



NATIONAL

# CHRIS HADFIELD: SPACESHIP SUPERSTAR



When Commander Chris Hadfield blasted off December 19 for a five-month mission on the International Space Station (ISS), he took the world along for the ride. And what a wild ride it was!

The 53-year-old Canadian lived and worked aboard the orbiting laboratory for 146 days. He experienced 16 sunrises and sunsets a day. The ISS circled the Earth 2336 times during the mission, and travelled nearly 161 million kilometres.

Life in space wasn't new for the former RCAF fighter pilot, but it was for us. Thanks to social media, we could view it through his eyes. He helped us smell, taste and feel the experience.

## PICTURE THIS

In what way? In his spare time, he took 4500 breathtaking pictures. They captured the way the world looks from space. Then, he posted the shots on Twitter and Facebook. He also posted playful how-to videos showing him making peanut butter-and-honey sandwiches or brushing his teeth. We got a peek at his tiny sleep station, and his daily exercise routine.

Students peppered him with questions via video. "What's it like to sleep in space?" (Very comfortable.) "Is there turbulence in space?" (Nope.) "What does he miss most about Earth?" (Hugs and hot showers.)

He started the mission with 20,000 Twitter followers. By the end, the count had rocketed to

a million. About 350,000 people "like" him on Facebook. His YouTube videos notched more than 22 million page views. Not bad for an astronaut working ten-hour days, 140 kilometres above us.

## DID YOU KNOW?

This wasn't Chris Hadfield's first space voyage. He visited the old Russian space station Mir in November 1995. He was also on the ISS in April 2011, when he performed two space walks.

"Chris is a rock star," said Stephen Quick, director of the Canada Aviation and Space Museum in Ottawa. "He [can talk] to six-year-olds with stars in their eyes [and to] the governor general or a head

## DEFINITIONS

**RCAF:** Royal Canadian Air Force; one of three commands of the Canadian Forces (along with the Navy and the Army)

**TURBULENCE:** sudden violent movements of air or water



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of state. He is the spaceman from next door who does these amazing things.”

## WORK AND PLAY

Cmdr. Hadfield’s proudest day might have been in March when he became the first Canadian to lead the ISS. There were many other great moments, however.

He and the crew logged 71 hours of science research and conducted 130 experiments. That’s a record for the station. But it wasn’t all work. The huge Toronto Maple Leafs fan “dropped” the puck from the ISS for an NHL game. He also chatted with William Shatner, *Star Trek*’s Captain Kirk.

He even helped open a **Canadarm** exhibit at the Canadian Aviation and Space Museum. His job? Giving the Canadian-made invention its last command. Then, Canada released a five-dollar bill featuring **Canadarm2** and **Dextre**. Guess who proudly unveiled it? The very astronaut who had used the giant robotic arm on an earlier mission.

## MAKING MUSIC AND MORE

Music Monday was another highlight. The talented astronaut

co-wrote “I.S.S. (Is Someone Singing).” Then, he led one million students in the tune as bands and choirs performed along.

Two days before heading home, the astronaut showed us his serious side. The station’s coolant system sprang a leak. So the onetime spacewalker coached his crewmates through a three-hour spacewalk to repair it.

## BACK TO EARTH

On May 13, Cmdr. Hadfield landed safely in Kazakhstan aboard a Russian Soyuz capsule. With him were Tom Marshburn of the United States and Russian cosmonaut Roman Romanenko.

His journey is still far from over, though. Lack of gravity has taken a huge toll on Cmdr. Hadfield’s muscles and bones. He is shuffling his feet, has soreness in his back, and has trouble navigating corners. He feels dizzy on stairs. After months of floating, his feet have even lost their calluses.

“[It felt like] I was walking on hot coals,” he said.

## MAN WITH A MISSION

These problems will soon resolve as he adjusts. At any rate, Cmdr.

## THE CANADIAN SPACE AGENCY

The Canadian Space Agency (CSA), which opened in 1989, is responsible for Canada’s space program. It is headquartered in Saint-Hubert, Quebec.

Its purpose? To promote the peaceful use and development of space and to advance knowledge of space. It also aims to ensure that space science and technology provide benefits for Canadians.

Chris Hadfield’s ISS mission was the eighth visit to the station by a Canadian. Now, it will be at least three years before the next CSA astronaut travels to the orbiting outpost, which will be operational until at least 2020.

Hadfield says the trip was worth this discomfort if he taught more people about space.

“It’s just too good an experience to keep to yourself,” he said, “and the more people see and understand, the more the benefits of space exploration will roll back into daily life.” ★

## DEFINITIONS

**CANADARM:** a Canadian-made robotic arm that was used on the Space Shuttles before they were retired

**CANADARM2:** a Canadian-made robotic arm on the ISS

**DEXTRE:** a Canadian-made two-armed robot that works with the Canadarm2 on the ISS



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## ON THE LINES

Answer the following in complete sentences:

1. What does ISS stand for?

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2. How many times have Canadian astronauts travelled to the ISS?

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3. Describe the latest Canadian astronaut's visit to the ISS. When did he leave, when did he return, and what did he experience while away?

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4. How did Commander Hadfield make use of social media on this journey and how successful were his efforts?

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5. List at least two highlights of this mission.

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6. Describe the effects of weightlessness on Commander Hadfield.

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## Gravity Guess...

During his mission, Chris Hadfield said...

"My body was quite happy living in space without gravity. It's a very empowering environment where you can touch the wall and do somersaults, where you can move a refrigerator around with your fingertips and never worry about which way was up. All that suddenly changed when our Soyuz (return spacecraft) slammed into Earth, and my body is catching up with the change."

In fact, when he returned to the Earth's surface, Chris Hadfield had to be helped out of the Soyuz spacecraft. He was carried to a chair (for a brief press photo that you see on the other page) and then carried to a waiting helicopter. He wasn't allowed to walk because his body needed to readjust to the Earth's gravity and his muscles needed to regain their lost strength.

*After the reading the main text and information above, you should have some idea about how astronauts have to adjust to the return to Earth's gravity. I also recommend that you watch the posted space videos on the class website to help you get an understanding of living in a micro-gravity environment on the ISS. How would you feel dealing with changes in gravity? In complete sentences, answer these questions about gravity and tell me how you would feel.*

- 1) Think of all the ways your life would be different without gravity. What tasks would be easier? More difficult? More interesting?

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- 2) Overall, do you think a world without gravity would be better or worse for people than a world with gravity? Give reasons to support your response.

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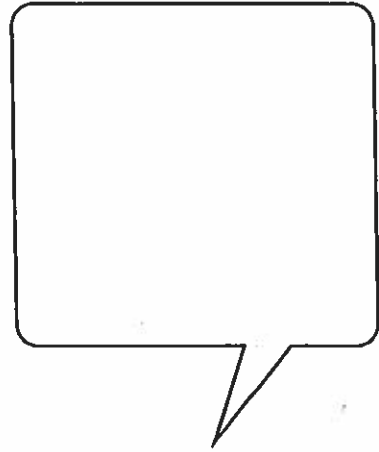
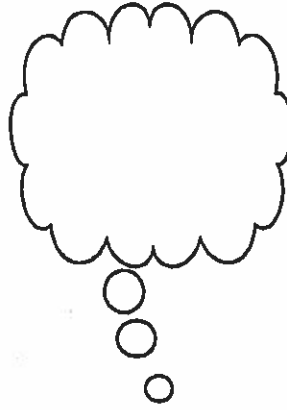
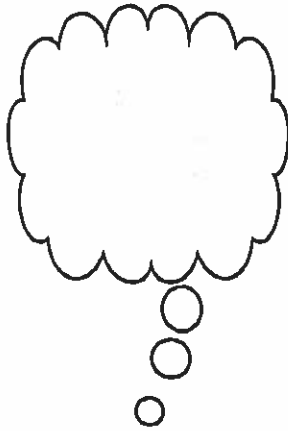
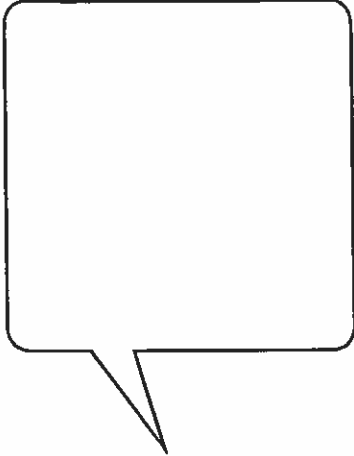
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# CHRIS HADFIELD: SPACESHIP SUPERSTAR

Write the inner and outer dialogue for two people in this scene. Show what each person is thinking/feeling (inner voice) and saying (outer voice). *A believable conversation conveys appropriate ideas, thoughts, feelings or reactions; is on topic; extends the details of the scene; and is convincing.*



Expedition 35 Commander Chris Hadfield of the Canadian Space Agency (CSA), left, Russian Flight Engineer Roman Romanenko of the Russian Federal Space Agency (Roscosmos), centre, and NASA Flight Engineer Tom Marshburn sit in chairs outside the Soyuz Capsule just minutes after they landed in a remote area outside the town of Dzhezkazgan, Kazakhstan, on Tuesday, May 14, 2013.

(Photo courtesy of NASA)

Prepared with assistance from TC<sup>2</sup>, The Critical Thinking Consortium. © 2013



# QUIZZES

## CHRIS HADFIELD: SPACESHIP SUPERSTAR

Write the letter that corresponds to the best answer on the line beside each question:

- \_\_\_\_\_ 1. Which federal agency is responsible for Canada's space program?  
a) CSA  
b) NEB  
c) NASA  
d) CBSA
- \_\_\_\_\_ 2. Where did the capsule that returned Commander Hadfield to Earth land?  
a) Florida  
b) California  
c) Russia  
d) Kazakhstan
- \_\_\_\_\_ 3. Which of the following was NOT a highlight of the ISS mission?  
a) Music Monday  
b) a repair to the Hubble space telescope  
c) 71 hours of research and 130 experiments  
d) a three-hour spacewalk to fix an ammonia leak
- \_\_\_\_\_ 4. True or False? Chris Hadfield was on the ISS for five months.
- \_\_\_\_\_ 5. True or False? Chris Hadfield's muscles and bones are near normal.