

Why Are So Many Kids Failing Math?

Tools for combating math misnomers inside and outside of class

By Alex Kajitani

If you are a math teacher, like me, you know the conversation all too well. It usually goes something like this:

Them: It's nice to meet you. What do you do for a living?

Me: I'm a math teacher.

Them: Oh, I hated math! Was never any good at it — so boring, and useless!

Me: (slightly flustered) Well, um, how 'bout those Padres?

Most math teachers are tired of hearing about how awful people are at math, and many of us just don't want to deal with this typical response to our profession. However, I've recently realized how this exact conversation can actually be a priceless opportunity to make a critical change in our nation's math crisis.

The above conversation reflects much more than one individual who couldn't compute the slope of a line, or recite the quadratic formula. It shows a socially acceptable attitude that it's OK to be bad at math, and to hate it. This is an attitude that we, as a culture, and as math teachers, have allowed to persist, and even to grow.

Imagine telling someone that you "always hated reading, and were never good at it," and how relieved you are that you never have to read in your job. You would be pegged an illiterate. However, mathematical illiteracy has become a casual joke in our society.

With 70 percent of our nation's 8th graders performing below proficient in mathematics, it is evident that we have a real cultural problem on our hands. As teachers, we possess the power and tools to begin turning this societal attitude about math around, both in and out of the classroom. We also possess the obligation to do so.

Students First

Let's start in the classroom, where our impact is most direct. The two misnomers we so often hear outside of the classroom — that math is boring and that it is useless — are also repeated daily by students. With a proactive attitude, a little creativity, and a healthy sense of humor, we can turn these myths around for students. Here are some ideas to start with:

Misnomer #1: Math is Boring.

Let's be honest here: in a world of i-Pods, MySpace, cell phones, and video games, math is boring. Sure, most of us teachers don't allow these particular tech devices in our classrooms. However, we

are still in direct competition with them. Maybe it's not the actual math that bores the students — perhaps it's the way we are presenting it to them.

Why not, instead of battling these enemy pastimes, use them to our advantage? Bring the fast-paced world of the students into the classroom, and show them how each and every one of their technologies relies on a knowledge of math (so how boring can it be?).

- Capitalize on students' love for video games and internet by using websites such as www.coolmath.com, www.mathplayground.com, and www.brainle.com that offer an alternative to the old pencil-and-paper routine.
- Use the students' world in your examples. Just the other day, when I related math shortcuts to abbreviations on MySpace, such as LOL and BRB, I suddenly had the rapt attention of my entire class.
- Did you know that almost every cell phone has a calculator feature? Imagine if after doing a math problem, you told your students to whip out their cell phones to check their work. Or, make up word problems about their usage minutes, and how to choose the best plan.
- There are math songs (like my math raps) on iTunes that students can download onto their iPods as assignments. Show them that their favorite musical gadget is yours, too, and you earn their respect and attention in the process.

Of course, allowing the students to use their cell phones or iPods in class requires proper front-loading of what is expected of them. But I've found that the students are so excited about sanctioned use of their toys that they don't abuse the privilege.

Misnomer #2: I'm Never Going to Use This In My Life.

Many adults perpetuate this myth, even though they use math everyday without knowing it. As math teachers understand, even if they don't directly involve numbers, skills such as solving problems, exploring options, and staying organized are all math-related. It's our job to make sure the students understand this, too.

- My best weapon to combat this misnomer: Don't teach alone. Show the students, through real people coming into your classroom, that every job uses math. A 15-minute visit is often enough to turn a student's light bulb on.

Don't limit it to just doctors, lawyers, and accountants either. Bring in plumbers, construction workers, store clerks, and truck drivers. "Keep it real," as our students say, with people from their surrounding neighborhood (or at least represent their ethnicity and socioeconomic status), and shed the pocket-protector math geek image in the process.

- My other favorite activity in this vein is called "Stump the Math Professor." Students throw out absolutely any (classroom-appropriate) topic, and I (as Math Professor) tell them how it relates to math. Soccer? Scores, angles, speed. Pizza? Temperature, cooking time, slices. Get silly, have fun with it.

Students constantly request this game, which I always back up with my rap called "Math is

Everywhere.” They often tell me that they, too, start to see math in places they never imagined.

In short, part of our teaching needs to be ingraining in students’ consciousness that math applies to their life every single day. Arm them with this knowledge and they become part of our army out on the streets challenging those people who say math is useless. Culture changes one person at a time.

The Next Time...

Beyond the classroom, it comes back to that inevitable dinner party conversation. So, the next time someone tells me they “hated math,” perhaps I’ll say, “That’s because we live in a society that has allowed mathematical illiteracy to flourish.”

Or maybe I’ll retort, “Funny, I just read an article about that statement,” and spark the conversation about math misnomers, and why what we’re saying outside of the classroom is fueling a crisis in our schools and our society.

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¹ SOURCE: The Nation’s Report Card in Mathematics, 2005. U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP). <http://nces.ed.gov/nationsreportcard/pubs/main2005/2006453.asp> (2007 released data)