

## Local educator launches national initiative on science literacy, Canadian space legacy



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A new nation-wide education initiative aimed at improving science literacy and celebrating Canada's role in space exploration is set to launch on April 1, bringing together local leadership and national institutional partners in a two-year program focused on students and classrooms across Canada.

Out of This World 25 (OOTW25) is being led by Canadian Historical Education Services (CanHist), founded by local historian and educator Neil Orford, in partnership with McMaster Children & Youth University, with further support coming from the federal Ministry of Canadian Identity and Culture.

The project is also marking the 25th anniversary of Canadian astronaut Chris Hadfield's historic 2001 spacewalk, and connecting that milestone to Canada's future role in space exploration, including the upcoming Artemis II mission.

“It made sense to propose to the federal government that we do a commemoration of what I consider to be a really important defining moment in our space history,” Orford said. “One might even argue it's a really important defining moment in our national history” and that is the 25th anniversary of the first Canadian spacewalk.”

Orford continued by explaining that the initiative is rooted in the idea that Canada's contributions to space science and international collaboration are often underrecognized, despite decades of involvement in major global space projects such as the International Space Station.

"Space history is not a story that is either well told or understood in the country, except by very few organizations," he said. "Twenty five years ago, they were assembling the Canadarm, which was part of the incredible international collaboration, of which Canada is a part of" and has been a part of for over 50 years."

By looking back at key moments in space history, organizers are seeking to highlight Canada's influence while making those stories more accessible to younger generations.

At its core, OOTW25 focuses on strengthening science communication "as in how complex scientific ideas are shared, understood, and discussed by the public.

The program seeks to address growing concerns about misinformation and gaps in scientific understanding, particularly among youth navigating an increasingly digital, information-saturated world.

The project is set to roll out in two phases over the next two years.

The first year focuses on commemoration and better access, bringing together existing resources from organizations such as the Canadian Space Agency, the National Research Council, and the Canada Aviation and Space Museum. These resources will be brought into classrooms as school-ready materials, along with new tools that allow students to explore topics like space technology, astronomy, and Canadian innovation.

The second year will shift toward deeper engagement with science communication skills.

Students will be encouraged to take a more direct and active role in interpreting and presenting scientific information through a framework described as curatorial thinking. This approach emphasizes evaluating sources, organizing information, and communicating ideas clearly "skills seen as increasingly critical in the modern information landscape.

A key feature of the program is the use of geographic information systems (GIS) and digital story mapping, developed in partnership with Esri Canada.

These tools allow students to create interactive projects that combine storytelling with scientific data, helping to translate initially abstract concepts into more tangible learning experiences.

Through partners like the Canadian Space Agency, the Dominion Observatory and the Canada Aviation and Space Museum, classes will use existing learning modules and toolkits to explore everything from Hubble and Webb images to how the Canadarm works.

Orford said that the program is designed not only to teach science, but to change how it is taught. By giving students greater agency in their learning and encouraging hands-on, inquiry-based approaches, OOTW25 aims to foster curiosity and critical thinking rather than passive information absorption.

"It's really important to give students agency over how they express their science communication," Orford said. "We need to invite them into a safe space where they can express in a very cutting edge, innovative, technological way their understanding for themselves."

"When they do that, of course, there is ownership over it" and they also become their own editors. That's part of what is so important with curatorial thinking? we have to get them to exhibit their own learning and demonstrate their own learning in the richest, best

ways that we can.?

Another key component is the emphasis on what Orford calls STEAM education, which incorporates the arts alongside science, technology, engineering, and mathematics.

The initiative promotes a broader understanding of learning that includes creativity, storytelling, and historical context as essential tools for scientific literacy.

“Our best astronauts are also musicians,” Orford said. “They’re very well read. In many cases, they speak more than one language. They are very artistically inclined and our best scientists also are great advocates for the arts and arts education.”

“The more that we see music disappearing from the school or history disappearing from the school, or art classes or drama disappearing from the schools, that does a disservice to the ability to think scientifically and communicate scientifically. So it’s very important to have a better conversation about STEAM learning, as opposed to STEM learning,” Orford added.

Through a mix of digital programming, classroom resources, and community-based learning opportunities, the initiative is expected to reach students nationwide. Planned offerings include interactive activities for schools, opportunities to engage with experts in space and research fields, and accessible online content for families and educators.

The program is also intended to serve as a model for national collaboration, bringing together academics, government agencies, and private partners to support education.

In addition to McMaster and CanHist, partners include the Canadian Space Agency, Esri Canada, and several scientific and other historical organizations.

With its dual focus on history and future exploration, OOTW25 arrives at a moment when Canada is once again set to play a visible role in space, particularly through astronaut Jeremy Hansen’s participation in Artemis II.

“Artemis II should be the big story we talk about in 2026, and god willing, it will be successful,” Orford said. “They will take their 10 days and go around the Dark Side of the Moon and see things that no human has ever seen before, and record things that have never been recorded before, and then return to Earth and be those modern-day explorers that we have always imagined astronauts should be.”

“We have at our fingertips this incredible story that’s going to take place, and that’s the thing we should be talking about.”

By linking past achievements with upcoming missions, the initiative aims to inspire a new generation of learners while reinforcing the importance of science in everyday life.

“We want our young people to aspire, we want them to dream,” Orford said. “We want them to imagine. We want them to have curiosity, and more importantly, we need them to find joy in their learning.”

Alongside the online learning portion of the education initiative, unique learning experiences will also be available locally. McMaster, as well as surrounding schools and communities in the Hamilton area, will have Interactive learning experiences made available to them through this program.

Ultimately, the program’s goal is to make science more engaging, understandable, and relevant - ensuring that students not only learn about discovery, but are equipped to take part in it.