>> Balance this equation. What you see before you is an unbalanced equation. We have water as the liquid decomposing to hydrogen gas and oxygen gas. Ok? It's really important when you have an equation to balance it. And by balancing it, what we're talking about is having the same number of atoms on each side. Ok? If you look, you can see there's two hydrogen atoms plus one oxygen atom. So there's three atoms on this side. There's two hydrogens and two oxygens. There's four on this side. It's not a balanced situation because three does not equal four. So what we want to do now is we want to make sure that the number of atoms on both sides will be equal to each other. So the first thing I would suggest you do is take inventory. Look what you have. You have hydrogens. You have oxygens. So how many hydrogens do you have? You have two hydrogens. How many oxygens? You have one oxygen. Now on this side, do the same thing. Hydrogen, we have two. Oxygen, we have two. Ok? You might want to do it in the same order also so that your eye can travel across and you don't start getting confused. It doesn't seem like it would be that difficult with two, but when you have four or five different elements, it starts getting confusing if you don't have them in the same order. Ok, now looking at the hydrogens, the hydrogens balance. We don't really have to do anything there. The oxygens do not balance. So what we want to do is we want to look at the side with the least number. The least number here is one. What number can we multiply one by to equal this side here? Well, one times two will give us two. So we'll go ahead and write that in. One times two equals two. This number two now that we have multiplied by is going to become our coefficient for this molecule up here. So I'm going to go ahead and put that up here. We have two waters on this side now. Ok? So we might think we're done, but we really aren't done yet because look what we've just done. By putting this two here we've balanced out oxygen because now we have two oxygens. But we've just changed the number of hydrogens. We have two times two is four. So we no longer have two hydrogens. We have four hydrogens. So let me go ahead and write the four here. Ok? Now we've balanced oxygen. Now we're out of balance with hydrogen. We have to balance hydrogen. We have four here. We only have two here. This time we have to balance using this side because this side has the smaller number. We know that two times two will give us that four. And so now we're looking at what we multiplied by again. It's going to be a two. We're going to go ahead and use that two as the coefficient in front of the hydrogen. Ok, this should give us a balanced equation, but we don't want to stop right there. What we want to do next is just check our work and make sure we're correct. So let's go ahead and do an inventory again. We have two times two is four hydrogens. Two times two is four hydrogens. That balances. Two times the subscript one, two times one is two oxygens. We have a one here for our coefficient one times two, two oxygens. So both oxygens and hydrogens balance. We have a balanced equation.