


MATH: WHAT IS IT GOOD FOR?



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I HAVEN'T USED ANY MATH SINCE HIGH SCHOOL. I NEVER COULD DO MATH; I CAN'T EVEN BALANCE MY CHECKBOOK.

I MET SOMEONE WHO WORKS WITH A FRIEND OF YOUR WIFE'S SISTER-IN-LAW. WHAT WERE THE ODDS OF THAT?

Hearing such comments is frustrating for a math professor who recruits students to major in math in college.

It is unfortunate that in our society, which is becoming ever more technological, it is socially acceptable to declare proudly "I can't do math" while it would be unthinkable to hear someone boast "I can't read."

Many students who enjoy math and who excel in math in high school are not encouraged to pursue these studies further in college. Often, guidance professionals, teachers and parents advise these students to go into other fields, thinking that all one can do with a math degree is teach.

The importance and influence of mathematics and mathematical thinking is under-appreciated

and under-recognized. Although most people view math as a bunch of numerical computations, algebraic manipulations and esoteric equations, math is also about deductive reasoning, logical and critical thinking, analysis, synthesis and problem solving. The ability to formulate questions and hypotheses, plan experiments, perform systematic observations, analyze data and draw conclusions are also fundamental skills gained through the study of mathematics. All of these are useful in numerous careers and for good citizenship.

Eminent personalities like Federal Reserve chairman Alan Greenspan and Intel CEO Craig Barrett, among many others, have trumpeted the need for mathematically and scientifically trained workers. The United States cannot compete internationally for low-skill jobs. While a degree in math provides an excellent background for careers in finance, computing, engineering research and education, and is excellent preparation for medicine, law and business, it is worthwhile to note that you can do almost anything with a math degree.

Math brings out creativity that can be applied to most any pursuit. Lewis Carroll, author of *Alice in Wonderland*, Bram Stoker, who wrote *Dracula*, and Nobel Prize winner in literature Alexander Solzhenitsyn earned math degrees. So have musicians Art Garfunkel and Tom Lehrer. In sports, former Mets manager Davey Johnson, and NBA star

If there's a high-school student you know who likes math and is good at math, encourage him or her to earn a math degree in college. You might be doing us all a great favor.

David Robinson have math degrees, while 1960s Cleveland Browns football quarterback Frank Ryan earned his master's and PhD degrees in math during his playing years. In business, there are a number of CEO mathematicians such as GE's



Math comes to mind for Associate Professor Bukiet even when canoeing on Lake Louise in the Canadian Rockies: “Fluid dynamics is one of my areas of specialization, and math is a powerful tool for modeling and understanding how the glacial water that flows into Lake Louise formed the lake as well as the surrounding mountains and valley.”

Jeffrey Immelt and Microsoft’s Steve Ballmer. Other notable business personalities with math degrees include Google co-founder Sergei Brin and Verizon’s Ivan Seidenberg.

Although there is no Nobel Prize in mathematics, it is interesting to note that a number of Nobel Prizes have gone to creative people with math degrees, such as John Nash and Daniel Kahneman in economics, Dudley Herschbach in chemistry and Paul Greengard in physiology.

Even in politics and government there are a surprising number of mathematically trained individuals who have made it to the highest levels. Former New York City Mayor David Dinkins earned his bachelor’s degree in math from Howard University. Dinkins’ study of math even led to meeting his wife, Joyce, proving that studying math can lead to unusual and interesting results. William Perry, former President Clinton’s secretary of defense has a PhD in math. Prime ministers or presidents of Israel (Ehud Barak), Portugal (Francisco de Costa Gomes) and Ireland (Eamon de Valera) have earned math degrees.

Just as in other fields, math also has its rogues gallery of individuals who have used their skills in less than admirable ways. Among them we have Jack Grubman, well-known telecom analyst during the dot-com era, who is now banned from the invest-

ment industry; Peru’s former President Alberto Fujimori, who went to Japan to avoid extradition back home to serve jail time for his alleged crimes while in office; and, of course, the Unabomber, Theodore Kaczinski.

Most of us apply analytical, logical and critical thinking skills in our daily lives. We need to interpret the importance (or lack of importance) of screaming headlines about behaviors causing an increase in the risk of cancer or some other disease.

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Rarely do these articles provide enough information to make educated decisions as to whether one should change one’s lifestyle. Similarly, critical thinking and number skills are required to understand the benefits and drawbacks of proposed solutions to the Social Security dilemma and other public policy issues. It is disconcerting to note that few among those who make the most important decisions about educational, scientific and technical issues, i.e., Congressional representatives, have degrees in math, science or technological disciplines. Is it any wonder they have so much difficulty solving problems?

So, if there’s a high-school student you know who likes math and is good at math, encourage him or her to earn a math degree in college. You might be doing all of us a great favor. And if you’ve thought logically, analytically or critically since high school, you’ve really been applying the power of math all along. ■

To learn more about majoring in math at NJIT, visit <http://math.njit.edu>. And for the most recent *NJIT Magazine* article about the power of math, see “Hearing the Ocean” in the spring 2005 issue.