

Accessibility and Inclusion in STEM Education

CREATING A WELCOMING, SUPPORTIVE ENVIRONMENT FOR ALL STUDENTS TO PURSUE THEIR STEM INTERESTS.



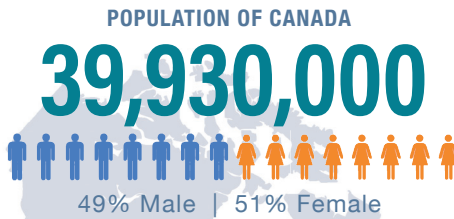
ACCESSIBILITY

Defined as being easy to reach, obtain, use or understand, most commonly referring to those with disabilities gaining access.

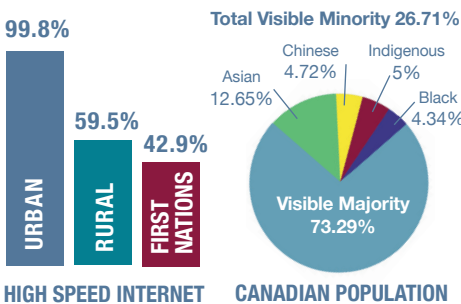
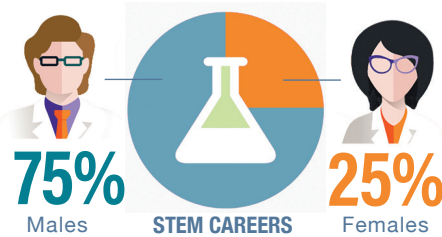
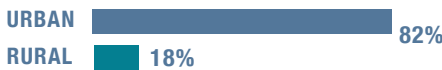
Accessibility is more than 'entry' into space arising from physical capabilities. It is having admittance through removal of barriers of gender, culture or socioeconomic background.

"We are greater than, and greater for, the sum of us."

– Heather McGhee (*The Sum of Us: What Racism Costs Everyone and How We Can Prosper Together*)



DISABILITIES



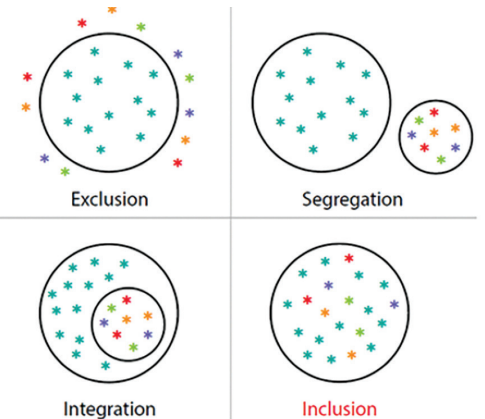
Sources: O. of the A. G. of C. Government of Canada, 2023; S. C. Government of Canada, 2021; Statistics Canada, n.d.



INCLUSION

Defined as being included in a group or structure with the opportunity for all participants to contribute.

It is more than ensuring diversity or having access. It means that everyone's perspectives and contributions are heard, valued, and included in design and leads to a self-perception that you are included.

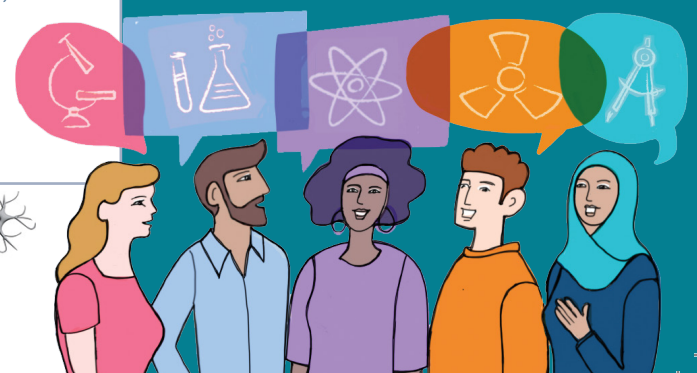


"Making STEM classrooms more inclusive requires a combination of hands-on experiences, diverse role models, collaborative learning, and addressing biases and stereotypes. By taking these steps, educators can help create a welcoming and supportive environment that encourages all students to pursue their STEM interests and see the opportunities available to them in these fields."

– Matthew Lynch, *The Advocate*

Accessibility and Inclusion in Education

Accessible education has focused on disabled learners having the same opportunities in the classroom. An example would be a deaf or hard of hearing student having an interpreter. Making STEM accessible and inclusive means providing access to technology and education, providing diverse mentors, and integrating the perspectives and contributions of all. People who feel welcomed in STEM are more likely to take advantage of STEM opportunities because they feel they can create and implement STEM solutions for their communities.



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OVERCOMING BARRIERS TO CREATE OPPORTUNITIES IN STEM

Economic and geographic barriers to technology, programs and mentoring.



Cost of technology or high-speed internet



Limited access to STEM educators and curriculum

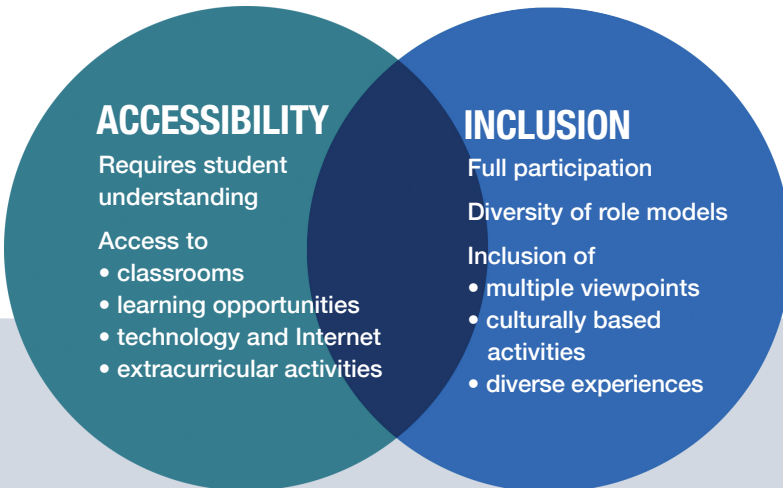


Limited access to experiential learning activities

“Inclusive education means that all students attend and are welcomed by their neighbourhood schools in age-appropriate, regular classes and are supported to learn, contribute and participate in all aspects of the life of the school.”
– Inclusion BC



Creating opportunities means overcoming stereotypes, providing role models, and fostering collaborative learning with the aim of including multiple viewpoints and ideas. This means creating activities that allow students to experiment and learn in spaces and ways where they fully participate. Advancing STEM opportunities for all students requires access to experiences across STEM fields, diverse role models, and inclusive activities. In this students can see themselves in STEM and how STEM integrates into their own culture and community.



IMPORTANCE OF BOTH

Accessibility and inclusion are intersecting concepts.

Accessibility alone will assist someone in gaining access, but without inclusion they will not fully participate. We need both accessibility and inclusions to develop STEM skills and opportunities for all groups, not just for their individual benefit, but for the benefit of society. Including more diverse voices results in more diverse solutions.

“We will all profit from a more diverse, inclusive society, understanding, accommodating, even celebrating our differences, while pulling together for the common good.”
– Ruth Bader Ginsburg

Resources:

- Government of British Columbia Accessibility and Inclusion Toolkit. <https://www2.gov.bc.ca/gov/content/home/accessible-government/toolkit>
- Understanding Accessibility and Inclusion, in The Inclusive Design and Learning Handbook. <https://handbook.floeproject.org/perspectives/understanding-accessibility-and-inclusivity/>
- Technology for people, not disabilities: Ensuring access and inclusion by A. Foley and B. Ferri, Journal of Research in Special Educational Needs, 12(4), 192-200.
- Accessibility. STELAR - STEM Learning and Research Centre. <https://stelar.edc.org/highlights/accessibility>
- 4 Ways to make STEM classrooms more inclusive by Matthew Lynch <https://www.theeducator.org/4-ways-to-make-stem-classrooms-more-inclusive/#:~:text=Educators%20can%20also%20provide%20resources,and%20addressing%20biases%20and%20>
- Accessible science for students with visual impairments from Perkins School for the Blind <https://www.perkins.org/accessible-science-for-students-with-visual-impairments/>

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