

ARTICULATION BETWEEN JUNIOR AND SENIOR HIGH SCHOOL MATHEMATICS

By L.C. Pallesen

Editors' Note: We are indebted to Len Pallesen, assistant superintendent of secondary schools, Calgary Public School Board, for the following article. Here he points out a definite problem in articulation and offers a partial solution. We invite comments from other teachers who have had similar or different experiences.

Is *Mathematics - Grade X* by McLean et al, the presently authorized test for Math 10, an acceptable text for those students who have followed either the Gage *Seeing Through Mathematics* series or the Holt Rinehart *Exploring Modern Mathematics* series through their junior high school years? This question is being asked repeatedly by the Senior High School Mathematics Subcommittee and many high school teachers. Unfortunately, there are not too many areas in Alberta where this question can be approached by actually examining the performance of "modern math" junior high graduates as they use *Mathematics - Grade X*. In one Calgary high school approximately 50 percent of the students taking Mathematics 10 used the *Seeing Through Mathematics* series for the three years of junior high. The comments which follow are based on questionnaires distributed to these students, their marks, and the comments of their teachers.

STM graduates score better in Math 10 than do graduates from the traditional Grade IX mathematics program. In one class of Math 10 where both "STM" students and "Traditional" students were included, the Easter examination marks show a significant difference, although the two groups were of comparable abilities. The range of scores obtained on the test was from 50 to 98. The "STM" students' mean score was 79, while the "Traditional" students' mean score was 63. This indicates that having the two groups in a single class or giving them the same examination placed the traditional students at a serious disadvantage.

In the school's organization it was not possible to arrange a class

where all the students were of STM background. Consequently, it is not possible to determine accurately how effective the Grade X text might be under such conditions, which would permit the teacher to make certain adjustments. Teachers feel that the review chapters and the algebra need less time for "STM" pupils than for "Traditional" pupils. The course, as outlined in the Curriculum Guide, is not considered to provide adequate challenge for the more capable students with STM background. However, teachers felt that if it was possible to have a group of all STM background, then the early portion of the book could be handled more quickly and Chapters VI and VII, currently optional, could be treated fully. Under such conditions the text might contain sufficient material for capable students even with STM background.

Students' replies to a questionnaire would seem to lend support to the position that the course as presently outlined offers insufficient new material. The questionnaire asked students to "rate" the Grade X Mathematics which I have studied this year as

- (a) entirely new work,
- (b) containing some familiar topics,
- (c) almost entirely made up of topics studied previously.

Student responses to this question, grouped according to their background and their mark on the Grade IX Departmental Examination, are indicated in the following table. (See table next page.)

The proportion of STM students who find the course "almost entirely made up of topics studied previously" indicates that teachers will have real difficulty in making the program attractive to this group.

In summary, it would appear that during the transition years when students may begin Mathematics X with either "traditional" or "modern" junior high background the teacher will encounter problems in trying to meet the needs of both groups in a single class. When all students have a modern mathematics background, it seems desirable to modify course content to include more material, or even to consider a change in authorization.

Pupil Appraisal

Program followed in Junior High School	Grade IX	Comment	Number	Percent
STM	A or H	a	0	0
		b	28	56
		c	22	44
Traditional	A or H	a	23	42
		b	30	54
		c	2	4
STM	B	a	4	10
		b	26	63
		c	11	27
Traditional	B	a	9	28
		b	23	72
		c	0	0
STM	C	a	3	30
		b	7	70
		c	0	0
Traditional	C	a	5	45
		b	6	55
		c	0	0