Math Tips for Families - February 2025

Web-Resource Article Related – Encouraging Mathematical Reflections

Using the Box Method for Multiplication:

Let's start by multiplying 14 x 27"

The standard algorithm shows us:

	2			
	1	4		← multiplicand
x	2	7		← multiplier
1	9	8	← 7 x 14	
2	8	0	← 20 x 14	
3	7	8		← product

So that 14 x 27 = 378

We can show the same calculation using the box method for multiplication.

For starters, we ask students to show us an understanding of place value by writing the multiplicand and multiplier in expanded form:
14 = 10 + 4 27 = 20 + 7

We now set up our product box:

x	**10**	**4**
20		
7		

The “box” helps students see our distribution steps when multiplying by multi-digit numbers. The boxes above where students will calculate each product are the same size, but it’s not always true that the products we calculate will have the same magnitude. So, we can address magnitude by drawing our boxes to represent the sizes of our products, as we see below.

The magnitude of the number also gives us an argument for writing 27 on the longer side (the length) and 14 on the shorter side (the width) and helps reinforce the multiplication property that 14 x 27 is the same product as 27 x 14 (14 x 27 = 27 x 14).

x	20	7
10	20 x 10 = 200	10 x 7 = 70
4	4 x 20 = 80	4 x 7 = 28

We can also see: 200 + 80 = 280 AND 70 + 28 = 98

Both sums appear above in our answer using the standard algorithm, which is a fantastic check and balance for helping our learners connect to different multiplication representations.

Finally, we calculated the sum 280 + 98 = 378, which is the same answer we got from using the standard algorithm for multiplication.

As an extension, we can also build visual extensions using manipulatives such as base ten blocks or money to represent what’s in each box:

x	20	7
10	$100 $100	$10 $10 $10 $10 $10 $10 $10
4	$5 $5 $5 $5 $5 $5 $5 $5	$2 $2 $2 $2 $2 $2 $2 $2 $2 $2 $2 $2 $2 $2

In this case, we used $100, $5, $10 bills and $2 coins to show my number for $378.00. The box method also provides an excellent visual aid for helping our students learn measurement concepts like perimeter and area.