these ones were made out of? You could also make planters out of decorated tin cans – just remember to get an adult to punch holes in the bottom of them.



2. You could even make your own rocket out of your cardboard recycling!

6. REVEALING THE SECRET continued

3. Or plant seeds in old eggboxes – the boxes will decompose in the soil and the roots can just grow through them so there's no need to lift the fragile seedling out of its container. More ideas for [this here](#).



7. A SPIRIT OF ADVENTURE

If the idea of space has captured your child's imagination, there are lots of things you can do together to pursue that interest further. As well as the many space-themed programmes and films you could watch together, here are some books they might like:

FICTION

I Love You Michael Collins by Lauren Baratz-Logsted

Cosmic by Frank Cottrell-Boyce

The Kid Who Came From Space by Ross Welford

See you in the Cosmos by Jack Chueng

NON FICTION

Hello, Is This Planet Earth? My View from the International Space Station

by Tim Peake

Exploring Space: From Galileo to the Mars Rover and Beyond by Martin Jenkins,
illustrated by Stephen Biesty

Hidden Figures (young reader's edition) by Margaret Lee Shetterly

And of course, the NASA site is a place of all things space discovery related.

They could also:

1. Design and name their own planet.
2. Sit out and watch the stars with you – have a supper picnic as a special treat on a clear night and see what you can spot with the naked eye (and if you have binoculars or a telescope, even better (and quick before the days get too long for bedtime!) There are several star gazing apps you can use so you know what you're looking at. **See recommendations here.**