

# Keeping Doors Open: Girls, STEM & Their Future Careers

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## What K-12 Educators Can Do



When it comes to STEM, we have a long way to go to balance the equation for girls' and women's participation. Girls continue to receive messages that STEM isn't for them and may be closing the door on STEM careers as early as Grade 8. As a result, girls could be limiting their career potential and pathways, particularly as the economy and workplace evolves. And as a society, we could be missing out on generations of future innovators and problem-solvers.

Girl Guides of Canada set out to explore what the pathways to STEM careers and skills look like for girls under 18, and how this relates to girls' preparedness for the future of work.

## We learned that girls might be prematurely closing doors to STEM for three main reasons:

**1. Girls continue to receive messages that STEM isn't for them.** Influences from parents, peers, teachers, media, and society at large continue to subtly – and not so subtly – tell girls that they shouldn't (or can't) be interested or succeed in STEM subjects.

**2. Girls may not be aware of the steps they need to take to open certain doors.** In many cases, girls need to start making decisions as young as age 13 that can impact their ability to pursue STEM fields in the future. But they might not be equipped with enough information to make informed decisions at this early age.

**3. Girls may not realize many of the doors even exist.** There are a wide variety of STEM fields and entry points into those careers, many of which girls may not be aware of. We know that girls are often interested in careers that help people, make the world a better place, and that allow them to be creative, but often aren't aware this is possible through STEM.



## WHAT CAN YOU DO?

How can you empower girls to keep their options open to even get into the STEM pipeline, and not prematurely close doors? There are steps teachers, guidance counsellors, and other educators can take to support girls to make informed and empowered choices for their futures.

### Support informed academic and career planning

- Encourage girls to keep their options open:** If students ask about courses, encourage them to take a broad range, including math and science, so that as many options as possible are open to them later down the line. Even in Grades 7 and 8, start planting the seed that taking math and science courses keeps doors open for the future.
  - Learn about current pathways to future careers:** Be open to continuing to learn about new and different educational and career pathways so you can support girls to make informed choices with up-to-date information.
  - Start young:** Include younger students in post-secondary outreach events, even though admissions might be a few years out for them. It can get them thinking about the options they want open to them in Grade 12.
  - Integrate career learning in the classroom:** Think about how to incorporate connections to careers and self-discovery in different classes. In addition to taking classes dedicated to careers, seeing how careers connect to different subjects will broaden their understanding of what's possible.
- Connect with resources:** Connect girls, particularly those from lower-income families and other marginalized communities, with the guidance, resources, scholarships, or programs that can help make post-secondary education more of a reality. Research shows that encouragement and one-on-one support makes a real difference for marginalized students.



## Learn about the future of work

- **Educate yourself on the future economy:** We're all constantly learning. Even if you teach a seemingly unrelated subject, you can explore how technological advancement (like artificial intelligence or automation) may impact this field in the future – and bring these learnings into the classroom.
- **Bring tech to life:** Look for opportunities to integrate tech and digital literacy into other lessons and showcase how it's applicable to girls' lives. Want an idea? Check out our [Cyber-Escape](#) activity to create a cybersecurity-inspired escape room!

## Challenge assumptions

- **Talk about college:** Girls might have assumptions about post-secondary admissions and educational pathways that are unfounded. For example, are they disqualifying college as an option without really considering it or without knowing what careers it could prepare them for? Ask questions about why girls want to pursue a certain path. And include college and technical programs in discussions of post-secondary education. Remember, many college STEM programs actually require advanced math and science.
- **Reframe “STEM”:** Many girls might assume that STEM careers don't match with their skills or motivations. Challenge these assumptions by relating STEM to everyday life, showcasing the broad array of careers, and talking about how these careers are creative, help people, and make the world a better place.

## Seek out inspiring role models and mentors

- **Women role models:** Find ways to expose girls to women role models in STEM fields and other non-traditional roles. Can they join the class as a guest

speaker, in-person or by video? Consider taking field trips to places where students can see STEM professionals in action or explore STEM skills and activities. When possible, think about having a regional emphasis, to show students what professionals in their immediate community are actually doing. Check out GGC's [Spotlight on: Engineering video series](#), which features girls and women blazing trails in engineering, plus activities to follow along with.

## Foster a growth mindset

- **Encourage risk-taking and experimentation:** Often students are primarily focused on grades and this might stifle creativity and experimentation. While academic achievement is important, provide opportunities and support for girls to take risks in STEM subjects and get out of their comfort zone without fear of negative consequences.
- **Use positive problem-solving language:** Instead of focusing on issues, barriers, or failures, approach challenges with problem-solving language. For example, start with “how might we” statements to get girls thinking.

## Think about stereotypes and biases

- **Check biases:** Be mindful of the stereotypes and biases about girls' aptitude and interest in STEM subjects, based on their gender, race, culture, ability, and more. Challenge harmful stereotypes if you hear students perpetuating them. Review class content for gendered language that might alienate girls. Affirm girls' abilities in STEM subjects.



# GIRL GUIDES OF CANADA

Girl Guides of Canada–Guides du Canada (GGC) empowers every girl in Guiding to discover herself and be everything she wants to be. In Guiding, girls from 5-17 meet with girls their own age in a safe, supportive and inclusive space to explore what matters to them. Guiding is where girls take the lead, put their ideas into action and jump into a range of empowering activities – all with the support of women mentors committed to positively impacting girls’ lives.

Girl Guides offers programming options ranging from cybersecurity activities and science experiments to exploring career options and discussions on feminism and gender inequality. We focus on equipping girls with twenty-first century skills that are transferrable to other areas of their life, such as building problem-solving skills through the engineering process, or hypothesizing through forensic-science inspired investigations. This programming is delivered in a safe, all-girl space that is designed to address the roadblocks and stigmas girls might encounter elsewhere in their lives. Girls in Guiding develop the skills to confidently navigate the world and grab hold of every opportunity that comes their way – now and in the future.

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