

Footprints In Space

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find out about the people
who have travelled in space

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The New Explorers

Throughout history, we have been fascinated by the unknown. Hundreds of years ago sea-faring explorers set off in their ships to discover unknown lands across the seas. They discovered 'new worlds' and different ways of life. In more recent times, our need to explore has taken us on new voyages of discovery...

| <div>  <h2>Space History Table</h2> <p>The first flight into space took place over 40 years ago. Since then, scientists have worked hard to explore space and find ways of living there. This table shows key dates in the history of space exploration.</p> </div> | | |
|--|--|--|
| 1961 | The first man in space: <i>Yuri Gagarin</i> | Flight time 2 hours |
| 1963 | First woman in space: <i>Valentina Tereshkova</i> | Flight time 3 days |
| 1969 | First men on the moon: <i>Neil Armstrong and Buzz Aldrin</i> | Duration 1 week |
| 1973 | The first space station: <i>Skylab</i> | Astronauts in space for several months |
| 1976 | Space probes: <i>Viking 1</i> and <i>Viking 2</i> land on Mars | Months of unmanned exploration |
| 1986 | Largest space station, <i>Mir</i> , launched | Some astronauts work in space for over a year |
| 1991 | The first British astronaut, <i>Helen Sharman</i> , visited <i>Mir</i> | Helen spends a week on the space station |
| 2001 | <i>International Space Station (ISS)</i> launched | Astronauts from all over the world can live and work in space for months at a time |

Helen Sharman



Helen Sharman is the first British astronaut. Here are some of the things she said about the time she spent on Mir performing scientific experiments and experiencing the unique feeling of being in a 'new world'.

"Inside an orbiting spacecraft you feel weightless. Because you're travelling so fast, you're pulled towards the Earth as it curves away below you. It's as though you're constantly falling round the Earth. Wonderful!

We go into space because of the useful things we can find out there, but no astronaut ever tires of just looking out of the window. If you look towards the Earth you see vast oceans of rich blue, sprinkled with snow white clouds that are so bright with reflected sunlight that it hurts your eyes to look at them for long.

Deserts are brick-red, crossed with sandy coloured roads that seem to have neither beginnings nor ends. If you look away from Earth into space, you see millions and millions of stars that seem to go on forever."



Photographs and text from *Seize the Moment; The Autobiography of Britain's First Astronaut* by Helen Sharman, (Gollancz 1993).

3. **The Boy from Far Away**

Joe's mum sent him to wash his hands before dinner. Joe stomped out of the tent and ran across the muddy site. It was still raining, as it had been for the past four days. Camping holiday weather, Dad called it.

There was nobody else in the shower block. Joe turned the tap on. Then he heard a noise.

'Pssst!' said a voice.

Joe turned round. He couldn't see anybody.

The noise came again. 'Pssst!'

Then Joe noticed a pair of eyes looking at him from above one of the shower curtains.

'Help me! I'm stuck!' said the voice.

Joe pulled open the curtain and blinked. Hard.

The person – it was impossible to say whether it was a boy or a man – was standing on the wall. His feet, encased in butter-yellow boots, were planted firmly on the tiles.

'Wow! How did you get up there?' asked Joe.

'I thought it was the ground,' said the person.

Joe frowned. 'But what's holding you up there? Why aren't you falling down?'

'It's my boots,' whispered the person.

'Your boots!' exclaimed Joe.

'Sssshh!' The person peered round the edge of the cubicle to make sure nobody was listening. 'Please do not speak about the boots. They are secret.'

Slowly, the person lifted one foot and began to walk down the wall. When he reached the ground he righted himself and grinned up at Joe. He was very short – at least six inches shorter than Joe – and he had a young-looking face. But his hair was sparse and wispy and his hand was wrinkly like an old man's hand.

'Thank you. You are my best friend! I am Oran,' said the person.



'That's okay. I'm Joe. But how ... ?'

'Is this Holiday?' whispered Oran, looking round the shower block.

'No!' laughed Joe. 'A holiday isn't a room! It's like ... a break.'

Oran frowned. 'A break? Snap?'

'Not that sort of break. A rest sort of break. When you go somewhere to enjoy yourself.'

Oran nodded. 'Rest sort of break. Enjoy yourself.' He dipped his thin wrinkly hand into the pocket of his shorts and pulled out a notebook and pencil. He wrote something down.

'Only it's better when it's not raining,' said Joe.

'Good! So now I am in the right place. And the right way up! I will have Holiday with you!'

'Hmmm, maybe,' said Joe, cautiously. 'How come you haven't heard of a holiday before?'

'We don't have them where I come from,' said Oran.

'Where's that?' asked Joe. He thought everybody had heard of holidays.

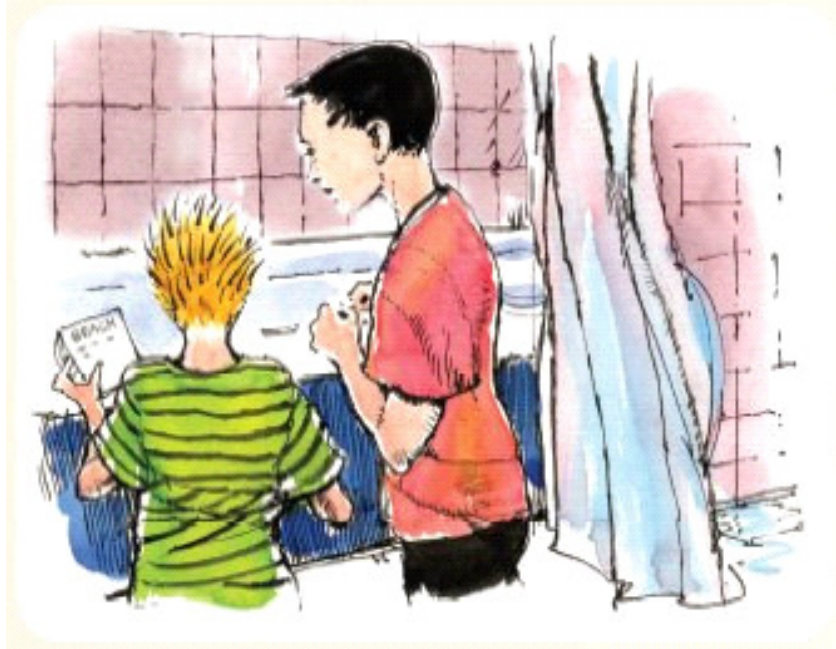
'Oh – far away,' said Oran, waving his skinny arm.

Joe had never heard of Faraway.

'Where's that?'

Oran suddenly looked sad. 'It is a very long way and I do not want to talk about it.'

Joe thought Oran must be homesick. He would have to try to be friendly and not mention Faraway again.



'Why do you want to know about holidays?' asked Joe.

'It is my homework,' said Oran. 'Tell me more.'

Joe tried to explain. 'Holiday is when you have fun and games and you don't have to go to school or work. You can go on the beach. The beach is brilliant – sun and sea and tons of sand to play on.'

'I would like to see Beach,' said Oran. He stood up and put the notebook away. 'I must go now. There is much work to do. It will be sunny tomorrow and we will go to Beach.'

Joe didn't believe him.

But it was sunny the next day. Suddenly the camp site came to life. Bags full of grass mats and beach balls appeared outside each tent. Picnics were packed and swimsuits put on.

Joe was hardly surprised at all when he tripped over a small figure bending down to tie his bootlaces. It was Oran, of course.

'Hello, friend!' said Oran. 'Is this to Beach?'

'Yes,' said Joe. 'Look! There it is!'

He pointed down at the bright sand and dazzling sea.

'Oh!' gasped Oran. 'But the sea is wet? You didn't like the wet!'

'I didn't like the wet when it was coming down as rain. It's different when it's the sea.'

Oran didn't look convinced.

Oran stood on the sand and made notes while his friend swam. This water was interesting. It wasn't flat. It had hills and ridges, and it moved.

Oran noticed that every so often the water came nearer, and he kept having to walk a bit further up the beach. The water was growing!

As they walked back up the beach, Oran confided, 'I don't wish to alarm you, Joe, but the sea is growing. I think it may overflow.'

'The sea can't overflow,' said Joe. 'It just moves up and down a bit – it's called the tide. It's something to do with the moon's gravity.'

'Ah! I know about gravity,' said Oran, jumping with both feet and landing – THUMP! – on the sand.

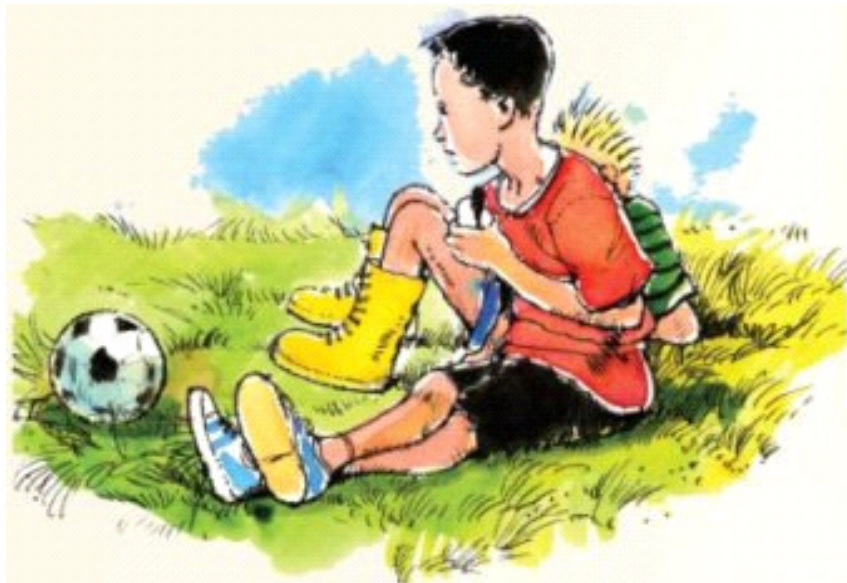


Joe looked down at Oran's boots. They might be great for walking up walls, but were they any good for playing football in? Oran had never heard of football, so Joe fetched his ball and showed Oran how to kick.

'Now you try,' said Joe. Oran pulled back his butter-yellow boot and then he kicked – hard. The ball flew into the air, growing smaller and smaller until it was just a tiny speck in the sky.



'Wow!' said Joe. Maybe Oran's boots were all-round magic boots. It was a stunning kick for somebody who hadn't even heard of football. And where on Earth had nobody heard of football?



The sun shone the rest of the week.

Soon it was the last evening of the holiday. Then Oran told Joe his news.

'I have finished my homework. Tonight, I have to go back.'

Joe fiddled with a few blades of grass. He didn't want Oran to go home. His holiday had been much more fun with him around. And much sunnier.

'Perhaps we could write to each other,' said Joe.

'I'm afraid we don't have a very good postal service where I come from,' said Oran. 'But please give me your address. You have been a good friend to me. I would like to send you a present. What would you like?'

'What I would like most of all is – a special pair of boots like yours,' said Joe.

Oran looked down and wriggled his toes. 'This is difficult,' he said.

'These boots were specially made for me and my ... circumstances.

They might not suit you. But I will send you some boots specially made for you and your ... circumstances.'

'Thanks!' said Joe.

'Now I must go,' said Oran. He shook Joe's hand and stood up.

'Goodbye, friend.'

When Joe woke up the next day it was raining again.

It rained all the way home. When they got back there was a parcel waiting on the doorstep. There was an envelope taped on top.

He opened the letter.

'Dear Joe,' it said.

'Thank you for helping me with my homework. I have explained to my fellows about holidays, and fun and games, and the sea and beach.

Here are the special boots I promised you. They aren't exactly like mine.

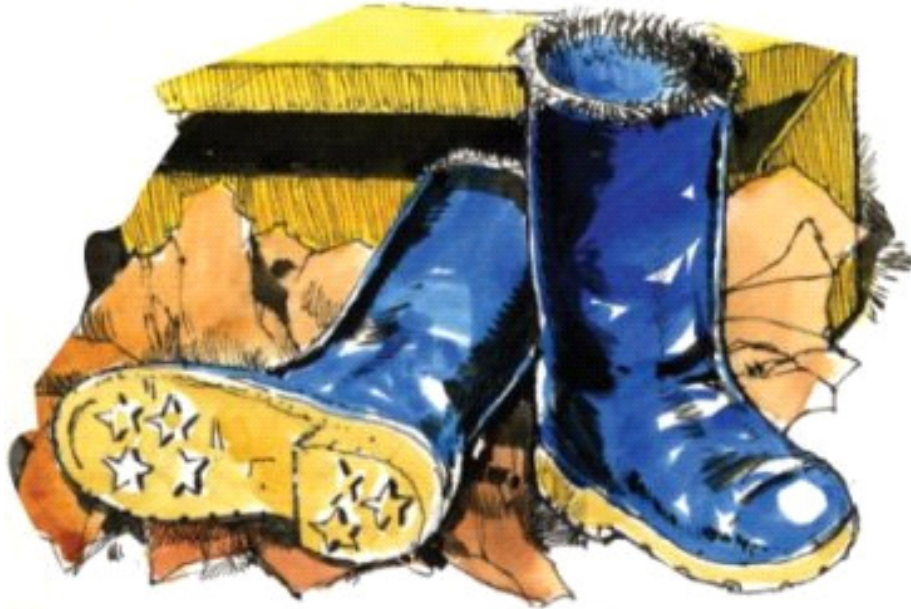
Now that I am not there with you, there may be rather a lot of rain for a while so I have made your boots waterproof. Also, you said that you didn't like yellow very much, so yours are a different colour. I hope you will like these. Remember to be sensible with them. Wall-walking can be very dangerous.

Your friend,

Oran.'

Joe ripped open the box. Inside was ... a very special pair of boots.

Joe lifted them out. They were glossy navy-blue and lined with some kind of short black fur and they had a pattern of stars on the soles. So these were Joe's special boots – made for him and his circumstances. Glossy blue, fur-lined, star-soled, wall-walking ... wellington boots!



Acknowledgement and thanks to Helen Johnson and Orion Children's Books for permission to reproduce material from
'The Boy from the Back of Beyond' from 'Aliens to Earth' (Dolphin Paperback, 1997).

4. These questions are about *Can we live in Space?*

1. Here is a copy of *Can we live in Space?*.

Can we live in Space?

1 →

2 →

3 →

4 →

5 →

Which way is up?

"The floors and ceilings on Mir are painted in different colours to help astronauts orientate themselves. Cables in spaceships have vertical sleeping bags - it doesn't matter which way you lie when there's no gravity pulling you down."

Working out

Weightlessness is bad for the bones and muscles, so space-farers must strengthen them by long periods of exercising - either in a moving walkway or an exercise bike.

Space sickness

Some astronauts spend more than a year on Mir, but living in space is not all plain sailing. Nearly half of all space-farers suffer from 'space sickness' - which is similar to car sickness - when they first experience weightlessness. Most, though, soon adapt to the new environment.

Space food

The food has to last for several months, so it is mostly canned or dried. Hot water is also very hard to come by. Dried soup or vegetable purée. By rolling up one end of the packet, liquids are drunk from the other end through a spout.

Spin-offs from space travel

Almost every home has benefited from the new technology used to send people into space. Did you know that all of the following things were invented as part of the space programme?

- Computerised bar codes for labelling items
- Wireless power tools for use without mains electricity
- Dried food for easy storage
- Smoke detectors for strong clothing and non-stick pans
- Smoke detectors as a safety precaution

Each numbered part of the text above has a different purpose. In the table, write the number of each part beside its purpose. One has been done for you.

| Which part of the text ... | |
|--|----------|
| provides specific details? | |
| gives general information about the topic? | |
| tells you what the whole section is about? | |
| helps you understand what you read? | 3 |
| gives information on a related subject? | |

2 marks

2. *Can we live in Space?* is printed on a dark background.

What effect do you think the designer wanted to achieve by doing this?

.....

.....

.....

1 mark

3. Much of the food taken on a spaceship is **dried** food.

Find **two** reasons why dried food is used.

1.

2.

1 mark

4. Fill the gaps in the table below. The first one has been done for you.

| | | |
|--|---------|--|
| Space scientists carry out experiments | so that | <i>they can find out about the effects of space on humans.</i> |
| The floors and ceilings on <i>Mir</i> are painted in different colours | so that | |
| Astronauts must exercise regularly | so that | |
| | so that | they can take their tools outside the spaceship. |

3 marks