>> Write a balanced equation to show the gamma decay of Technicium 99m. OK, now gamma decay, we're going to notice something a little different when we do this equation. Technicium is Tc. Look at the mass, 99m. The m tells us it's a metastable isotope, OK? And then, of course, the 43 we got off the periodic table. And I'll explain at the end why we use the m there whereas we don't use the m anyplace else. Because really, all of those radioactive elements are unstable, and so why is it that we put the m in this one and not in the others? Well, we'll take a look in a minute. Now for a decay, remember, we're just going to have the one element and then the arrow, and then there's our beta particle. Our beta particle is pure energy. It doesn't have any mass – well, or negligible mass. So you have the 0 up for mass. And it doesn't have a charge either. So we're going to have 0 for charge. OK, plus – and now here's our product that it's making. So when we go ahead and do our balancing, we take the 99 equals 0 plus x. In other words, 99 equals x, OK? And then the mass of the charge is 43 equals 0 plus y. So 43 equals y. Well, look what we have, we have 99 over 43. 43 is what? Well, it's the same thing as it was over here. It's still Technicium. So we have Tc. What is the mass? Is the mass different? No, it's still the same mass. So how do we indicate where one is not stable and the other is stable? That's where we put the m in here. And so now – let's go ahead and replace this with our answer. We have 99 over 43 Tc, OK? And so now we finished the balanced equation. And we can see we started with something that was metastable and ended up with the same exact item, but now it's much more stable because it emitted that gamma ray.