



Delta-k

Volume XV, Number 4, May 1976

MY CHILD WANTS A CALCULATOR!

GLENADINE GIBB
NCTM President

The following article appeared in the December 1975 NCTM Newsletter.

Should I get a calculator for my child? Does it interfere with children's learning mathematics? We do want our children to know mathematics—the basic facts, how to add, subtract, multiply, and divide. What do you advise?"

Undoubtedly you have been asked these questions, as have I, by parents of your students or by other parents of school-aged children. They may also ask, "And which calculator should I buy?" During the holiday season, we can expect even more of these questions. With prices for calculators declining, they are among possible gifts on those Christmas lists.

In the classroom. Many schools are already using minicalculators in a variety of ways, supported by the NCTM statement that "the minicalculator should be used in imaginative ways to reinforce learning and to motivate the learner as he becomes proficient in mathematics." Finding effective and creative ways is not necessarily an easy assignment, however. The NCTM Instructional Affairs Committee has suggested some uses in a report to be published in the January issue of the *Mathematics Teacher* and the *Arithmetic Teacher*. Other articles in those journals, as well as articles in the *Instructor*, *Today's Education*, and other professional journals and books can help you, as can the workshops and discussions at our professional meetings.

Suppose that we look ahead and make a checklist of the mathematical concepts and skills that we shall be teaching during the remainder of

the year. How can the calculator be used as an instructional aid to enhance learning beyond what we might otherwise expect?



Obviously our lists will reflect the age of our students and the mathematical content of our program. One guide for all of us, however, is that we *not* use the calculator until our students have developed a concept of number, a system for naming numbers, and an understanding of the meaning and processes of the basic operations—that is, until our students understand what the calculator is doing for them.

Once students have this understanding, using the calculator to check answers to paper-and-pencil computations might stimulate more thought than checking by simply looking up the answers. Checking

IN THIS ISSUE

MY CHILD WANTS A CALCULATOR!	1
FROM THE EDITOR'S FILE	2
"SORRY, YOU CAN'T USE THE CALCULATOR IN THE CLASSROOM."	3
GEOMETRY AND AXIOMATICS: AN HISTORICAL PERSPECTIVE	8
NEW FROM COPP CLARK LIMITED	22
NEWS RELEASE FROM SSMA	23
1976 ALBERTA HIGH SCHOOL PRIZE EXAMS - WINNERS AND SOLUTIONS	24
MCATA ANNUAL CONFERENCE	37

answers, however, seems a very narrow, limited use of the minicalculator. More thinking may be stimulated by using it to "debug" problems; to obtain insight into the operations—as, for example, finding the solution to a division problem with subtraction; to explore topics in number theory; to become more sensitive to the order of operations; to generate patterns; . . . and our list continues. Not to be overlooked is the opportunity to develop skill in estimating and to have more experiences with decimals.

We need not be reminded of the difficulties that many students encounter in problem solving. The calculator can be an impetus for them to formulate more carefully the mathematical relations to be solved in order to provide the calculator with the necessary informa-

tion. Naturally, it enables students to solve problems that can be fascinating to them but were previously avoided because of the tedious, laborious computations involved. Thus, with the hand-held calculator it may be possible to increase considerably our students' skills in problem solving!

Selecting your calculator. The selection of a calculator must depend on how it is to be used and how much money is to be spent. Minimal capabilities for beginning use should include—

- a minimum of six display digits (eight is better);
- easily accessible, springloaded click keys;
- four functions: $+$, $-$, \times , \div ;
- a floating decimal;
- two clearing keys (clear entry and clear);

- no key having a dual purpose;
- a rechargeable unit or AC adapter;
- algebraic logic.

Also, the warranty, the reliability of the manufacturer, and the repair service should be considered.

Like any teaching device, the calculator can create more problems than it can solve if it is misused. It does not replace the need for understanding, skill, or good teaching in mathematics. It is not a substitute for pencil-and-paper skills, although it reduces their use. Creative use of minicalculators after students' mathematical understandings have been abstracted, however, can establish it as a valuable asset among the instructional devices already in today's mathematics classrooms.

From the Editor's File

Math kits have been updated by Bob Holt and his committee. Those persons interested may write to him to obtain a kit suitable to your grade level. The kits will begin circulation in September. They are to introduce new materials to as many teachers as possible. Therefore, do not expect to have time to try everything in your classroom, but consider others as you see and try some of the materials and/or ideas presented.

Membership in MCATA is now \$6 with NCTM membership at \$12.25 to \$16.50 depending on your choices of publications. Ms. Pat Beeler will be pleased to answer any questions you have or you may contact a member of the executive who is more conveniently located in your area.

Number Sentence Games

Grades IV-X

A 64-page book of worksheets giving students ample practice with the fundamental operations and number combinations in a game-type atmosphere. The worksheets are designed for various levels and can be used effectively in an individualized program as well as for group exercises. Special sections are included on order of operations and use of grouping symbols. Reproduction permission is granted. Spirit Duplicating Masters are also available.

Available at:

Western Educational Activities Ltd.
10577 - 97 Street
Edmonton, Alberta