School People Blog: Kenny Rochester

No Such Thing as a “Math Person”

Kenny Rochester, when he began teaching math about a decade ago, thought like many people do that some people were just “math people” and others weren’t. He considered himself a math person. Growing up in New York and Connecticut, he sat in math class after math class, and it all seemed to come relatively easily. When he was accepted to Atlanta’s Morehouse College and was asked to choose a major, he chose a subject that came easily to him. The choice was obvious. After all, he was a math person.

After eight years teaching middle school math at The Friends School of Atlanta, and after being trained on a teaching approach called “growth mindset,” Kenny has changed his view—and his students have benefited.

“There’s really no such thing as a ‘math person,’’’ Kenny says. “It’s really all about your experiences. In fact, those experiences can have a real impact in how successful you are. It’s about one’s willingness to make and learn from mistakes. Honestly, the growth mindset approach has really opened my eyes. I now know that ***all*** kids can learn math at a high level.”

Many like math because of its lack of ambiguity. Sure, undergrad and grad students discover the many subtleties of higher math, but when it comes to the foundational material—arithmetic, algebra, geometry, trigonometry and calculus—primary and middle school students have rules to follow. A math problem like x + y = 10 can have many right and wrong answers; but whether they’re right or wrong isn’t up for debate. An answer is eitherright or wrong, period; x equals 9, but only when y equals 1.

The students who grasp the concept quickly like its straightforward nature; they feel good when they find the right answer. Students who don’t get the right answer, though, can grow insecure in a hurry. They then think they’re just not a math person and, whether they’re conscious of it or not, they stop applying themselves in a positive manner.

Kenny has seen this happen many times, and to turn things around, he takes a multipronged approach. First, he knows that a teacher’s impatience is the enemy. He never praises students who get a problem right and, then immediately after, turn around and express disappointment with those who don’t. That just reinforces the “math person versus non-math person” stereotype.

He instead praises mistakes. When students make errors, it’s not a failure; they’re instead one step closer to getting it right. Kenny also doesn’t shower excessive praise on students who grasp math quickly. He asks them to explain what they did, find other ways to solve the problem and sometimes asks them to help their classmates.

Kenny also gives the class what he calls “low floor, high ceiling” problems—like, say, x + y = 10. The low floor allows all students to gain a solid footing; the high ceiling pushes those who are ready for the next level.

For instance, most middle schoolers grasp the basic concept and insert various answers to x and y that add up to 10; that’s the low floor. But Kenny doesn’t stop at integers. Introducing the high ceiling, he talks about the concept of infinity, that it’s not just about the fact that numbers go on forever, but that there are infinite numbers between two points on a number line. The x variable could be 5, but it also could be 5.879832, which would make y 4.120168. How do you express this? Kenny draws crosshairs on the board, a y vertical axis and an x horizontal axis, with zero in the middle, and graphs the answer.

The ceiling rises from there, and ***all*** of Kenny’s students continue to climb, reach higher, and embrace the mathematical concepts that have built our modern world.