



Canada 2067 Youth Insights Overview

Imagining the future of STEM education

Presented by



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Canada 2067 Youth Insights: Imagining the future of STEM education

Students engaged in meaningful science, technology, engineering and math (STEM) learning opportunities develop the skills and abilities needed to become creative, critical thinkers, discoverers, entrepreneurs, problem solvers and informed citizens. Exploring what this means for the future of education is at the heart of Canada 2067.

Canada 2067 started as an idea for a single conference and grew to include an international policy review, five youth summits, six millennial roundtable consultations, a national leadership conference, a youth-focused web series and documentary, and significant social media and outreach effort.



Canada 2067 Youth Summits inspired, engaged and empowered more than 1,000 Grade 9 and 10 students across Canada who contributed to the development of a national vision for STEM education.

Canadian education is among the best in the world, but we cannot be complacent. In 2016, as Let's Talk Science considered how it might celebrate Canada's sesquicentennial, the organization chose to be more forward-thinking than celebratory and catalyze the first significant national dialogue about STEM education, focusing on Kindergarten to Grade 12 (K-12). For inspiration, Let's Talk Science focused on Canada's bicentennial year (2067) when many of today's high school students will be considering their *retirement*.

The Canada 2067 Youth Insights publication is a testament to the critical importance of our youth's education. We want them to thrive. We want them to be prepared for their futures. Insights gathered through Canada 2067 Youth Summits informed development of the Canada 2067 Learning Roadmap (found at Canada2067.ca). This overview summarizes key insights from the five youth summits held with Grade 9 and 10 students across Canada.



YOUTH SUMMITS

1,000 Students

**5 Cities:
Vancouver, Toronto, Montreal,
Calgary, St. John's**

145 Teachers

85 Schools

120 Volunteer Facilitators

109 Speakers

METHOD

With a user-centric design, the Canada 2067 Youth Summits emphasized the importance of youth participation. Discussion topics were organized into five challenge areas to provide a discussion framework used by students to create their vision for a new school system. Challenge areas were specifically designed to draw on students' lived experiences, providing insight to their current wants and needs, as well as opportunities they see for creating a more engaging education system that aligns with their values, motivations and aspirations.

Thousands of ideas and hundreds of unique concepts from 125 student teams across Canada synthesized into ten unique themes that are presented below (the full report is found at Canada2067.ca). These ten insights were consistent across all youth summits.



"I didn't know that STEM was so vast, and that there is so much opportunity within it. I think that classes should have more demonstrations and that they should start teaching technology at a young age. I think it's absolutely phenomenal for everyone who is here to learn, there are people here who are very inspired and inspire us."

-Student from Toronto summit



TEN INSIGHTS

1. Personalization & customization

The future of STEM education doesn't look the same for every student.

Across the country students told us that they want help from their teachers to understand their unique learning processes and create custom experiences. They want space and time to explore their passions at school. Right now, they are having trouble feeling motivated by the curriculum and wish their interests could be used more often to drive their learning journeys.

Students are also seeking more frequent and richer interactions with their teachers. They believe that if teachers got to know them better, they could adapt both curriculum content and their teaching styles to suit students' learning styles. Students are seeking opportunities that accommodate the different pace

and needs of individual learners. Personal and custom evaluation would start by capturing the goals of individual students, their effort and progress, as well as their mastery of curriculum expectations. This customized profile would be used as valuable data, compiled over their entire school career, to help students understand how their aptitudes and interests connect with different education possibilities and ultimately to post-secondary pathways and the labour market.



“Netflix knows me better than my teacher.”

-Student from Calgary summit

2. Collaborative participation

Students want to be active agents in their own education.

Students understand the world is changing at an unprecedented rate and realize adults don't have all the answers – but they aren't scared! Today's youth are enthusiastic about the opportunity for school to be a learning environment for everyone, including teachers, administrators and students. This learning environment would be one where students actively participate in developing an education strategy, choosing what courses are offered, how the curriculum is explored, building their timetables and contributing to the design of their personalized course of study.

In this proposed collaborative environment, students would participate in setting their own learning goals and tracking their progress in deep and meaningful ways. This could be achieved through: self-evaluation, peer-to-peer evaluation and connection with their teachers. In addition to traditional evaluation, they would collaborate with other students and teachers in their course exploration and during extracurricular activities with efforts included in their evaluation.



“We learn best when we are involved in designing our own learning.”

-Student from Vancouver summit

3. Technology everywhere

The future of STEM education embraces technology.

When it comes to technology, students feel schools are being left behind. Many aren't allowed to use their smartphones or access the Internet in class. Often they are using the same technologies their parents had in school - chalkboards, textbooks and calculators.

Their dream is for the latest technologies to be accessible by all students and used to enhance their learning experience.

Students in every city talked about how technology would improve the process through which they learn, help them better understand themselves and improve relationships with others. Students want digital evaluation tools that capture their learning journey from the start and wish it to be organized in such a way that it's easy to understand, presented visually and uses percentages rather than letter grades.



“It’s weird to use paper to learn advanced robotics.”

-Student from Toronto summit

4. Changing the arc of education

STEM learning could change the entire approach to schooling, starting in the early years.

Independently, students in five provinces proposed a similar approach: develop an early STEM foundation in primary grades giving students the language with which to explore; in Grades 6-7 the focus would switch to self-development including discovery, social and emotional skills (life skills) and ultimately, actualization.

By Grade 8, students would have the foundational skills and passions to guide them in practicing specialized, applied STEM learning. In high school, this new approach would include:

- Regular exposure to experts in the community for learning and networking opportunities.
- Regular exposure to possible pathways through presentations, immersive workshops and field trips.
- Full integration of job experience programs like co-ops and apprenticeships.

By high school, students should explore and apply STEM on specialized projects.



“Teach students how to apply their knowledge and let them practice solving problems.”

-Student from Vancouver summit



5. Experiential learning

Students would be motivated to learn and develop competencies by connecting STEM concepts to real life problems in a hands-on way.

Students are urging us to imagine the future of STEM education as integrally connected to the arts and humanities. In fact, they want to collapse disciplines and teach subjects in an interdisciplinary, inquiry-based way.

Using real problems to teach concepts would allow students to deepen their understanding of foundational theories through application. In this approach, there

are no fixed solutions and learning relies on hands-on methods to discover new and innovative outcomes, much like the contemporary workplace situations in which students will find themselves. Evaluation of this type of learning would include student effort, behaviours and improvement. In turn, marks would lose their current stronghold in defining one's identity.



“We want to ensure our students get the best open education they can possibly get with an open curriculum.”

-Student from St. John's summit

6. Mentorship

Students crave relationships with caring and trustworthy adults and consistent exposure to experts outside of school.

When asked to imagine a team of mentors, students across the country talked about non-judgmental, understanding and kind adults or peers who have time to help them figure things out and practice building a healthy life. They see mentors helping them with various issues, including:

- Navigating the school system and understanding the fundamental acts of learning and interacting with teachers.
- Working on social skills and learning to cope with stress and bullies.
- Maintaining motivation and staying on track.
- Talking about what comes next, including exposure to different pathways and different ways to get there.
- Building healthy mental, physical and emotional lives.



“Please help me decide what’s good or bad for me.”

-Student from Montreal summit

7. Critical thinking & problem solving

To be resilient and flexible, students need to develop critical thinking and problem solving skills.

Students want opportunities to practice and improve their critical thinking skills. They are craving exposure to diverse perspectives and the skills to make sense of ensuing complexity. Students are aware they need to become experts at deconstructing ideas and creating informed points of view that are uniquely their own and, at the same time, respectful of a larger context.

Because they are so focused on the application of new learning, students believe that critical thinking and problem solving should be linked to activities they will face in the real world, like: taxes, deciphering the news, negotiating rent, professional networking

and preparing meals. They stressed the need to formalize post-project reflection about new learning and processes they encounter. This focus on applied learning, critical thinking, problem solving and reflection will help students comprehend complex ideas, define their own place in society and share their thoughts, using basic and digital literacy skills.



“This new way of evaluation favours other types of intelligence and other definitions of success.”

-Student from Montreal summit

8. Self-awareness & direction

STEM education will help students develop self-awareness in order to manage their own improvement and move in new directions.

High school students are deeply focused on figuring out who they are, what the world is like and how they fit into it; they are seeking help on all three fronts. Across Canada, students emphasized the need to learn to recognize personal strengths and weaknesses so that they can create a plan to develop their strengths and improve their limitations. Ultimately, they want to connect their academic skills, character traits, passions, behaviours, values and aptitudes to the job market.

They see this happening through frequent feedback and self-led evaluation that promotes peer to peer interaction and is managed in collaboration with their teachers. The feedback would give specific direction for growth and help drive a personal improvement plan.

It would give ample opportunity to practice making small and big choices about their lives and time and space to evaluate their choices. Coupled with relevant and clear information about the labour market through connections to experts, government data made digestible for teens, and programs that give on-the-job experiences, students would be in a position to be confident about making informed decisions about their future.



“We should have a specific class to focus mainly on our future. We should have a class that helps students choose a great possible job choice.”

-Student from St. John's summit

9. Well-being

Students envision a culture that supports feeling good in your own skin and developing the skills to help others feel good in theirs.

The teenage years are among the hardest in life and students across the country are feeling the weight of this stress. They want a school system where the happiness of students, teachers and administrators is paramount. They want a school culture that is supportive, encouraging and inspiring; they want to be in a place where diversity and inclusion are practiced and cultivated.

Students want schools to be places where they learn how to become contributing citizens in a just and equitable society. Looking inwards, individual students need help learning how to cope with stress in a destigmatized environment where mental health

is integral to overall health. Looking outward, they hope to build communities where they can share their journey and help one another. They are looking for schools to be safe places that support everyone to learn social and emotional skills.

This holistic vision for healthier schools includes access to nutritional and affordable food, frequent breaks for movement and rest and flexible schedules with later start times in harmony with the circadian rhythms of teens.



“We want a comprehensive education that makes us mentally/emotionally strong and academically prepared.”

-Student from Toronto summit

10. Space & comfort

Students wish for safe, clean, bright and inspiring spaces.

Students are requesting safe schools. They want schools to be places of respect where they can feel free to be themselves, where they're free from bullying, free from judgement and free from environmental hazards. Across the country, students are requesting more natural light, access to nature and cleaner schools. They want large, flexible spaces that support many uses as well as many different types of space including labs, maker-spaces, kitchens and libraries. In addition to their desire for cutting-edge technology, students want environmentally responsive and sustainable buildings.



“A relaxing environment can make students more motivated to learn. Focus will improve when students are more comfortable.”

-Student from St. John's summit

CONCLUSION

The Canada 2067 Youth Summit results highlight the value of students' ideas as well as the surprising uniformity of their wants and needs for education transformation. The connection of their needs to the solutions they proposed made the regional youth summits a critical component of a national discussion about the future of education.

Canada 2067 rallied the nation to develop a shared vision and goals for education, starting with STEM learning. The youth voice is captured in a larger publication entitled "*Canada 2067 Youth Insights: Imagining the future of STEM education*" available at Canada2067.ca. It shares the philosophy and intention of the broader initiative with a focus on students' perspectives and it includes a series of pilot project ideas that the students designed during the events.

The thoughtful recommendations from the students demonstrate creative and hopeful thinking with intended impact and results that can inform our nation's decision makers' next steps. Retrace the same steps and process as the students at Canada2067.ca and access speaker videos, Canada 2067 tools and resources, and final recommendations. Together, we can keep the momentum going and ensure the future is bright and prosperous for Canadian youth.

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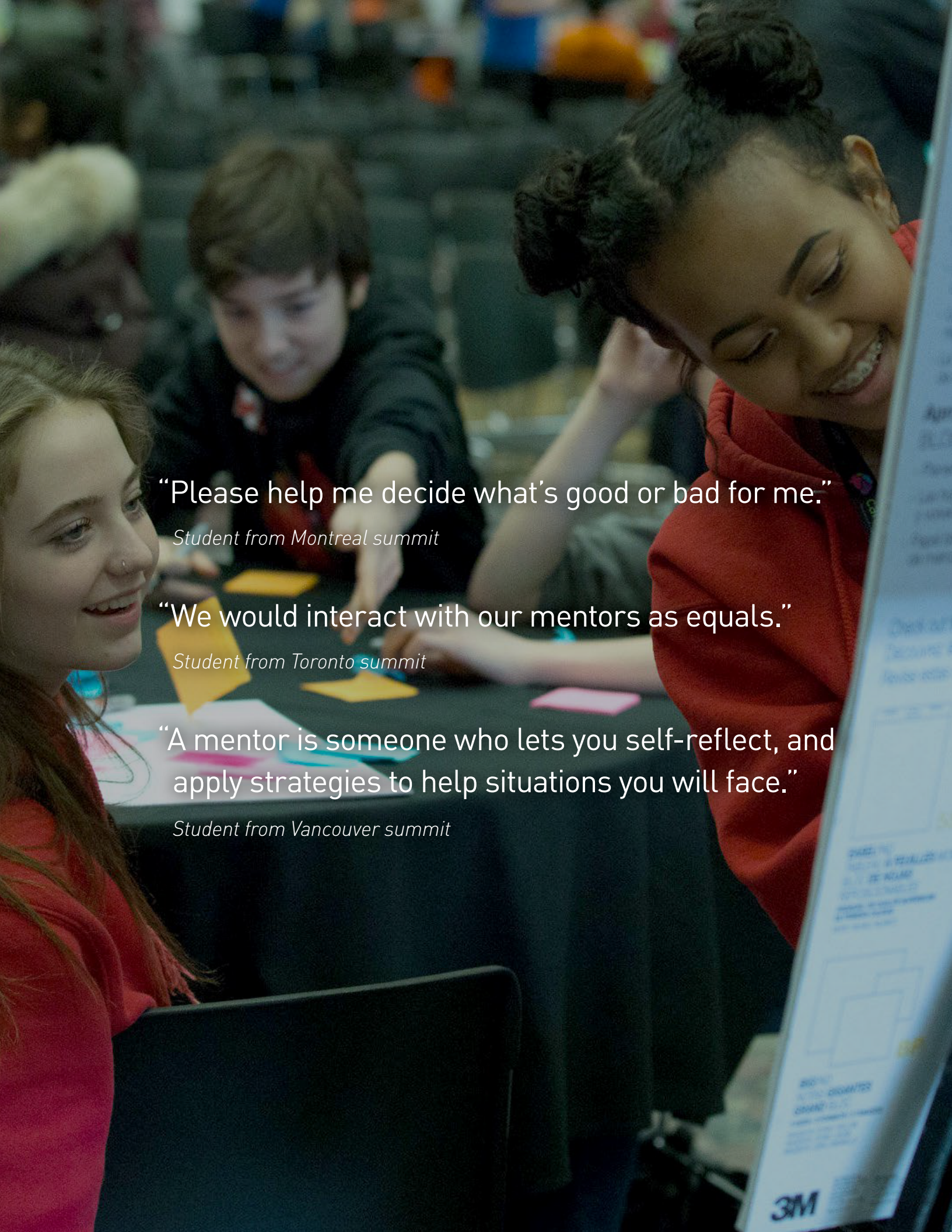


Project Partners



National Founding Partners



A group of diverse students are gathered around a table covered with a dark cloth, engaged in a collaborative activity. They are looking at and pointing to various colorful sticky notes (yellow, pink, blue) scattered on the table. In the foreground, a young woman with long brown hair, wearing a red hoodie, is smiling and looking towards the camera. To her right, another young woman with dark hair tied up, also in a red hoodie, is leaning over the table, smiling and looking at the sticky notes. In the background, a young man with dark hair is also looking at the table. The setting appears to be a summit or a workshop. A white poster with a 3M logo is visible on the right side of the frame.

“Please help me decide what’s good or bad for me.”

Student from Montreal summit

“We would interact with our mentors as equals.”

Student from Toronto summit

“A mentor is someone who lets you self-reflect, and apply strategies to help situations you will face.”

Student from Vancouver summit

