>> Diane Jewell: We want to go over some rules for counting significant figures. The first rule says, when counting the number of significant figures in a number, you count all the non-zero digits. So, in this number there 286,539 none of them are zeroes and therefore, all of them are significant. So, for that number you have 6 significant figures. Our second rule says, include imbedded zeroes. An embedded zero is a zero that falls between non-zero numbers. In this case, the 0, there is a non-zero number before it, there's a non-zero number afterwards. Same with this one here. In this case, again, all six of those digits will be significant. So, you have six significant figures. Our third rule says, all ending zeroes are to be counted if there's a decimal point. Okay. So, we have 1, 2, 3, 4, 5, 6. This one's embedded, this one's embedded. This one is not embedded, but there is a decimal point. So, we are going to count that one, and that one has six significant figures. Here, again, we're ending with four zeroes, but there is a decimal point, so that means we have to count them. These zeroes are embedded, and these are part of a decimal ending. So, 3, 6, 9. There are nine significant figures in that number. So, those are the times when you want to count all the digits. Give you a little example, or a little bit of practice, this number 10, how many significant figures? Well, there's no decimal point, that means this zero is not significant. Okay, it's only significant if there's a decimal point. So, there's only the 1 that's significant. There's one significant figure. Two hundred, again, there's no decimal point, so the ending zeroes are not significant. Again, there's just one significant figure in 200. Okay, 103,000. Now, we have an embedded zero, so that's going to count. These three zeroes will not count because there's no decimal point at the end. So, we have just simply three significant figures. What if you had a situation where you wanted these zeroes to count? You wanted them to be significant? Well, this is the point then, that you want to put in that decimal point. Once that decimal point goes in there, all three of those digits are significant. Okay, what happens in a situation now, where as you start your number, you have a bunch of leading zeroes, before you even get to your first non-zero number. All of these are not significant. None of these are significant. All of those are what we call place savers. Okay, this 6 has to be in the fifth decimal place, the only way we can do that, using standard form is to put a 0.0000 to begin with. We're just saying, there's nothing here until we get to the 6. Now, look what we've got. We have a 6, 7 and a 3. Three significant figures. So, these are leading zeroes. And even though there's a decimal point here, the leading zeroes do not count. The only time the decimal point makes a zero count is if it's at the end of the number, not at the beginning. Okay, look at this one. This one has leading zeroes too doesn't it? But what can you say about those zeroes? Well, you've got a 1 here and you've got a 6 here, which means that they are embedded. Okay? They are after a non-zero number and before another non-zero number. They're embedded. Every one of those numbers are going to count. Every one of those digits will count as significant figures. So, in this case because I put a 1 here, all 9 of those digits are significant. So, that number right there has 9 significant figures.