**What is decomposing then distributing?**

To recall, the distributive property of multiplication is a strategy to **break down a big problem into smaller solutions** in order to derive the answer. The distributive property of multiplication states that **one number, A, multiplied to 2 numbers with a sum of a bigger number, B, will have the same answer to the product of A and B**. The first step before distributing a multiplier is decomposing the multiplicand into two or more smaller numbers. Decomposing means having smaller numbers that will have the sum of the decomposed number. **Once the multiplicand is decomposed into two smaller values, the multiplier is multiplied to the two addends respectively**.

That means, decomposing is actually the step before applying the distributive property. Decomposing produces **two smaller numbers to easily be multiplied by the same multiplier**.

For example, 7 x 2.

We know that 7 is a big number that can be decomposed into two smaller numbers like 2 and 5.

Now that we have two smaller values, we can distribute the multiplier 2 to the two values:

7 x 2 = (2 + 5) x 2 = (2 x 2) + (5 x 2) = 4 + 10 = 14

For example:

**7 x 2**

**Number to be decomposed**

**s**

**Multiplier to be distributed**

**7 is the bigger number to be decomposed**

Think of two addends that add up to 7:

(1 + 6), (2 + 5), (3 + 4)

Once you have chosen a pair of addends, that means you decomposed 7 into those smaller values:

Here, we choose the values 2 and 5 as the decomposed values.

Now, distribute the multiplier 2 to the decomposed values:

This means that we multiply 2 to 2 and to 5 respectively.

2 x 2 = 4 2 x 5 = 10

Now that we know the products of the two small numbers, we add them to get the product of 7 x 2:

4 + 10 = **14** = 7 x 2

**2**

**2**

**5**

Complete the number bonds with the appropriate addend.

**Time to think**

1. What does decomposing mean? How do you decompose a number?
2. How do we distribute factors to decomposed units?

Fill in the blanks for the following array models.

\_\_\_ x 4 = (\_\_\_ x 4) + (\_\_\_ x 4) = \_\_\_ + \_\_\_ = \_\_\_

\_\_\_ x 3 = (\_\_\_ x 3) + (\_\_\_ x 3) = \_\_\_ + \_\_\_ = \_\_\_

\_\_\_ x 5 = (\_\_\_ x 5) + (\_\_\_ x 5) = \_\_\_ + \_\_\_ = \_\_\_

\_\_\_ x 2 = (\_\_\_ x 2) + (\_\_\_ x 2) = \_\_\_ + \_\_\_ = \_\_\_

**Time to Think**

1. List down all the possible decomposed expressions for 9 x 5:

2. Decompose 7 x 4 wherein the difference of the two smaller numbers is only 1.

Complete the following number bonds and draw them into their equivalent arrays.

\_\_\_ fours

\_\_\_ fours

9 fours = \_\_\_

\_\_\_ twos

\_\_\_ twos

\_\_\_ fives

\_\_\_ fives

7 fives = \_\_\_

8 twos = \_\_\_