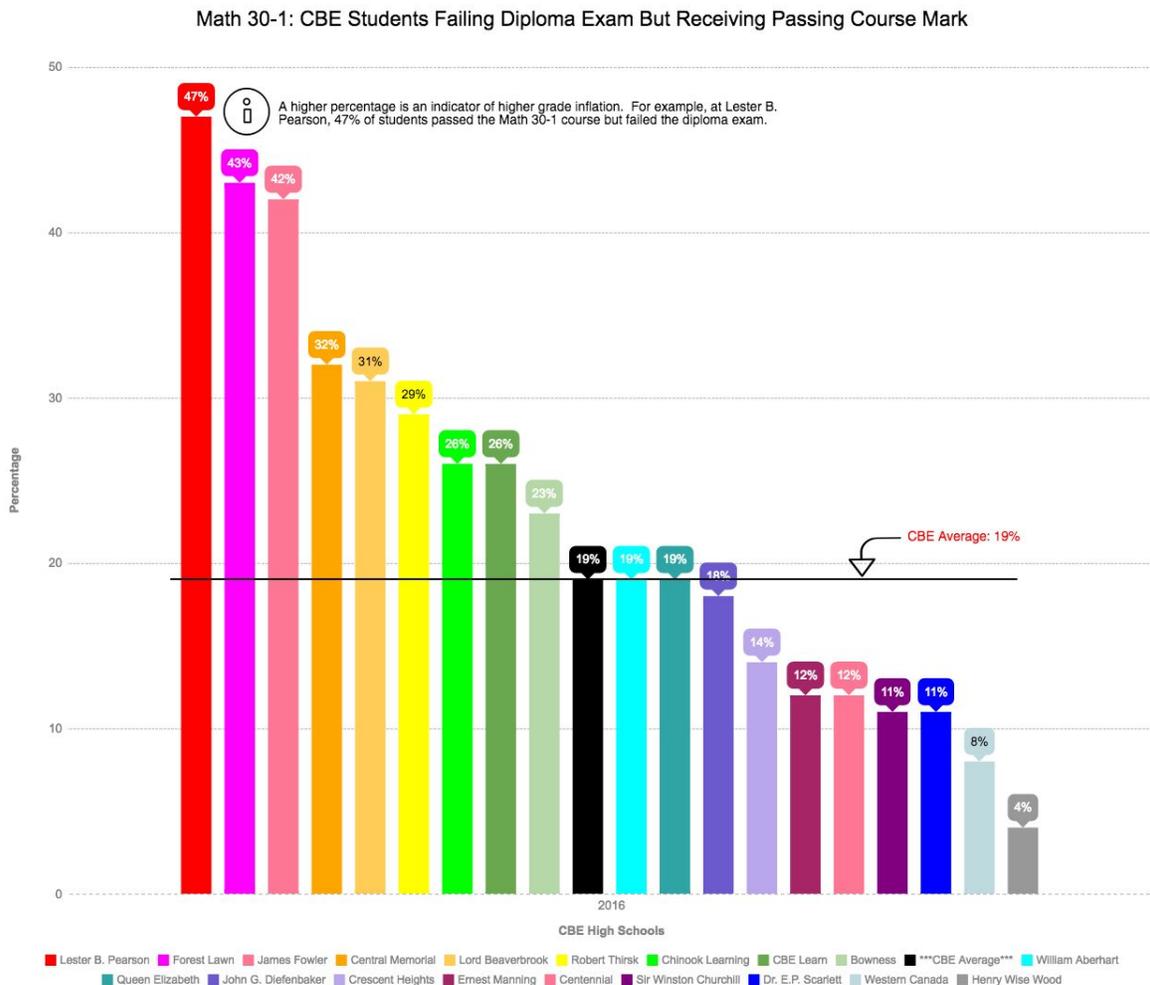




# Report: Discrepancies in High School Math Results

## Mixed messages

As demonstrated by the data in the chart below, at many Calgary Board of Education (CBE) high schools, the rate of students failing the Math 30-1 diploma exam despite receiving a passing grade in the course is high.



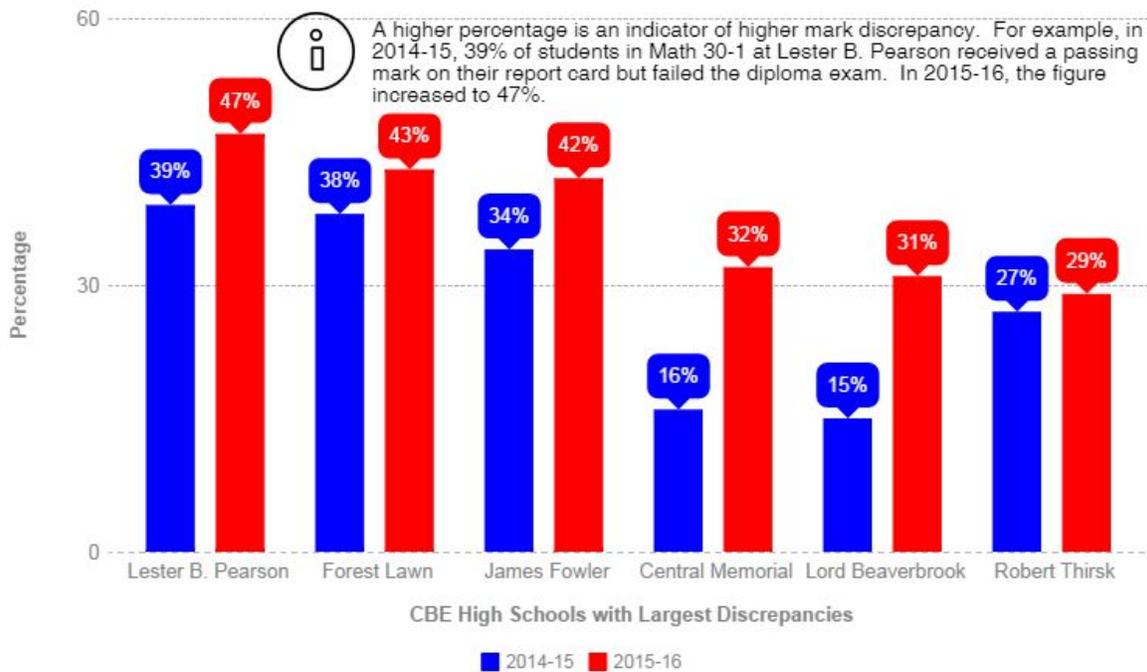


### What the data shows

The data shows a wide range of results among CBE schools, with the CBE-wide average at 19 percent of students passing Math 30-1 but failing the diploma exam. For example, at Lester B. Pearson High School last year, 47 percent of students received a passing grade in Math 30-1 but failed the diploma exam while at Henry Wise Wood High School, the figure was only four percent. When reviewing the spread between the average class mark and the average diploma exam mark, the largest variance for 2015-16 was at James Fowler High School where the average mark for Math 30-1 coursework was 79, but the school average on the diploma exam was just 51.

As the chart below demonstrates, in the CBE high schools with the largest discrepancies between report card marks and diploma exam marks, the spread has increased over the previous year.

Trends: Math 30-1 Diploma Exam Mark vs. Report Card





## *Ramifications for students*

As noted in Kids Come First's February 2017 report on math, the impact on students and their futures is considerable.<sup>1</sup> For some students, poor math performance means being denied acceptance into their post-secondary program of choice and thereby being precluded from promising career pathways. A recent report submitted to the Province found that 81 percent of university programs in Calgary require Grade 12 math along with 38 percent of Calgary-based college programs.<sup>2</sup>

For those students who do successfully gain entrance to post-secondary studies -- possibly after having to spend another year in high school to improve their marks -- they may find themselves woefully unprepared. According to Dr. John C. Bowman, a mathematics professor at the University of Alberta, "Students are not coming in with the same level of skills that they used to. Exams that were the norm 20 years ago are too difficult these days."<sup>3</sup>

## *Elementary and Junior High results*

Although far less drastic, the chart belows shows similar discrepancies in student performance when comparing marks for math classes in grades 6 and 9 with Math PAT results across all CBE schools. In addition, low Math 30-1 diploma marks may correlate to the poor math performance in CBE schools explored in depth in the recent Kids Come First report, particularly for those students in Calgary's Northeast.<sup>4</sup>

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<sup>1</sup> Kids Come First, *Report: Math 911*, February 2017.

[https://kidscomefirst.ca/wp-content/uploads/2017/02/KidsComeFirst\\_MathReport\\_Feb2017.pdf](https://kidscomefirst.ca/wp-content/uploads/2017/02/KidsComeFirst_MathReport_Feb2017.pdf)

<sup>2</sup> *Mathematics Review - Report to Premier and Minister*, December 2016, Mathematics Curriculum Review Working Group, December 5, 2016.

[https://education.alberta.ca/media/3402136/final\\_mathematics-curriculum-review\\_05dec16pdf.pdf](https://education.alberta.ca/media/3402136/final_mathematics-curriculum-review_05dec16pdf.pdf)

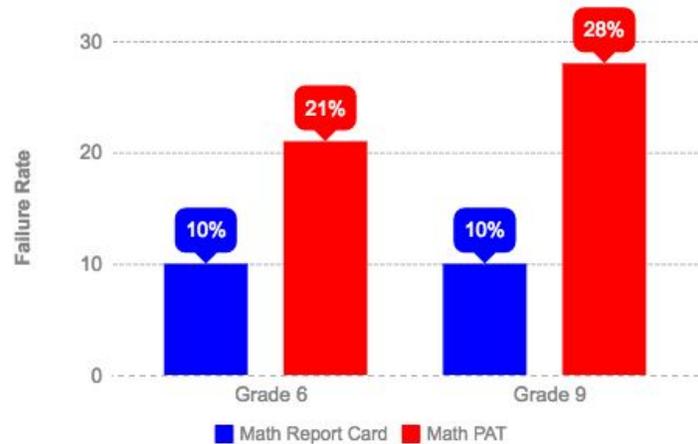
<sup>3</sup> Dr. John C. Bowman, Presentation to Alberta Education Curriculum Working Group, January 2017.

<sup>4</sup> Kids Come First, *Report: Math 911*, February 2017.

[https://kidscomefirst.ca/wp-content/uploads/2017/02/KidsComeFirst\\_MathReport\\_Feb2017.pdf](https://kidscomefirst.ca/wp-content/uploads/2017/02/KidsComeFirst_MathReport_Feb2017.pdf)



CBE Math Failure Rates (2015-16)



Data sources: Calgary Board of Education and Alberta Education

### Pinpointing causes

While grade inflation by classroom teachers is often cited as the reason for the spread, it is impossible for parties outside the education system to investigate the veracity of such a claim. Others dismiss the relevance of the grade discrepancy entirely, arguing that classroom teachers are better equipped to assess students accurately. Meanwhile the Alberta Teachers' Association (ATA) recently reasoned that the higher marks in the classroom could be due to teachers' improved instructional strategies. As ATA President Mark Ramsankar recently told the *Edmonton Journal*, "We can't really apologize for getting good results in our classrooms."<sup>5</sup> It is unclear why those instructional strategies would not also translate into solid performance by students on diploma exams.

It is unreasonable to expect report card and diploma marks to be identical. However, there is a lack of clarity around what level of discrepancy is typical and what may be cause for concern. Furthermore, it is imperative that Alberta Education, school boards and educators study the available data to better determine why such a large discrepancy exists. Currently, there does not appear to be any information publicly available with regard to efforts being undertaken by

<sup>5</sup> Janet French, "Are teachers inflating grades? Critics say yes, school boards say no" *Edmonton Journal*, February 27, 2017.  
<http://edmontonjournal.com/news/local-news/are-teachers-inflating-grades-critics-say-yes-school-boards-say-no>



the CBE or Alberta Education to analyze the data and determine the reason for the discrepancies. Until such an analysis is completed and made publicly available, many students, parents, educators and taxpayers will continue to feel unsettled. Are students being adequately prepared in the classroom for diploma exams? Do teachers require additional support in providing classroom assessments? Do different assessment tools and approaches need to be adopted?

Education spending is another area that deserves consideration for its potential impact on high school math performance. In spring 2013, the CBE cut per-student funding for high schools by 11 percent, but internal emails showed little analysis was done beforehand in terms of looking at the potential impact for teachers and students.<sup>6</sup> Almost four years after those cuts were made, we may be seeing the negative impact on students rearing its head in the form of poor performance on diploma exams.

When the Calgary Association of Parents and School Councils (CAPSC) met with Education Minister David Eggen in fall 2016, CAPSC provided him with a copy of the CBE's own document that demonstrated only 48% of new funding reached the classroom the previous year. CAPSC asked for the Minister's assistance and called for an independent third-party review of spending. Although Minister Eggen told the media that "CAPSC's concerns are quite legitimate" and indicated he was monitoring the situation, to date no actions have been taken.<sup>7</sup>

In a February 2017 report, Kids Come First outlined recommendations for cutting CBE administrative costs to free up funds to use in areas that have a direct positive impact on students, from more educational aides to smaller class sizes.<sup>8</sup>

### *Call to action*

Additional data analysis is required to better understand why there appears to be a disconnect between report card grades in math and performance on standardized tests, including both PATs and diploma exams. Unfortunately, public discussion of these discrepancies all too often ends in a divisive debate about control of education. What gets lost in the noise is the reality

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<sup>6</sup> Jeremy Nolais, "CBE's top official surprised by depth of high school cuts despite giving order: Emails" *Metro News*, October 20, 2013.  
<http://www.metronews.ca/news/calgary/2013/10/20/cbes-top-official-surprised-by-depth-of-high-school-cuts-despite-giving-order-emails.html>

<sup>7</sup> "Education Minister David Eggen discusses bussing concerns," *Global News*, September 24, 2015.  
<http://globalnews.ca/video/2238531/education-minister-david-eggen-discusses-bussing-concerns>

<sup>8</sup> Kids Come First, *Report: Funding the Front Lines*, February 2017  
[https://kidscomefirst.ca/wp-content/uploads/2017/02/KidsComeFirst\\_EducationFundingReport\\_Feb2017.pdf](https://kidscomefirst.ca/wp-content/uploads/2017/02/KidsComeFirst_EducationFundingReport_Feb2017.pdf)



that many of our students are struggling in math -- and many are failing. While some dismiss concerns about math performance as a “made-up crisis” fabricated by parents, they fail to address -- or even acknowledge -- the dramatic and real situations clearly documented in area’s such as NE Calgary, which is home to the high school with the largest discrepancy of diploma exam vs. report card marks in Math 30-1. Other math-related statistics paint an equally grim picture for our students in NE Calgary:

- 93 percent of CBE schools in NE Calgary are below the provincial average for the Grade 6 Math PAT.
- 100 percent of CBE schools in NE Calgary are below the provincial average for the Grade 9 Math PAT.

It is clear that urgent action on math education is a social justice imperative. In addition to the five-point “Action Plan On Math” outlined in our February 2017 report,<sup>9</sup> Kids Come First is calling on Alberta Education to spearhead review of the available data on math report card marks and standardized testing scores to determine why these gaps exist and identify concrete improvements to better support student performance in K-12 math province-wide.

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<sup>9</sup> Kids Come First, *Report: Math 911*, February 2017.  
[https://kidscomefirst.ca/wp-content/uploads/2017/02/KidsComeFirst\\_MathReport\\_Feb2017.pdf](https://kidscomefirst.ca/wp-content/uploads/2017/02/KidsComeFirst_MathReport_Feb2017.pdf)