

## **Mathematics 8/9 New IRP - BCAMT Opinion Statement**

A subcommittee of the BCAMT Executive met recently and drafted the following opinion statement concerning the Mathematics 8 and 9 IRP. The BCAMT expresses concern that the curriculum that has been implemented is not what was supported in the BCAMT position statement following the draft IRP, nor were its implications fully realized when the new IRP was referred to in an article in the September 2001 BCAMT Newsletter.

The new IRP has been divided into Prescribed Learning Outcomes (PLO's) and Suggested Extensions. According to the IRP, "the suggested extensions are not provincial curriculum, but are provided to assist teachers in developing programs of study that go beyond the provincial curriculum." (p. 5) The BCAMT did not endorse the exclusion of the extensions from the provincial curriculum, and we feel that this exclusion creates several serious problems.

First, the new IRP suggests that the PLO's themselves (without the extensions) are enough to prepare students for all three pathways (Principles, Applications & Essentials). The suggestion in the IRP that "students intending to take Principles of Mathematics 10 should be encouraged to explore" (p. 5) the extensions is a vague directive that fails to convey the importance of these concepts for these students. In our opinion, the majority of the extensions are necessary for students who hope to have success in the Principles pathway, and most of them should also be covered for students intending the Applications pathway. The extensions are important not just for the additional concepts themselves, but also for what they add to the depth of the understanding of the core concepts and for the thinking and communication skills they engender. These skills must be developed before students reach the final years of the Principles pathway.

Secondly, the BCAMT suggests that the overall standards have been lowered. Without the extensions, the new Mathematics 8 and 9 courses only contain about  $\frac{2}{3}$  of the content of the previous curriculum. We believe that this runs counter to the intention of the Mathematics Task Force Report. In recommending that the Ministry authorize a single Mathematics 9 course for all students, the Report stresses the need to identify "the learning outcomes necessary and suitable for a program that develops numeracy," (2.1.1); however, the Report also speaks of a curriculum that "is in harmony with the principle that students learn best when they are challenged by high expectations" (2.1.2). In our opinion, the curriculum that is prescribed in the new IRP does not fit the description of meeting high expectations, nor is it consonant with NCTM's Principles and Standards (2000) which states that "excellence in mathematics education requires equity--high expectations and strong support for all students" (p. 12).

A third concern centres around assessment and the reporting of marks. According to the *Student Progress Report Order* (Ministerial Order, BC Ministry of Education, Governance and Legislation Unit), letter grades must be "in relation to expected learning outcomes set out in the curriculum" (p. E-106, 4.(1)).

A literal interpretation of this means that assessments on the extensions, being outside the set curriculum, cannot form part of the grades that are assigned to the students. Although it may be a teacher's hope that students will be motivated by the love of learning mathematics, if the extensions are not reflected in the grade for the course, then in our opinion, many students will lack the motivation to apply themselves to learn the extensions. Furthermore, parents and students will not be given an accurate picture of where the students stand with respect to which pathway they should follow for their Grade 10 year. A Mathematics 9 mark based solely upon the core curriculum may give the mistaken impression that the student is adequately prepared for Principles of Mathematics 10.

The BCAMT recommends that the extensions be returned to the provincial curriculum so that the curriculum can properly prepare students for the Principles and Applications pathways, and so that teachers can include these learning outcomes when assessing and reporting on the progress of their students. It is our hope that the curriculum can be flexible enough to distinguish still a subset of PLO's that focus on numeracy and the preparation of students for the Essentials pathway. The BCAMT supports the autonomy of school boards and schools and the professionalism of teachers in determining how this flexible curriculum could be delivered within each school's secondary mathematics program.

In the meantime, it is important for parents, guardians and students to understand that the new Mathematics 8 and 9 curriculum falls short of adequately preparing students for Applications of Mathematics 10, and far short of preparing students for Principles of Mathematics 10. Mathematics teachers, in consultation with administrators and counselors, should use their professional judgment on how best to convey this information and to design their courses. One possibility is for school districts to implement locally developed Mathematics 8 and 9 courses which would contain the entire curriculum including selected extensions.

The BCAMT is also concerned about the development of the new K-7 Mathematics IRP. We strongly encourage the Ministry and the IRP writing team to avoid designating part of the current curriculum as "extension," and thus, excluding it from the "new" curriculum.

In summary, the BCAMT recommends that the Mathematics 8 and 9 IRP be revised as soon as possible in the Provincial Curriculum Cycle. After the initial draft of the IRP there was a lot of concern expressed by teachers about the need to write IEP's for students who would not be taught the full curriculum. The new IRP, while solving the IEP problem, has created many more problems which in our opinion are of greater concern. The core curriculum without the extensions lowers the standards expected for the students, and as such will not adequately prepare them for the Principles or Applications pathways. Furthermore, grades based solely on the core curriculum may mislead parents and students, as well as put undue pressure on teachers as they contemplate how best to prepare their students for further studies in mathematics.