

"Make Math Magical Again": SAS Math Faculty Bowman Dickson Presents Creative Curriculum Hacks at NCTM Conference



Liz Torrey December 20, 2017

Earlier this fall, St. Andrew's math faculty Bowman Dickson made a presentation on math "curriculum hacks" at a National Council of Teachers of Mathematics conference in Orlando. Along with his colleague Sam Shah, a math teacher at Packer Collegiate Institute in Brooklyn, Dickson shared strategies for creating curriculum content "from scratch," as both he and Shah do for their math classes.

"We presented tips and tricks for writing your own curriculum and planning classroom activities in ways that are not super-tiring, but allow you to come up with really interesting content," Dickson explained. "I plan my whole class from scratch, which is what most teachers do. So essentially, we shared what's going through our heads when we plan a lesson." Or, as the abstract for the presentation read: *Don't like the way the textbook approaches a concept but are intimidated by creating your own content? Bowman and Sam both write their own content from scratch. We'll share the simple lesson-design tricks we use to write investigations that lead to vibrant discussions and a-ha moments. You will leave ready and excited to write your own content!*

One hack they presented: "Make Math Magical Again." "It sounds silly," Dickson said, "but, while a lot of concepts in math are so cool, we present them to kids in a certain way – like a film teacher saying, 'Watch this movie *The Sixth Sense*. By the way, Bruce Willis is dead the whole time.' We don't save mathematical surprises for students. We just tell them everything up front. It's useful to build in moments, while you're doing a lesson, that leave room for mathematical surprise, and encourage student curiosity." Alongside each hack, Dickson and Shah shared multiple examples of individual lesson plans they had created utilizing that particular hack – a problem set that [allows students to discover that the perpendicular bisectors of a triangle always meet at a single point](#), for example, or that [helps students to discover their misconceptions about limits by hiding the value of a function](#).

"Another hack we called 'Thinking Before Mathing,'" Dickson continued. "The concept is to give students time to play with an idea before you throw abstract math concepts onto it. You let them come up with their own framework for a concept, before you tell introduce them to the correct vocabulary and notation. They don't need to learn all of that at the same time." Dickson illustrated the hack with [his lesson plan for the "Fold and Cut Problem,"](#) in which students attempt to cut a specific shape out of a piece of paper by folding the paper and using only one straight snip with the scissors. The activity allows students to explore basic concepts of geometry – polygons and symmetry – before introducing students to terms like "polygon" or "scalene" or "arbitrary quadrilateral."

The presentation was well-received by their audience of math teachers, as evinced on Twitter after the talk concluded. "I have no words for how awesome @samjshah and @bowmanimal's session is right now," tweeted New York City math teacher [@carloliwitter](#).

"Life goal: figure out a way convey an ounce of their enthusiasm to my kids while creating a fraction as much curriculum," agreed [@mpershan](#).