

CATHERINE

DRENNAN:

I of course want my students to be as excited about chemistry as I am. And, you know, I feel like MIT is a relatively serious place. But the MIT students are really fun people. And they're willing to make fun of themselves and be a little geeky. And I love that. And so whenever I can kind of encourage something like that in class, I always try to take advantage of it.

And one of the things I like to ask them is sort of if one geek is going to propose marriage to another geek, do you really give them a diamond? Or maybe graphite. Because, you know, one is more kinetically stable and one's more thermodynamically stable.

And what's the best gift? And that often-- then they can discuss which they think. And then I'm like, actually, neither because what you should give them is the Green Lantern ring. And then someone can say, what about Lord of the Rings ring, you know.

And so you have-- you can sort of bring in these [? funs, ?] but, you know, your arguments are kind of based on chemical principles rather than other things. So if you can really bring in sort of the fun humor that MIT students enjoy, and they're always with me on that, and I love that part. So I'm always looking for ways to kind of have something be a little bit more fun, especially in some of-- and some of the units, I feel, really lend themselves to these fun examples.

And other ones are a bit more challenging. But I want to make sure that everyone has something in. And if I find something online or whatever, I really try to use that in my class. And I found these videos of dogs teaching chemistry, which at least some of the students love. There's always a few MIT students who are like, I wish you would just stick to the facts and straight derivations. But for the most part, I think, attendance would suggest that students come and that they're engaged and that they're seeing these little things.

And I've discovered that it really helps people remember, when you do something a little bit different. One of my favorite things to do is when I teach about buffers, I don't know why, so many students have trouble with the concept of buffering, acid base titrations. It's just really hard for a number of people.

So I thought over the years of ways that I can really get them to remember certain things. And some of it, I can make fun. Others is have to figure out how to just make them memorize certain things. And really just get them there where they can just do this off the top of their

head.

And so when I talk about a buffer, I always want to make the point that you need in your [INAUDIBLE] buffer, you need something that's a weak acid, and the conjugate of that is a conjugate weak base. And you can't just have an acid, or just have a base. That won't buffer. Because you need something. If you add acid, you need something that will buffer it to keep the pH constant. If you add base, you need something that will-- so it has to go both ways.

So I like to dress up. And I have the abbreviation for a weak acid taped on the front of my shirt. And the abbreviation for the weak base taped on the back of my shirt. And I said, I am a buffer. And I'm an acid, and then I turn around, I'm a base, and I turn around again. I'm an acid. And I just twirl around the classroom.

And I said, I want this engraved in your brain that a buffer has to have both a weak acid and a weak base. And if I keep twirling like this, you will try to purge this memory from your brain of Professor Drennan twirling around the classroom as an acid and a base, but you won't be able to. It'll be with you for the rest of your life.

You'll be on your deathbed going please, can the image of Professor Drennan twirling around in that silly t-shirt that she made with lab tape, please, can it leave my brain now? But no, no. It will be with you forever.

And when I do that, the students do better on the acid base problems. So I am OK with really embarrassing myself. Whatever it takes, I go that extra distance because I want them to remember that.