



# Math is useless

## The usefulness of math is sometimes lost on students

by David Wees

When I was teaching last Wednesday I noticed that one of my students had snuck up to the white board at the front of the class. On it was now written the statement, "Math is difficult + annoying + useless + a waste of time = why study math?"

I was secretly pleased that the student had enough courage to make their voice known. It takes a lot of guts to stand up to your teacher. However I was also worried about the misconception about mathematics this student has.

This statement about mathematics is very common among students. I completely understand the sentiment behind it. The information students receive in a mathematics class is completely foreign to the rest of their experience outside of that classroom.

Two of those things the students said are true, math is difficult and it can be annoying. I disagree with the other two parts of the student's statement though. Math is neither useless or a waste of time.

### Math is difficult and annoying

Mathematics is definitely one of those subjects which is always difficult. Even professional mathematicians need to think carefully to solve the mathematical problems they are presented. There are no short cuts in mathematics.

Often if you make a mistake in solving a mathematical problem you have to start from scratch. This leads to much frustration on the part of problem solvers.

Another part of mathematics that makes it difficult for students is the language. Mathematics has its own vocabulary, its own sentence structure and its own alphabet. Learning this new language is tremendously difficult for some students and is part of the reason many people do not progress much beyond algebra.

### Math is useful

A common misconception among students is that the mathematics that they learn is not useful. This is most definitely false.

Mathematics is used in all aspects of our lives in today's modern world. Engineers use it to help create our nifty techno-gadgets. Marketing people use it to determine what new products we want to buy and what they should charge us. Doctors use it in their research to confirm the effectiveness of new treatments. Governments use it to decide how to best implement new policies and laws.

My wife, who is not a mathematician, avoided all of the difficult mathematics classes in school. She detested

mathematics. Now she finds herself 15 years later, married to a mathematician and trained as a landscape architect, a profession that requires the daily use of complicated mathematics.

How does this make the mathematics useful for the students? They may some day belong to a profession that requires the use of mathematics, and they will need a strong grounding in mathematics to be successful.

In our day-to-day life we use a fair bit of simple mathematics. We learn this very early on in our mathematical careers in school. In order to use this basic mathematics in the complex ways life requires, we need to have a more advanced understanding of mathematics.

### Math is not a waste of time

According to Mulvenon, et al (College Success, Montreal, Canada, 2005), a strong indicator for success at the college level is the amount of preparation in mathematics the students have during high school.

This is probably because of the type of thinking that is required to do mathematics. The more mathematics courses students take, the easier they find thinking critically. Therefore the logical thinking skills acquired from learning mathematics help students through their higher level university courses.

Since universities are concerned about the quality of the students that they get, most universities have a strong math entrance requirement. In order to qualify for their university of choice, students have to make sure they have the background required by the university.

In today's highly changing world, being able to solve problems and adapt to new situations is an important part of the education of youngsters. Mathematics is the vehicle by which analytical skills can be taught. To be competitive, students need to work hard to ensure that they have the necessary tools for modern life.

Next time one of my students asks me "Why do we learn mathematics," I'll make sure to bring up all of these points. "Because you have to" is no longer an acceptable answer for today's students.

