

Building Understanding of Decimal Division through Base-Ten Blocks and Area Models

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Using base 10 blocks to work through multiplication and division of decimals, we need to keep in mind that in this case for decimals, when we're using these blocks, this piece equals one whole. This piece, which is one-tenth of this piece, it takes 10 of these to make one of these, this is one-tenth. This piece becomes 1 one-hundredth. It takes 10 of them to make one of these. It takes 100 of them to make one whole. This is 1 one-hundredth. Keep in mind the value of the pieces as we create a rectangle. Creating a rectangle is a good way to model, show, and use the area model for multiplication, to work both multiplication and division. So, if we want to do a problem like 1 and 68 hundredths, divided by 1 and 2 tenths, we know that 1 and 68 hundredths is the area of our total rectangle. We know that 1 and 2 tenths is the side, one side of the rectangle. What we're looking for is, what is the length of the other side? So, to build this rectangle, I would get my total area 1, 60 hundredths, 68 hundredths. So 1, 6 tenths, 8 hundredths. And then build a rectangle, one of whose sides is 1 and 2 tenths. So I have length of 1 on each side now. If I want to build 1 and 2 tenths, this is 1 tenth of this. So 1 and 1 tenth, 1 and 1 and 1, 2 tenths. So this side of the rectangle now has a length of 1 and 2 tenths. I can only build out that way. I can't go any farther this way. I've used the rest of my total area to complete the rectangle. There's 1 and 1 tenth, 1 and 2 tenths, 1 and 3 tenths, 1 and 4 tenths, and these units will finish the rectangle with no gaps, no overlaps. If we had units left over, it would become a remainder, and that's a whole other discussion. So, have I used my total area, my 1 and 68 hundredths? Yes. Is the length of this side my divisor? Yes. 1 and 2 tenths. Then what's the length of this side? One whole and four tenths. So the length of this

side is one and four tenths. That's my quotient.