



This document is provided by
National Geographic Learning / Cengage

[NGL.Cengage.com/School](https://www.ngl.cengage.com/School) | 888-915-3276

Rob and Rich have been advocates of financially related mathematics courses and applications for over three decades! This is an article they had published in 1986 in the April 1986 issue of the journal *Curriculum Review*.

Consumer Mathematics For The Honor Student

by Robert Gerver
and Richard Sgroi

Honor students often graduate as consumer illiterates. Yet each will have to pay taxes, use credit cards, and balance a checkbook.

Traditionally, high school consumer math courses served as motivational vehicles for underachievers in mathematics. Math educators thought the relevance of the material would inspire such students to work purposefully. Consumer math texts generally aimed their language at the below-average math student. Also, perhaps, a lack of effective general math courses made the below-average mathematics student the target of increased consumer course development by default. Thus, in most schools an *honor* student who sought consumer awareness had nowhere to turn.

*Would your school's valedictorian recognize a Form 1040?
Could the students in your advanced placement calculus*

class verify the finance charge on a VISA bill?

Could your honors physics students compute the capital gain in a stock transaction?

All too often, honor students graduate as consumer illiterates. Yet every honor student can look forward to paying taxes, using credit cards, buying a home, balancing a checkbook, and interpreting a utility bill.

The skills involved in performing these tasks are not innate skills. They must be learned. Although students may one day hire accountants to do their taxes, they must personally attend to all facets of consumer life. Even an accountant cannot do an efficient job without the proper input from a knowledgeable client.

We, as educators, have a respon-

sibility to prepare all of our students for the future. We can no longer deprive these honor students of the life skills that are so crucial to their existence. For these reasons we are advocating the creation of a single-semester consumer course for high school honor students.

Consumer courses often become basic skills refresher courses that stress arithmetic competency. These courses merely scratch the surface of the potential for study within the field. The honors consumer math curriculum, as we envision it, would involve extensive mathematical problem-solving skills.

These skills would be set within the broader context of a comprehensive consumer curriculum. Problems dealing with income tax can be just as difficult and chal-

In the honors consumer math course, the gap between advanced mathematics and consumer applications could be bridged.

lenging as those in calculus. Honor students can offer keen insight into financial situations. Their advanced thinking capabilities would allow the curriculum to incorporate complex consumer problems.

There are many interesting topics possible in this honors curriculum which would be beyond the ability level of the traditional consumer math student.

For example:

- **The Internal Revenue Service:** General consumer math courses currently tackle simplistic versions of IRS forms 1040 EZ, 1040 A, 1040, and schedules A and B. The *Understanding Taxes* program (Publication 21) available through the IRS doesn't offer examples of complex tax reporting situations. On the other hand, Publication 17—understanding capital gains, tax credits, self-employment, real estate sales, royalties, landmark tax court challenges—demands a reading level usually not found in below-average math classes.
- **Stocks and Bonds:** Although traditional consumer math classes easily handle stock sales and purchases, they usually do not delve into market forecasting, short selling, margin buying, and reading articles from *The Wall Street Journal*. Advanced students could handle these concepts.
- **Transportation:** Here, the honor student would do more than merely compute miles per gallon. Investigating the virtues of car leasing by examining buy back options, depreciation, maintenance, insurance, and resale value adjusted by inflation would give scope and depth to a seemingly one-dimensional topic. Auto insurance, factor tables, points, surcharges, and no-fault legislation could receive careful scrutiny.
- **Commodities:** How do the operations of the New York Commodities Exchange affect our capitalist system? This topic is excluded from most consumer math courses, and yet commodities are mentioned daily in the news media. Many honor students who will pursue careers in high finance could use this kind of background early on.
- **Borrowing Money:** We are willing to wager that most readers of this article pay their credit card bills religiously, yet could not verify the accuracy of the finance charge. Do you know your specific rights under the Truth In Lending Act and the Fair Credit Billing Act? Do you know the provisions of the Fair Credit Reporting Act? How many of you learned about mortgages upon making your first real estate purchase? The Annual Percentage Rate (APR) and the effective annual rate are two percentages borrowers encounter regularly. One is a simple interest calculation and the other is based on a declining balance. The mathematical relationship between the two would be a stimulating investigation in our proposed curriculum.
- **Banking:** Consumer math curricula often include annual, semi-annual and quarterly interest compounding. A thorough exploration of compound interest requires development and understanding of borrowing concepts (above), also known as the natural base. These concepts are usually presented in a precalculus or calculus sequence, with a superficial application at best. In the honors consumer math course, the gap between advanced mathematics and consumer applications could be bridged. The Federal Reserve System, reserve requirements, the discount rate,

the prime rate, the FDIC, and gold reserves would also be included here.

Problem solving has surfaced as a major concern in secondary mathematics. Our proposed curriculum would feature realistic problem solving as the motivational vehicle. These problems would not be contrived as they are in many textbooks, but rather lifelike situations that will soon face students as urgent adult needs.

Normally, problem solving serves merely as an evaluative tool—i.e., can the student manipulate a new technique? And in many honors math courses, the solutions to problems cannot be intuitively judged for plausibility. For example, how can a student get a "feel for" the idea of water leaving a conical reservoir at a rate of 2 cubic feet per second? In our proposed curriculum, the answer could be judged for plausibility because the student is familiar with the problem's setting.

The topics in the honors consumer math course would instead use problem solving as the framework. Solving a consumer problem then becomes the central focus for using mathematical skills. We firmly believe that honor students would relish the opportunity to sharpen these skills in a context that would better prepare them for adult life. ■

Robert Gerver and Richard Sgroi teach at North Shore High School in Glen Head, Long Island, and at five local colleges in New York. They have written several articles for educational journals. Mr. Gerver is currently involved in doctoral work on the honors consumer math concept, and would appreciate any comments and information readers might have. Such material should be sent to him at North Shore High School, 450 Glen Cove Ave., Glen Head, NY 11545.