

The Laboratory Approach in Mathematics—Calgary Junior High Schools

Bernice Andersen

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Mrs Bernice Andersen, mathematics consultant with the Calgary Public School Board, assembled the following reports from several Calgary schools. Our thanks to Mrs Anderson and each of the contributors. The photographs were taken by Sharat C Sharma of the Calgary School Board Instructional Aids Department.

What is happening at *your* school? Please take time to send in a report to the *Newsletter*.

The “Discovery Method” at Colonel Irvine Junior High School

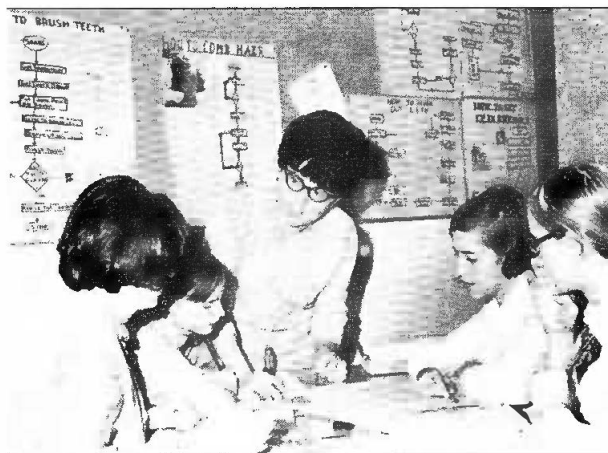
Rose Makway

Mrs Makway teaches junior high mathematics at Colonel Irvine Junior High School, in Calgary, Alberta.

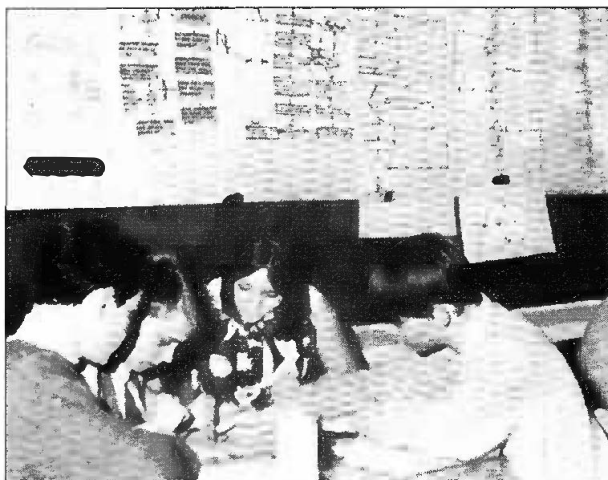
At Colonel Irvine Junior High, in Calgary, some of the students were introduced to the “discovery method” of studying mathematics for the first time this year. Although we have no actual lab facilities, the regular classroom has been adapted to serve the purpose. Students work in groups at tables with complete freedom to discuss their discoveries and display their results in any way they wish, within the limits of our facilities. Usually no previous instruction has been given, and students discover new concepts with the guidance of activity cards and their own imagination. Although questions are always answered by the teacher, the students are encouraged to discover as much as possible on their own. In a follow-up lesson, each group presents its discoveries leading to the formation of general standard rules such as $V = 1 w h$.

In the following pictures a Grade 9 class is being introduced to algebra for the first time. No previous instruction has been given. With the guidance of activity cards and some help from the teacher, the

class is discovering the rules for operations with powers and exponents. In a follow-up lesson the groups present their results. The class, together with the teacher’s guidance, forms general rules such as $x^m \cdot x^n = x^{m+n}$, using the results of the groups’ discoveries.



In the background of this picture are charts made by a Grade 8 class studying geometric construction. Flow charts were introduced for the first time by using everyday situations such as “How to Comb Your Hair.”



In the next lesson, flow charts for geometric constructions were developed, using patterns discovered in the previous lesson. These were followed by working out problems that involved using the constructions in new situations.

The Workshop Approach at F E Osborne Junior High School

Chuck Swaney and Wes Larson

Messrs Swaney and Larson, working cooperatively in F E Osborne Junior High School, Calgary, have developed a workshop approach in mathematics.



Grade 7 students are completing displays for percentage. They took a sampling of student opinion on their choice of an important question and represented the results in percentages. Some questions sampled were "Do you think you want to smoke?" "Should the Americans leave Viet Nam?" "Should girls be allowed to wear blue jeans in school?" and "Do you like our principal?"



The displays on the walls resulted from a workshop approach to mathematics. Some of the problems represented are keeping the area of a rectangle constant while varying the perimeter (Grade 8); prisms and pyramids; finding solutions to matching pairs of congruent sides of 30-60-90 triangles (Grade 9) by Grade 8 students from nets.

Studying Ratio by the Lab Approach at Sunalta Junior High School

Ron Cammaert

Mr Cammaert is a mathematics teacher at Sunalta Junior High School, in Calgary.

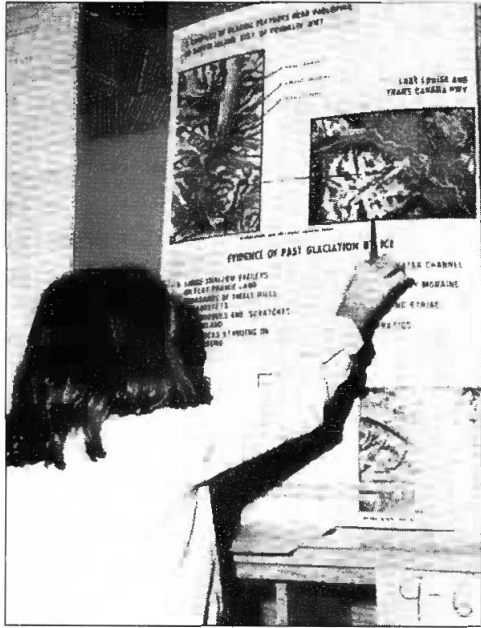
The pictures refer to a Grade 7 laboratory mathematics class, dealing with ratio. Each student group was given a different problem. The problem usually required the students to gather some information from a situation and then to find a ratio or use a ratio to find a distance.



The two boys with the globe decided to make a question on their own, which involved finding a distance in miles between two particular points. They then gave the problem to someone else to solve.



The four boys receiving help were attempting to change a particular ratio on a city map to another map that did not have a scale.



The girl with the aerial photograph was finding the ratio to which the photograph was made after being told the actual length of Lake Louise.



The girls and boy were working to find to what scale the area map of Calgary had been made. They had been told the elevation was exaggerated in a ratio of 3:1 and a particular elevation was pointed out to them.