

The Stats Speak—Student Success Stats

The high cost of dropping math

High school students might think only about the benefits of having less math homework to do, but there are costs involved when they decide to take fewer math courses, or drop math altogether. These costs—in time, money, and opportunities—also affect parents, taxpayers, and post-secondary institutions, as well as the Canadian and global economies.

When a nation invests in education, it is investing in its future—a well-rounded education helps young people develop as citizens, understand the world today, and prepare for tomorrow. A balanced education should not focus only on job training, but it should include a wide variety of subject areas, including those in economic demand. Today, many employment opportunities already require math skills, and this is likely to increase. Currently, however, less than half of Canadian students take math until grade 12.

Stats speak about math and education

In a report about “The High Cost of Dropping Science and Math,” Let’s Talk Science (a national, charitable organization) examines education and STEM subjects such as math.

Stats speak about financial costs

- More than \$50 billion = public elementary and secondary school expenditures in Canada, 2008/2009.
- More than \$39 billion = post-secondary education expenditures in Canada, 2008/2009.
- \$12,557. Average annual expenditure per student in public schools (from kindergarten to grade 12) in Canada, from 2011 to 2012. This ranges from \$11,360 in PEI to \$22,202 in NWT.
- 5.5% of Canada’s Gross Domestic Product (GDP) was spent on education in 2012.
- \$2,790. The average cost of one semester of undergraduate university tuition or two semesters of college courses.
- \$6,111 to \$10,800 per student. The institutional cost for each first-year Canadian college or university student who fails to progress to the second year.

Stats speak about opportunity costs

- 70% of top jobs, including skilled trades, require education in subjects such as math and science.
- Less than 50%. Average annual percentage of Canadian high school graduates from a selection of provinces that complete Grade 11- and 12-level mathematics and science courses.
- 20,000 Ontario students return for an extra year of high school after they graduate.

Stats speak about societal costs

Research provided by Let’s Talk Science (<http://www.letstalkscience.ca/>)



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- 1,000,000. The estimated number of skilled workers needed in Canada by 2020.
- 13%. Percentage of females registered as major trade apprentices in Canada in 2010.
- 1.2%. Percentage of First Nations/Métis/Inuit (FNMI) with post-secondary qualifications in physical and life sciences and technologies (vs. 3.5% non-FNMI populations).
- 3.3%. Percentage of First Nations/Métis/Inuit (FNMI) with post-secondary qualifications in math, computer, and information sciences (vs. 4.4% non-FNMI populations).
- \$24.3 billion – Amount of economic activity lost in Ontario because employers say they cannot find people with the skills they are looking for.

How these stats speak to experts

The report (see **Report** below) suggests that Canadian students need a more “balanced” high school education—one that emphasizes senior-level math courses. Its recommendations include:

- Engaging students in science, technology, engineering, and math from an early age.
- Integrating math and science with other subjects, such as arts and humanities.
- Training and supporting educators for new teaching practices and technologies.
- Increasing awareness of lost opportunities—for example, by the time students apply for skilled-trades training, college, or university, it’s too late to find out that they don’t have the prerequisites or experience required.
- Offering a curriculum that inspires math and science learning.
- Delivering “experiential learning” by involving industry and creating opportunities for high school students in local community businesses, industries, and trades.
- Providing more information about the pathways from school to work.

Canadian high school students who complete senior-level math courses have a wider range of career opportunities than students who don’t. Not taking enough math and science courses can limit future options. It also increases the chance that students will need extra training before going on to post-secondary education or the workforce.

Learn more about student success

- **Report.**
<http://www.letstalkscience.ca/Portals/0/Documents/RPS/Spotlight/SpotlightOnScienceLearning-2013.pdf>. “**Spotlight on Science Learning: The High Cost of Dropping Science and Math**”

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