Partial Quotients Practice Video Script

The partial quotients method for long division uses repeated subtraction to solve problem. First subtract from the dividend an easy multiple of the divisor. 100's, 10's, 5's, and 2's are easy multiples to use when using the partial quotients method. In 52 divided by 1,196, the best multiple to use as a partial quotient is…10. 52 x 10 = 520. It's smaller than 1,196 so we can subtract. But I think we can use another multiple of ten and try 52 x 20. 52 x 20 is 1,040. 1,040 can still be subtracted from 1,196 so we can use 20 as our first partial quotient. We put the 2 above the tens place in the answer space. Multiply 20 by 52 and subtract that answer from 1,196. 52 x 20 = 1,040. 1,196 - 1,040 = 156. We need to use a smaller multiple of 52 to subtract from 156. 52 x 2 = 104. 52 x 3 =156. We put the 3 in the ones place of the answer space. Multiply 3 by 52, then subtract from the dividend. 52 x 3 = 156. 156 – 156 = 0. 52 can be subtracted from 1,196 23 times.

Now what happens if a number can't be subtracted from another number an even amount of times? 22 divided by 6,000. How many 22's can we subtract from 6,000? What's the first partial quotient? Start with easy multiples. 22 x 10. 22 x 10 = 220. That's a small number when looking at the dividend 6,000. Let's try 22 x 100. 22 x 100= 2,200. (Remember a hint to multiplying by tens, hundreds, thousands and so on, we add the number of zero's to the end of the number we are multiplying by. So in 22 x 100, we add the 2 zero's in 100 to the end of 22 to get 2,200. That's still smaller than 6,000. What if we tried 22 x 1,000? 22 x 1,000 = 22,000 which is greater than 6,000 so we can't use that. Since we know 2,200 goes into 6,000 the first partial quotient must be at least 100. Can it be 200? 22 x 200 = what? 4,400. 4,400 is less than 6,000 so that could work. Can it be 300? 22 x 300 = 6,600. That is more than 6,000 so we can't use 300. But we can use 200 as our partial quotient instead of 100. Using 200 instead of 100 saves us a step in solving the answer. Put the 2 from 200 above the 0 in the hundreds place of the answer. Putting it there stands for 200. Then multiply. 200 x 22 = 4,400. Put that below 6,000. Subtract. 6,000 – 4,400 = 1,600. Now we need to find the next partial quotient. Again, how many 22's can we subtract from 1,600? We can guess of estimate. If we round 22 to 20, we know 2 x 8 = 16, so 20 x 80 = 1,600 because we added the zeros at the end. But since we're dividing by 22 the partial quotient can't be 80. It need to be a little smaller. Try 70. 22 x 70 = 1,540. That number is smaller than 1,600 so 70 will work as our next partial quotient. Put the 7 in the tens place of the answer next to the 2. Remember the 7 represents or stands for 7 tens or 70. Multiply 70 x 22. 70 x 22 = 1,540. Subtract that answer from 1,600. 1,600- 1,540 = 60. We need a third partial quotient. Think how many times 22 can be subtracted from 60. It will be a smaller number. 22 x 2 = 44. 22 x 3 = 66. 3 is too big. So the last partial quotient that will fit is 2. Put the 2 in the ones place of the answer. Multiply. 2 x 22 = 44. Subtract that answer from 60. 60-44 = 16. Our answer is 272 with a remainder of 16.

Review Time. Using partial quotients, which would be the best choice for the first number to subtract in the division problem? 16 divided by 3,652. 100 or 200? Pause the video to answer. Press play to check. If you said 200 you're right. 16x200 = 3,200 which is closer to 3,652. It makes sense to use that as the first partial quotient to subtract from.