Coin Sort: A Division Challenge.

This can be done on paper but the student will multiply by 50 divide by 400 and get a final number with 2 decimal places. If that work seems too much you may hand the student a calculator. You will also want to have a second student watch so they can check that the work is correct or that the numbers are keyed in correctly. Collect a mixture of plastic coins that consists of several pennies, nickels , dimes and **1 quarter.** The trick is easier if you do not use pennies. To keep the numbers in trick small have the total of the coins be less than 1 dollar.   The rick works with much larger values.

Step 1. Place the coins on the students desk. Step away so that you cannot see the coins. Ask the student to select some of the coins and place them in one pile and put the remaining coins in a second pile. Have them write the values of each pile on their paper without using decimals. 56 cents is 56

Step 2. Ask them to multiply the value of one of the pile of coins by 2.

Step 3. Ask them to add 5 to that number.

Step 4. Ask them to multiply that number by 50. Give them some time.

Step 5.   Ask them take the answer to the last problem and add the value of the second pile of coins own without using decimals. 56 cents is 56

Step 6. Ask them to multiply that number by 4.

Step 7. Ask them to subtract 1000 from that number.

Step 8. Now for the hard part. Ask them to divide that number by 400. Warn them it will require the use of a decimal.

Ask them to call out the final number. The digits to the left of the decimal are the value of the first pile of coins and the digits to the right of the decimal are the value of the first pile of coins. Say "the first pile of coins add up to ____ and the value of the second pile adds up to ____"

Example 1: The first pile is 65 cents and the second pile is 28 cents.

Step 1. 65
Step 2. 2*65 = 130
Step 3. 130 + 5 = 135
Step 4. 135*50 = 6750   Use a calculator or give the student time to work.
Step 5. 6750 + 28 = 6778
Step 6. 6778 * 4 = 27112
Step 7. 27112 – 1000 = 26112
Step 8. 26112 / 4 = 65.28   They call out 65.28

Say "the first pile of coins add up to 65 cents and the value of the second pile adds up to 28 cents

Explanation:

Let x= 1st three digits of phone number and let y= last 4 digits of phone number

Step 1. x

Step 2. 2x

Step 3. 2x + 5

Step 4. 50(2x +5) = 100x + 250

Step 5. 100x + 250 + y

Step 6.   4 (100x + 250 + y)= 400x + 1000 + 4y

Step 7. 400x + 100 + 4y – 1000 = 400x + 4y

Step 8. Divide by only 4 (400x + 4y) / 4= 100x + y

Now divide by 100 by moving the decimal **2 places to the left.** The x will be the number to the left of the decimal and the y value will be the number to the right of the decimal point.