



*Kevin Martin, Ricaesha Mitchell and Samirah Stokes make slime with the help of Mind Boggle founder Keli Christopher.*

BY PAUL R. KOPENKOSKEY | PHOTOGRAPHY BY JOHNNY QUIRIN

# Mind Boggle

## MAKES LEARNING ALL FUN AND GAMES

**Keli Christopher wants to dispel the notion that science and math are not for everyone.**

**H**ow can a thrill-seeking Barbie doll persuade students to adopt a can-do attitude toward math and science?

Meet Keli Christopher, founder of Grand Rapids-based Mind Boggle.

Christopher, who holds a doctorate in agricultural engineering, launched in early 2011 an array of hands-on learning programs she dubbed Mind Boggle, designed to shepherd students into learning relevant concepts in science, math and engineering in a fun way, by using hands-on activities that promote critical thinking, literacy and teamwork.

And yes, that includes an exercise that requires students try to figure out how many rubber bands are required for a Barbie doll to make a safe bungee jump — using, in part, an equation known as linear regression.

“Math and science do not have to be

spectator sports,” said Christopher, whose previous stints include mathematics curriculum specialist for the Grand Rapids Area Pre-College Engineering Program, geology and environmental science instructor for the University of Phoenix, and engineer for the U.S. Department of Agriculture.

“It’s something they can actively participate in. I try to make math and science applicable, or engineering — especially with basic engineering concepts with machines — applicable. Fun is our focus.”

A fun focus doesn’t mean it’s time wasted. Students explore the intricacies of science and math in inventive, fun ways that Christopher devised herself or culled online: using cabbage to teach chemistry basics, for example, or making polymers from slime, or dissecting a cow’s eyeball to learn how vision is pos-

sible, or conducting “mad scientist” experiments.

Some programs are geared for elementary students and others for the middle- and high-school levels. So far, Mind Boggle programs can be found in local kids’ clubs, after-school programs, classroom presentations and consultations.

“I can envision some of these programs taking off with the right support from the community and hoping a lot of kids will be positively impacted something like this,” she said.

Some of Mind Boggle’s intent is to impart self-assurance in boys and girls, Christopher said, such as her Girls Count Math Club.

Christopher, who lives in Grand Rapids with her husband and two children, remembers how unsure she felt in elementary school when she didn’t click with the two subjects.

"I want to encourage doing what you need to — and if you need to use your fingers, I don't want anybody to have any negative feelings," she said.

The idea for Mind Boggle germinated when she was performing a chemistry experiment for her son's preschool-age playgroup. The experiment clearly seemed more like fun and games to them than drudgery. She linked that concept with some tutoring she had done in the past for friends and family, and decided to widen what she knows in order to help parents who are seeking help for their children.

Christopher said she is aware that the United States, compared with other nations such as Japan, is producing fewer engineers, and this impacts the nation's ability to hire qualified people in high-tech jobs.

She does not fault the area's school districts.

"Teachers only have so much time in a school day, and there are so many issues a student is dealing with," said Christopher.

"It's important that parents and communities encourage students in their non-school time to do academic work. It might be reading, or for some students, it's math. Unfortunately, as they get to higher levels of math, there's less help — at least help for free or for a reasonable price."

It doesn't help that mathematics is taught at an accelerated rate as students reach higher-grade levels, a reality that leaves some of them in the academic dust, Christopher said.

"Math is like a locomotive: It has to keep moving like a train, and there are those who've fallen off a long time ago and need to catch up," she said.

"We have fewer days of instruction than in other countries and we have other distractions like cell phones.

"Math builds, one (class) on the other, so (students) might be in high school but some don't know how to divide, or they're in calculus but they don't know algebra."

As Mind Boggle's lead teacher and executive director, she's not advocating that every student needs to be on a career track to become an engineer or scientist. Broadening a student's horizons to include more math and science shapes a person's life in so many other ways, she said.

"If you get it, it transforms your life, even if you try to do other things in life," Christopher said. "So, I'm meeting students where they are and encouraging them to think of all the other things, or dream the goals they have in life."

For more information, visit [www.mind-boggle.org](http://www.mind-boggle.org) or e-mail [drboggle@mind-boggle.org](mailto:drboggle@mind-boggle.org).

**GRF**

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*Samirah Stokes shows her slime while Aaron Howard and Dariel Howard (below) work on a new batch of slime.*



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