CATHERINE DRENNAN: I really want the students to feel actively participating in lectures. And so the clicker's definitely help. I try to space them every five to seven minutes that there's a clicker question. And I know from teaching this a number of times now that some of the clicker questions, they will-- pretty much all the students will get right. And they'll be all happy and feel good.

And then there are other ones that I ask on purpose because I know that these are questions that the students can really hang up on on exams. They're tricky things. And so I want them to make the mistake when it doesn't count in the clicker questions so they get it right on the exam.

And so one thing that I will do, I'll often try to get them to tell-- if they got it right, explain why. So that's one thing I like to do. And I go around to different conferences and things and often will pick up free pens, or free whatever, rulers, all sorts of stuff that people give out.

And so then I say, if someone-- you know, and they see that they've gotten it right. So that makes them feel a little more confident before they speak in front of 350 people. And said, OK, I have this awesome little periodic table ruler thing. Who can tell me what the answer is? And so then I have a TA go around with a microphone, and that they say how they thought about the problem, what the answer is. And so just kind of encourage people to talk.

--ask people to explain, now that they know what the right answer is, if someone will explain why that is the right answer. And I know it's a big class and people sometimes get nervous about talking, so I bribe people. So today the person who answers why that is correct will get at an MIT chemistry t-shirt.

AUDIENCE: All right. Let's see. For every-- if you're using 5 moles of N2, you need 15 moles of hydrogen gas. So since there's not enough hydrogen gas, there's only 10 moles, that means the hydrogen gas should be the limiting reactant since you would need roughly 3.33 moles of N2 for it.

CATHERINE DRENNAN: Great. And here is an MIT chemistry t-shirt. Other times, if the clicker question, you know, it's like 50/50 in the answer, then I won't tell them what's right and ask them to talk to their neighbor and vote again. And sometimes I'll also have them talk to each other, and then weigh in on something.

And whenever we're going to do a demo, I want them to think about what might happen and what the possibilities are, things like that. And sometimes that will be a clicker question ahead of time. And then they're really ready and engaged when they see the demo of what the answer is going to be.

So those are some of the things that I can do. Another one of the fun things that I like when I'm talking about the difference between thermodynamics and kinetics, we can talk about how a reaction might be thermodynamically favorable, and so, you know, combustion of sugar-- thermodynamically favorable.

So I'll bring in some candy. And we do like a demo in class, and everyone has a candy. And it's like OK, when you open it up to oxygen, there should be CO2 released. And so then we do the demo and see that it's actually a slow reaction. So we don't see the gas release.

But, you know, ways where everyone in the class can have something that they do a demo with, even if it's a little bit silly. Still there is that engagement then with the material.