**Thread NSTA Relative Motion with Technology Question**

----- Original Message ----- From: "Smith, Christina" <Christina.Smith@hcps.org>
To: <physics@list.nsta.org>
Sent: Tuesday, June 22, 2010 4:35 AM
Subject: Relative Motion

My mom sent me an article with a great idea for teaching relative motion. It requires a camera that can shoot a short video.  (Most digital cameras will work!)

Get to the center of your classroom.  Hold the camera to your chest, facing the students.  Spin in circles.
Next, hold the camera out at arms length with the camera pointing to your face and spin in circles.

I know my students will love it.  1. I get to act like an idiot.  2. Involves a technology most have.  I can just see them trying it out next time they have a camera in their hands!

The link to the article is below for those who are interested.

Mrs. Christina Smith
8th Grade Science
Bel Air Middle School

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From: Suzie [mailto:suzimartin59@gmail.com]
Sent: Tue 6/22/2010 7:04 AM
To: Smith, Christina
Subject: Inspirational Teachers

Sounds like you!
Sent to you by Suzie via Google Reader:
Inspirational Teachers [<http://www.technologyreview.com/computing/25553/?ref=rss>](http://www.technologyreview.com/computing/25553/?ref=rss)

via Informal Learning Flow [<http://flow.informl.com/>](http://flow.informl.com/)  on 6/21/10

When educators transform lives. When Elly-May O'Toole grabbed a camera and began twirling around in her physics classroom at one of Boston's inner-city schools, her students were surprised. She "held a camera to her chest and began to spin like a ballerina gone crazy," recalls Douglas Mendoza '13.

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Things you can do from here:

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<http://www.technologyreview.com/computing/25553/?ref=rss&a=f>

July/August 2010

Inspirational Teachers

When educators transform lives

By Nancy Duvergne Smith

When Elly-May O'Toole grabbed a camera and began twirling around in her physics classroom at one of Boston's inner-city schools, her students were surprised. She "held a camera to her chest and began to spin like a ballerina gone crazy," recalls Douglas Mendoza '13. "She then spun with the camera pointed toward her face.

"All the time she was spinning, she was yelling at us to stop moving. We were confused at her actions but amazed she wasn't falling. After she stopped, she played two videos for us. In the first, the camera appeared to be still, and all of us were flying by at ­dizzying speed. In the second video, her face was still, calm, and relaxed and all of us were spinning behind her like idiots in a frenzied alter reality. After watching her videos of the spinning room, she allowed us to make our own. The lesson was exciting, funny, and proved the concept of relative motion in an unforgettable way."

O'Toole embodies the enthusiasm, flair for classroom drama, and personal commitment to the well-being of students that unite the exemplary teachers honored by the 2010 MIT Inspirational Teacher Awards. Current MIT students nominated the 36 honored teachers, who hail from locations as close as Brighton, MA, and as far away as Malaysia. Winners usually receive the award, sponsored by the MIT Alumni Association, the Public Service Center, and the Lemelson-MIT Program, at festivities held by local MIT clubs (learn more online at [web.mit.edu/inspire/index.html](http://web.mit.edu/inspire/index.html)).

**Teaching where the students are**

O'Toole, whose students come from families with limited education and resources, was herself inspired by a teacher in her native Ireland. That teacher "addressed the best possible part of you," she says, even if the conversation was about late homework. Later, working with Geoffrey Canada's educational program in Harlem taught her how to handle students in crisis. "I learned to let them show me what they need and want," she says.

In the comfortable Boston suburb of Westwood, another award winner, Mark ­Holthouse '76, works on motivating students in his math, science, engineering, and computer science classes to aspire beyond high grades. ­Holthouse arrived at teaching after studying computer science at MIT, earning an MBA at Boston University, and then spending 25 years as a serial entrepreneur in software, signal processing, and telecommunications. He cofounded Vicorp Interactive Systems in Boston, which created large-scale voice-response systems for the telecommunications industry, and then was a first-round investor in SpeechWorks, which he served as COO and helped take public in 2000. Chris Graves '13, who nominated Holthouse, says he uses authentic examples in his teaching: for example, turning a lesson on sine waves into fun by using them in music synthesis. Holthouse demonstrated how tricky speech recognition is, Graves says, by telling his students, "It's hard to recognize speech." Except that Holthouse actually said, "It's hard to wreak a nice beach."

Holthouse's own inspirational learning experiences at MIT included Undergraduate Research Opportunity Program work that led to early jobs in his field. Holthouse, like O'Toole, coaches a FIRST robotics team that draws high-school students into a six-week sprint to create a working robot from a box of parts. The competition, cofounded by legendary MIT professor Woodie Flowers, SM '68, ME '71, PhD '73, turns engineering theory into hands-on practice. Graves says his teacher stayed after school most days to help the robotics team while simultaneously directing after-school study groups in two or three subjects.

"In the FIRST contest, he would start us off with a large blank chart and helped our team to list and evaluate our ideas until we [arrived at] the best approach," Graves says. "He knew that FIRST was more about learning than the competition, so he made sure that we pushed ourselves to learn new things rather than stay within our comfort zones. In a school such as MIT, these abilities are priceless."

Holthouse enjoys working with the most able students, those in remedial geometry, and everyone in between. "It does not take an MIT education to be a good scientist or businessperson," he says. "I want to inspire kids to make things and do things. I summarize it by saying, 'Fewer lawyers and more engineers.' "

**Great teachers change lives**

Great teachers can be life changers--like the Kenyan schoolteacher nominated in 2009 by Zawadi Lemayian '09, now a Sloan PhD student. As a Masai girl, she had just a 20 percent chance of spending even one day in a classroom. Yet she made it to college with the help of her teacher, Lawrence Njoroge, who devoted personal time to tutoring students and helping them apply. Lemayian wrote in her recommendation, "Your belief in my abilities has encouraged me to pursue endeavors I would otherwise never have imagined possible."

O'Toole's influence on Mendoza was just as great. He was an accidental American: his Bolivian parents happened to be in the United States when he was born, but he grew up in his homeland. After he won a national mathematics contest, his parents took a chance and sent him to live in the States with a family from the same village. He spoke no English, and his living arrangement soon dissolved. O'Toole quietly began sharing her lunch with ­Mendoza and helped him make living arrangements while he finished high school. He began teaching himself English by using his mathematics and physics textbooks: he could understand the equations and began connecting words to numbers. In his senior year, O'Toole saw that his limited English was a potential college killer, so she took away his textbooks and forced him to speak and write English for five months. It worked.

"She completely changed my life," says Mendoza. "I came to America with no English and no family, and she gave me a family, she taught me how to learn. I'm here because of her, studying at MIT."

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