

Personal strategies and formal algorithms

The new mathematics curriculum for Kindergarten to grade nine calls attention to the use of personal strategies. *Personal strategies* can be explained as meaningful steps students take to solve a problem when using addition, subtraction, multiplication or division. When we learned about addition, subtraction, multiplication and division, most of us learned these through *formal algorithms*, or step-by-step procedures. We did not always understand why we did each step or why we did the steps in a specific order. The new mathematics curriculum emphasizes students understanding concepts they learn, not simply memorizing procedures or facts.

The Alberta curriculum states, "Students need to explore problem-solving situations in order to develop personal strategies and become mathematically literate. They must realize that it is acceptable to solve problems in a variety of ways and that a variety of solutions may be acceptable." In classrooms, this will be seen when students individually share how they solved a problem, when students work together to try to solve a problem, or when groups share their strategies with the whole class. For example, students may be working on the problem $645 + 230$. Here are some solution methods:

$645 + 230 = ?$ $645 + 200 = 845$ $845 + 30 = 875$ $645 + 230 = 875$	$645 + 230 = ?$ $600 + 200 = 800$ $40 + 30 = 70$ $5 + 0 = 5$ $800 + 70 + 5 = 875$ $645 + 230 = 875$	$645 + 230 = ?$ <div style="text-align: right; padding-right: 20px;"> 645 $+230$ <hr style="width: 50%; margin: 0 auto;"/> 875 </div> $645 + 230 = 875$
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When students bring work home that involves addition, subtraction, multiplication or division, it is okay for you to share how you can solve the problem. Recognize, though, that your child may not solve the same problem exactly as you do! Be accepting of other methods your child may bring home and emphasize that the way you solve a problem is one way of solving it, not the only way.

How might I support my child with personal strategies?

- Recognize that one method may make more sense than another for your child.
- Understand that you have had many years of practice with one way of doing addition, subtraction, multiplication or division.
- Encourage your child to try to solve the same problem in more than one way.
- Encourage your child to solve the problem using one strategy and check the solution using another strategy.
- Ask your child to explain their thinking and show you the steps they have taken to solve a problem.

Alberta Education Implementation Schedule	2008-2009	2009-2010	2010-2011
Provincial	Grades K, 1, 4, 7	Grades 2, 5, 8	Grades 3, 6, 9, 10
Optional	Grades 2, 5, 8	Grades 3, 6, 9	

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