

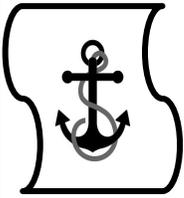


FOURTH GRADE

ANCHOR CHARTS



The Importance of Anchor Charts



An anchor chart is a tool used to facilitate discussions and record appropriate math strategies. These charts are created during the instruction portion of the lesson. They are in place to “anchor” student learning to appropriate practices.

These charts are created as a result of a joint effort between the teacher and the students. They are not created ahead of time. As the teacher models the strategy, it is recorded using a variety of media (chart paper, journals, electronic presentations), along with any tips or advice to help students remember the concept.

Once the lesson is complete, the chart is placed in a visible convenient location so the students can access it at any time in order to gain support independently. Some anchor charts are on display all year long, while others are only displayed during the current unit of study.

The resources you will find in this document are intended to be a springboard for your own creations. They are simply examples of how you could work together with your own students to present important concepts to further their thinking and support them as they work to understand the material.

*For more information, please refer to the article [“Hook and Hold” by Jennifer R. Brown. This can be found in Teaching Children Mathematics \(Vol. 21, No. 1, August 2014\).](#)

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MISCELLANEOUS CHARTS

OPERATIONS AND ALGEBRAIC THINKING

NC.4.OA.1	Interpret a multiplication equation as a comparison. Multiply or divide to solve word problems involving multiplicative comparisons using models and equations with a symbol for the unknown number. Distinguish multiplicative comparison from additive comparison.
DESCRIPTION	An anchor chart is a great way to help students see scenarios where the unknown portion of the problem changes and how the required math changes as a result.

Multiplicative Comparisons

larger part: Jordan has 12 apples.
Lauren has 5 times as many.
How many apples does Lauren have?
equation: $12 \times 5 = \underline{60}$ ← larger part unknown

smaller part: Tyler has 60 apples.
Lauren has 5 times less apples.
How many apples does Lauren have?
equation: $60 \div 5 = 12$ ← smaller part unknown

multiplier: Jordan has 60 apples.
Tyler has 15 apples. How many times more apples does Jordan have?
equation: $60 \div 15 = 4$ ← multiplier unknown

OPERATIONS AND ALGEBRAIC THINKING

<p>NC.4.OA.1</p>	<p>Interpret a multiplication equation as a comparison. Multiply or divide to solve word problems involving multiplicative comparisons using models and equations with a symbol for the unknown number. Distinguish multiplicative comparison from additive comparison.</p>
<p>DESCRIPTION</p>	<p>An anchor chart uses bar models to help students make sense of word problems so that they can identify the unknown and the action required to find its value.</p>

Multiplicative Comparisons
Multiply or Divide?

Large Part Unknown
 Tom ran 4 laps around the football field. Sam ran 5 times as many laps as around as Tom.
 How many laps did Sam run? $4 \times 5 = 20$ laps

Tom: $\boxed{4 \text{ laps}}$
 Sam: $\boxed{4 \text{ laps}} \quad \boxed{4 \text{ laps}} \quad \boxed{4 \text{ laps}} \quad \boxed{4 \text{ laps}} \quad \boxed{4 \text{ laps}}$

Small Part Unknown
 A family size pizza is \$24 and costs 3 times as much as a small pizza. How much does a small pizza cost?
 $24 \div 3 = 8$

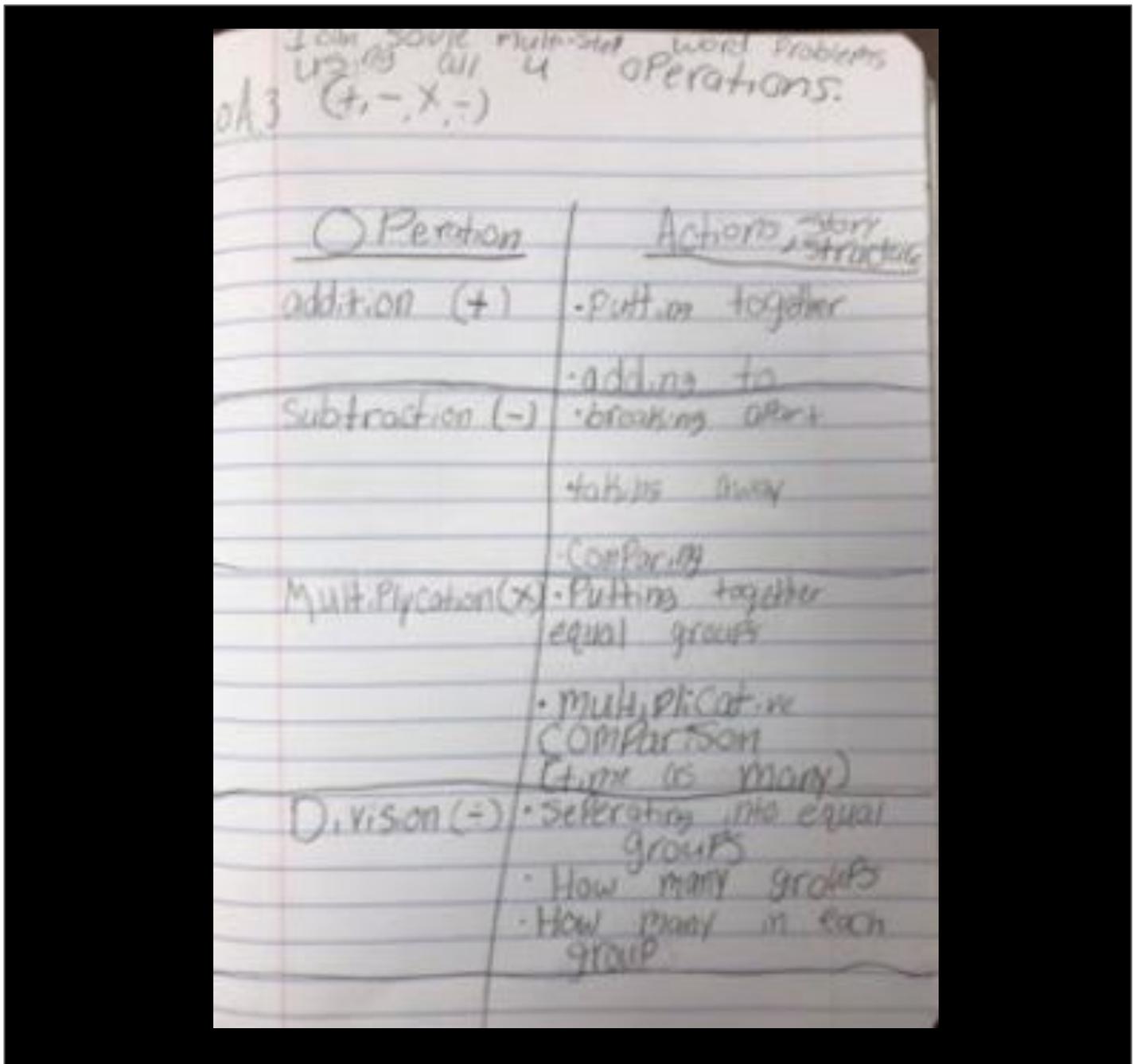
Small Pizza: $\boxed{8}$
 Family Size Pizza: $\boxed{8} \quad \boxed{8} \quad \boxed{8} = \24

Multiplier Unknown
 A single rose cost \$3 and a bunch of roses costs \$12. How many times as much does the bunch of roses cost than the single rose?
 $12 \div 3 = 4$ $3 \times \underline{\quad} = \12

Single Rose: $\boxed{\$3}$
 Bunch Roses: $\boxed{\$3} \quad \boxed{\$3} \quad \boxed{\$3} \quad \boxed{\$3} = \$12$

OPERATIONS AND ALGEBRAIC THINKING

<p>NC.4.OA.3</p>	<p>Solve two-step word problems involving the four operations with whole numbers.</p> <ul style="list-style-type: none"> • Use estimation strategies to assess reasonableness of answers. • Interpret remainders in word problems. • Represent problems using equations with a letter standing for the unknown quantity.
<p>DESCRIPTION</p>	<p>Notice how this anchor chart has been recorded in a student journal. Using graphic organizers to keep information neat and easy to read is a key to a useful anchor chart.</p>



OPERATIONS AND ALGEBRAIC THINKING

NC.4.OA.3	Solve two-step word problems involving the four operations with whole numbers. <ul style="list-style-type: none">• Use estimation strategies to assess reasonableness of answers.• Interpret remainders in word problems.• Represent problems using equations with a letter standing for the unknown quantity.
DESCRIPTION	This anchor chart poses different division situations and calls for students to determine what to do with the remainder (drop it, use it, round it). This would be a good introduction to a lesson where students have to sort word problems into these categories.

Division - Remainder

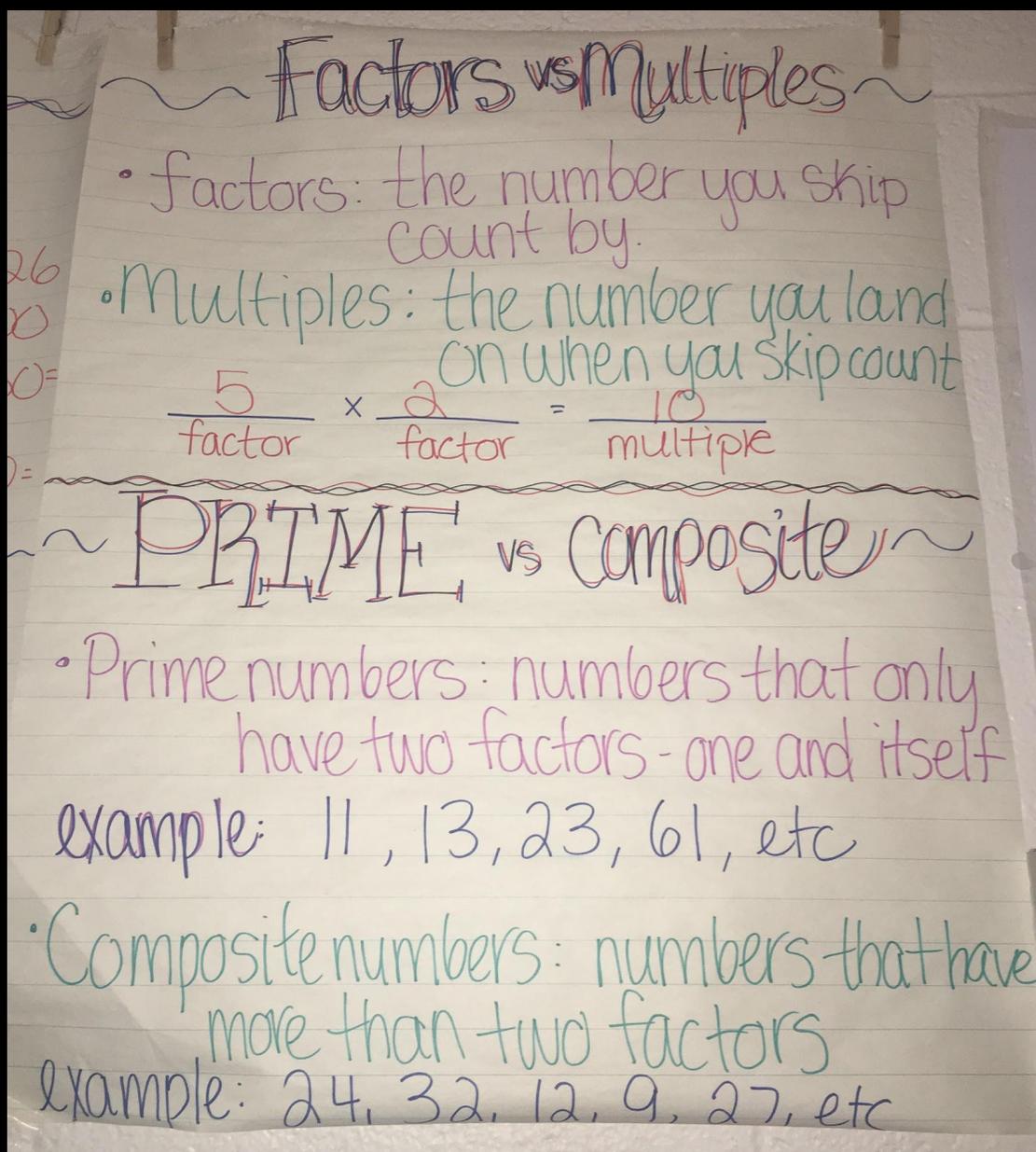
Drop it: Josh had 53 cookies. Seven cookies fit into his snack size bag. How many bags did he fill? $53 \div 7 = 7r4$
Josh filled 7 bags.

Use it: Josh had 53 cookies. Seven cookies fit into each snack bag. How many cookies would he have left? $53 \div 7 = 7r4$
Josh had 4 leftover.

Round it: Josh had 53 cookies. Seven cookies fit into his snack bags. What would be the fewest number of bags he would need in order to hold all of his cookies? $53 \div 7 = 7r4$
Josh needs 8 bags to hold all of his cookies.

OPERATIONS AND ALGEBRAIC THINKING

NC.4.OA.4	Find all factor pairs for whole numbers up to and including 50 to: <ul style="list-style-type: none">• Recognize that a whole number is a multiple of each of its factors.• Determine whether a given whole number is a multiple of a given one digit number.• Determine if the number is prime or composite.
DESCRIPTION	By working with your class to generate an anchor chart like the one below, you can help students to develop and retain definitions of the important vocabulary associated with this standard.



OPERATIONS AND ALGEBRAIC THINKING

<p>NC.4.OA.4</p>	<p>Find all factor pairs for whole numbers up to and including 50 to:</p> <ul style="list-style-type: none"> Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number is a multiple of a given one digit number. Determine if the number is prime or composite.
<p>DESCRIPTION</p>	<p>Notice how the teacher uses multiple examples to help students understand the definitions listed on this anchor chart.</p>

OA.4 Factors & Multiples
Prime & Composite Numbers

Factors: a number that can be multiplied to make a certain product

Multiples: the result of multiplying a number by another number

Find the multiples of 7:
 7, 14, 21, 28, 35, 42, 49, ...

Example for 18:
 Factors: 3, 2, 1, 18, 9, 6 (6 factors, 3 factor pairs)
 Multiples: 18, 36, 54, 72, 90, 108, 126, 144, 162, 180, 198, 216, 234, 252, 270, 288, 306, 324, 342, 360, 378, 396, 414, 432, 450, 468, 486, 504, 522, 540, 558, 576, 594, 612, 630, 648, 666, 684, 702, 720, 738, 756, 774, 792, 810, 828, 846, 864, 882, 900, 918, 936, 954, 972, 990, 1008, 1026, 1044, 1062, 1080, 1098, 1116, 1134, 1152, 1170, 1188, 1206, 1224, 1242, 1260, 1278, 1296, 1314, 1332, 1350, 1368, 1386, 1404, 1422, 1440, 1458, 1476, 1494, 1512, 1530, 1548, 1566, 1584, 1602, 1620, 1638, 1656, 1674, 1692, 1710, 1728, 1746, 1764, 1782, 1800, 1818, 1836, 1854, 1872, 1890, 1908, 1926, 1944, 1962, 1980, 1998, 2016, 2034, 2052, 2070, 2088, 2106, 2124, 2142, 2160, 2178, 2196, 2214, 2232, 2250, 2268, 2286, 2304, 2322, 2340, 2358, 2376, 2394, 2412, 2430, 2448, 2466, 2484, 2502, 2520, 2538, 2556, 2574, 2592, 2610, 2628, 2646, 2664, 2682, 2700, 2718, 2736, 2754, 2772, 2790, 2808, 2826, 2844, 2862, 2880, 2898, 2916, 2934, 2952, 2970, 2988, 3006, 3024, 3042, 3060, 3078, 3096, 3114, 3132, 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OPERATIONS AND ALGEBRAIC THINKING

<p>NC.4.OA.5</p>	<p>Generate and analyze a number or shape pattern that follows a given rule.</p>
<p>DESCRIPTION</p>	<p>This anchor chart displays both number and shape patterns. Function tables are also a great resource for anchor charts because they help students organize their thinking.</p>

NC.4.OA.5

PATTERNS

follow a rule

GROW
INCREASE
DECREASE

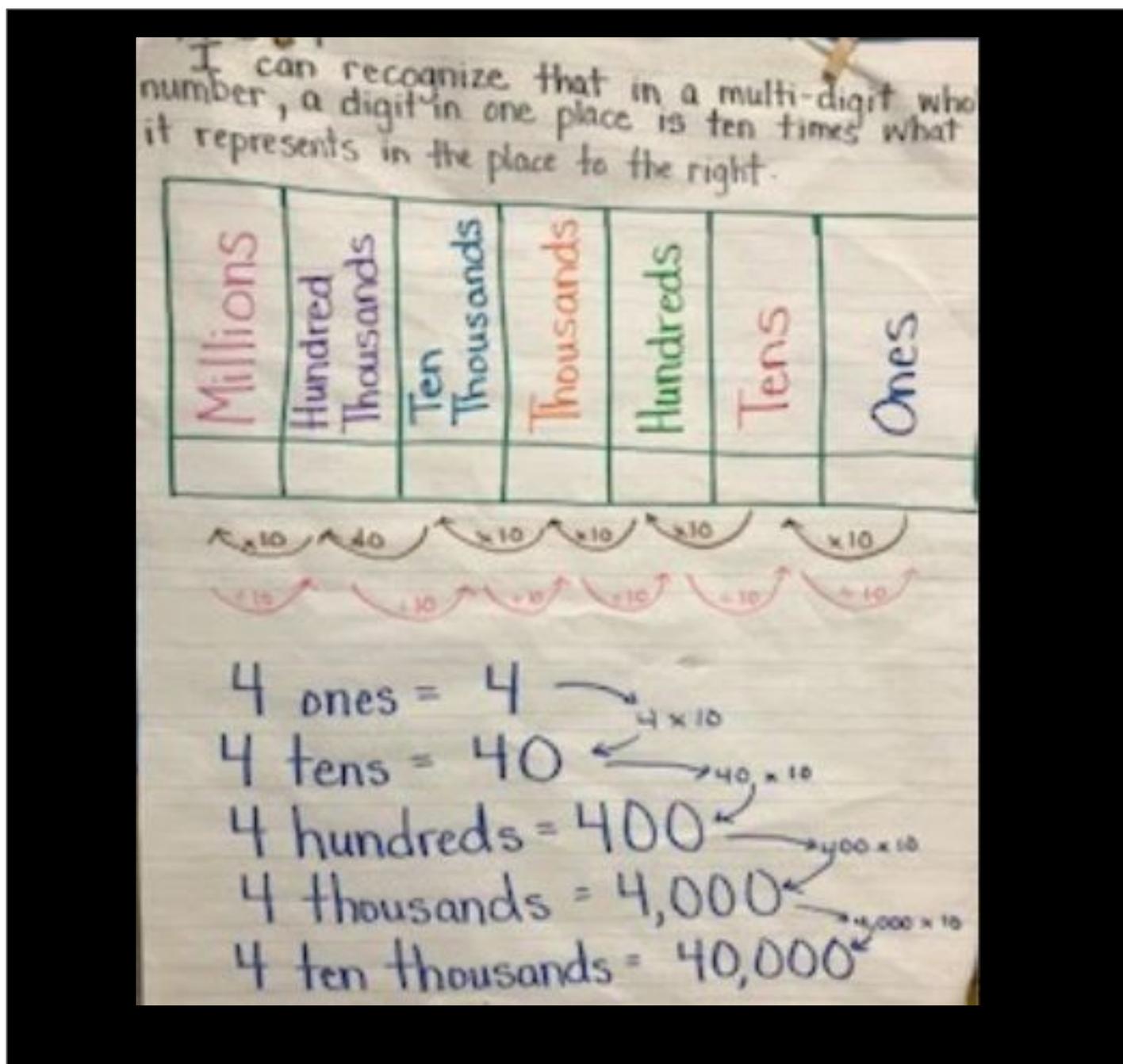
repeat...
repeat...
repeat...

Generate a pattern that follows a rule

NUMBER	SHAPE			
<p>Start with 2. Multiply by 3. What's the 5th number?</p>	#1	#2	#3	#4
<p>2, 6, 18, 54, 162</p>	•	••	•••	••••
	1	3	6	10
	How many dots in step #5? 15			

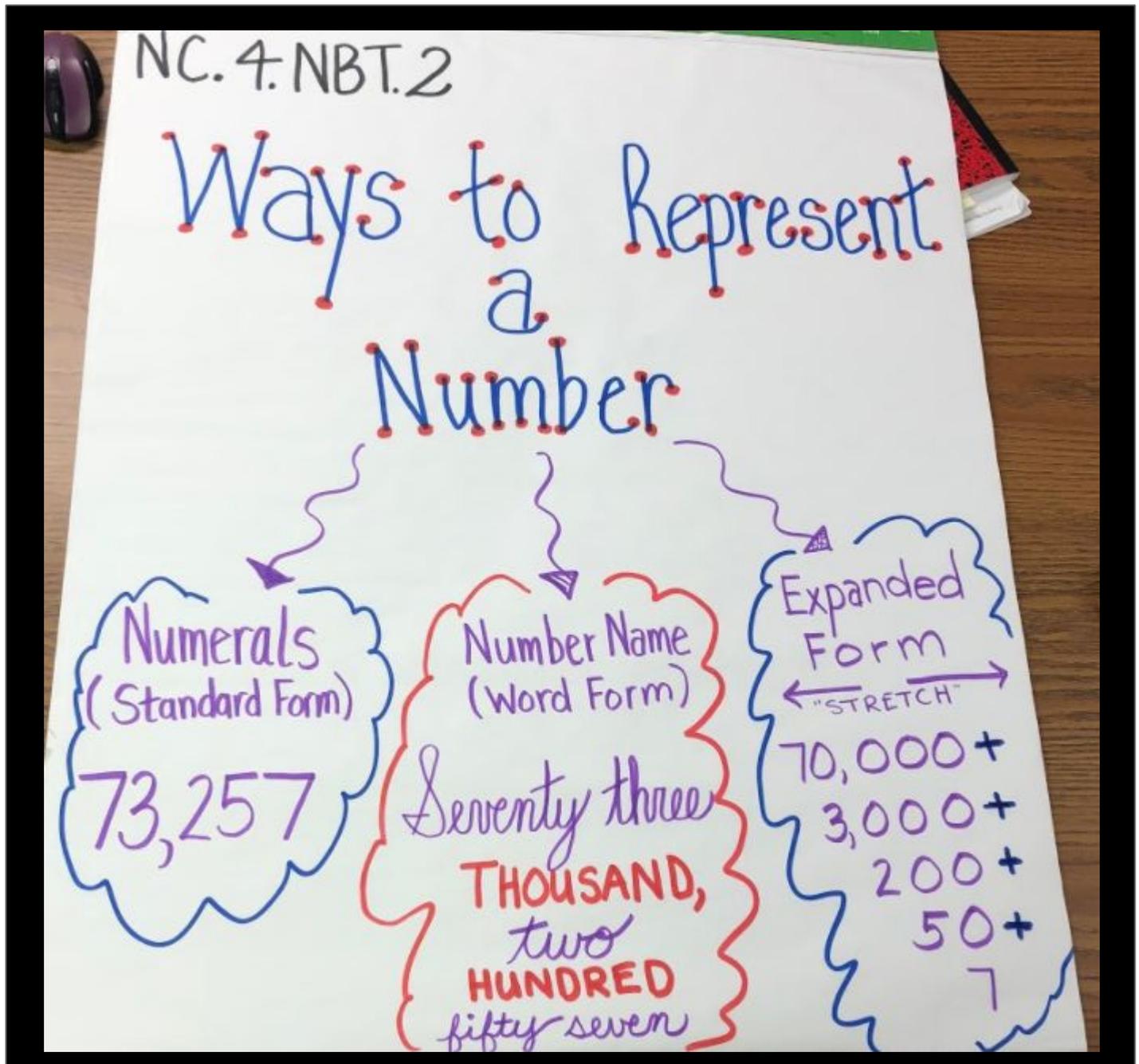
NUMBER AND OPERATIONS - BASE TEN

NC.4.NBT.1	Explain that in a multi-digit whole number, a digit in one place represents 10 times as much as it represents in the place to its right, up to 100,000.
DESCRIPTION	This anchor chart uses a place value chart to demonstrate the value of each place as increasing by 10 times.



NUMBER AND OPERATIONS - BASE TEN

NC.4.NBT.2	Read and write multi-digit whole numbers up to and including 100,000 using numerals, number names, and expanded form.
DESCRIPTION	The anchor chart below provides an opportunity for students to refer to important vocabulary necessary to be successful in this standard.



NUMBER AND OPERATIONS - BASE TEN

NC.4.NBT.4	Add and subtract multi-digit whole numbers up to and including 100,000 using the standard algorithm with place value understanding.
DESCRIPTION	This anchor chart displays four common strategies for adding. This chart was created with students during number talks. It is intended to encourage students to try an alternative strategy and help students correctly identify addition strategies as they use them.

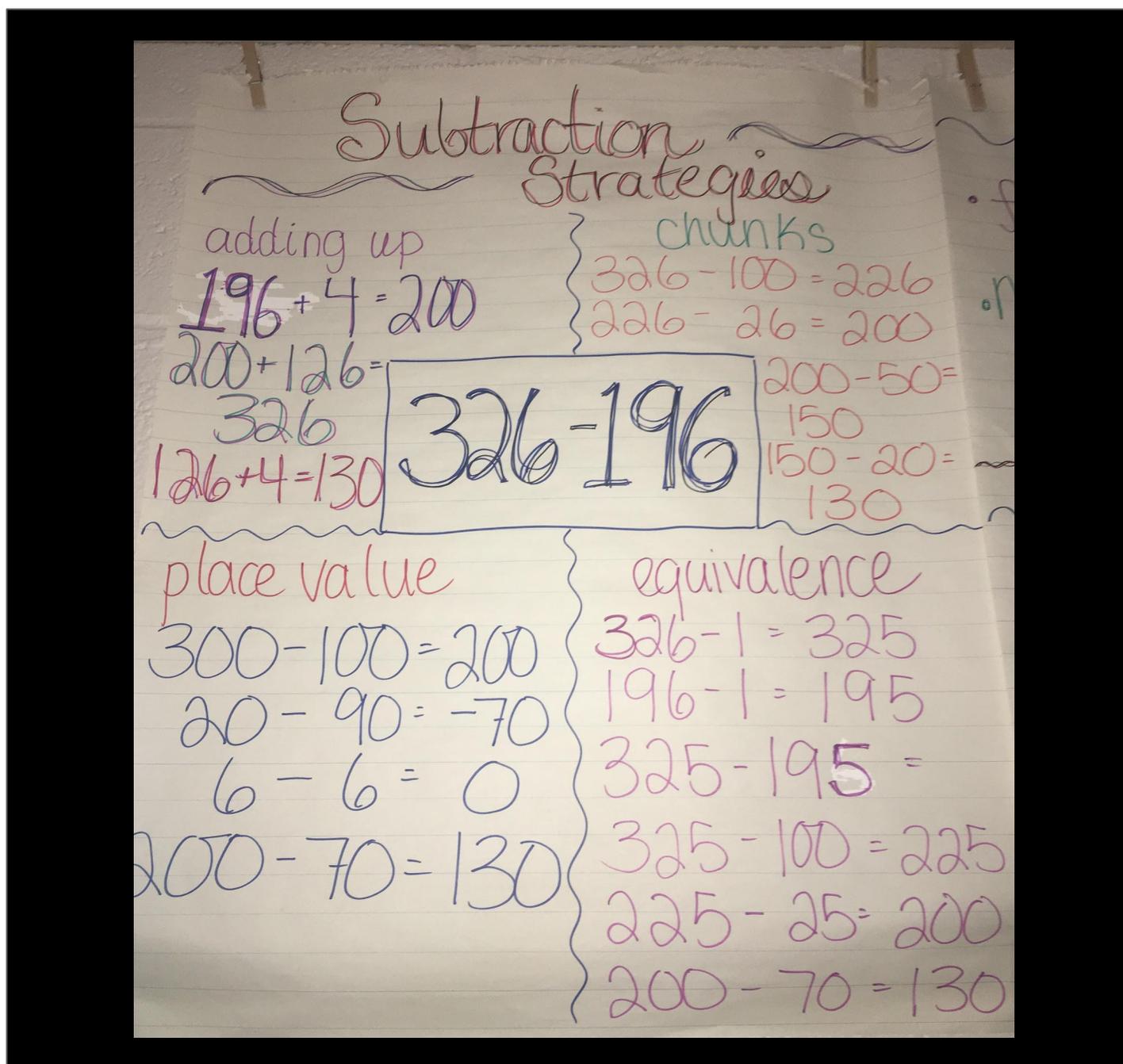
Addition Strategies

ds
to

Adding by place $\underline{23} + \underline{15}$ $\underline{20} + \underline{10} = 30$ $\underline{3} + \underline{5} = 8$ $30 + 8 = 38$	Making Tens $\underline{27} + \underline{16} + \underline{13}$ $\underline{27} + \underline{3} = 30$ $\underline{10} + \underline{10} = 20$ $30 + 20 + 6 = 56$
Decomposing $\underline{27} + \underline{28}$ $\underline{20} + \underline{7} + \underline{25} + \underline{3}$ $\underline{20} + \underline{25} = 45$ $\underline{7} + \underline{3} = 10$ $45 + 10 = 55$	Make Friendly Numbers $17 + 38$ $38 - 3 = 35$ $17 + 3 = 20$ $20 + 35 = 55$

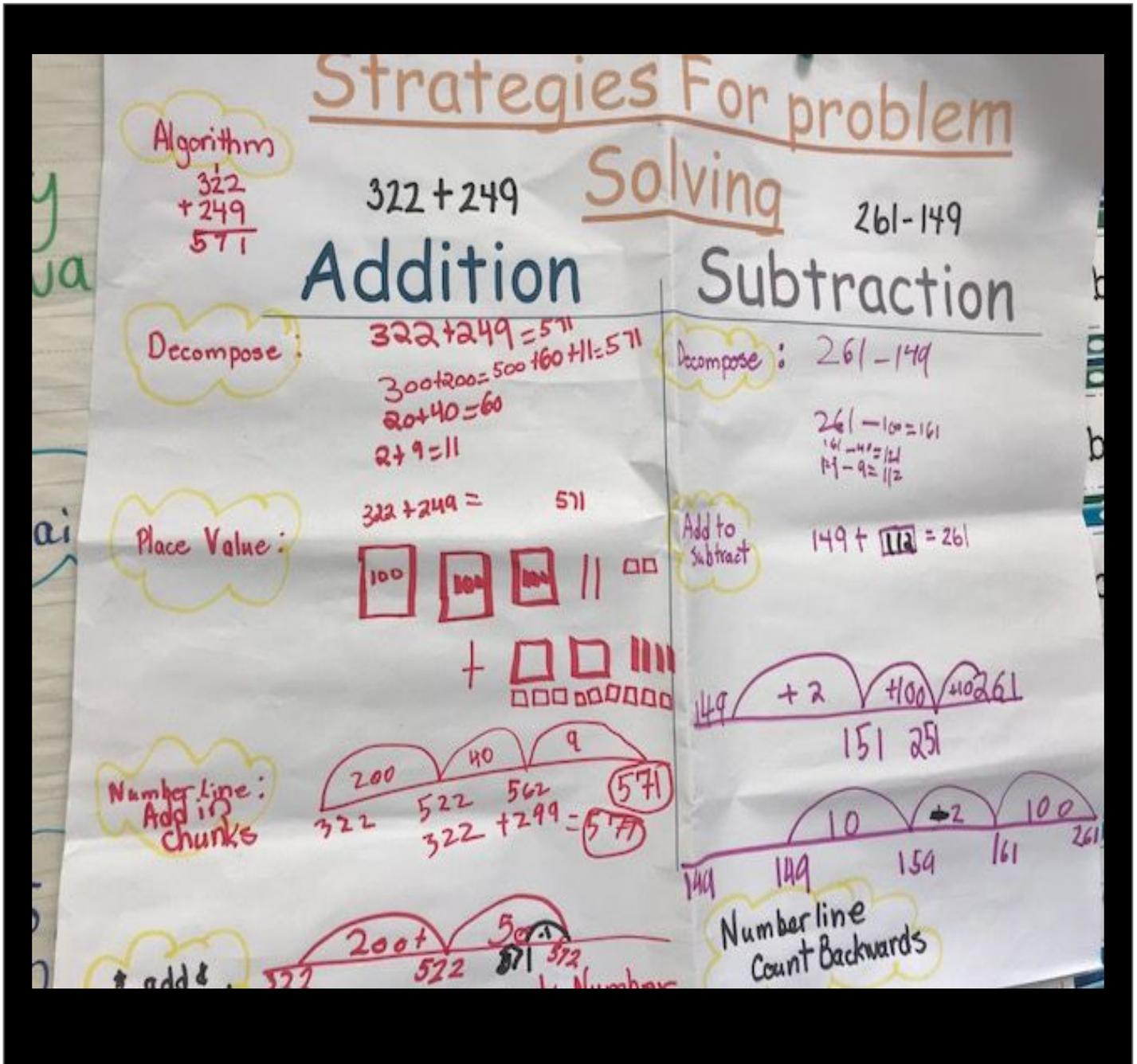
NUMBER AND OPERATIONS - BASE TEN

<p>NC.4.NBT.4</p>	<p>Add and subtract multi-digit whole numbers up to and including 100,000 using the standard algorithm with place value understanding.</p>
<p>DESCRIPTION</p>	<p>This anchor chart displays four common strategies for subtracting. This chart was created with students during number talks. It is intended to encourage students to try an alternative strategy and help students correctly identify subtraction strategies as they use them.</p>



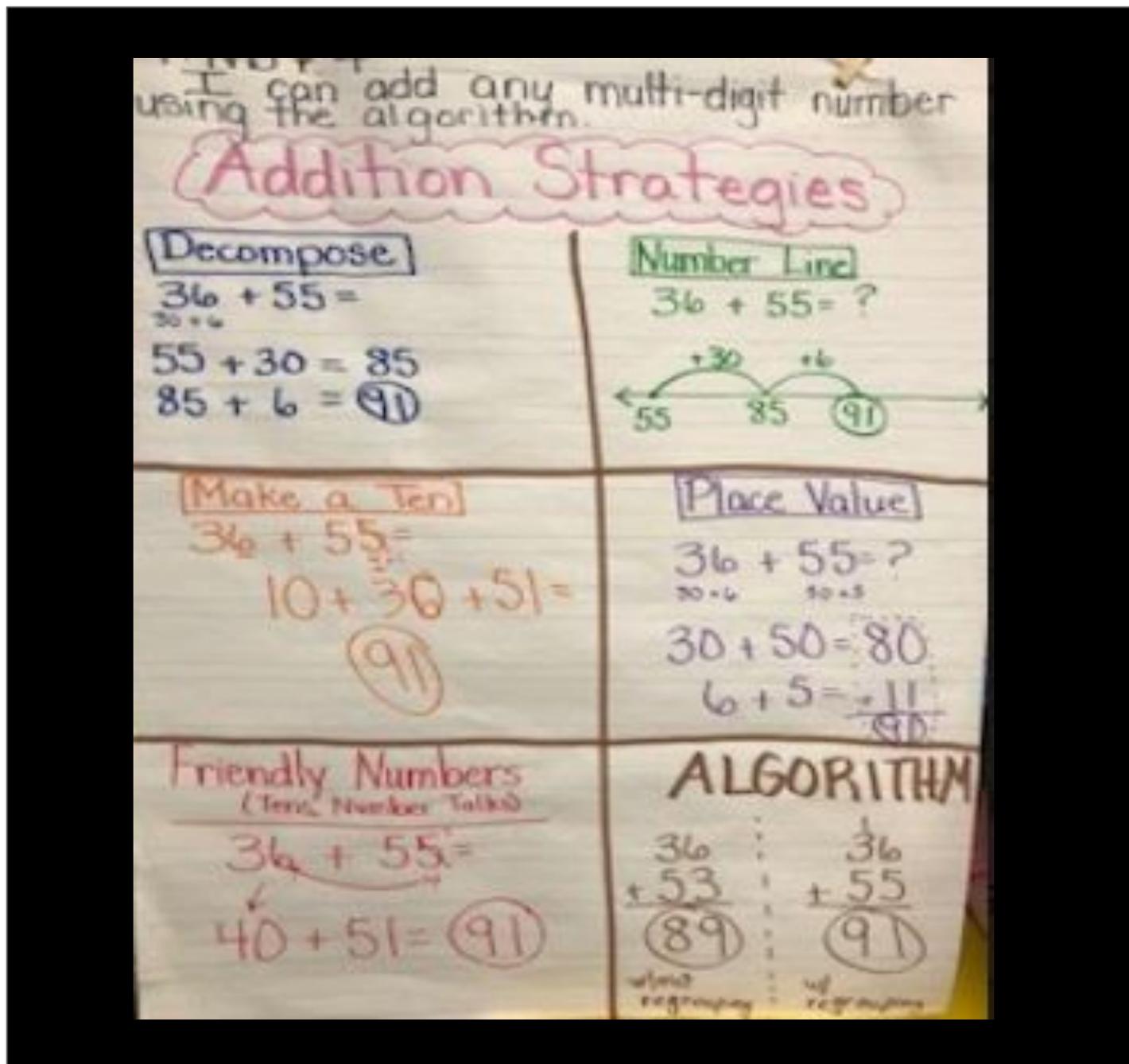
NUMBER AND OPERATIONS - BASE TEN

<p>NC.4.NBT.4</p>	<p>Add and subtract multi-digit whole numbers up to and including 100,000 using the standard algorithm with place value understanding.</p>
<p>DESCRIPTION</p>	<p>This anchor chart was created to encourage using different strategies for problem solving (decomposing, number lines, and adding to subtract).</p>



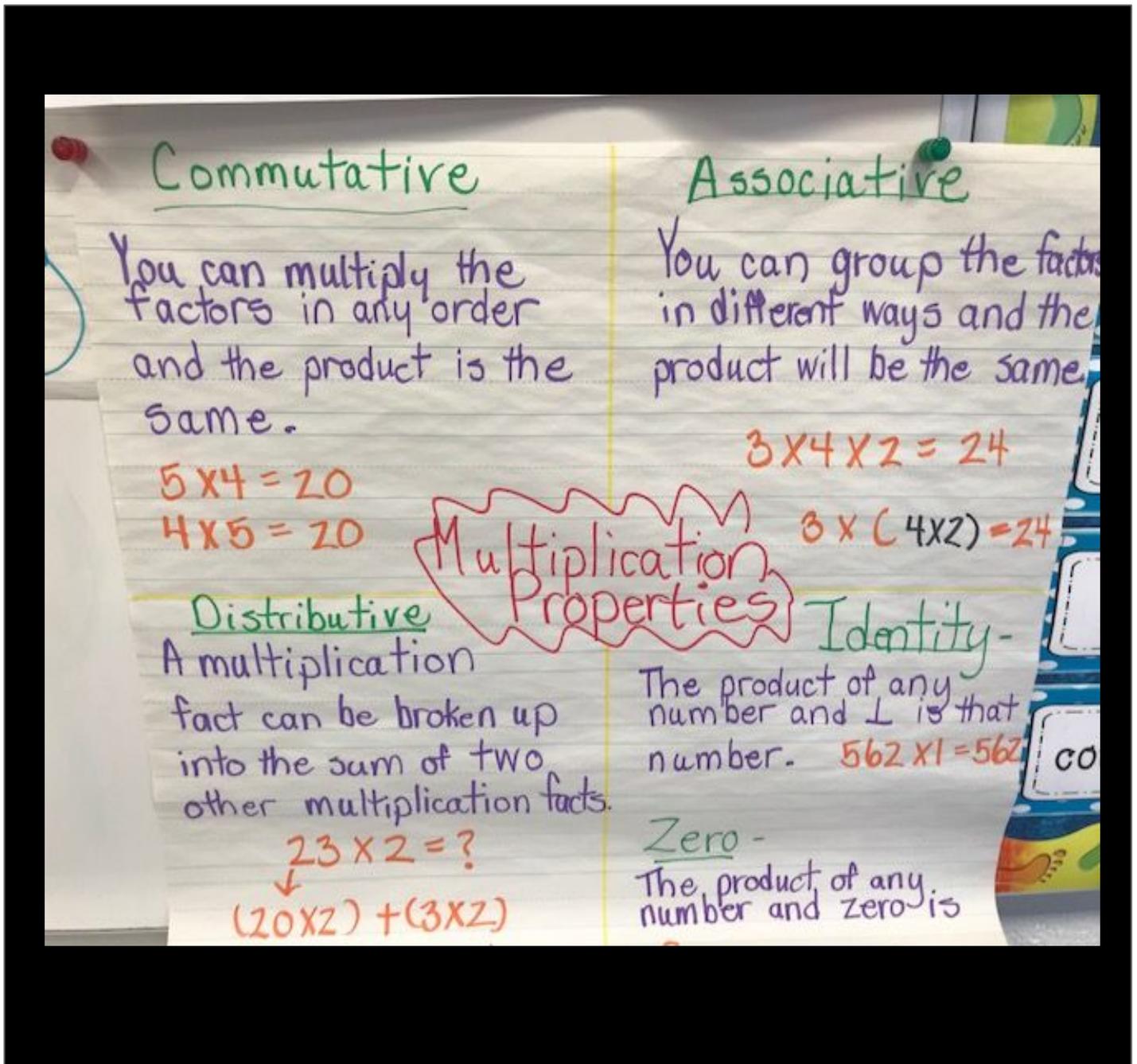
NUMBER AND OPERATIONS - BASE TEN

<p>NC.4.NBT.4</p>	<p>Add and subtract multi-digit whole numbers up to and including 100,000 using the standard algorithm with place value understanding.</p>
<p>DESCRIPTION</p>	<p>This anchor chart is designed to help students see a variety of strategies for adding two two-digit numbers, including the algorithm. It is important that students see connections across strategies, and have the opportunity to choose what works best for them.</p>



NUMBER AND OPERATIONS - BASE TEN

NC.4.NBT.5	Multiply a whole number of up to three digits by a one-digit whole number, and multiply up to two two-digit numbers with place value understanding using area models, partial products, and the properties of operations. Use models to make connections and develop the algorithm.
DESCRIPTION	This chart demonstrates the properties of multiplication in kid-friendly language, along with actual examples of the properties in action.



NUMBER AND OPERATIONS - BASE TEN

NC.4.NBT.5	Multiply a whole number of up to three digits by a one-digit whole number, and multiply up to two two-digit numbers with place value understanding using area models, partial products, and the properties of operations. Use models to make connections and develop the algorithm.
DESCRIPTION	This anchor chart demonstrates four different strategies for students to use when multiplying.

Multiplication Strategies

Partial Product
 3×16 (20+6)
30 | 18
 $30 + 18 = 48$

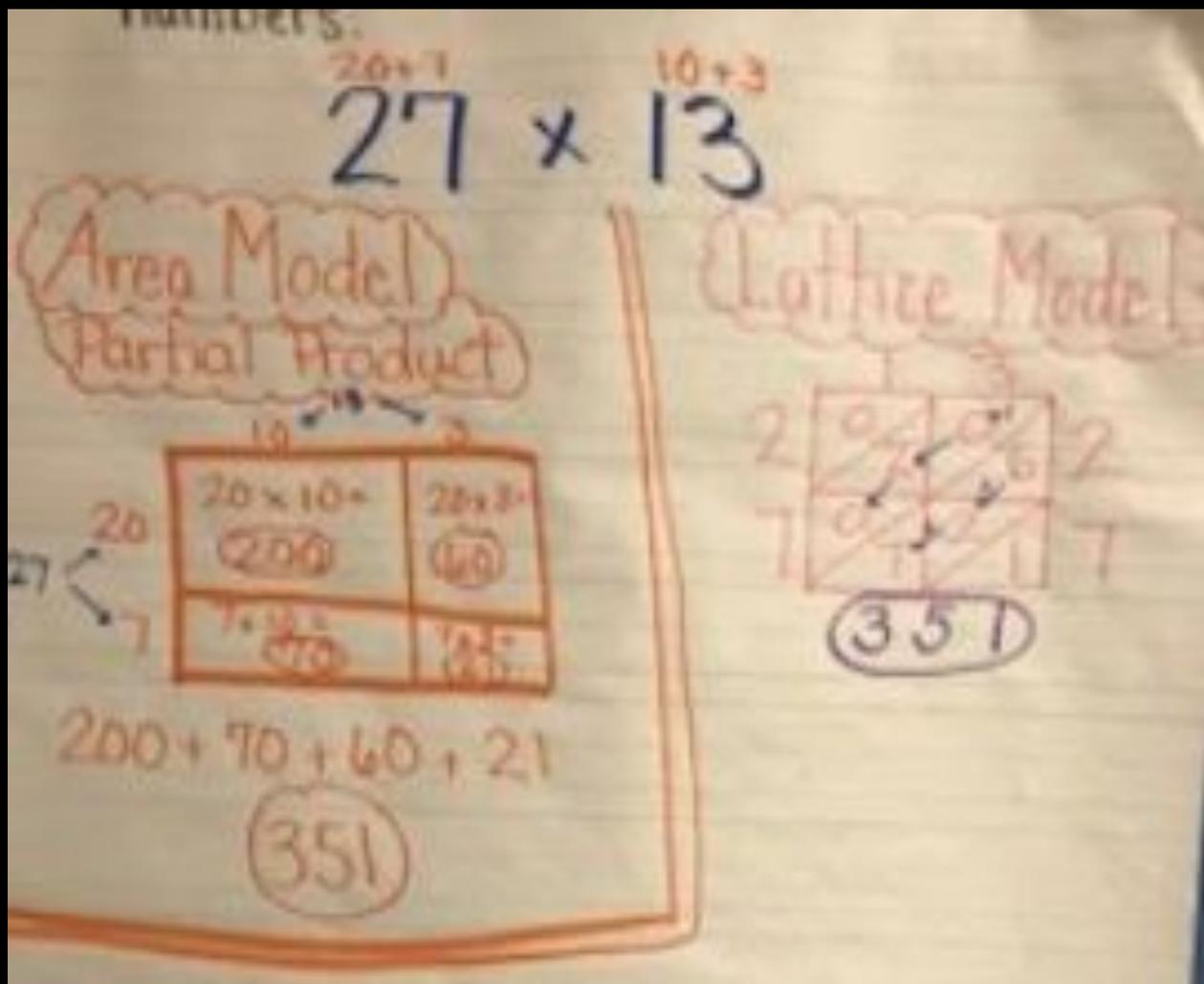
Partial Product
(20+3) 23×6
18 | 120
 $18 + 120 = 138$

Place Value
 23×6
 $20 \times 6 = 120$
 $3 \times 6 = 18$
138

Distributive
 23×6
 $(20 \times 6) + (3 \times 6)$
 $120 + 18$
138

NUMBER AND OPERATIONS - BASE TEN

NC.4.NBT.5	Multiply a whole number of up to three digits by a one-digit whole number, and multiply up to two two-digit numbers with place value understanding using area models, partial products, and the properties of operations. Use models to make connections and develop the algorithm.
DESCRIPTION	In this anchor chart, there are two models for how to multiply two two-digit numbers. Both models are effective ways to arrive at solutions for multiplication. It is important when using the Lattice Model that students understand the place value of the numbers in the model.



NUMBER AND OPERATIONS - BASE TEN

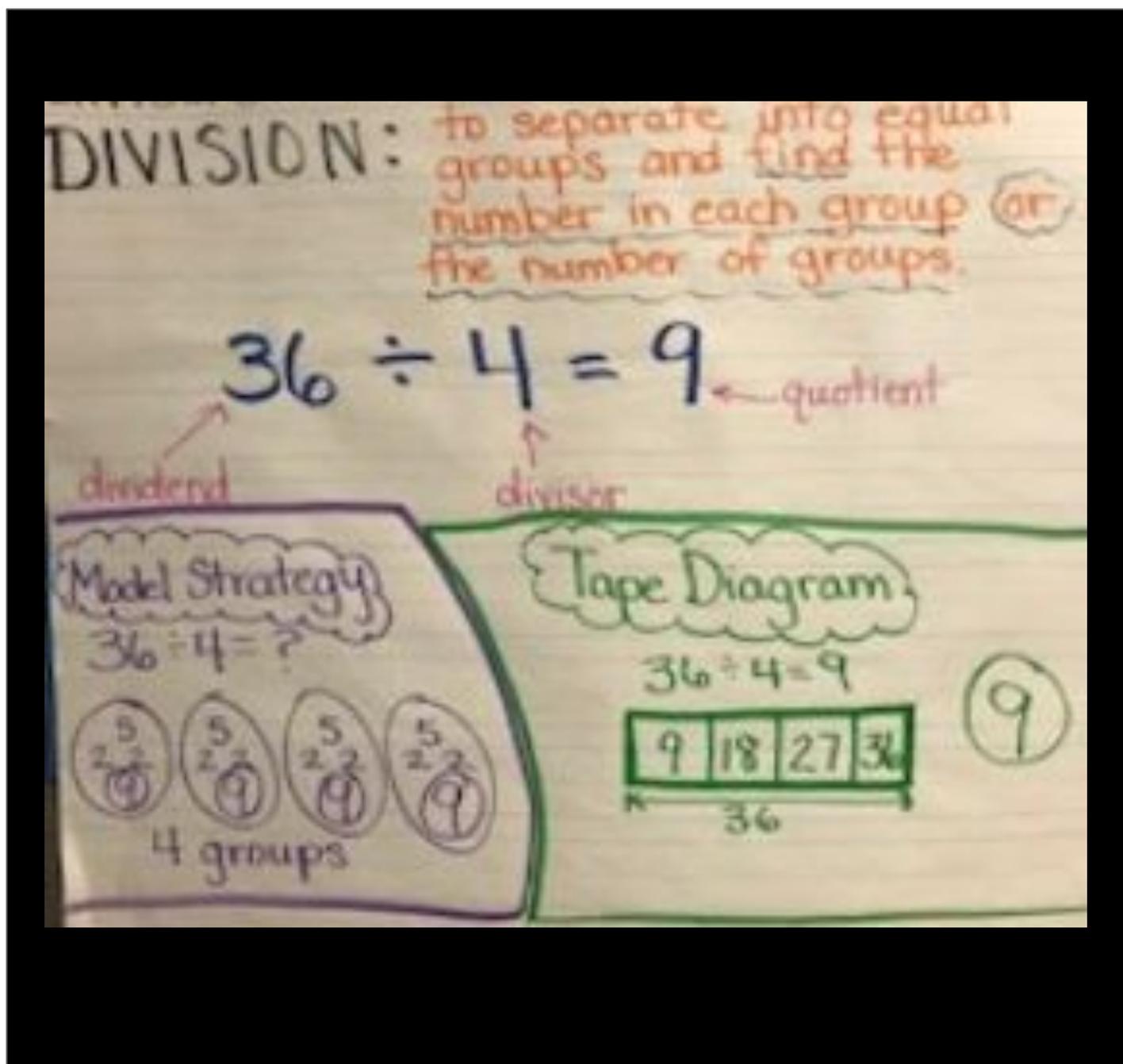
<p>NC.4.NBT.5</p>	<p>Multiply a whole number of up to three digits by a one-digit whole number, and multiply up to two two-digit numbers with place value understanding using area models, partial products, and the properties of operations. Use models to make connections and develop the algorithm.</p>
<p>DESCRIPTION</p>	<p>This teacher created chart showcases both partial products and area models for multiplication. It also gives four different examples of how students may choose to multiply in fourth grade.</p>

Multiplication Multiple Ways!

<p>By 1 - Partial Products</p> <p>$389 \times 5 = ?$</p> <p> $300 \times 5 = 1500$ $80 \times 5 = 400$ $9 \times 5 = 45$ </p> <p> $\begin{array}{r} 1500 \\ + 400 \\ + 45 \\ \hline 1,945 \end{array}$ </p>	<p>By 2 - Partial Products</p> <p>$47 \times 35 =$</p> <p> $40 \times 30 = 1200$ $7 \times 30 = 210$ $40 \times 5 = 200$ $7 \times 5 = 35$ </p> <p> $\begin{array}{r} 1200 \\ + 210 \\ + 200 \\ + 35 \\ \hline 1,645 \end{array}$ </p>														
<p>By 1 - Area Model</p> <p>$389 \times 5 = ?$</p> <p> $\begin{array}{r} \times 300 + 80 + 9 \\ 5 \\ \hline \end{array}$ </p> <p> <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 5px;">300×5</td> <td style="padding: 5px;">80×5</td> <td style="padding: 5px;">9×5</td> </tr> <tr> <td style="padding: 5px;">1500</td> <td style="padding: 5px;">400</td> <td style="padding: 5px;">45</td> </tr> </table> </p> <p> $\begin{array}{r} 1500 \\ + 400 \\ + 45 \\ \hline 1,945 \end{array}$ </p>	300×5	80×5	9×5	1500	400	45	<p>By 2 - Area Model</p> <p>$47 \times 35 =$</p> <p> $\begin{array}{r} \times 40 + 7 \\ 30 \\ 5 \\ \hline \end{array}$ </p> <p> <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 5px;">40×30</td> <td style="padding: 5px;">30×7</td> </tr> <tr> <td style="padding: 5px;">1200</td> <td style="padding: 5px;">210</td> </tr> <tr> <td style="padding: 5px;">5×40</td> <td style="padding: 5px;">5×7</td> </tr> <tr> <td style="padding: 5px;">200</td> <td style="padding: 5px;">35</td> </tr> </table> </p> <p> $\begin{array}{r} 1200 \\ + 210 \\ + 200 \\ + 35 \\ \hline 1,645 \end{array}$ </p>	40×30	30×7	1200	210	5×40	5×7	200	35
300×5	80×5	9×5													
1500	400	45													
40×30	30×7														
1200	210														
5×40	5×7														
200	35														

NUMBER AND OPERATIONS - BASE TEN

NC.4.NBT.6	Find whole-number quotients and remainders with up to three-digit dividends and one-digit divisors with place value understanding using rectangular arrays, area models, repeated subtraction, partial quotients, properties of operations, and/or the relationship between multiplication and division.
DESCRIPTION	Notice how this anchor chart describes the concept of division while identifying key vocabulary (dividend, divisor, quotient).



NUMBER AND OPERATIONS - BASE TEN

<p>NC.4.NBT.6</p>	<p>Find whole-number quotients and remainders with up to three-digit dividends and one-digit divisors with place value understanding using rectangular arrays, area models, repeated subtraction, partial quotients, properties of operations, and/or the relationship between multiplication and division.</p>
<p>DESCRIPTION</p>	<p>This anchor chart shows multiple strategies for division while identifying key vocabulary (dividend, divisor, quotient).</p>

NBT.6 - Division

division terms

quotient
the answer to a division problem

$63 \div 9 = 7$

$\frac{7}{9 \overline{)63}} \quad \frac{63}{9 \overline{)63}}$

dividend
the number to be divided

$63 \div 9 = 7$

$\frac{7}{9 \overline{)63}} \quad \frac{63}{9 \overline{)63}}$

divisor
the number of groups to divide into

$63 \div 9 = 7$

$\frac{7}{9 \overline{)63}} \quad \frac{63}{9 \overline{)63}}$

Inverse Operation:

$18 \div 3 = ?$

Use a multiplication fact to solve. Ask yourself... $3 \times ? = 18$.

If $3 \times 6 = 18$, then $18 \div 3 = 6$

Skip Count:

Skip count by your **divisor** until you get to the **dividend**.

$18 \div 3 = ?$

3, 6, 9, 12, 15, 18

So, $18 \div 3 = 6$

Distributive Property:

$2,367 \div 3 = ?$

$(2,100 \div 3) + (240 \div 3) + (27 \div 3)$

↓ ↓ ↓

$700 + 80 + 9$

789

Partial Quotient:

$3 \overline{)2,368}$

$3 \times 700 = 2,100$

$3 \times 80 = 240$

$3 \times 9 = 27$

700 + 80 + 9 = $789 \text{ r } 1$

✓ using multiplication:

$\begin{array}{r} 789 \\ \times 3 \\ \hline 2367 \\ + 1 \text{ remainder} \\ \hline 2368 \end{array}$

Add the groups you made & include remainders

Area Model:

$2,368 \div 3 =$

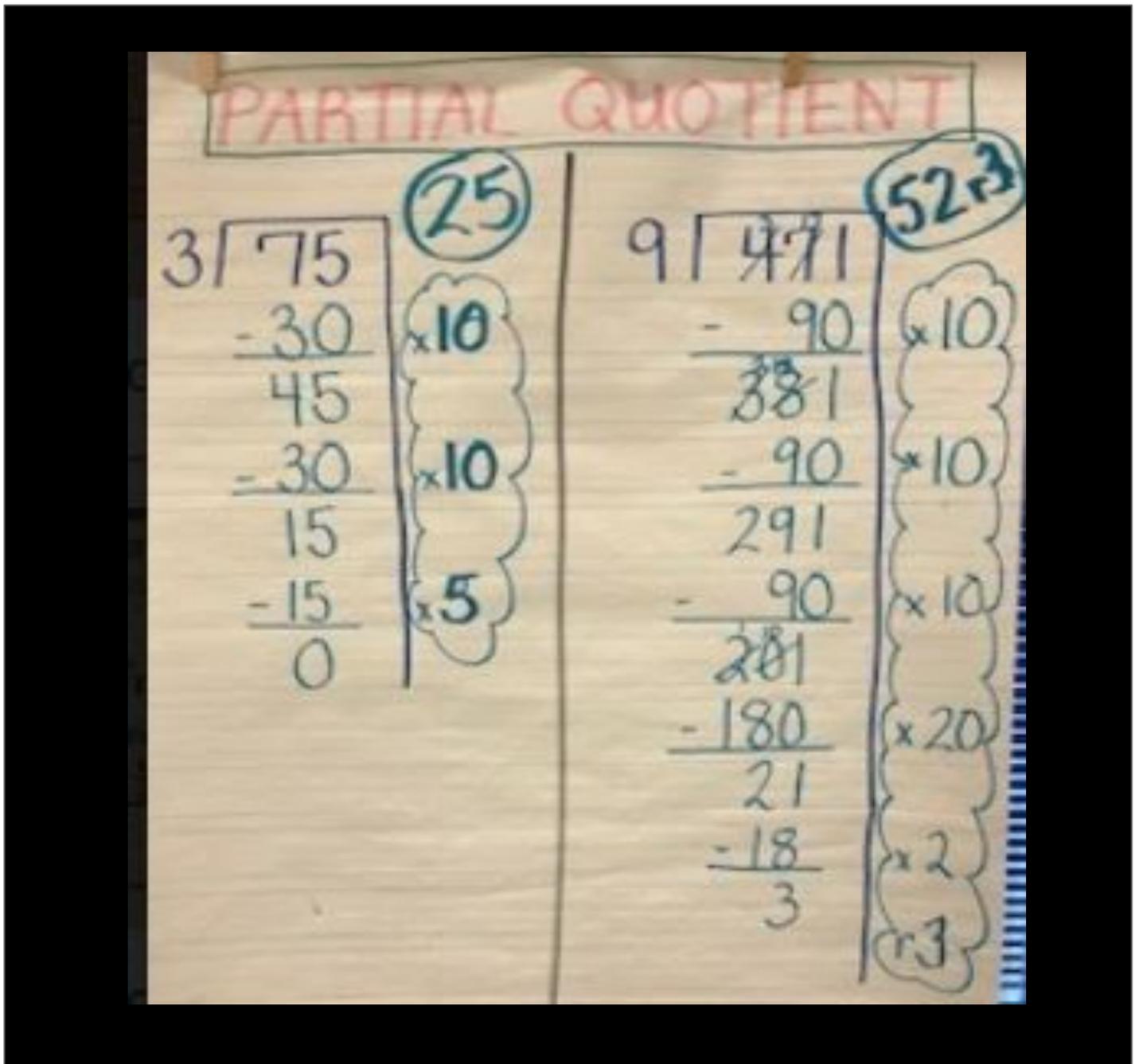
$700 + 80 + 9$

$3 \overline{)2,368} \left| \begin{array}{l} 268 \\ -240 \\ \hline 28 \end{array} \right| \begin{array}{l} 28 \\ -27 \\ \hline 1 \end{array}$

$789 \text{ r } 2$

NUMBER AND OPERATIONS - BASE TEN

NC.4.NBT.6	Find whole-number quotients and remainders with up to three-digit dividends and one-digit divisors with place value understanding using rectangular arrays, area models, repeated subtraction, partial quotients, properties of operations, and/or the relationship between multiplication and division.
DESCRIPTION	An anchor chart can simply demonstrate steps in a process. It doesn't need to be elaborate to get a point across. This chart is a great resource for students to refer to during independent practice.



NUMBER AND OPERATIONS - BASE TEN

<p>NC.4.NBT.7</p>	<p>Compare two multi-digit numbers up to and including 100,000 based on the values of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons.</p>
<p>DESCRIPTION</p>	<p>This chart demonstrates how students can use a place value chart to compare multi-digit numbers. It also provides support for those difficult comparison symbols.</p>

Comparing Multi-Digit Numbers

3-digit Number

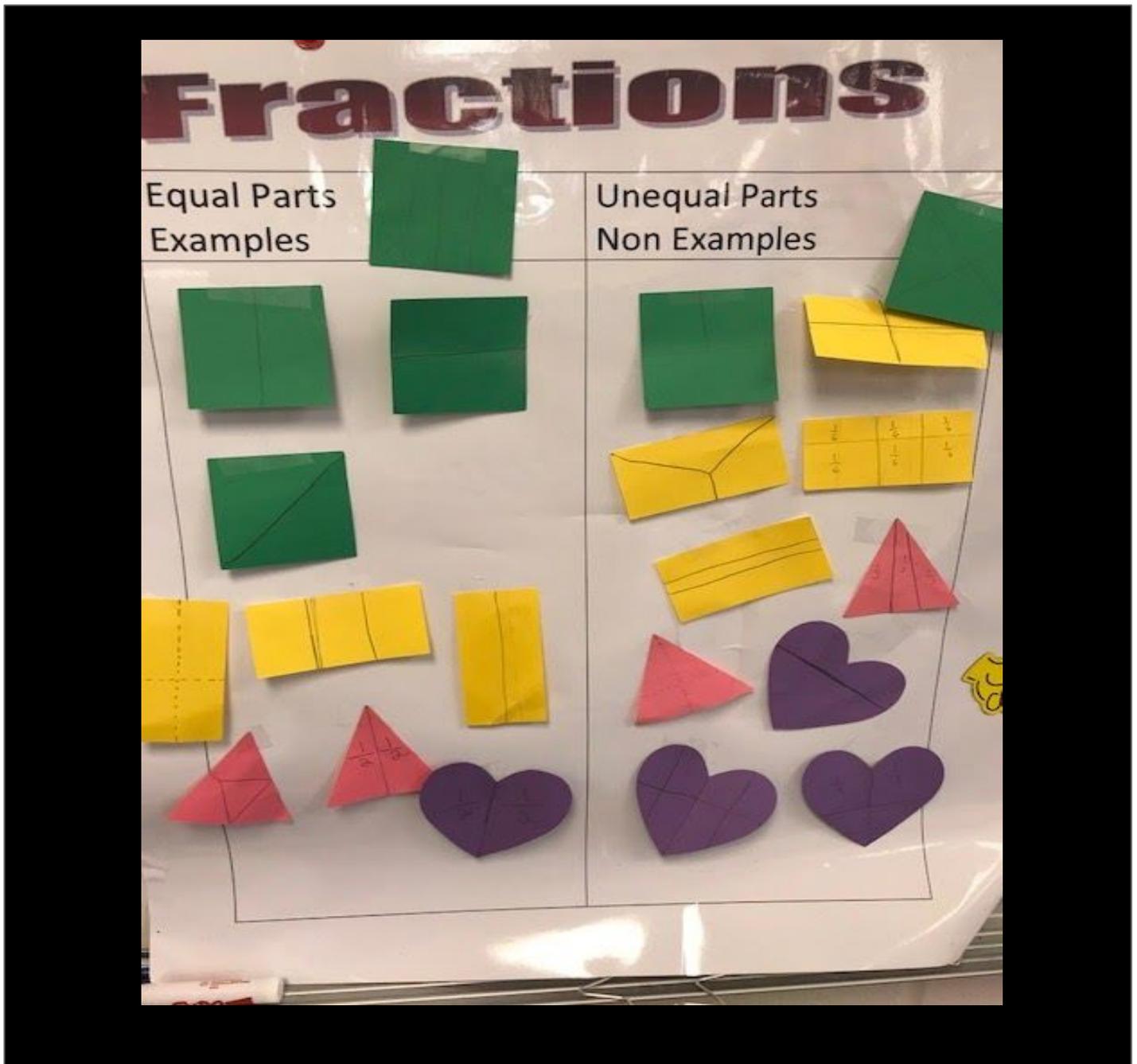
	Hundreds	Tens	Ones
238	□ □	
284	□ □	

238 < 284
is less than

Sym	It means	Use it when	Example
$<$	"less than"	1 st number is smaller than the 2 nd number	$6 < 9$
$=$	"is equal to"	both numbers are the same	$9 = 9$
$>$	"greater than"	1 st number is larger than the 2 nd number	$9 > 6$

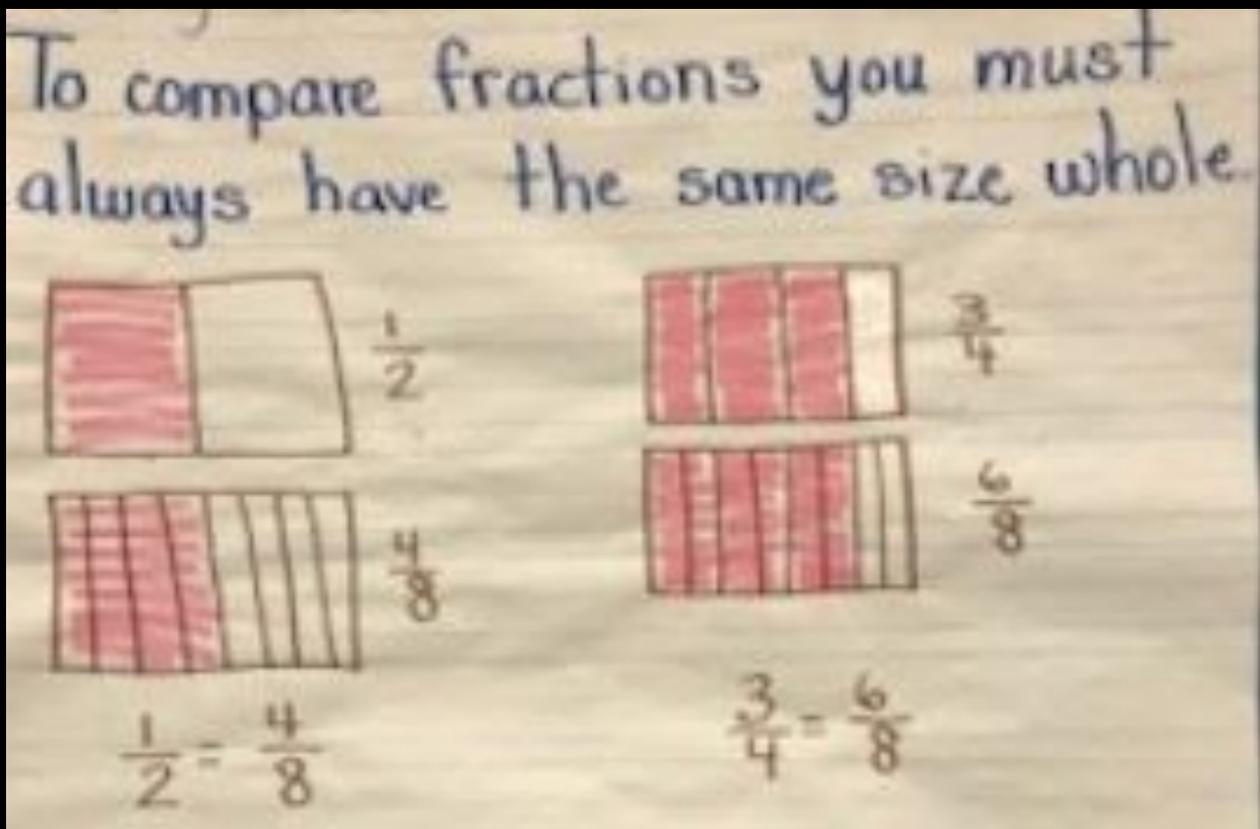
NUMBER AND OPERATIONS - FRACTIONS

NC.4.NF.1	Explain why a fraction is equivalent to another fraction by using area and length fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size.
DESCRIPTION	While these skills are actually aligned to third grade standards, the chart is a great way to review fraction understanding before teaching NC.4.NF.1. Students will distinguish between fractions that are equally and unequally partitioned.



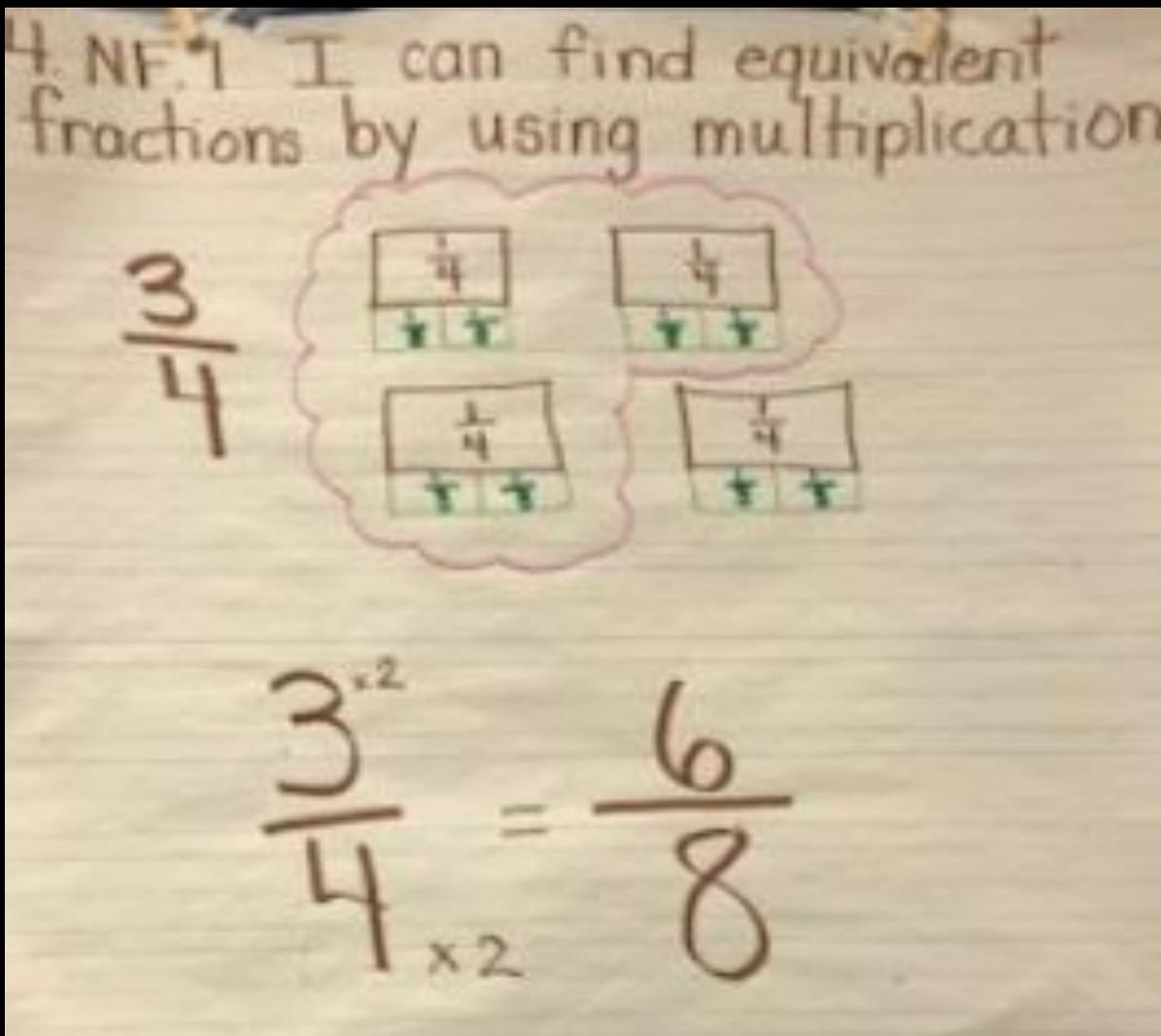
NUMBER AND OPERATIONS - FRACTIONS

NC.4.NF.1	Explain why a fraction is equivalent to another fraction by using area and length fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size.
DESCRIPTION	Notice how this anchor chart refers to a skill in NF.2 (Comparisons are valid only when the two fractions refer to the same whole) while using models to build skills from NF.1. Charts can build on multiple skills at once.



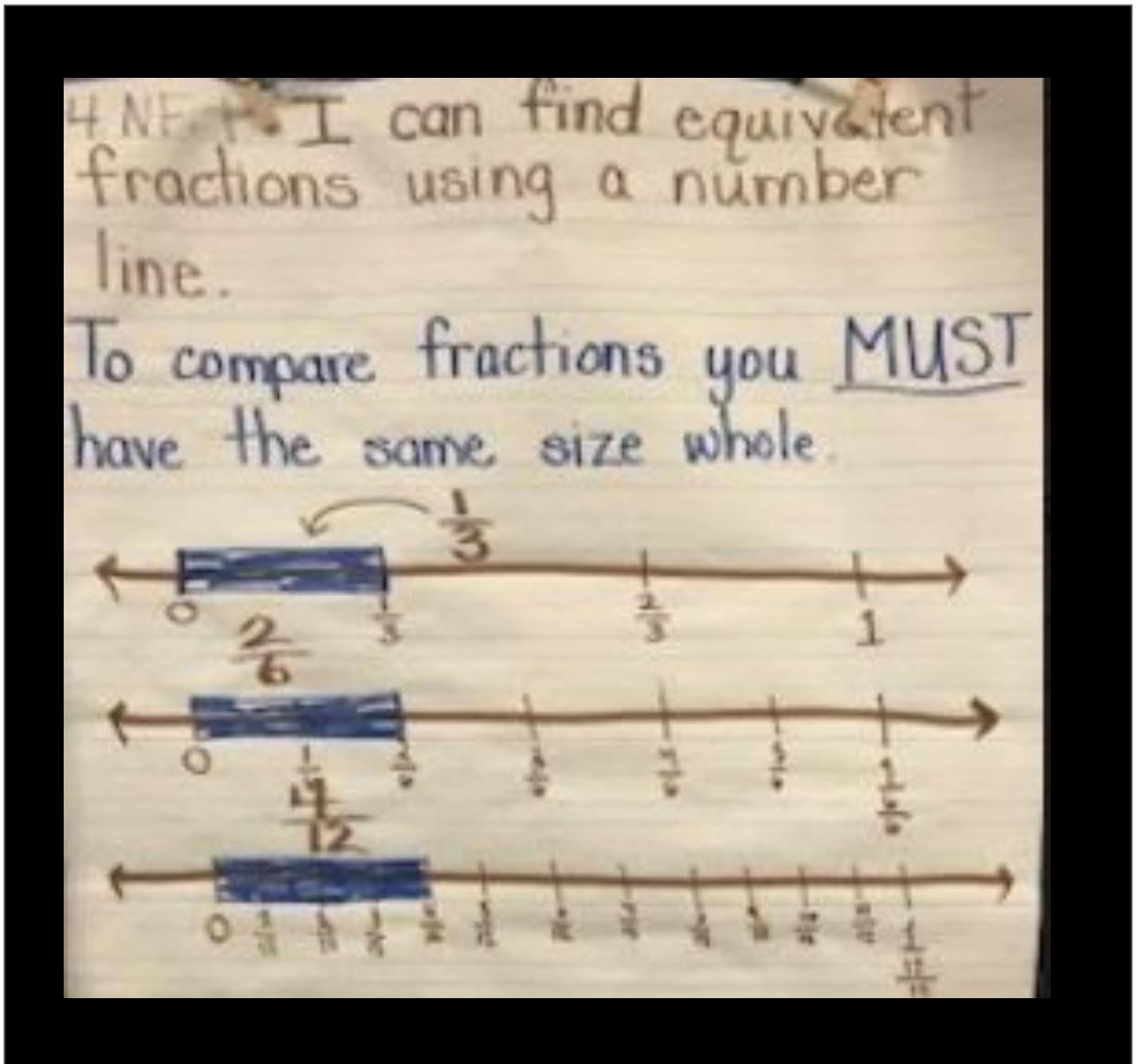
NUMBER AND OPERATIONS - FRACTIONS

NC.4.NF.1	Explain why a fraction is equivalent to another fraction by using area and length fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size.
DESCRIPTION	Anchor charts are good places to also display learning targets, serving as reminders to students about expectations in the lesson. This anchor chart uses a model to connect multiplication to equivalent fractions.



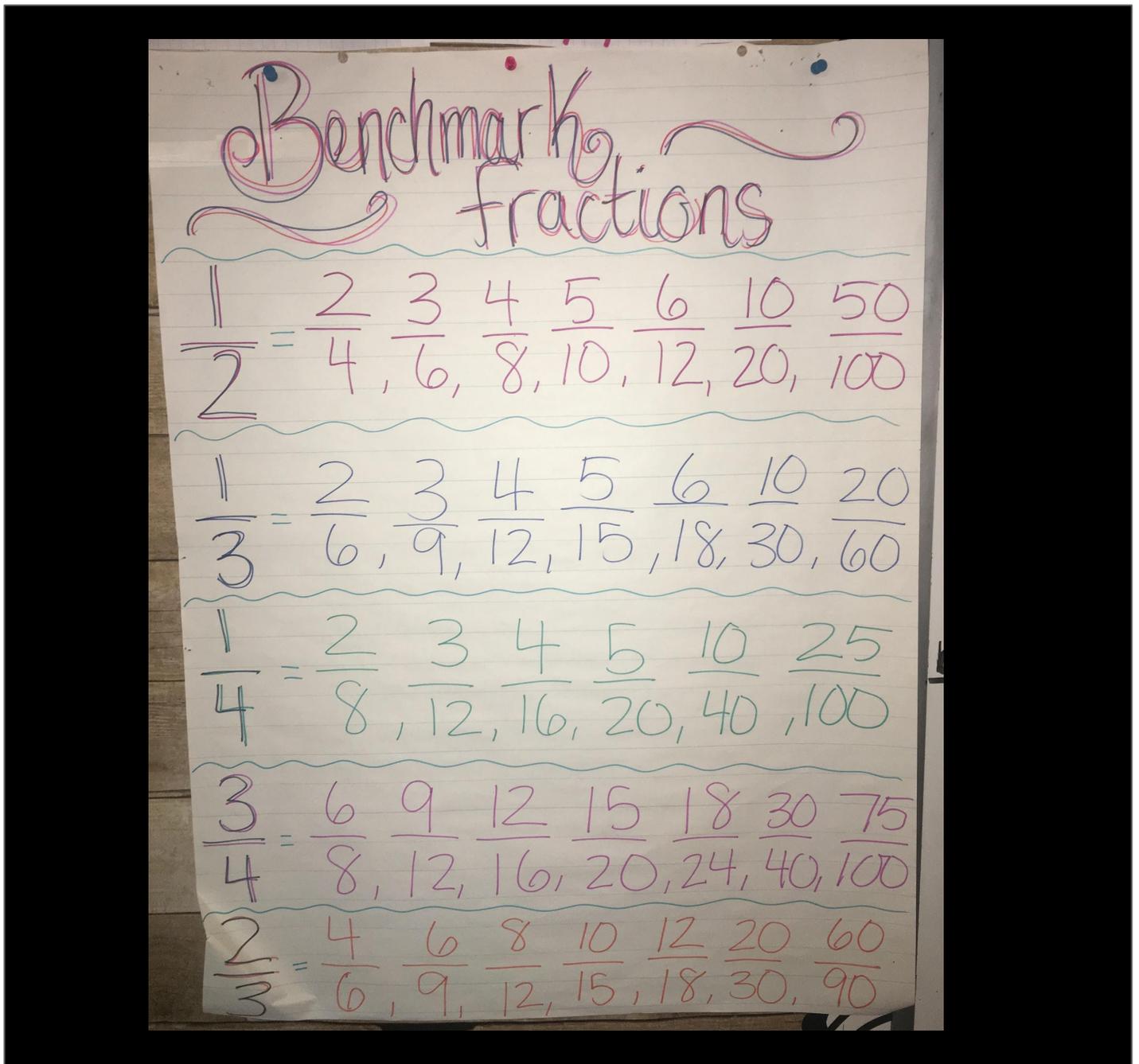
NUMBER AND OPERATIONS - FRACTIONS

NC.4.NF.1	Explain why a fraction is equivalent to another fraction by using area and length fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size.
DESCRIPTION	This anchor chart uses length models to compare fractions. It also provides a reminder about always remembering to consider the size of the whole.



NUMBER AND OPERATIONS - FRACTIONS

NC.4.NF.1	Explain why a fraction is equivalent to another fraction by using area and length fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size.
DESCRIPTION	This anchor chart could be generated with students as they are working with models. When students understand the importance of benchmark fractions and their equivalents, they have valuable tools to use in higher level fraction work.



NUMBER AND OPERATIONS - FRACTIONS

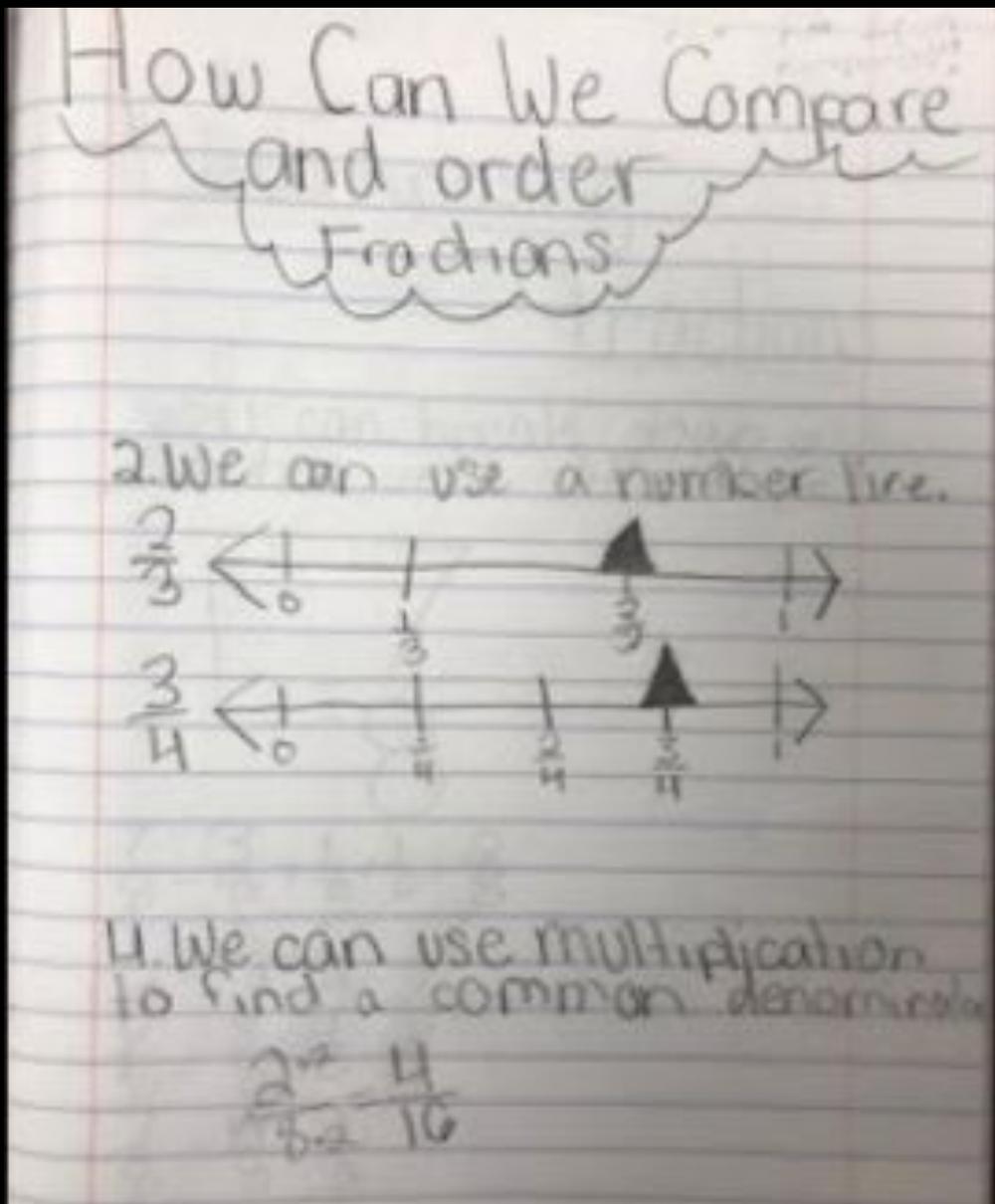
NC.4.NF.2

Compare two fractions with different numerators and different denominators, using the denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions by:

- Reasoning about their size and using area and length models.
- Using benchmark fractions 0, $\frac{1}{2}$, and a whole.
- Comparing common numerator or common denominators.

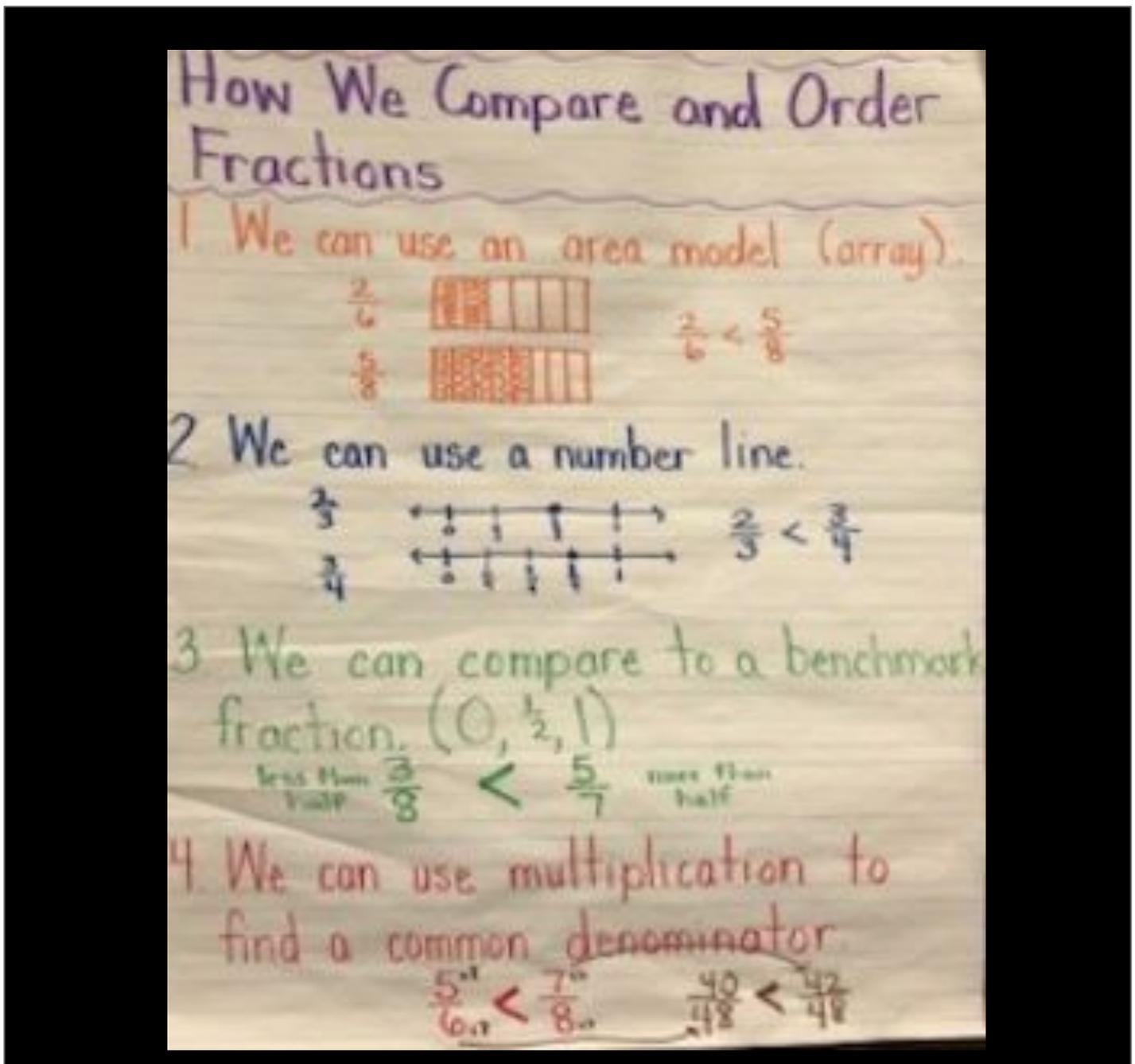
DESCRIPTION

This is an example of how an anchor chart can be developed within a student's journal. This provides opportunities for differentiation by allowing students to use their own numbers as examples as long as key information is related.



NUMBER AND OPERATIONS - FRACTIONS

NC.4.NF.2	Compare two fractions with different numerators and different denominators, using the denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions by: <ul style="list-style-type: none">• Reasoning about their size and using area and length models.• Using benchmark fractions 0, $\frac{1}{2}$, and a whole.• Comparing common numerator or common denominators.
DESCRIPTION	This anchor chart provides examples of four ways students can compare and order fractions. Notice the high level of vocabulary on the chart.

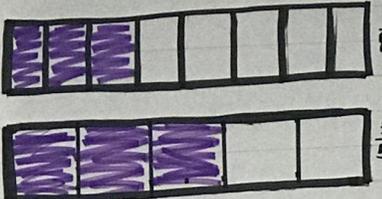


NUMBER AND OPERATIONS - FRACTIONS

<p>NC.4.NF.2</p>	<p>Compare two fractions with different numerators and different denominators, using the denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions by:</p> <ul style="list-style-type: none"> Reasoning about their size and using area and length models. Using benchmark fractions 0, $\frac{1}{2}$, and a whole. Comparing common numerator or common denominators.
<p>DESCRIPTION</p>	<p>This anchor chart provides examples of four ways students can compare and order fractions. Notice the same two fractions are compared in four ways. This allows students to see which strategy works best for them.</p>

NE.2 Comparing Fractions

Fraction Bars



Shade fraction bars to represent each fraction.

Use $\frac{1}{2}$ as a benchmark

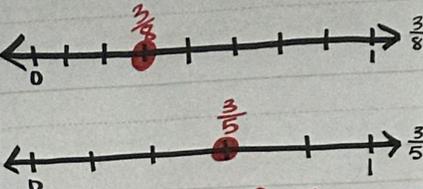
How does each fraction compare to $\frac{1}{2}$?

$\frac{3}{8}$ is less than $\frac{1}{2}$,

$\frac{3}{5}$ is greater than $\frac{1}{2}$

which means $\frac{3}{5}$ is greater than $\frac{3}{8}$.

Number Lines



Represent each fraction on a number line. Which one is closer to 0? Which one is closer to 1?

$\frac{3}{8} < \frac{3}{5}$

Common Numerators or Denominators

Same numerator \rightarrow the greater denominator has the smallest parts

Find common denominator

8: 8, 16, 24, 32, 40, 48

5: 5, 10, 15, 20, 25, 30, 35, 40

$\frac{3}{8} = \frac{15}{40}$ $\frac{3}{5} = \frac{24}{40}$ $\frac{15}{40} < \frac{24}{40}$

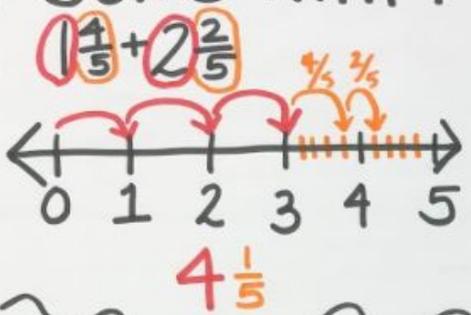
NUMBER AND OPERATIONS - FRACTIONS

<p>NC.4.NF.3</p>	<p>Understand and justify decompositions of fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 100.</p> <ul style="list-style-type: none"> • Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. • Decompose a fraction into a sum of unit fractions and a sum of fractions with the same denominator in more than one way using area models, length models, and equations. • Add and subtract fractions, including mixed numbers with like denominators, by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. • Solve word problems involving addition and subtraction of fractions, including mixed numbers by writing equations from a visual representation of the problem.
<p>DESCRIPTION</p>	<p>This anchor chart displays four ways to add mixed numbers, including area and length models.</p>

NC.4.NF.3

$1\frac{4}{5} + 2\frac{2}{5}$

Solve with Models:



$1\frac{4}{5} + 2\frac{2}{5}$

$3 + \frac{4}{5} + \frac{2}{5}$

$3 + 1\frac{1}{5}$

$4\frac{1}{5}$

Use equivalent fractions

$1\frac{4}{5} + 2\frac{2}{5}$

$\frac{5}{5} + \frac{4}{5} + \frac{10}{5} + \frac{2}{5} = \frac{21}{5} = 4\frac{1}{5}$

$1\frac{4}{5} + 2\frac{2}{5}$

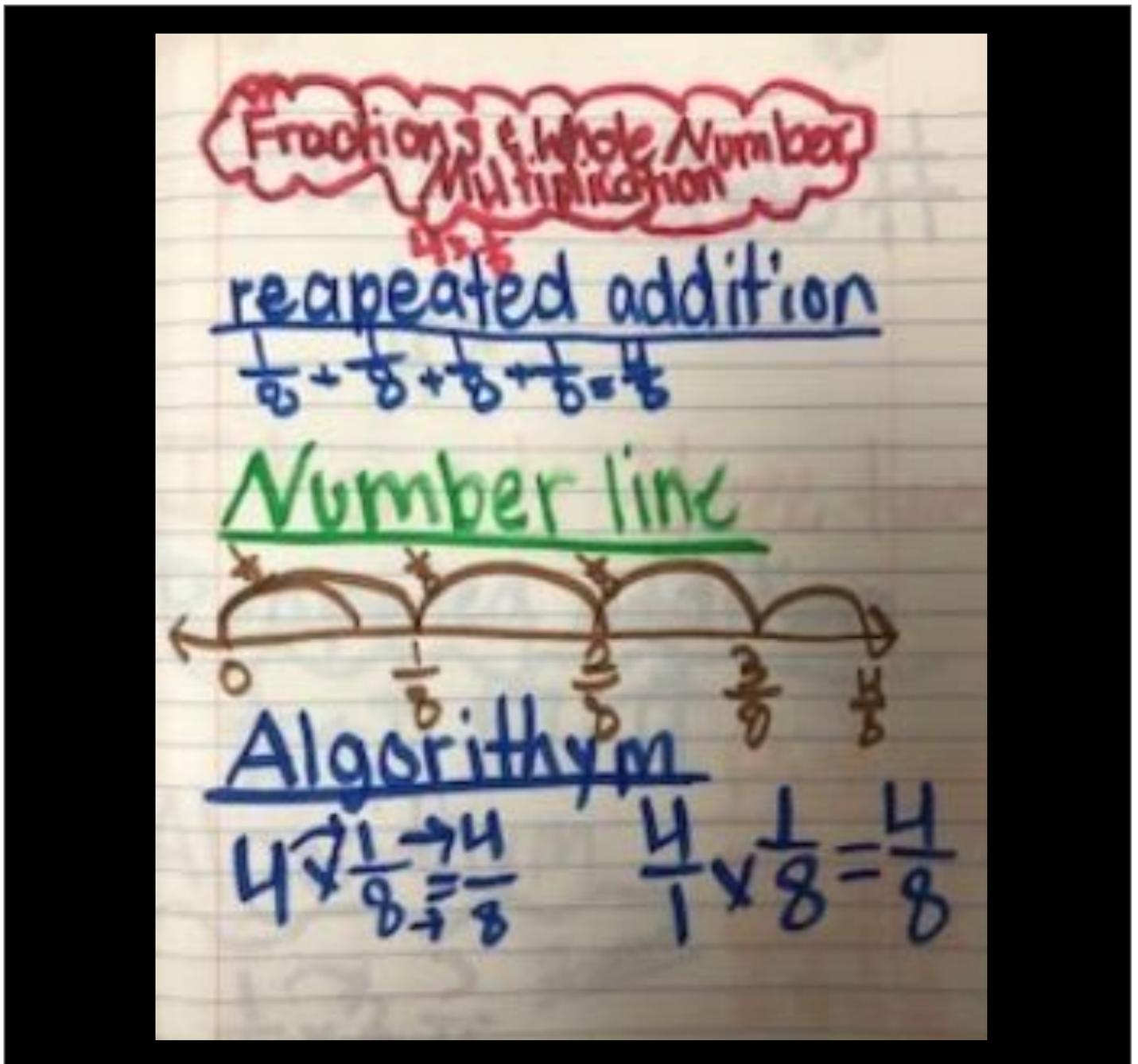
$+ \frac{6}{5} = 1\frac{1}{5}$

$4\frac{1}{5}$

Change improper to mixed!

NUMBER AND OPERATIONS - FRACTIONS

NC.4.NF.4	Apply and extend previous understandings of multiplication to: <ul style="list-style-type: none">• Model and explain how fractions can be represented by multiplying a whole number by a unit fraction, using this understanding to multiply a whole number by any fraction less than one.• Solve word problems involving multiplication of a fraction by a whole number.
DESCRIPTION	Anchor charts can be recorded in student journals so that they may refer to them after the chart is pulled from the wall. Notice the concise nature of the notes here. Students can get the point of the information without multiple examples of the same strategy.



NUMBER AND OPERATIONS - FRACTIONS

NC.4.NF.4	Apply and extend previous understandings of multiplication to: <ul style="list-style-type: none">• Model and explain how fractions can be represented by multiplying a whole number by a unit fraction, using this understanding to multiply a whole number by any fraction less than one.• Solve word problems involving multiplication of a fraction by a whole number.
DESCRIPTION	Anchor charts can help students make sense of and organize different approaches. Notice how the same problem is solved with all three strategies. Students can then use this chart to decide which strategy makes the most sense to them.

Multiplying a Fraction
by a whole number

$$\frac{3}{8} \times 5 = \frac{15}{8} \text{ or } 1\frac{7}{8}$$

Repeated addition:

$$\frac{3}{8} + \frac{3}{8} + \frac{3}{8} + \frac{3}{8} + \frac{3}{8} = \frac{15}{8} = 1\frac{7}{8}$$

Visual Model:

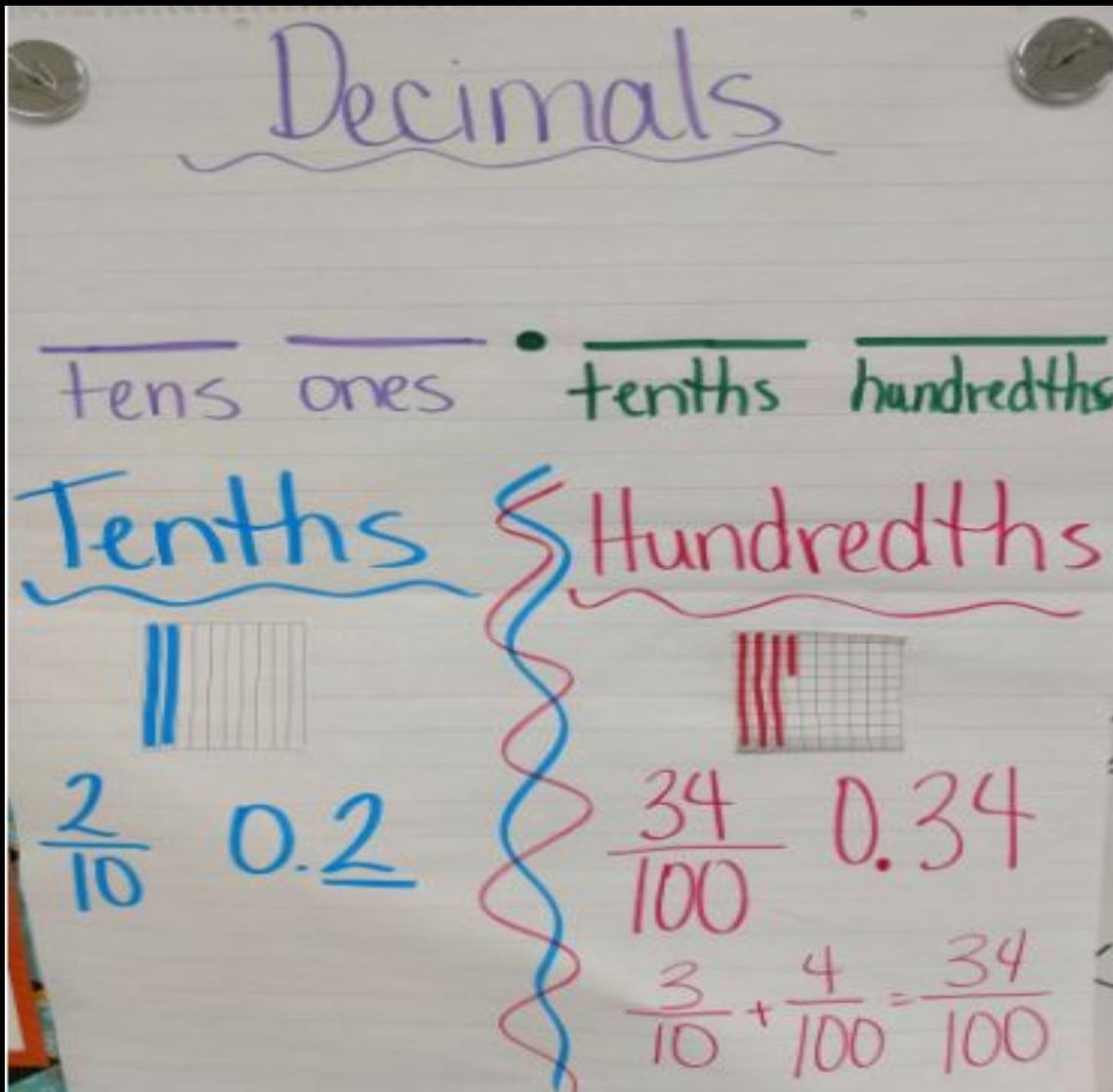


Multiplication:

$$\frac{3}{8} \times \frac{5}{1} = \frac{15}{8} = 1\frac{7}{8}$$

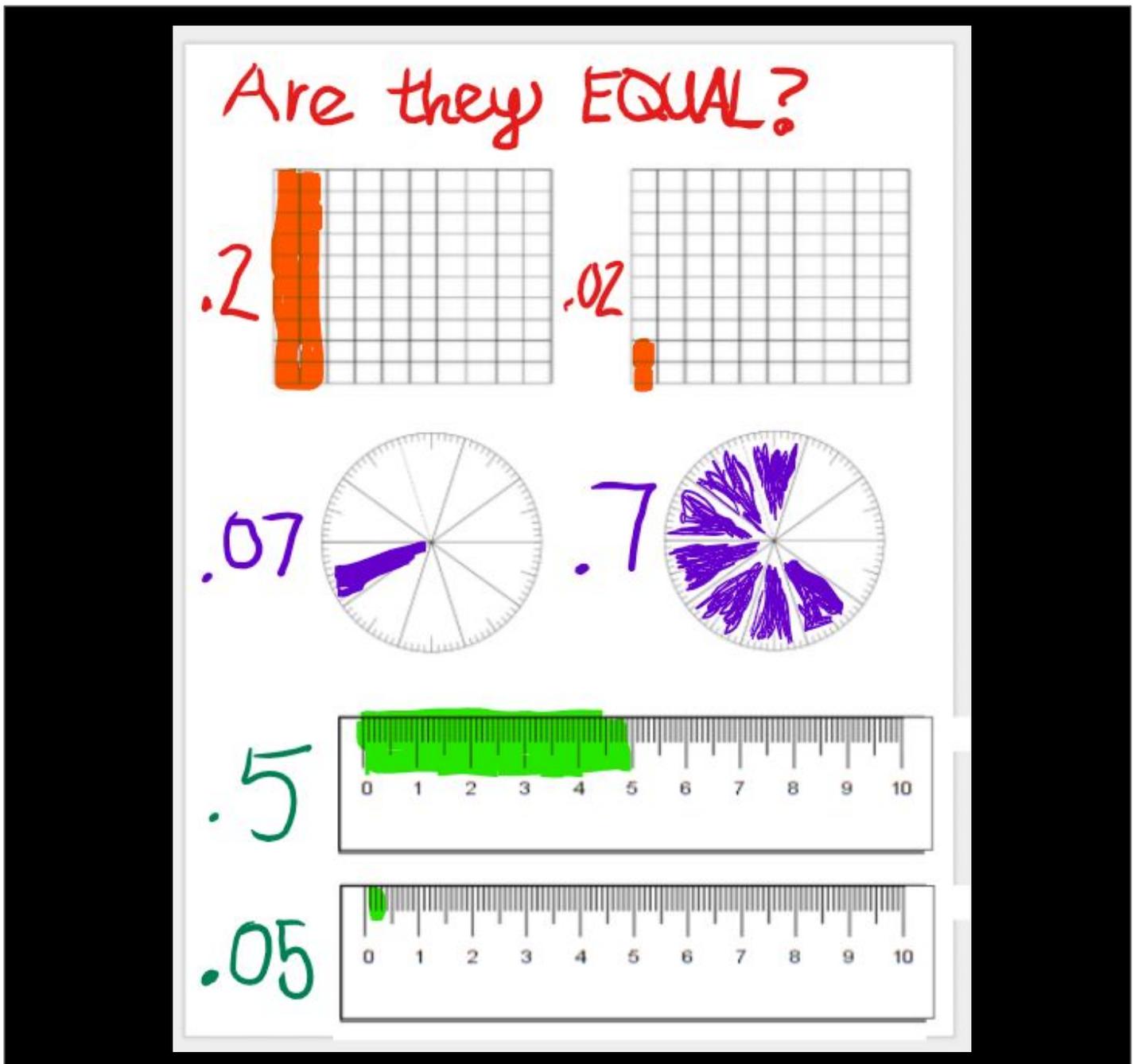
NUMBER AND OPERATIONS - FRACTIONS

NC.4.NF.6	Use decimal notation to represent fractions. <ul style="list-style-type: none">• Express, model and explain the equivalence between fractions with denominators of 10 and 100.• Use equivalent fractions to add two fractions with denominators of 10 or 100.• Represent tenths and hundredths with models, making connections between fractions and decimals.
DESCRIPTION	Anchor charts provide opportunities to link important models to deepen student understanding. Notice here how a place value line is accompanied by picture models of tenths and hundredths. Students are able to understand how place value, fractions, and decimals are connected.



NUMBER AND OPERATIONS - FRACTIONS

NC.4.NF.7	Compare two decimals to hundredths by reasoning about their size using area and length models, and recording the results of comparisons with the symbols $>$, $=$, or $<$. Recognize that comparisons are valid only when the two decimals refer to the same whole.
DESCRIPTION	When students are working on this standard, it is important to ask them to compare decimals in the tenths and hundredths place. This anchor chart shows how to use models to help students understand how place affects the value of a number.

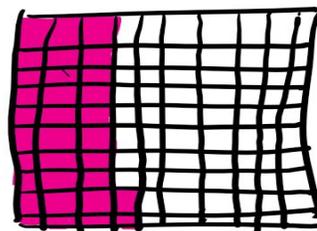
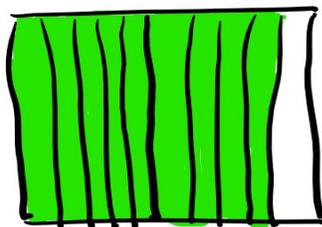


NUMBER AND OPERATIONS - FRACTIONS

NC.4.NF.7	Compare two decimals to hundredths by reasoning about their size using area and length models, and recording the results of comparisons with the symbols $>$, $=$, or $<$. Recognize that comparisons are valid only when the two decimals refer to the same whole.
DESCRIPTION	Once students understand how to create equivalent decimals, they can use this understanding to begin comparing other decimals. This anchor chart reminds students to create equivalent decimals in order to compare.

Comparing Decimals

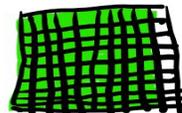
$$.9 > .32$$



$$.90 > .32$$

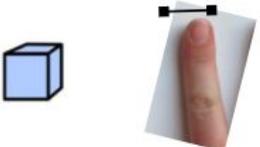
• Remember to place zeros at the end of a number to bring out to the same place.

$$.9 = .90$$



MEASUREMENT AND DATA

<p>NC.4.MD.1</p>	<p>Know relative sizes of measurement units. Solve problems involving metric measurement.</p> <ul style="list-style-type: none"> • Measure to solve problems involving metric units: centimeter, meter, gram, kilogram, Liter, milliliter. • Add, subtract, multiply, and divide to solve one-step word problems involving whole-number measurements of length, mass, and capacity that are given in metric units.
<p>DESCRIPTION</p>	<p>This anchor chart is an example of how you can start with a pre-set chart and then work with students to add to the chart to personalize it for the class.</p>

<p style="text-align: center;">BENCHMARK MEASUREMENTS</p>	
<p>Centimeters- measure length</p> 	<p>What examples can you find? <i>pencil eraser</i></p>
<p>Decimeters- measure length</p>  <p>TEN RODS</p>	<p><i>crayon</i> <i>width of hand</i></p>
<p>Meters- measure length</p>  <p>MEASURING TAPE</p>	<p><i>door- doorknob</i> ↓ <i>baseball bat</i></p>
<p>Grams- measure mass</p>  <p>PAPER CLIP</p>	<p><i>dollar bill</i> <i>leaf thumb tack</i></p>
<p>Kilograms- measure mass</p> <p>PINEAPPLE</p> 	<p><i>Dictionary</i></p>
<p>Milliliters- measure capacity</p> <p>20 drops</p> 	<p><i>Liquid medicine</i></p>
<p>Liters- measure capacity</p> <p>LARGE BOTTLE OF WATER</p> 	<p><i>half of a 2L soda</i> <i>bottle of ketchup</i></p>

MEASUREMENT AND DATA

<p>NC.4.MD.1</p>	<p>Know relative sizes of measurement units. Solve problems involving metric measurement.</p> <ul style="list-style-type: none"> • Measure to solve problems involving metric units: centimeter, meter, gram, kilogram, Liter, milliliter. • Add, subtract, multiply, and divide to solve one-step word problems involving whole-number measurements of length, mass, and capacity that are given in metric units.
<p>DESCRIPTION</p>	<p>This anchor chart demonstrates how to list previous understandings on an anchor chart and then use the same anchor chart throughout a unit to continue to build new understandings. The customary units of measure listed here are a review of third grade standards. As the class learned more about the metric system, they added to the right side of the chart.</p>

MEASUREMENT facts

<p><u>Customary</u></p> <p><u>Length:</u></p> <p>12 inches = 1 foot (ft.) 3 feet = 1 yard (yd.) 36 inches = 1 yard 5,280 feet = 1 mile (mi.)</p> <p><u>Liquid:</u></p> <p>1 cup = 8 ounces (fl.oz) 1 pint = 2 cups (c.) 1 quart = 2 pints (pt.) 1 gallon = 4 quarts (qt.)</p> <p><u>Weight:</u></p> <p>1 pound (lb) = 16 ounces 1 ton = 2,000 pounds</p> <p>1 yard = 3 feet 12 inches = 1 foot</p> <p>★ inch = in.</p>	<p><u>Metric</u></p> <p><u>Length:</u></p> <p>1,000 millimeters = 1 meter 100 centimeters = 1 meter 1,000 meters = 1 kilometer 1 centimeter = 10 millimeters</p> <p><u>Liquid:</u></p> <p>1 liter = 1,000 milliliters</p> <p><u>Weight:</u></p> <p>1 gram = 1,000 milligrams 1 Kilogram = 1,000 grams</p> <p>Kilo = 1,000 milli = 1,000 centi = 100</p> <p><u>ALL</u> units are divisible by 10!</p>
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MEASUREMENT AND DATA

<p>NC.4.MD.2</p>	<p>Use multiplicative reasoning to convert metric measurements from a larger unit to a smaller unit using place value understanding, two-column tables, and length models.</p>
<p>DESCRIPTION</p>	<p>This anchor chart helps students to see the connection between converting metric units to place value.</p>

*** Metric Units ***

Examples:
 1 meter = 1,000 mm
 1 gram = 100 cg
 1 L = 10 dL

Length
 meter

Weight
 Grams

Examples:
 1 km = 1,000 m
 1 hg = 100 g
 1 daL = 10 L

Volume
 Liter

MD.2

MEASUREMENT AND DATA

NC.4.MD.3	Solve problems with area and perimeter. <ul style="list-style-type: none">• Find areas of rectilinear figures with known side lengths.• Solve problems involving a fixed area and varying perimeters and a fixed perimeter and varying areas.• Apply the area and perimeter formulas for rectangles in real world and mathematical problems.
DESCRIPTION	This anchor chart demonstrates how you can use visual cues to help students remember important vocabulary. In addition, the teacher used the bottom of the chart to record student thinking during class discussion.

Area

R
R
A
Y

The amount of space inside of a polygon. It is measured in square units.

Perimeter

The distance

around the outside of a polygon.

What tips do you have for solving problems with Area and Perimeter?

- Look for congruent sides for missing measures.
- To find the area of an irregular shape, isolate squares/rectangles, find the area of each, & combine the areas for a total.

MEASUREMENT AND DATA

<p>NC.4.MD.4</p>	<p>Represent and interpret data using whole numbers.</p> <ul style="list-style-type: none"> • Collect data by asking a question that yields numerical data. • Make a representation of data and interpret data in a frequency table, scaled bar graph, and/or line plot. • Determine whether a survey question will yield categorical or numerical data.
<p>DESCRIPTION</p>	<p>This anchor chart is a starting point for a lesson on data. Notice how the anchor chart lists examples of categorical and numerical data. As the lesson is being taught, students and teacher together can generate other examples to add to the chart. They can also post other examples of numerical graphs they encounter throughout the unit. They can look for these examples in textbooks, newspapers, magazines, and online resources.</p>

NC.4.MD.4

Categorical VS. Numerical Data

↓

Eye color
Kind of pet
Birth month
Hair color
Favorite food
Transportation types

↓

Age
Number of siblings
Height
Temperature
Distance
Number of items in a box

Types of graphs for Numerical Data

Frequency Table

# of laps	Tally	frequency
15		5
18		7
21		4
24		1
30		2
36		1

Scaled Bar Graph

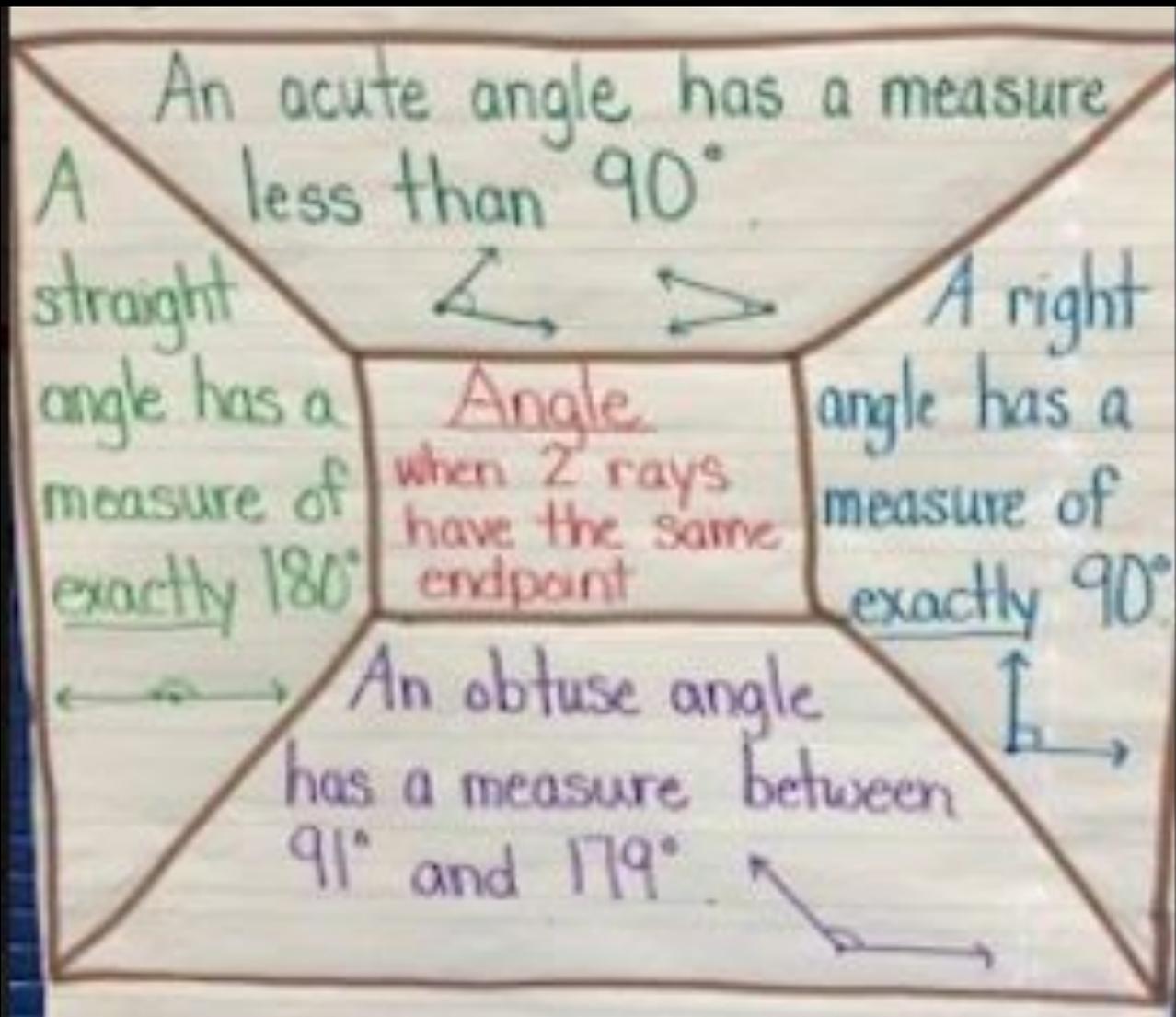
Line Plot

Amount of Recycled Paper per Class (kilograms)

					X			
				X	X			
	X			X	X		X	
	X		X	X	X	X	X	
X	X		X	X	X	X	X	X
5	6	7	8	9	10	11	12	13

MEASUREMENT AND DATA

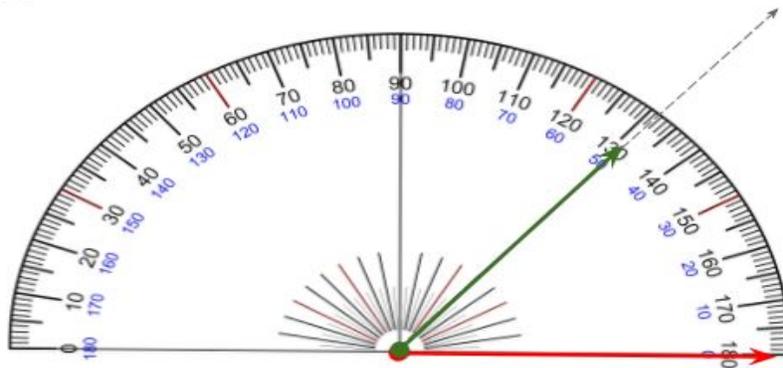
NC.4.MD.6	Develop an understanding of angles and angle measurement. <ul style="list-style-type: none">• Understand angles as geometric shapes that are formed wherever two rays share a common endpoint, and are measured in degrees.• Measure and sketch angles in whole-number degrees using a protractor.• Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems.
DESCRIPTION	This anchor chart is a great way to help students remember important vocabulary in geometry.



MEASUREMENT AND DATA

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DESCRIPTION	An anchor chart is a great place to list procedures for students to refer to throughout the lesson. It is also a place to note tips students may have for one another as a result of practicing a concept.

How to Use a Protractor



1. Determine which ray you want to be the base of your angle.
2. Extend the other ray.
3. Look at the angle. Is it acute, right, or obtuse?
4. Find the vertex of your angle. Place it in the center of the protractor and line up the **baseline of the angle** with the bottom line on the protractor.
5. Follow the extended ray and read the appropriate number:
 - a. If it is an acute angle, the number will be less than 90.
 - b. If it is an obtuse angle, the number will be more than 90.
 - c. If it is a right angle, the number will be exactly 90.

Other Tips?

1. Start counting at 0 on the side where your base ray points.
2. Once you get your answer- check it with your prediction. Does it make sense?
3. It is okay to turn your paper!

MEASUREMENT AND DATA

<p>NC.4.MD.8</p>	<p>Solve word problems involving addition and subtraction of time intervals that cross the hour.</p>
<p>DESCRIPTION</p>	<p>This anchor chart helps the teacher record thinking for how to use a t-chart to track elapsed time. Notice how the teacher set up the hours and minutes on the right side to make it easier to add in order to find the total.</p>

ELAPSED TIME

The amount of time that passes between one time and another time.

T-CHART

Start:	Time	Hours - Min.
8:27	8:27	0 hr 3 min.
End:	8:30	4 hr 0 min.
1:20	12:30	0 hr. 30 min.
	1:00	0 hr. 20 min.
	1:20	
		4 hr. 53 min.

Amount of time passed

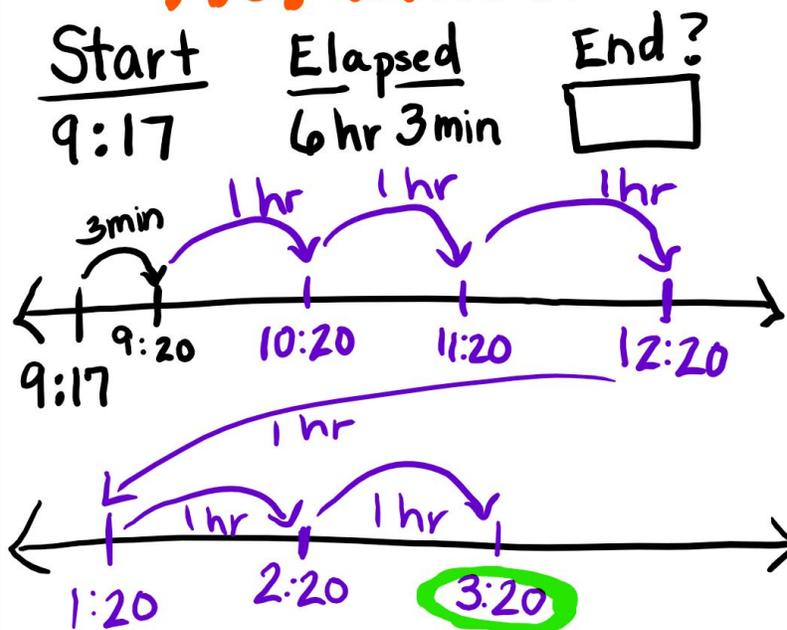
MEASUREMENT AND DATA

NC.4.MD.8	Solve word problems involving addition and subtraction of time intervals that cross the hour.
DESCRIPTION	This anchor chart shows students how to use a number line to find an ending time. The number line makes the passage of time clear because the jumps are labeled with increments of minutes/hours.

ELAPSED TIME

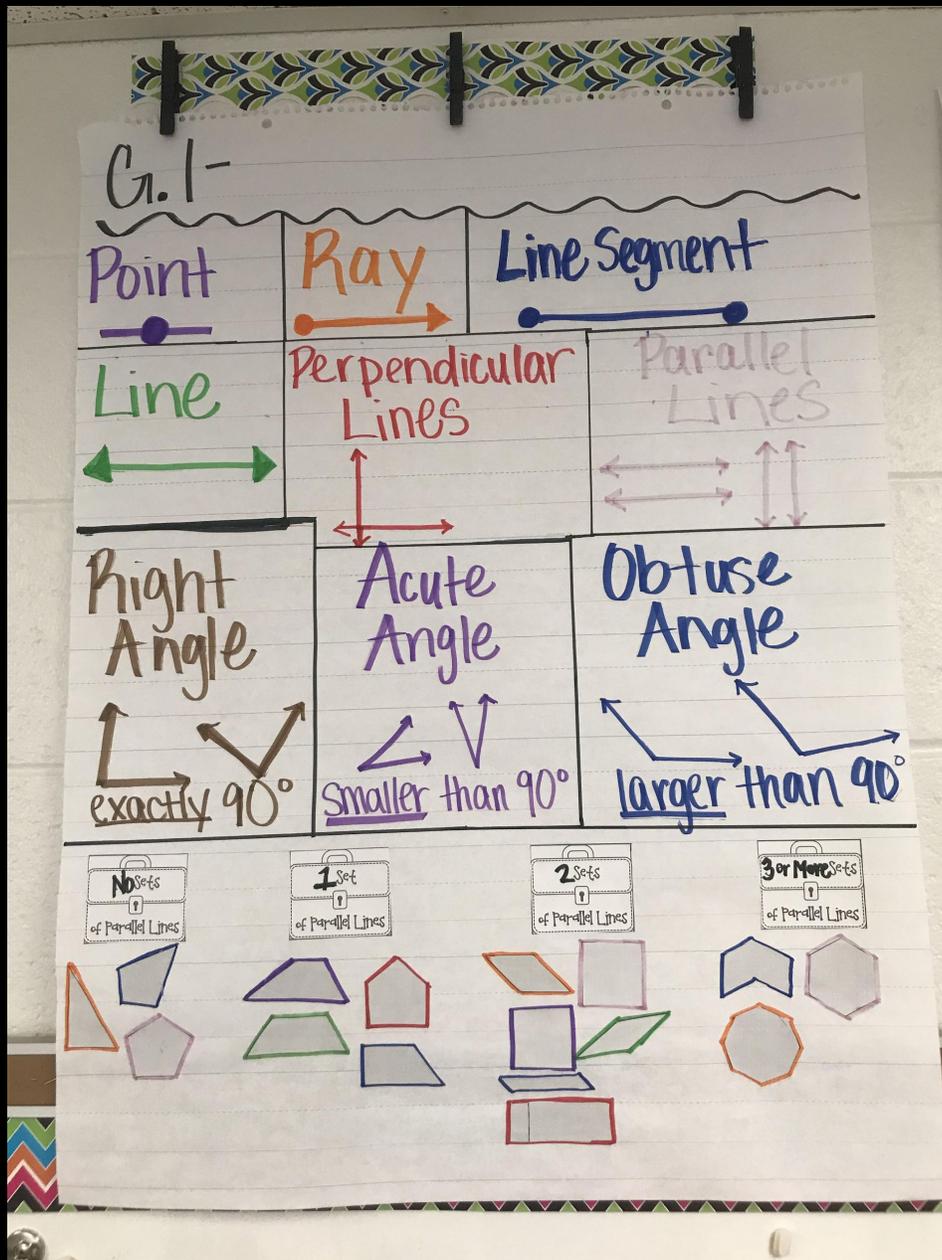
The amount of time that passes between one time and another time.

NUMBER LINE



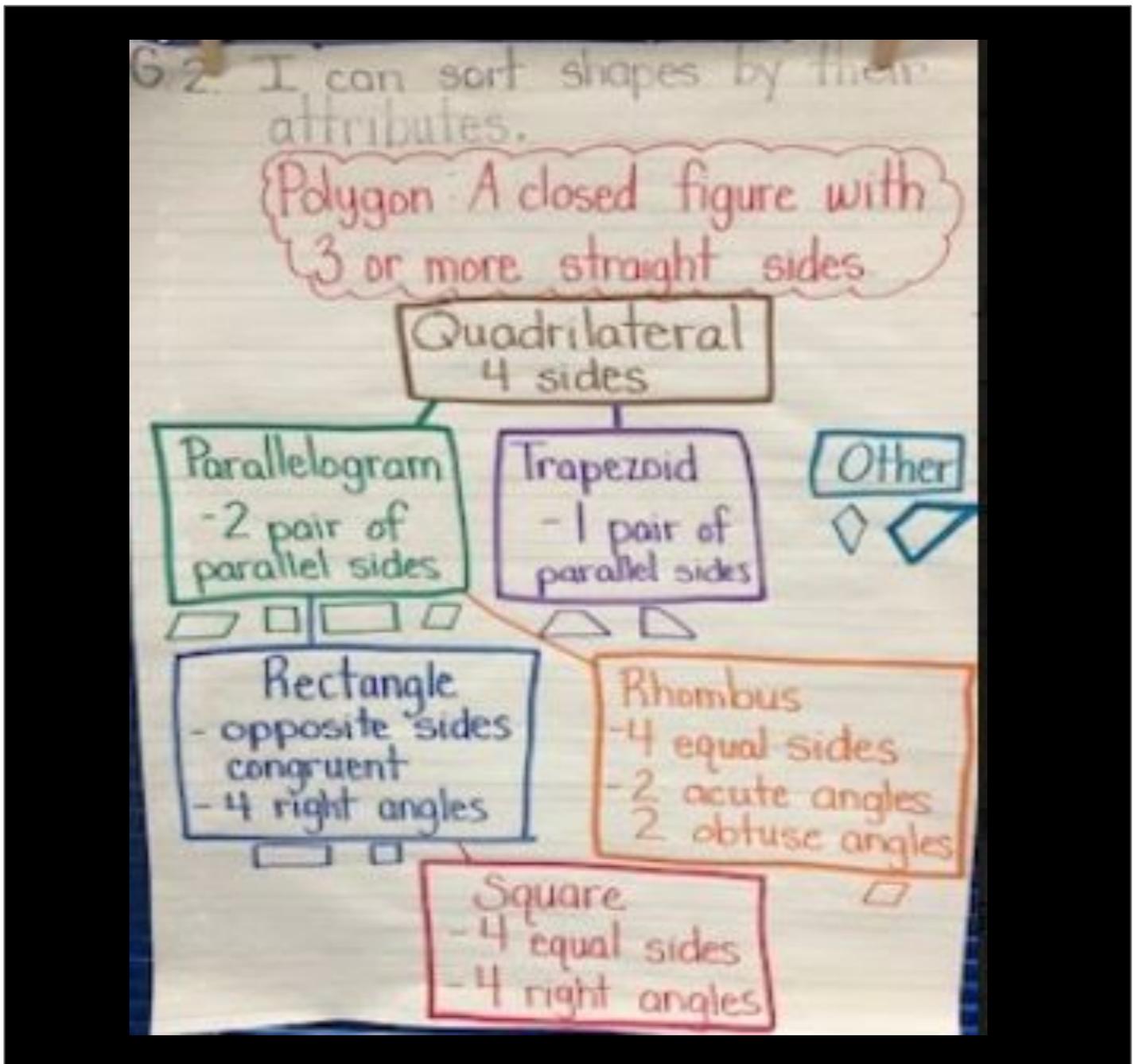
GEOMETRY

NC.4.G.1	Draw and identify points, lines, line segments, rays, angles, and perpendicular and parallel lines.
DESCRIPTION	These anchor chart is a great way to help students remember important vocabulary in geometry. Notice how each word is accompanied by pictures to increase student understanding.



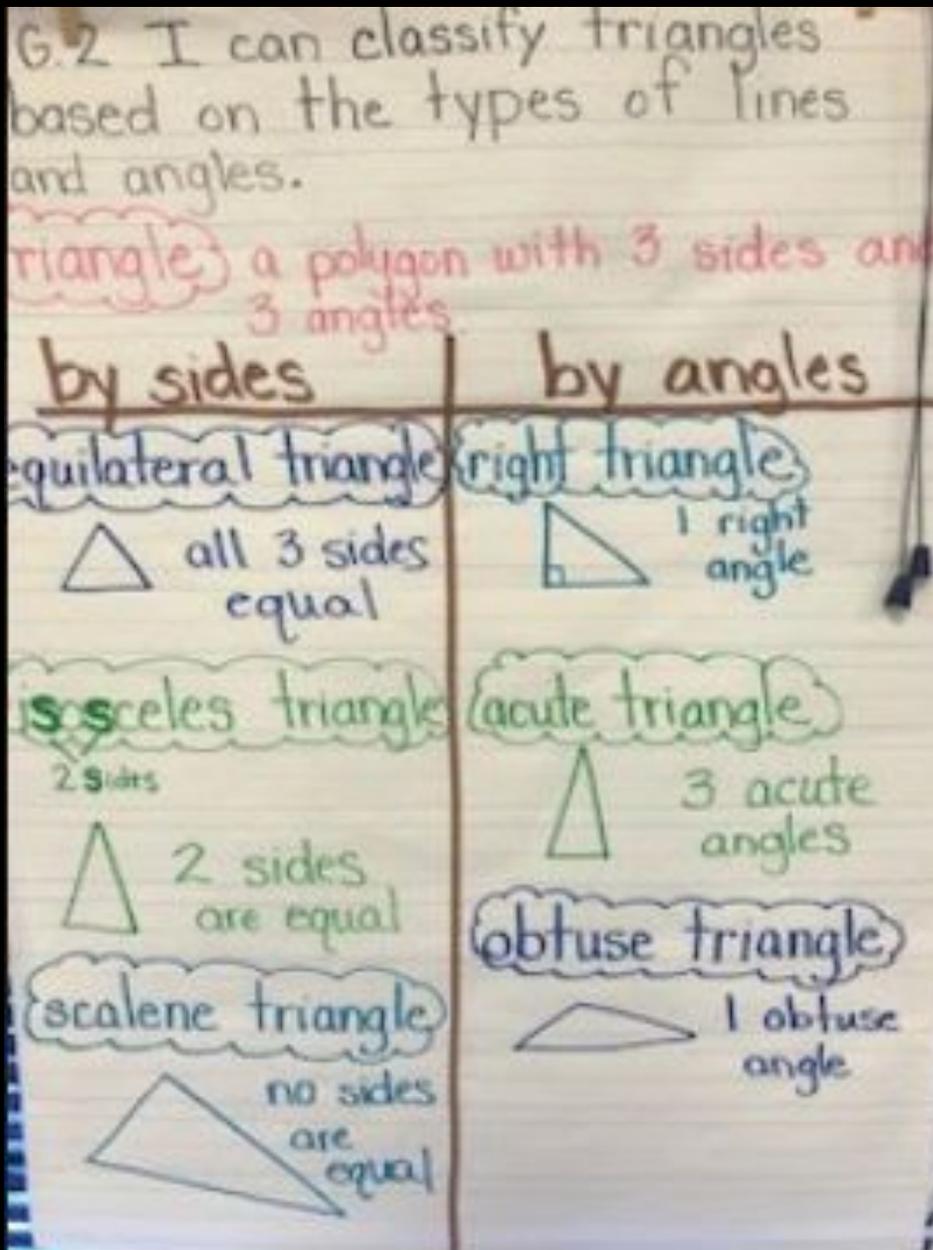
GEOMETRY

NC.4.G.2	Classify quadrilaterals and triangles based on angle measure, side lengths, and the presence or absence of parallel or perpendicular lines.
DESCRIPTION	This anchor chart is another example of how to help students understand all of the complex vocabulary in geometry, along with the relationships between the words.



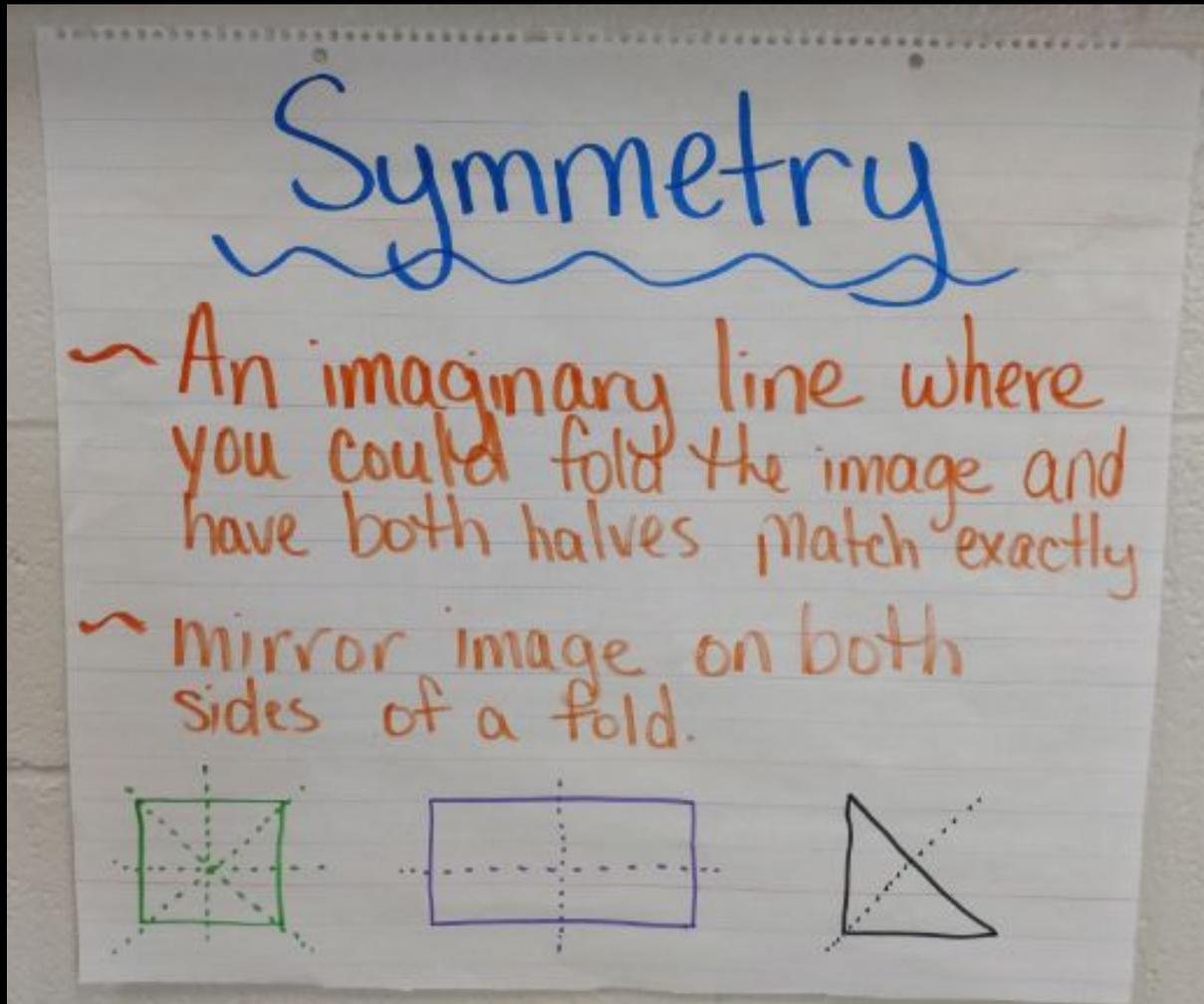
GEOMETRY

NC.4.G.2	Classify quadrilaterals and triangles based on angle measure, side lengths, and the presence or absence of parallel or perpendicular lines.
DESCRIPTION	This anchor chart helps students understand the vocabulary associated with classifying triangles by their sides and angles.



GEOMETRY

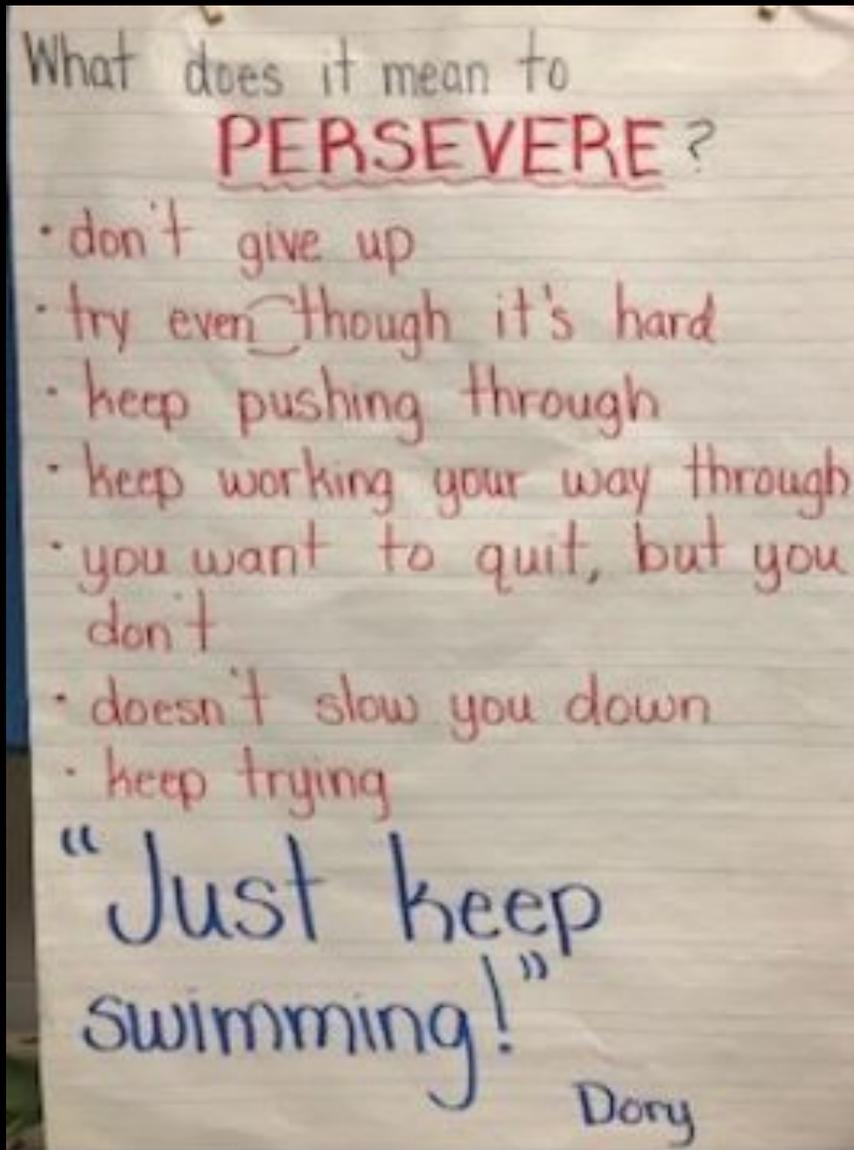
NC.4.G.3	Recognize symmetry in a two-dimensional figure, and identify and draw lines of symmetry.
DESCRIPTION	This anchor chart presented the definition of symmetry using kid friendly language as well as multiple picture examples. Notice that the examples include figures that have multiple lines of symmetry.



CLASSROOM COMMUNITY

DESCRIPTION

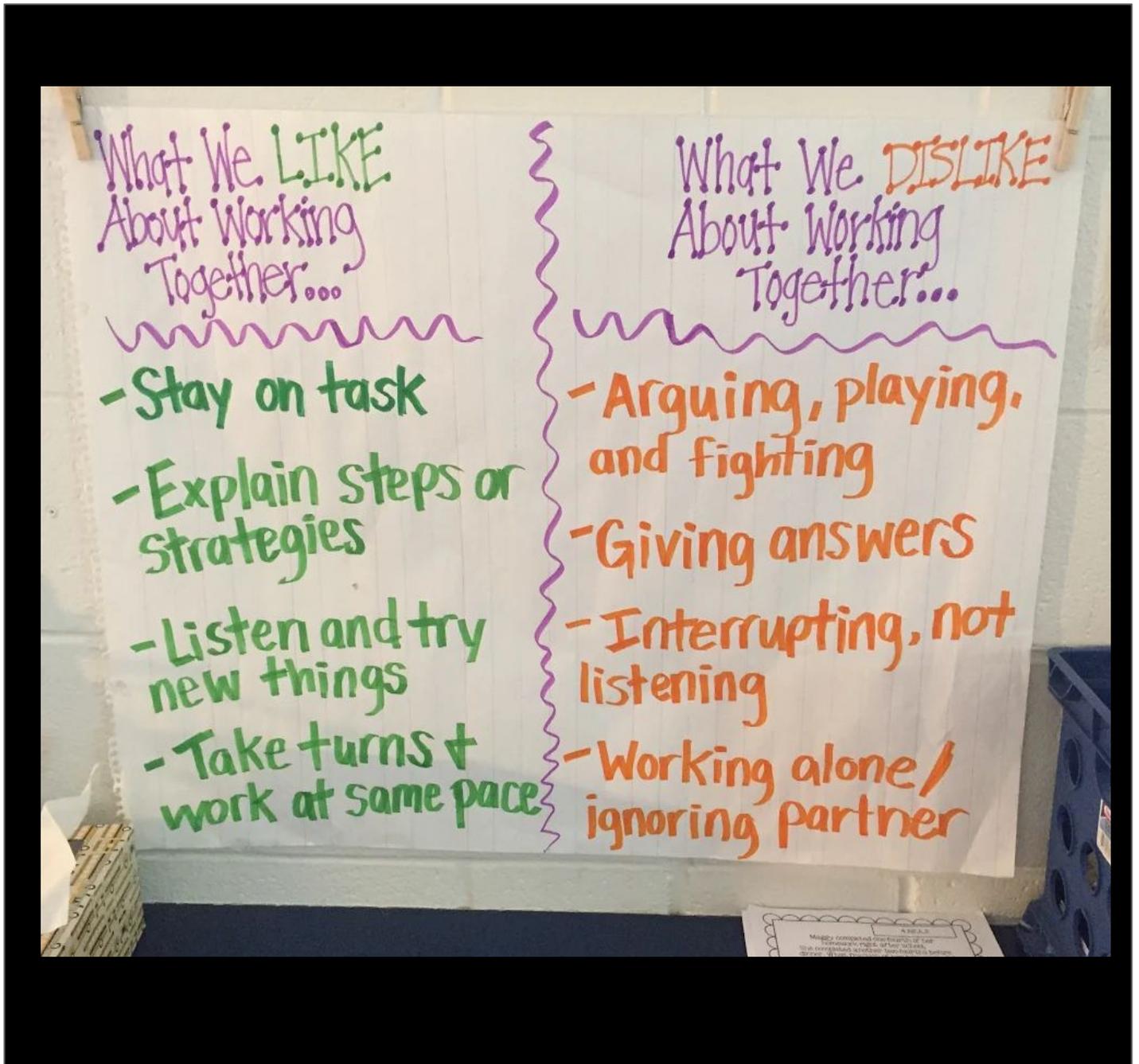
Anchor charts are a great way to help students remember the 8 math practices.



CLASSROOM COMMUNITY

DESCRIPTION

This anchor chart can be used to help teach growth mindset and working as a team. Students can actually decide which ideas they would like highlighted on the chart.



CLASSROOM COMMUNITY

DESCRIPTION

This anchor chart can be used as a guide to teach students about appropriate "math talk". This is an example of a chart that may be on display all year long.

