



#DataInAction Symposium

Spring 2024

On May 22, 2024, EQAO welcomed school board staff to its third #DataInAction symposium. EQAO presented research focused on students who [achieved Level 2](#) on EQAO's 2022–2023 Grade 9 Assessment of Mathematics and offered insights on students' strengths and areas for improvement in mathematics. The symposium also featured presentations from various school board teams that explored how they've used EQAO data and other resources to support student achievement in math.

Strengths and Areas for Improvement Among Level 2 Achieving Students

EQAO presenters reported on themes emerging from the analysis of student responses to 168 selected Grade 9 questions. This analysis allowed EQAO to highlight both strengths and areas for improvement in various areas among students who achieved Level 2.


Students achieving Level 2 demonstrated proficiency in

- identifying numbers as integers and whole numbers,
- applying multiplication and division with whole numbers in familiar contexts,
- making conversions between measurement systems and units,
- solving simple problems involving proportional reasoning,
- identifying the simplified version of simple algebraic expressions and
- identifying a past or current financial situation and how it informs decision making.



Areas for improvement were identified in four key themes: (1) proportional reasoning, (2) algebraic reasoning, (3) computational thinking and (4) mathematical vocabulary. Presenters outlined implications and made recommendations on these themes using examples from the [Resource: Released Questions package](#).

EQAO findings highlighted that because proportional reasoning is prevalent across the curriculum, when students lack an understanding of fractions or how to apply them, it impacts proficiency in other strands.



In computational thinking, Level 2 achieving students seemed to struggle when tasks involved more than one computational step. Recommendations put forward by presenters included incorporating daily activities in class and consistently reviewing skill sets in order of operations and inverse order of operations until proficiency is demonstrated. Developing critical thinking and problem-solving skills are important for student success across all mathematical strands.

In the mathematics vocabulary theme, it was recognized that understanding mathematics vocabulary is fundamental for comprehending many mathematics concepts. Specific examples using numbers and number sets were discussed to show how vocabulary impacts students' full comprehension of a concept. Strategies such as employing word walls and encouraging reflective journal writing about learned concepts aid in making meaningful connections, while integrating mathematics vocabulary and giving direct feedback on its use can support students by limiting misconceptions early in their learning.

The EQAO team also presented on the topic of counting the results of EQAO Grade 9 Assessment of Mathematics as part of students' final course marks using responses collected through the EQAO teacher questionnaire since the 2022–2023 school year, as well as the survey data collected from the school board staff in May 2024. The results revealed that decisions on counting EQAO



results have varied widely, with some boards leaving them to teachers or schools, while others mandate specific percentages. Despite the impossibility of making causal inferences, data suggests that when teachers include EQAO results in final course marks, student achievement tends to improve.

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Board Presentations

The symposium featured presentations by the [Grand Erie District School Board \(GEDSB\)](#), the [Conseil des écoles catholiques du Centre-Est \(CECCE\)](#) and the [Upper Canada District School Board \(UCDSB\)](#). The GEDSB emphasized key points that contributed to improving student outcomes. These included enhanced data-driven decision making, the implementation of a comprehensive mathematics plan that made use of digital resources and transformative professional development sessions, which all resulted in a more profound and meaningful integration of new strategies.

The CECCE presented insights on correlating student assessment results with report card data, which sparked rich discussions and helped teams focus on student-specific needs through collaborative analysis. This approach placed an increased focus on educational direction and the importance of providing resources to meet educator needs.

The UCDSB delved into the connection between large-scale assessments and classroom practices. By analyzing board-level achievement data trends, the UCDSB aimed to understand the impact of student attitudes on achievement, and the board developed

a professional learning plan to ensure that 90% of students achieved grade-level proficiency in number sense and operations. The UCDSB created a professional learning plan for key cycles of the year and created EQAO-focused resource packs to familiarize both teachers and students with the assessment and the tools on the assessment platform.



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Ideas Discussed

Discussions focused broadly on three categories:

1. Data collection and research

- Conducting student surveys using EQAO performance indicators and looking for trends (systemic barriers in instruction) as well as using strands and skills reports to identify focal points
- Merging report card, EQAO assessment and census data using Microsoft Power BI data visualization to obtain live dashboards that can be accessed on different levels

2. Research on student engagement and achievement

- Using digital tools to get a sense of student engagement in learning pre- and post-assessment
- Gauging how students are engaging with mathematics through mid-year assessments that also inform the development of math achievement action plans
- Collecting confidence and growth mindset data for math achievement action plans to create programs to build confidence in students who struggle

3. Educator resources

- Further resources focused on modifying and accommodating students with special needs to design responsive pedagogy
- Building methods for leveraging further information sharing



Conclusion

The symposium underscored the significance of comprehensive mathematics plans supported by data from diverse sources to deepen curriculum understanding and enhance learning outcomes.