

## Mathematics practical use highlighted by Chris Hadfield

The Observer (Sarnia)  
Mon 19 Jun 2006  
Page: B2  
Section: Classified  
Byline:  
Source: CP  
Edition:  
Length: 441 words

Illustration: Ontario Science Centre CEO Lesley Lewis looks on while students Evlyn Deepa and Kevin Li present Canadian Space Agency Astronaut Chris Hadfield with a robot built at a new robot-building workshop series funded by the Ontario Trillium Foundation. The presentation followed a lecture by Hadfield where he spoke of the importance of having big dreams and visiting the Science Centre when he was young played in achieving his goal of becoming an astronaut.

Canadian astronaut Chris Hadfield says students in this country need to be more aware of the opportunities available to them.

The only Canadian ever to walk in space, Hadfield says growing up in southwestern Ontario, he had no idea what his future could hold.

''It's incredible what Canadians are up to,' he said. ''It's just not all that easy to find out sometimes.'

Hadfield was in Toronto on Sunday to speak at a conference at York University put on by two national mathematics organizations.

He said he took the opportunity to highlight for the students what's being done by Canadians in his field.

''Canadians are involved right across the board' in space exploration, he said. ''I really think it's important for Canadian university students to see the things that they might do with the education that they're getting.'

Hadfield's lecture focused on the application of mathematics in space travel from an astronaut's point of view.

He said that while he always enjoyed math, it wasn't until the end of high school that he realized that it wasn't some ''weird dogma' but instead a way to solve a problem.

''That's all math is,' he said. ''There's nothing magic about it.'

Arvind Gupta, the scientific director of MITACS, one of the organizations running the conference, said having someone like Hadfield discuss the importance of mathematics in his career heightens the awareness of how math is a necessity in everyday lives.

''Mathematics is essentially the underlying technology behind just about every human activity,' he said.

Gupta said holding conferences with speakers like Hadfield also shows mathematicians and math students that what they do is appreciated.

''When you can get people proud of what they do, and they feel they're contributing to society, they themselves will be better ambassadors to sell their

discipline,' he said.

Hadfield said it is impossible to be an explorer today without math.

As an astronaut, ''there are lots of times where you have to be very aware of the fundamental math that leads to the orbital mechanics,' he said.

Hadfield said when a spaceship is docking with a space station, it's done orbiting Earth at about eight kilometres per second, and none of the controls are automatic.

''It's all crew interpretation of the various cues that we have given to us,' he said. ''So we use that math constantly.'

As a ''de facto' spokesman for the Canadian Space agency, Hadfield says it's extremely important that people be aware and proud of what Canadians are doing on the international stage.

''Canada Day is probably one of the few moments when we really stand up and yell that we're Canadian,' he said.

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