

Girls, STEM and the leaking pipeline

Goals

- Understand girls' thoughts, feelings, beliefs and expectations about STEM careers;
- Compare and contrast the representation of white, Indigenous and racialized women in STEM careers;
- Identify the factors that encourage or prevent girls to pursue STEM careers.



Essential Questions

- What stereotypes exist about girls pursuing careers in science, technology, engineering and math?
- How do those stereotypes specifically affect white, racialized and First Nations girls?
- What might account for similarities and differences among white, racialized and First Nations girls regarding STEM careers?

Although many girls today challenge the stereotype that they can't excel at math and science, these same girls may not see themselves pursuing careers in the STEM fields—science, technology, engineering and math. In this lesson, students read about new research that explores obstacles to women pursuing STEM careers and discuss how to remove the barriers.

Central Text

Excerpts from *Keeping Doors Open: Girls, STEM & Their Future Careers* (2020)

Part 1: Word Work

Using Prefixes and Suffixes to Expand Vocabulary

Prefixes are words or syllables added to the beginning of words to make another word. Look at the three vocabulary words below:

- insufficiency
- unconsciously
- underrepresented

1. Circle the prefix in each word.

2. What's left, once you've removed the prefix? Do you know what that word means? If so, write a definition of it. If not, look up a definition and write it down.

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3. Now, read each sentence. Based on the definition you just learned, and the context of the whole sentence, what do you think the prefix means?
4. Look up the prefix to check your answer.
5. Add two more words that use the prefix.

insufficiency

Outdated stereotypes and feelings of insufficiency can hold girls back.

unconsciously

The subtleties of society and culture reflect the stereotype that girls are not good at or suited for math and science and unconsciously discourage girls.

underrepresented

However, despite these advances, women continue to be underrepresented in the fields of science, technology, engineering, and math, collectively referred to as “STEM.”

Suffixes are added to the ends of words and word roots to form related words. Look at the two vocabulary words below:

- examination
- internalizing

1. Circle the suffix in each word.
2. What's left, once you've removed the suffix? Do you know what that word means? If so, write a definition of it. If not, look up a definition and write it down.
3. Now, read each sentence. Based on the definition you just learned, and the meaning of the whole sentence, what do you think the suffix means?
4. Look up the suffix to check your answer.
5. Write two more words that use the suffix.

examination

The aim of this report is to explore how girls can better become engaged in STEM through examination of what girls themselves say are their interests and perceptions about these important fields.

internalizing

It is possible that girls are internalizing this stereotype and talking themselves out of achieving in math and science when, in reality, they are doing just as well or better than boys.

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Part 2: Close and Critical Reading

1. Pre-reading: How is this organized?

Before you start reading, look over the entire text to get a sense of what's in it and how it's organized.

- What is the title? Circle it.
- What are the headings within the text? Circle them. What do they tell you about what kind of text this is?
- Look at the content under each heading. Highlight or underline any subheads. What do they tell you about what you might find out when you read the text?

2. Reading

Pre-reading helped you get a sense of what is in the text. Now, it's time to read it. Read the content under each heading and make sure you understand it fully before you move on and read the content under the next heading. Try one or more of these strategies to help you understand and remember what you're reading:

- Underline or highlight the most important points.
- Write summarizing notes to yourself in the margins.
- After you finish reading a section, make a list of the most important points. This will help ensure that you have taken in the information, that you understand it and that you have made it your own.

3. After Reading

After you read a text, it's helpful to go back over it to solidify your understanding. Whichever reading method you used in step 2, look at your underlines, notes and/or lists. Ask yourself:

- How do these sections of the reading fit together?
- What is the major point that the text is making?
- What evidence, or information, does that text provide to support the major point?

Then write down any of your own thoughts about what you have read. You might write, for example, "I'm not sure I'm convinced by the evidence," or "I've thought about a STEM career myself, but I never thought about why I'm not that interested."

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Part 3: Community Inquiry

Now that you have a grasp of the content of the text, in this part of the lesson you're going to discuss it—including your responses to it—with other students. Divide into groups of four. Sit in a circle with your group.

- (Note: Ask a question from below.)
- Take a few minutes to think about your answer to the question. Use your reading notes if you'd like.
- Go around the circle and have each person give an answer to the question.
- After everyone has had a chance to answer, you can respond to what has been said. If someone said something you disagree with, this is your chance to explain why. You might want to connect something that's been said to your own experience or raise a related question for the group to discuss.

Follow this procedure for these four questions:

1. Why are women underrepresented in STEM careers?
2. What do you think accounts for the differences between the number of White and Indigenous women in STEM?
3. What actions do you propose to get more girls into STEM careers? Which of the actions focus on all girls? Which focus specifically on First Nations girls? Which focus specifically on White girls?

If time permits, have each group report to the class on its answers to one of the questions, so that all four questions are addressed.

Part 4: Writing to the Source

Pull together what you have learned in this lesson by writing a response to one of the following prompts:

- What factors limit the likelihood that girls will pursue STEM careers? Consider white, racialized and indigenous girls. Use evidence from the reading to support your answer. What action would you recommend to break down barriers that make it difficult for these girls to pursue STEM careers?

