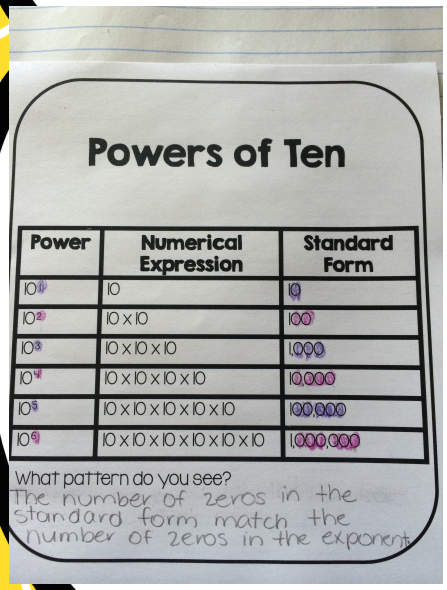
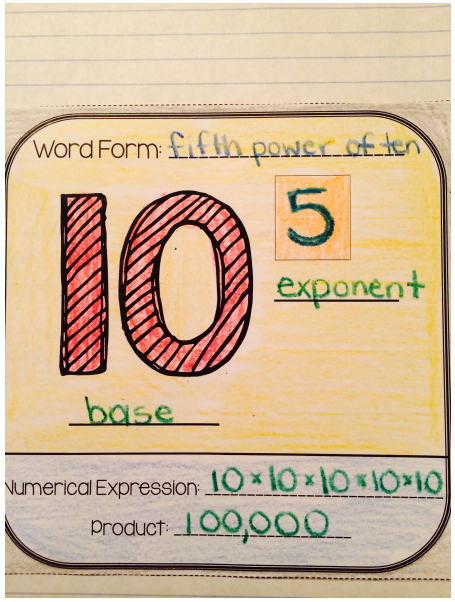
Common Core Aligned 5.NBT.2

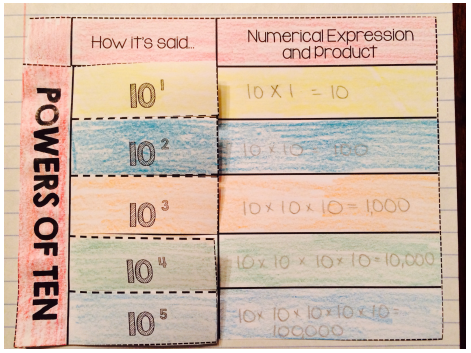
Your Thrifty Co-Teacher

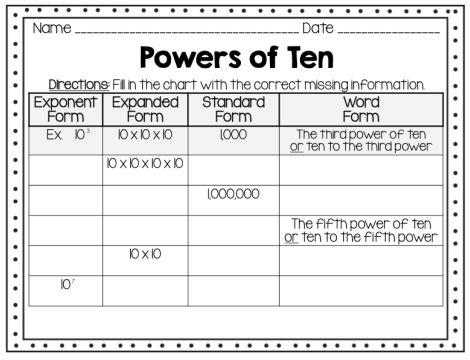
Introduction to **Powers of Ten**

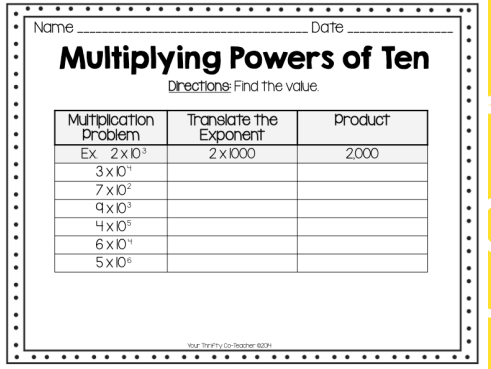
Activities for Interactive Notebooks + Fill-In Chart











This product includes:

- Powers of Ten Chart
- Interactive Notebook Mini Display (label exponent and base, write numerical expression, word form and product)
- Cut and paste chart activity (with exponents and without exponents)
- Worksheet (can be used as a reinforcement activity or an assessment)
- Multiplying with Powers of Ten Worksheet
- Worksheet Answer Keys included

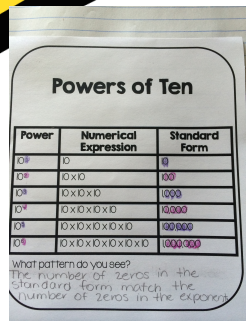
Suggestions for use of this product:

To start off the lesson, I asked the students to take out their calculators. (Boy were they excited). I then asked them to enter 10 x 10 = . I asked what the product was. When they gave me the result, I wrote it on the board. I then asked them to enter 10 x 10 x 10 = and recorded the results. We continued until we reached 10 x 10 x 10 x 10 x 10 x 10 =. I asked them for their observations. Students noticed that for every zero on the left of the equal sign, there were the same number of zeros on the right side.

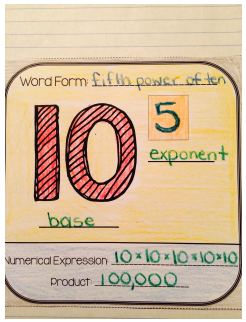
Next, I introduced the terms base and exponent and related them to the calculator activity. (The number we were typing into the calculator, over and over again as a factor, is the base. The amount of times we typed them in was the exponent.) We discussed how exponents are "said." For example, it could be said 'third power of ten,' or 'ten to the third power.'

Suggestions for use of this product:

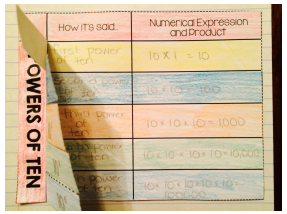
Students were then given the 'Powers of Ten' chart, and we discussed that the exponents in powers of ten reflected how many zeros there were in the product.



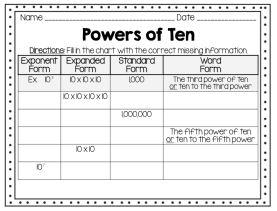
Students then received 'Powers of Ten – Notebook Displays.' Students were able to select the exponent they wanted, and had to make sure to write the correct product, numerical expression, word form and lastly label base and exponent.



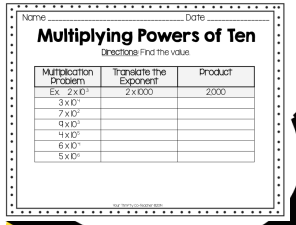
For homework, students made the Powers of Ten booklet, and filled in the correct information for each of the exponents shown.

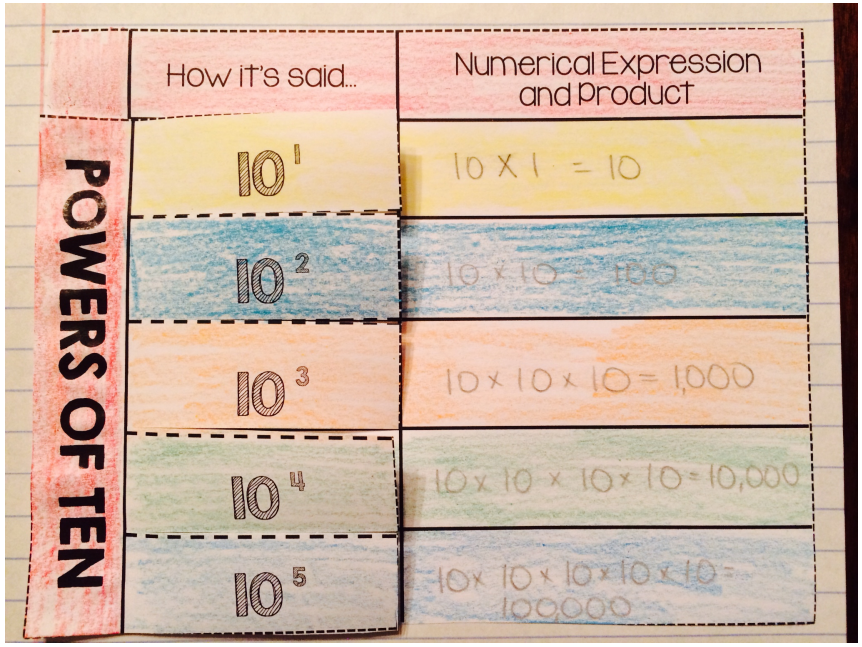


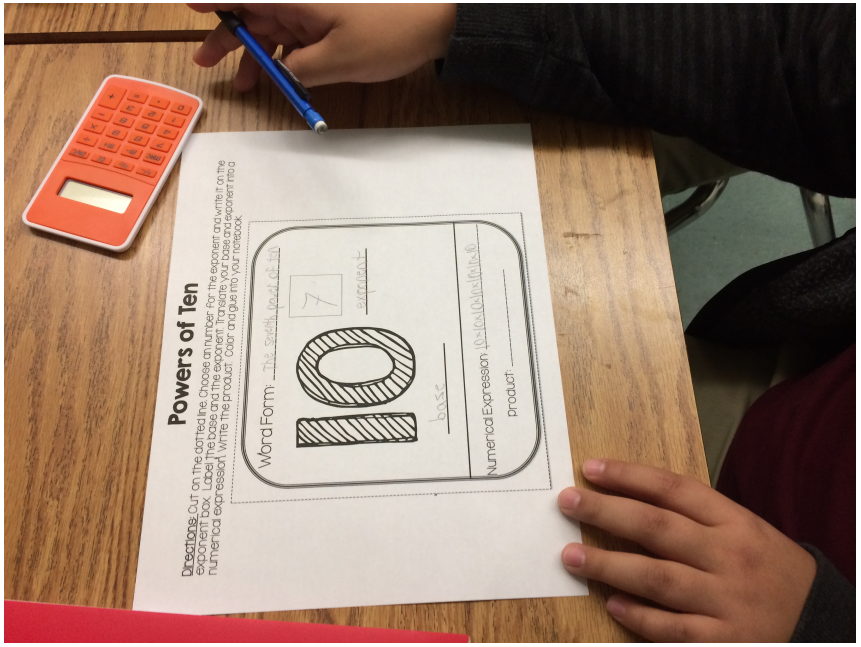
As an assessment, students had to fill out the worksheet included in this product. After working on these activities, students became proficient in the 'Powers of Ten'.

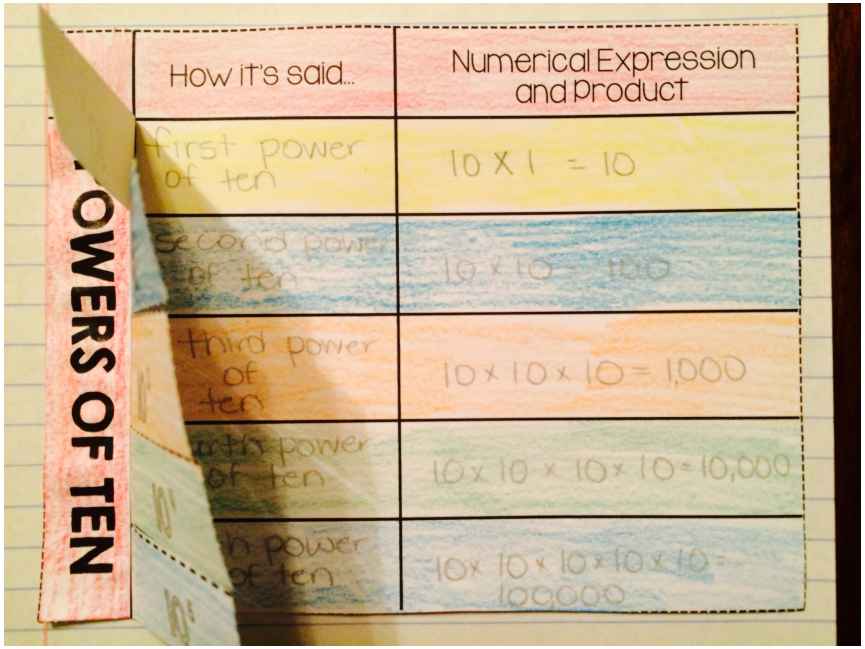


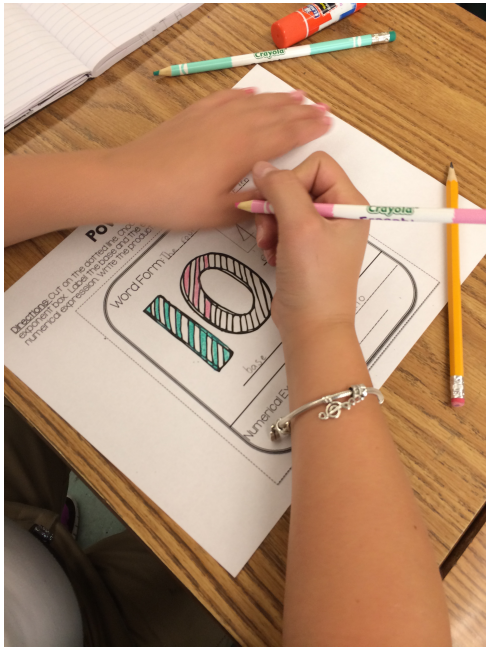
Lastly, we introduced multiplying with Power of Tens using the last worksheet. We discussed multiplying the first factor with the 1, then adding the zeros to the end of the product.

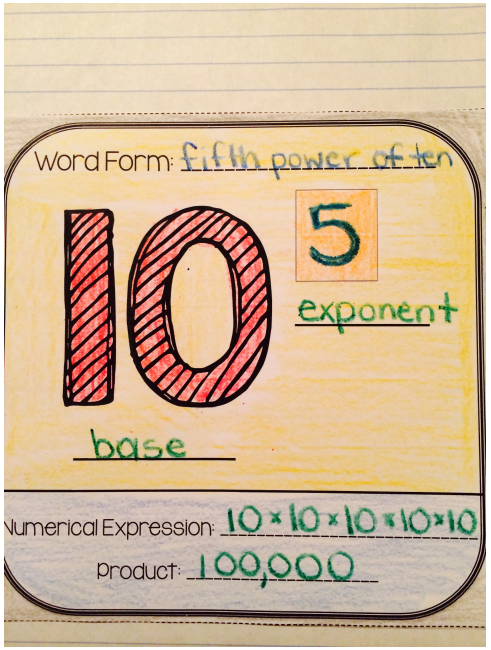












Directions: Cut out the chart along the dotted line. Glue the chart into your notebook to use as a reference guide.

Powers of Ten

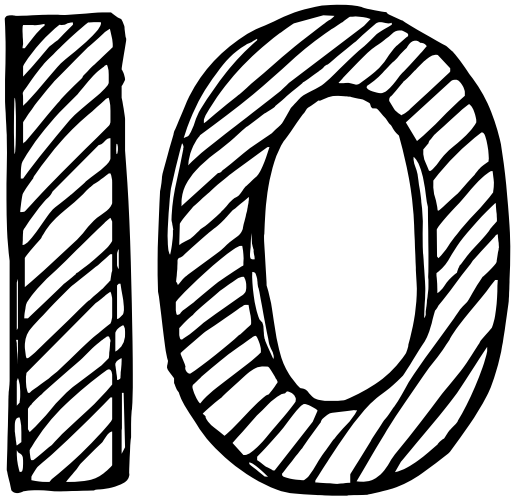
Power	Numerical Expression	Standard Form
10^1	10	10
10^2	10 x 10	100
10^3	10 x 10 x 10	1,000
10^4	10 x 10 x 10 x 10	10,000
10^5	10 x 10 x 10 x 10 x 10	100,000
10^6	10 x 10 x 10 x 10 x 10 x 10	1,000,000

What pattern do you see?

Powers of Ten - Notebook Display

Directions: Cut on the dotted line. Choose an number for the exponent and write it on the exponent box. Label the base and the exponent. Translate your base and exponent into a numerical expression. Write the product. Color and glue into your notebook.

Word Form: _____



_____

_____

Numerical Expression: _____

Product: _____

Powers of Ten

Directions: Cut on the dotted line. Glue the left side of the small form onto the left side of the large form. Flip open each 'power of ten' and write how it is said inside. Write the numerical expression next to it.

POWERS OF TEN
10^1
10^2
10^3
10^4
10^5

Glue Here	How it's said...	Numerical Expression and Product

Powers of Ten

Directions: Cut on the dotted line. Glue the left side of the small form onto the left side of the large form. Write an exponent for each base of ten. Flip open each 'power of ten' and write how it is said inside. Write the numerical expression next to it.

POWERS OF TEN
10
10
10
10
10

Glue Here	How it's said...	Numerical Expression and Product

Name _____ Date _____

Powers of Ten

Directions: Fill in the chart with the correct missing information.

Exponent Form	Expanded Form	Standard Form	Word Form
Ex. 10^3	10 x 10 x 10	1,000	The third power of ten or ten to the third power
	10 x 10 x 10 x 10		
		1,000,000	
			The fifth power of ten or ten to the fifth power
	10 x 10		
10^7			

Name Answer Key Date _____

Powers of Ten

Directions: Fill in the chart with the correct missing information.

Exponent Form	Expanded Form	Standard Form	Word Form
Ex. 10^3	10 x 10 x 10	1,000	The third power of ten or ten to the third power
10^4	10 x 10 x 10 x 10	1,000	The fourth power of ten or ten to the fourth power
10^6	10 x 10 x 10 x 10 x 10 x 10	1,000,000	The sixth power of ten or ten to the sixth power
10^5	10 x 10 x 10 x 10 x 10	100,000	The fifth power of ten or ten to the fifth power
10^2	10 x 10	100	The second power to ten or ten to the second power
10^7	10 x 10 x 10 x 10 x 10 x 10 x 10	10,000,000	The seventh power of ten or ten to the seventh power

Name _____ Date _____

Multiplying Powers of Ten

Directions: Find the value.

Multiplication Problem	Translate the Exponent	Product
Ex. 2×10^3	$2 \times 1{,}000$	2,000
3×10^4		
7×10^2		
9×10^3		
4×10^5		
6×10^4		
5×10^6		

Name Answer Key Date _____

Multiplying Powers of Ten

Directions: Find the value.

Multiplication Problem	Translate the Exponent	Product
Ex. 2×10^3	2×1000	2,000
3×10^4	$3 \times 10{,}000$	30,000
7×10^2	7×100	700
9×10^3	$9 \times 1{,}000$	9,000
4×10^5	$4 \times 100{,}000$	400,000
6×10^4	$6 \times 10{,}000$	60,000
5×10^6	$5 \times 1{,}000{,}000$	5,000,000

Thank you so much for visiting my TPT store. I truly appreciate your business. If you have any questions or concerns regarding this product I will gladly respond.

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