

THE LABORATORY APPROACH TO TEACHING
EIGHTH GRADE MATHEMATICS

by *1269*

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INTRODUCTION

Over the course of several years the author has felt a need for an organized set of laboratory exercises for use in mathematics on the Junior High School level. Though many teachers use this technique for isolated units, few examples of laboratory exercises are available for the student to discover underlying principles in mathematics.

Statement of the problem. The purpose of this sample set of laboratory exercises is to compile a set of laboratory exercises that can be used with the modern approach to mathematics. These exercises will be developed to motivate participation of all students in the class. Instead of drill the student will be directed to develop and test theories by the use of open-ended questions and experiments. Students will be directed to gain insight into the scientific method and how it works; to develop an interest and an inquiring type of mind and learn the necessity of accuracy.

Importance of the study. It is not what should happen in the classroom but what does happen in the classroom that affects the learning of mathematics. The laboratory approach will give mathematics teachers an opportunity to generate new interest and create a favorable classroom atmosphere where the students desire to discover mathematical principals and their individuality grows.

REVIEW OF THE LITERATURE

In the decade preceding 1962 only three references appeared in Education Index which were specifically related to the laboratory approach to mathematics. Though the laboratory approach in learning is not new as a method of learning, little interest during the period from 1952 was shown in using this approach in mathematics. The summary given here will generally be related to the advantages or disadvantages of the method.

Literature pointing to the benefits of laboratory exercises. Johnson and Rising, in describing the role of the laboratory exercise, stated several ways in which laboratory lessons are successful. They provide success for those who have not yet understood the concept. The individual work is beneficial for the exceptional student. Due to the relaxed atmosphere, better attitudes toward mathematics and the instructor are developed. The similarity of this approach and real life challenges helps mature the students' outlook. The participation of each student is where the real learning takes place.¹

Lowry stated that when a student is allowed to discover for himself, even if it takes longer, the time is well

¹Donovan A. Johnson and Gerald R. Rising, Guidelines for Teaching Mathematics (Belmont: Wadsworth Publishing Company, Inc., 1967), p. 302.