

Aurora Academic Charter Schools, Aurora School Ltd.

Mathematics PAT Trajectories - Research, Evidence, and Innovation to Improve Student Learning and Achievement, By Dr. Paul Wozny

Findings:

Aurora Students' PAT longitudinal achievement results and trends support research that consistency of curriculum outcome aligned pedagogy, targeted supports, and minimization of disruptions for each student's learning context positively affect student performance:

- Aurora students remain from K to 9 in same location/pedagogical context; both elementary and middle schools share the same building and collaborative/specialized mathematics instructional teams. Our instructional year contains shorter summer break period which may affect retention and reinforcement of learner outcomes and associated competencies;
- Aurora PAT student achievement Grade 3,6,9 across all three cohorts is significantly above provincial averages (both pass rates and excellence rates) even though our socio-economic averages are at or below regional averages.

Aurora	2001/02 Gr. 3 Acceptable 91.1 Excellence 33.3	2002/03 Gr. 3 Acceptable 97.7 Excellence 48.8	2004/05 Gr. 6 Acceptable 97.8 Excellence 40.0	2005/06 Gr. 6 Acceptable 97.6 Excellence 31.7	2007/08 Gr. 9 Acceptable 93.8 Excellence 50.0	2008/09 Gr. 9 Acceptable 95.1 Excellence 58.5	2010/11 Gr. 3 Acceptable 98.0 Excellence 56.9	2013/14 Gr. 6 Acceptable 100 Excellence 47.7	2016/17 Gr. 9 Acceptable 100.0 Excellence 68.8	2018/19 Gr. 9 Acceptable 100.0 Excellence 78.1
Alberta	Acceptable 88.5 Excellence 29.2	Acceptable 89.2 Excellence 32.3	Acceptable 85.7 Excellence 19.9	Acceptable 82.7 Excellence 17.0	Acceptable 73.8 Excellence 20.4	Acceptable 73.9 Excellence 20.2	Acceptable 84.4 Excellence 28.3	Acceptable 80.7 Excellence 17.0	Acceptable 74.8 Excellence 21.1	Acceptable 66.5 Excellence 20.8



Our Research team acknowledge that we are located on Treaty Six Territory, and respect the history, languages, ceremonies and culture of the First Nations, Métis, Inuit and all Indigenous Peoples of Canada.

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Aurora Mathematics Teaching and Learning Team Reflections on PAT Results Longitudinally:

- Students' confidence and performance in basic facts is assured through consistent repetition and practice with targeted feedback and support. Aligned pedagogy with each curriculum outcome coupled with clear, consistent, and coherent expectations for outcome mastery.
- Highly engaged parents with regular communication between teacher/parent/student coupled with daily curriculum aligned and inter-disciplinary numeracy enhanced homework component reinforces the importance of mathematics and related competencies across all subjects and assures multiple exposures and supports for each curricular outcome.
- Employment of spiral and cumulative pedagogical approach that actively links previous learned outcomes with current learning outcomes. This targeted cumulative approach is not only within grades, but throughout all grades in both the elementary and middle school contexts.
- Mathematics teaching and learning team work collaboratively; a number of staff are currently engaged in mathematics action research/graduate study.
- Targeted remediation offered to student's struggling with particular curricular outcomes. This process integrates a highly responsive network of timely formative assessment protocols to assure learning and understanding. Assessments include both traditional pencil and paper assessments along with competency-based/performance assessments.