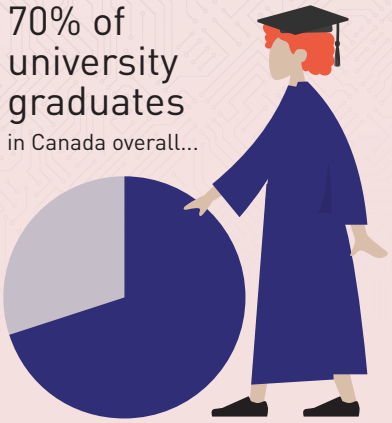
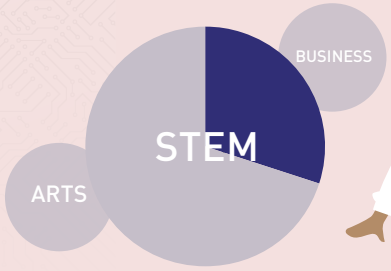
Standing Up to Gender Bias in STEM*[1]

*SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH

Women make up
70% of university graduates
in Canada overall...

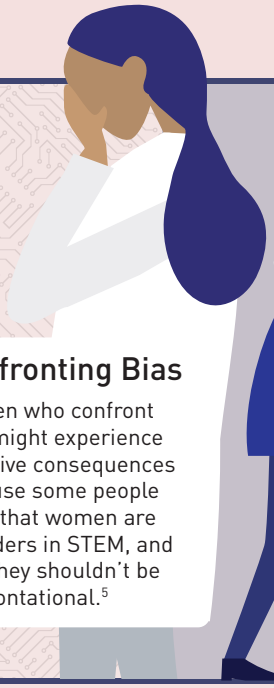




...but comprise
just 30% of those in STEM programs.[2]

Women are as interested and talented in STEM as men.[3]
So, what can explain the persistent lack of women in STEM?

Gender bias is part of the reason behind the low numbers of women in STEM fields.



Deep-rooted practices can have powerful influence. Ingrained beliefs and behaviours can promote negative ideas about women's abilities in STEM – even among women![4]

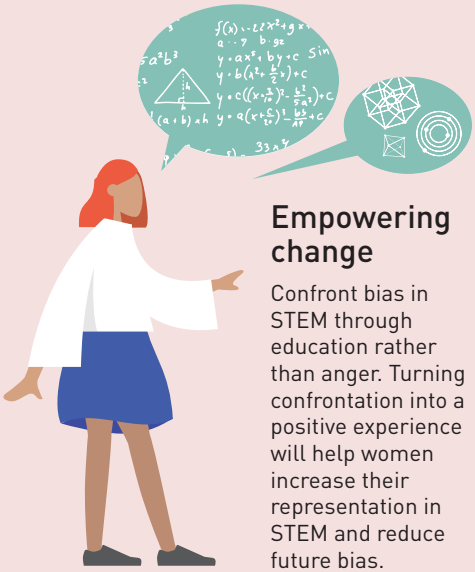
Confronting Bias

Women who confront bias might experience negative consequences because some people think that women are outsiders in STEM, and that they shouldn't be confrontational.[5]

People respond to assertive women in different ways:[6]

Support women who challenge injustice.

Don't accept gender stereotypes that tell women to be agreeable and not confrontational.[7]



Empowering change

Confront bias in STEM through education rather than anger. Turning confrontation into a positive experience will help women increase their representation in STEM and reduce future bias.

Everyone benefits when we have greater participation in STEM.

Diverse perspectives can increase the number and variety of solutions to problems.[8]

Careers in STEM can pay more—so by promoting women in STEM, we might also reduce gender-wage inequalities.[9]

Together, we can work towards greater equity in STEM by standing up to bias.

ABOUT US:

This project is a partnership between the Canadian Commission for UNESCO (CCUNESCO), the Laurier Centre for Women in Science (WinS), and Ingenium – Canada's museums of science and innovation. All three organizations recognize that promoting gender equity in STEM subjects strengthens science and technology research and workforces.

CCUNESCO helps Canadians share knowledge locally and globally to bring people together to build a common future. The Commission facilitates cooperation in the fields of education, science, culture, communication, and information to address some of the most complex challenges facing the world today. One of its overarching priorities is to promote gender equity.

Ingenium represents a collaborative space where the past meets the future in a celebration of creativity, discovery, and human ingenuity. Ingenium recognizes that the underrepresentation of women in STEM is a complex issue requiring multiple long-term and sustainable strategies. Its Women in STEM initiative aims to make women in STEM more visible, promote careers for women in STEM, highlight issues of gender inequality, and celebrate achievements and advocates.

The Laurier Centre for WinS supports an inclusive community for women in science through research, communication, and action. Its goals are to attract women into science and mathematical/quantitative fields, encourage and celebrate women's contributions to science and mathematical social sciences, and address challenges women still face in higher education and careers in science.

Ingenium
Canada's Museums of Science and Innovation

United Nations Educational, Scientific and Cultural Organization
CANADIAN COMMISSION FOR UNESCO

WOMEN IN SCIENCE

HOW TO USE THIS RESOURCE:

This resource is for exploring gender equity in STEM with your students or colleagues. Use the infographic and discussion questions to stimulate small-group discussions. Use the reference texts for more focused debates.

Remember that people in your discussion groups will have unique experiences and perspectives so it is essential to conduct discussions with mutual respect, compassion, and dignity for all.

For further resources on equity, diversity, and inclusivity, please visit: https://womeninstem.ingeniumcanada.org/resources/.

DISCUSSION QUESTIONS:

1. How can we encourage people to stand up to gender bias in STEM and society?
2. How might confronting gender bias in STEM have different consequences depending on: a) the social location* of the person confronting? b) the social location of those observing the confrontation?
3. Why might people be apprehensive about standing up to bias in STEM? What are the potential challenges of confrontation, and the potential benefits?
4. What does confrontation look like? How can we prepare for situations in which confrontation may occur to minimize negative impact and maximize benefit?
5. What is it like to be confronted? What is it like to confront someone else? Is it possible for those confronting and those who are confronted to experience similar thoughts, feelings, or attitudes?

*Social location refers to where a person identifies themselves in terms of different identities including gender, race, sex, sexual orientation, religion, ability, or economic standing etc.

REFERENCES:

1. While we use the term STEM, current research shows that there is a great deal of variability in gender imbalance across disciplines – for example, biology and life sciences have greater balance than engineering or physics/computer science (https://www.nserc-crsng.gc.ca/_doc/Reports-Rapports/WISE2017_e.pdf). 2. Hango, 2013. 3. Hyde et al., 2008; Stoet & Geary, 2018. 4. Swim & Hyers, 2009; Buck et al., 2008; De Welde & Laursen, 2011; Knobloch-Westerwick, Glynn, & Huge, 2013; Blickenstaff, 2005; Hewlett et al., 2008; Rosser, 2006. 5. Kaiser & Miller, 2001; Rasinski, Geers, & Czopp, 2013; Eagly & Carli, 2007; Eagly & Karau, 2002; Nosek et al., 2009. 6. Hennessey, 2018. 7. Foster, 2013. 8. Czopp et al., 2011; Hennessey, 2018; Galinsky et al., 2015; Gurin et al., 2002. 9. Hango, 2013.