

Boyer, Ernest L., and
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New York: Harper & Row, 1983.

Through a study of mathematics, all students should develop quantitative perception. The aim should be to give students the ability to use mathematics to solve problems on their own. In one classroom, students were asked to find the weight of a brick after measuring its length, width, and height, and being given the value of its density in pounds per cubic inch. The exchange went something like this:

Teacher: "Who can tell me the weight of the brick?"

Student: "1016 pounds." (*Looking at his paper*)

Teacher: "Lift the brick. Now, how much does it weigh?"

Student: (*Again looking at his paper*) "1016 pounds."²⁰

The student had failed to make the connection between the problem and real life. Calculations were unrelated to common sense. This example was not an isolated incident. Time after time we witnessed the use of numbers with little or no thought given to implications and applications.

For students who will become scientists and engineers, the need for thorough training in the theory and skills of mathematics is obvious. And mathematical insight is becoming an increasingly important component for success in many other vocations as well. Students planning to move into professions and vocations requiring it should study calculus by the time they leave high school. Specialty schools in mathematics and science are proposed in a subsequent chapter of this report.

For all students the goal should be to develop the ability to identify practical problems, structure them systematically, and find appropriate solutions.