>> Diane Jewell: You might want to calculate the atomic mass of an element, for instance magnesium. Magnesium exists in nature in 3 isotopes: magnesium 24 which has a mass number of 24, magnesium 25 and magnesium 26. Each one of them differs by 1 from each other in the number of neutrons. Okay? So 25 has 1 extra neutron over 24; 26 has another additional neutron over 25. Now if you were to take a sample of magnesium in nature and take it apart and look at the different isotopes, 78.7% of that rock would consist of magnesium 24; 10.13% would consist of magnesium 25 and 11.17% would exist as magnesium 26. And it doesn't matter where in the world you are, magnesium deposits anywhere will show a consistency of percentages like that. Okay? So let's take a look at what to do with each one. If 78.7% is magnesium 24, we're going to turn this into a fraction. It becomes 0.787 and we're going to then multiply it by 23.99 atomic mass units; 23.99 is very close to 24. One magnesium 24 has a mass of this. So if the entire sample consists of 78.7%, then 0.787 times this will give you the amount of mass that is contributed by the magnesium 24. So when you multiply those together, you get 18.88 atomic mass units. Magnesium 25 has mass of 24.99 atomic mass units per every atom. Okay? There's 10.13% we said of the magnesium 25. So that becomes 0.1013 times the mass giving us 2.531 atomic mass units. And then magnesium 26 is 11.17. That's 0.1117 when we're multiplying times the mass of 1 atom of magnesium 26 which is 25.99 atomic mass units. Multiply those together, you get 2.902. Okay? So, here's your chunk. You have this and you have this and you have this. You put it together. You add it up. And you end up with 24.31. We're going to stop it at the second decimal place because of this number here; 24.31 atomic mass units, now if you look on your periodic table, you'll notice that this is the atomic mass for magnesium. And that's why when you look at the atomic mass of each one of your elements, it goes into the decimal places and most of the time, quite often it does not end up with just a number like oxygen of 16.00. Very few of them will actually come up to be an exact number like that. Most of them do have decimal places and it's because of the varying sizes and percentages of the isotopes that contribute to the mass.