Clarification of Standards for Parents
Grade 2 Mathematics Unit 4

Dear Parents,
We want to make sure that you have an understanding of the mathematics your child will be learning this year. Below you will find the standards we will be learning in Unit Four. Each standard is in bold print and underlined and below it is an explanation with student examples. Your child is not learning math the way we did when we were in school, so hopefully this will assist you when you help your child at home. Please let your teacher know if you have any questions. ☺

MGSE2.NBT.6 Add up to four two-digit numbers using strategies based on place value and properties of operations.
This standard calls for students to add a string of two-digit numbers (up to four numbers) by applying place value strategies and properties of operations.

Example: 43 + 34 + 57 + 24 = __

Student 1: ***Associative Property***

I saw the 43 and 57 and added them first, since I know 3 plus 7 equals 10. When I added them 100 was my answer. Then I added 34 and had 134. Then I added 24 and had 158.

Student 2: ***Place Value Strategies***

I broke up all of the numbers into tens and ones. First I added the tens. 40 + 30 + 50 + 20 = 140. Then I added the ones. 3 + 4 + 7 + 4 = 18. Then I combined the tens and ones and had 158 as my answer.

Student 3: ***Place Value Strategies and Associative Property***

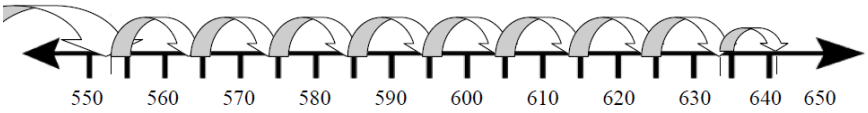
I broke up all the numbers into tens and ones. First I added up the tens: 40 + 30 + 50 + 20. I changed the order of the numbers to make adding them easier. I know that 30 plus 20 equals 50 and 50 more equals 100. Then I added the 40 and got 140. Then I added up the ones: 3 + 4 + 7 + 4. I changed the order of the numbers to make adding easier. I know that 3 plus 7 equals 10 and 4 plus 4 equals 8. 10 plus 8 equals 18. I then combined my tens and ones. 140 plus 18 equals 158.

MGSE2.NBT.7 Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method.
This standard builds on the work from 2.NBT.5 by increasing the size of numbers (two 3-digit numbers). Students should have ample experiences to use concrete materials (place value blocks) and pictorial representations to support their work.

This standard also references composing and decomposing a ten. This work should include strategies such as making a 10, making a 100, breaking apart a 10, or creating an easier problem. While the standard algorithm could be used here, students' experiences should extend beyond only working with the algorithm. Example: 354 + 287 = ___

Student 1

I started at 354 and jumped 200. I landed on 554. Then I made 8 jumps of 10 and landed on 634. I then jumped 7 and landed on 641



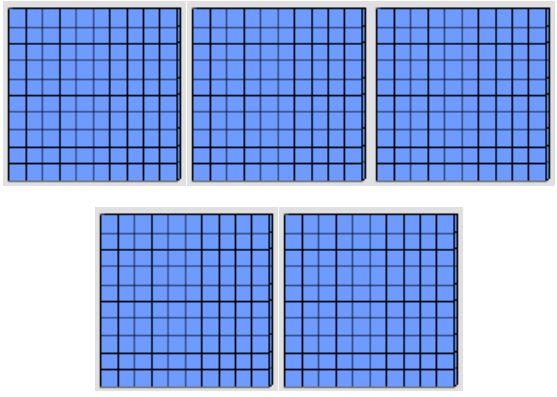
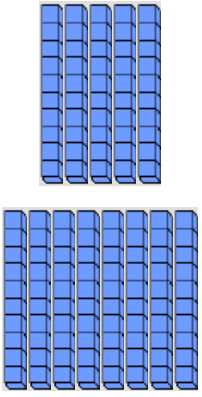
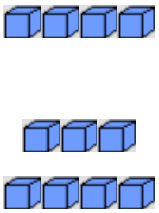
Student 2

I broke all of the numbers up by place using a place value chart.
I first added the ones.4 + 7 = 11.
I then added the tens. 50 + 80 = 130.
I then added the hundreds. 300 + 200 = 500.
I then combined my answers. 500 + 130 = 630. 630 + 11= 641

Student 2

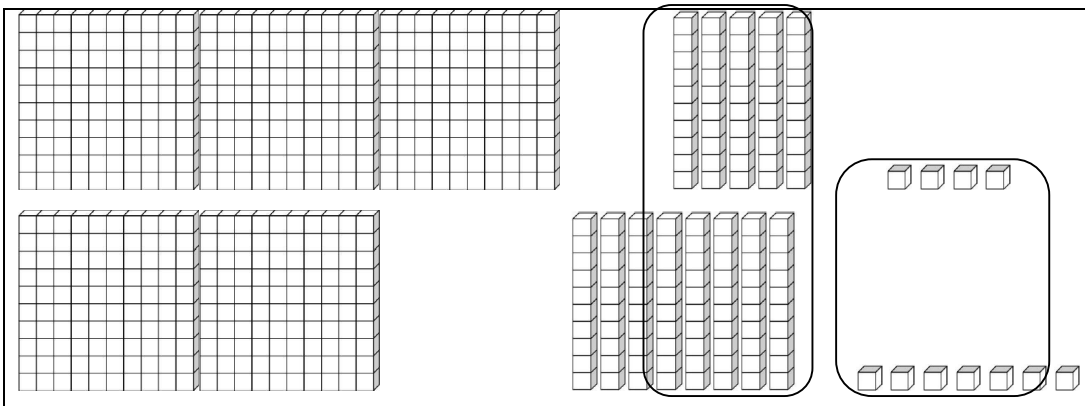
I broke all of the numbers up by place using a place value chart.

- I first added the ones: 4 + 7 = 11.
- Then I added the tens: 50 + 80 = 130.
- Then I added the hundreds: 300 + 200 = 500.
- Then I combined my answers: 500 + 130 = 630; 630 + 11 = 641.

 **Hundreds**	 **Tens**	 **Ones**
		

Student 3

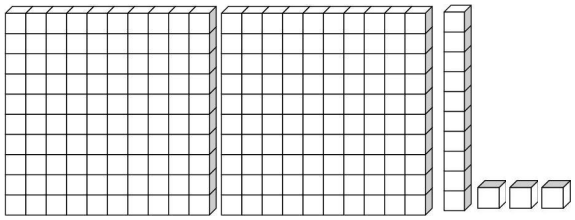
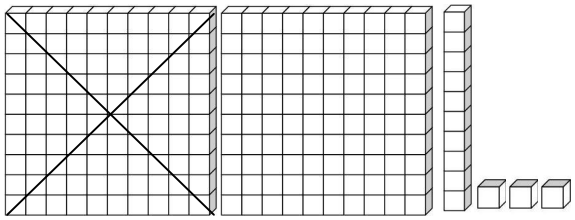
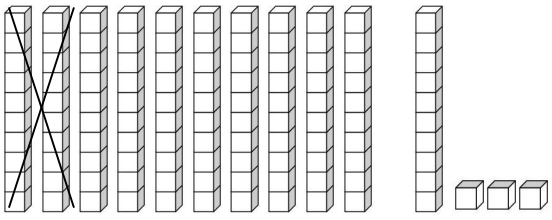
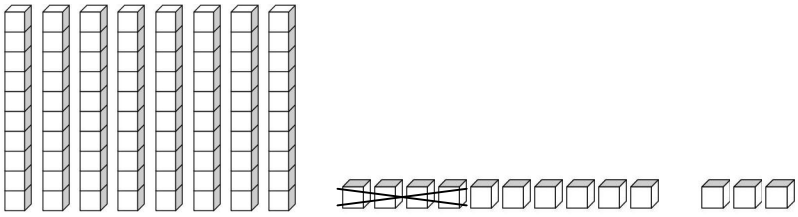
I used place value blocks. I made a pile of 354. I then added 287. That gave me 5 hundreds, 13 tens and 11 ones. I noticed that I could trade some pieces. I had 11 ones, and I traded 10 ones for a ten. I then had 14 tens, so I traded 10 tens for a hundred. I ended up with 6 hundreds, 4 tens, and 1 ones.

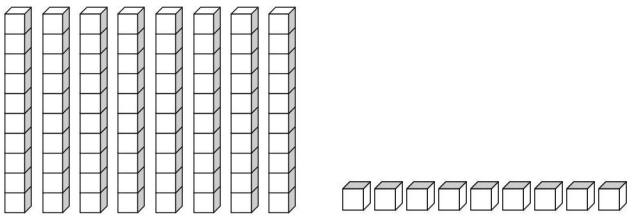


Example: 213 – 124 = ___

Student 1

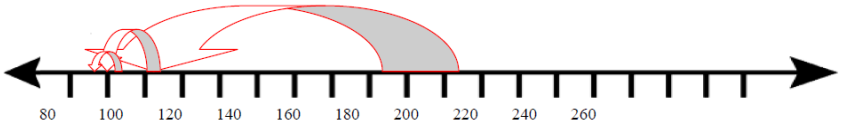
I used place value blocks. I made a pile of 213. Then I started taking away blocks. First I took away a hundred, which left me with 1 hundred and thirteen. I need to take away 2 tens but I only had 1 ten so I traded in my last hundred for 10 tens. Then I took 2 tens away, leaving me with no hundreds, 9 tens, and 3 ones. Then I had to take 4 ones away but I only have 3 ones. I traded in a ten for 10 ones. Then I took away 4 ones. This left me with no hundreds, 8 tens, and 9 ones. My answer is 89.

Step 1 **213**	
Step 2 **113**	
Step 3 **93**	
Step 4 **89**	

Final Answer **89**	

Student 2

I started at 213 and moved backwards 100 and landed on 113. Then I moved back 2 jumps of ten and landed on 93. Then I moved back 4 and landed on 89.



Student 3

I noticed that I was taking 124 away from 213. I changed 213 into 224 by adding 11. That made my problem 224 – 124. I know the answer to that problem is 100. Then I had to take away the 11 that I added. 100 – 11 = 89. My answer is 89.

MGSE2.NBT.8 Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.

This standard calls for students to mentally add or subtract multiples of 10 or 100 to any number between 100 and 900. Students should have ample experiences working with the concept that when you add or subtract multiples of 10 or 100 that you are only changing the tens place (multiples of ten) or the digit in the hundreds place (multiples of 100).
In this standard, problems in which students cross centuries should also be considered.
Example: 273 + 60 = 333.

MGSE2.NBT.9 Explain why addition and subtraction strategies work, using place value and the properties of operations.

This standard calls for students to explain using concrete objects, pictures and words (oral or written) to explain why addition or subtraction strategies work. The expectation is that students apply their knowledge of place value and the properties of operations in their explanation. Students should have the opportunity to solve problems and then explain why their strategies work.

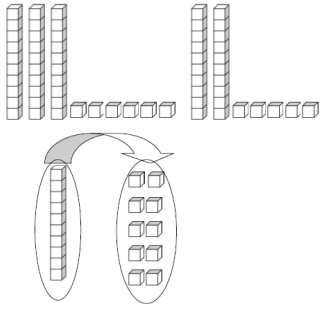
Example: There are 36 birds in the park. 25 more birds arrive. How many birds are there? Solve the problem and show your work.

Student 1

I broke 36 and 25 into tens and ones and then added them. 30 + 6 + 20 + 5. I can change the order of my numbers, so I added 30 + 20 and got 50. Then I added on 6 to get 56. Then I added 5 to get 61. This strategy works because I broke all the numbers up by their place value.

Student 2

I used place value blocks and made a pile of 36. Then I added 25. I had 5 tens and 11 ones. I had to trade 10 ones for 1 10. Then I had 6 tens and 1 one. That makes 61. This strategy works because I added up the tens and then added up the ones and traded if I had more than 10 ones.



Students could also have experiences examining strategies and explaining why they work. Also include incorrect examples for students to examine.

Example: One of your classmates solved the problem 56 - 34 = __ by writing —I know that I need to add 2 to the number 4 to get 6. I also know that I need to add 20 to 30 to get 20 to get to 50. So, the answer is 22. Is their strategy correct? Explain why or why not?

Example: One of your classmates solved the problem 25 + 35 by adding 20 + 30 + 5 + 5. Is their strategy correct? Explain why or why not?

MGSE2.OA.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

This standard calls for students to add and subtract numbers within 100 in the context of one and two step word problems. Students should have ample experiences working on various types of problems that have unknowns in all positions, including:

Addition Examples:

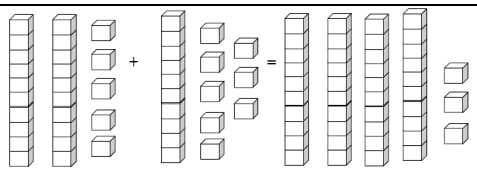
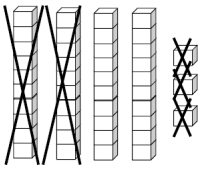
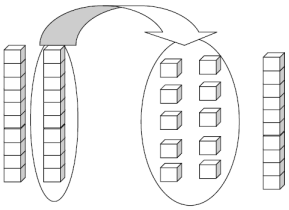
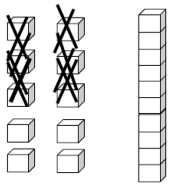
Result Unknown	**Change Unknown**	**Start Unknown**
There are 29 students on the playground. Then 18 more students showed up. How many students are there now? *(29 + 18 = ___)*	There are 29 students on the playground. Some more students show up. There are now 47 students. How many students came? *(29 + ___ = 47)*	There are some students on the playground. Then 18 more students came. There are now 47 students. How many students were on the playground at the beginning? *(___ + 18 = 47)*

This standard also calls for students to solve one- and two-step problems using drawings, objects and equations. Students can use place value blocks or hundreds charts, or create drawings of place value blocks or number lines to support their work. Two step-problems include situations where students have to add and subtract within the same problem.

Example:

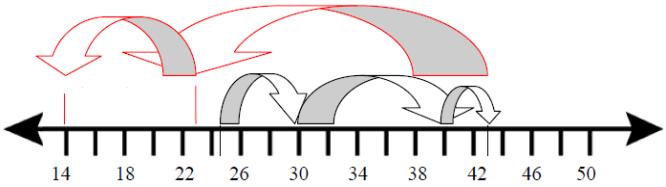
> In the morning there are 25 students in the cafeteria. 18 more students come in. After a few minutes, some students leave. If there are 14 students still in the cafeteria, how many students left the cafeteria? Write an equation for your problem.

Student 1

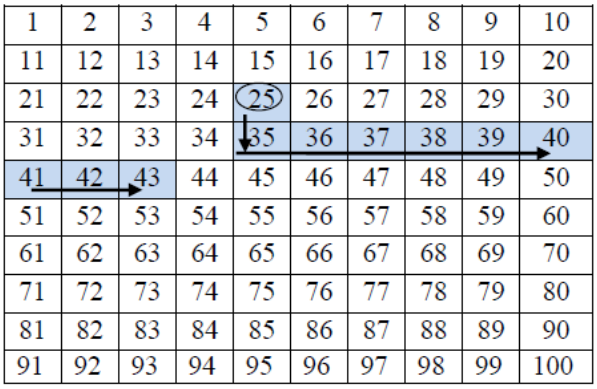
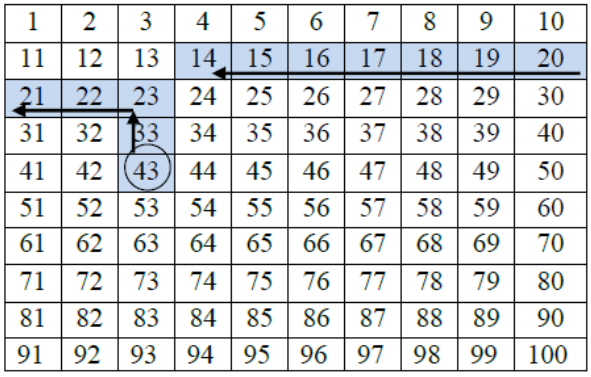
Step 1	I used place value blocks and made a group of 25 and a group of 18. When I counted them I had 3 tens and 13 ones which is 43. 
Step 2	I then wanted to remove blocks until there were only 14 left. I removed blocks until there were 20 left. 
Step 3	Since I have two tens I need to trade a ten for 10 ones. 
Step 4	After I traded it, I removed blocks until there were only 14 remaining. 
Step 5	My answer was the number of blocks that I removed. I removed 2 tens and 9 ones. That's 29. My equation is 25 + 18 – ___ = 14.

Student 2

I used a number line. I started at 25 and needed to move up 18 spots so I started by moving up 5 spots to 30, and then 10 spots to 40, and then 3 more spots to 43. Then I had to move backwards until I got to 14 so I started by first moving back 20 spots until I got to 23. Then I moved to 14 which were an additional 9 places. I moved back a total of 29 spots. Therefore there were a total of 29 students left in the cafeteria. My equation is 25 + 18 – ___ = 14.



Student 3

Step 1	I used a hundreds board. I started at 25. I moved down one row which is 10 more, then moved to the right 8 spots and landed on 43. This represented the 18 more students coming into the cafeteria.	
Step 2	Now starting at 43, I know I have to get to the number 14 which represents the number of students left in the cafeteria so I moved up 2 rows to 23 which is 20 less. Then I moved to the left until I land on 14, which is 9 spaces. I moved back a total of 29 spots. That means 29 students left the cafeteria.	
Step 3	My equation to represent this situation is 25 + 18 – ___ = 14.	

<u>MGSE2.OA.2 Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.</u>

This standard mentions the word *fluently* when students are adding and subtracting numbers within 20. Fluency means accuracy (correct answer), efficiency (within 4-5 seconds), and flexibility (using strategies such as making 10 or breaking apart numbers). Research indicates that teachers' can best support students' memorization of sums and differences through varied experiences making 10, breaking numbers apart and working on mental strategies, rather than repetitive timed tests.

Example: 9 + 5 = ___

Student 1: *Counting On*

I started at 9 and then counted 5 more. I landed at 14.

Student 2: *Decomposing a Number Leading to a Ten*

I know that 9 and 1 is 10, so I broke 5 into 1 and 4. 9 plus 1 is 10. Then I have to add 4 more, which gets me to 14.

Example: 13 – 9 = ___

Student 1: *Using the Relationship between Addition and Subtraction*

I know that 9 plus 4 equals 13. So 13 minus 9 equals 4.

Student 2: *Creating an Easier Problem*

I added 1 to each of the numbers to make the problem 14 minus 10. I know the answer is 4. So 13 minus 9 is also 4.

MGSE2.MD.8 Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. *Example: If you have 2 dimes and 3 pennies, how many cents do you have?*

This standard calls for students to solve word problems involving either dollars or cents. Since students have not been introduced to decimals, problems should either have only dollars or only cents.

Example: What are some possible combinations of coins (pennies, nickels, dimes, and quarters) that equal 37 cents?

Example: What are some possible combinations of dollar bills ($1, $5 and $10) that equal 12 dollars?

(Adapted from Henry County Schools)