>> Write the formula and name the compound. Here we're working with polyatomic ions, so we want to get a little bit of practice with this. I've got four of them up here, so let's take a look at these four combinations. First we have calcium, and then we have sulfate. Calcium has the two-plus charge, it's a two-way element, sulfate automatically has that two-minus charge because we memorize that one. Two plus, two minus, that's that one to one ratio that we talked about. And so when it's a one to one ratio, the subscripts are going to be one, and we would just simply write it as calcium Ca SO4. The name of this now, we name these very similarly to any other ionic compound. The first one, we just say the name of it, calcium, but now with the second one we don't have to change the ending because the endings come with the polyatomic ion. This is the sulfate ion, therefore this is calcium sulfate. Okay, here's our second compound, we're starting with sodium and carbonate. Sodium is a group one-a, so it has a one-plus charge on it, carbonate comes automatically with that two-minus. Now– crossover. Okay, so that one-plus becomes just simply a one when we do the absolute value. The absolute value of two-minus is two, and now we're going to see that crisscross going from the superscript of one down to the subscript of the other. Okay, so superscript for sodium being one, that becomes a subscript on the entire carbonate anion here. So you notice I put carbonate in parentheses, this is a subscript to this whole anion. This two becomes a subscript to sodium. So now we have Na2, and then the CO3 in parenthesis, with the subscript one. Well, we know what happens when you have a subscript one, you can throw it away. Okay, we don't want this. And if we don't need a subscript, we don't need to have the parentheses either. So when we write this in its final form, it's Na2 CO3. What is it called? Sodium carbonate. And so here's the name, sodium carbonate. Magnesium, and we're starting with hydroxide. Magnesium is a group two-a element, it has a two-plus charge. Hydroxide, remember that's one of those elements that doesn't have one of those special endings, so we just have to remember hydroxide has a minus-one charge. Normally I wouldn't even put this one, I would put a minus charge, but because we are taking absolute value, I'm writing it as one minus. Okay so, we see it's not a one to one ratio, it's two to one, so it's not going to be one to one. So we're going to take absolute value of two plus is two, absolute value of one minus is one. Now we're going to those crossovers. The superscript two becomes the subscript for hydroxide. Again, the hydroxide is in parentheses. And the superscript one becomes the subscript for magnesium. So, magnesium has subscript one, hydroxide in parentheses with the subscript two, written without that one, magnesium, and then hydroxide in parentheses, two. Really important to remember to give yourself that parentheses. Without the parentheses, this is what you have: Mg OH2. You might not see a difference, but let me explain the difference. Here we have one magnesium, and then we have this oxygen-hydrogen bound together like this, traveling around, and there's two of them; there's an OH and an OH. Here, you have a magnesium, you have one oxygen, and you have two hydrogens. So you can see that those two are not equivalent to each other, which is why when you have polyatomic ion and you're using a subscript, you have to put the whole polyatomic ion in

parentheses. Okay, how do you name this? Again, this is magnesium, this is simply hydroxide, so magnesium hydroxide is Mg OH2. The last one I want to show you, we start with NH4, which is our ammonium ion, and O, which is going to be our oxide ion. Oxide is always O2-minus, ammonium will always be one-plus. Again, one to two, it's not a one to one ratio. So we're going to go ahead and take absolute value of one plus is one, absolute value of two minus is two. Again, we're going to do our crossover. The ammonium ion now gets a subscript of two, the oxygen gets a subscript of one, and I've written it here, without the one it's ammonium oxide. Again, we're just saying what is that polyatomic ion called? Ammonium. And of course now, because we're not using the polyatomic ion as the non-metal or as the negative ion, we do have to change the ending to oxygen to i-d-e, oxide, so it's ammonium oxide.