Dear Parents,

The Mathematics Georgia Standards of Excellence (MGSE), present a balanced approach to mathematics that stresses understanding, fluency, and real world application equally. Know that your child is not learning math the way many of us did in school, so hopefully being more informed about this curriculum will assist you when you help your child at home.

Below you will find the standards from Unit One in bold print and underlined. Following each standard is an explanation with student examples. Please contact your child's teacher if you have any questions.

NBT.1 Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:

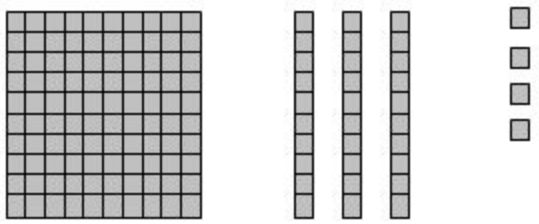
This standard calls for students to work on decomposing numbers by place value. Students should have a variety of experiences with concrete materials and pictorial representations. They will decompose numbers between 100 and 999 into hundreds, tens, and ones.

a. 100 can be thought of as a bundle of ten tens — called a "hundred."

This part of the standard calls for students to extend their work from 1st Grade by exploring a hundred as a unit (or bundle) of ten tens.

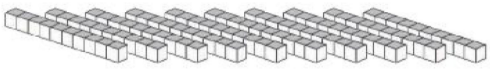
Example:

- This model represents 1 hundred, 3 tens, and 4 ones. The student should think "100, 110, 120, 130, 131, 132, 133, 134" instead of 1, 2, 3, 4,…, 134.



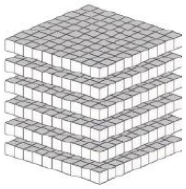
b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).

This part of the standard builds on the work of NBT.1a. Students should explore the idea that numbers such as 100, 200, 300, etc., are groups of hundreds that have no tens or ones. Students can represent this with place value (base 10) blocks.



is the same as

6 hundreds are the same as 600



NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. (values within 20 in this unit)

This standard mentions the word fluently when students are adding and subtracting numbers within 100. Fluency means accuracy (correct answer), efficiency (*basic facts* computed within 3 seconds), and flexibility (using strategies such as making 10s or breaking numbers apart).

This standard calls for students to use pictorial representations or strategies based on place value and properties to find the solution. Students who are struggling may benefit from further work with concrete objects (e.g., place value blocks).

Example: 67 + 25 = __

Place Value Strategy	**Adding on Tens then Ones**	**Properties**
I broke both 67 and 25 into tens and ones. 6 tens plus 2 tens equals 8 tens. Then I added the ones. 7 ones plus 5 ones equals 12 ones. I then combined my tens and ones. 8 tens plus 12 ones equals 92.	I wanted to start with 67 and then break 25 apart. I started with 67 and added 2 tens to equal 87. Then I added 5 more to get to 92.	I broke 67 and 25 into tens and ones so I had to add 60 + 7 + 20 + 5. I added 60 and 20 first to get 80. Then I added 7 to get 87. Then I added 5 more. My answer is 92.

Example: 63 – 32 = __

Relationship between Addition and Subtraction
I know that to find 63 – 32, I can find the number that adds to 32 to get 63. I can use the equation 32 + ___ = 63 instead. I counted 3 tens from 32 to get to 62 then 1 more to get to 63. I counted a total of 31. 32 + 31 + 63 so 63 – 32 = 31.

OA.1 Use addition and subtraction within 100 to solve one and two step word problems by using drawings and equations with a symbol for the unknown number to represent the problem. Problems can include contexts that involve adding to, taking from, putting together/taking apart (part/part/whole) and comparing with unknowns in all positions.(values within 20 in this unit)

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:

Examples:

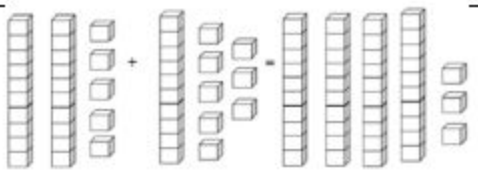
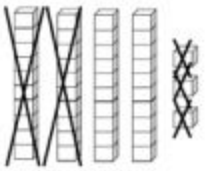
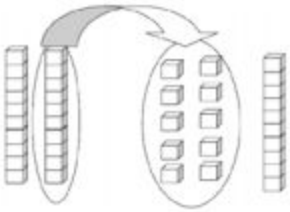
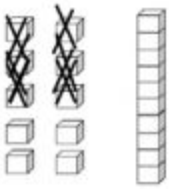
Result Unknown	**Change Unknown**	**Start Unknown**
There are 29 students on the playground. Then 18 more students showed up. How many students are there now? *(29 + 18 = ___)*	There are 29 students on the playground. Some more students show up. There are now 47 students. How many students came? *(29 + ___ = 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 may have to add and subtract within the same problem.

Example:

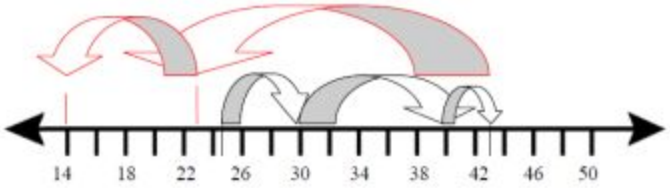
- In the morning there are 26 students in the cafeteria. 18 more students come in. After a few minutes, 14 students leave. How many students are left the cafeteria? Write an equation for your problem.

Student 1

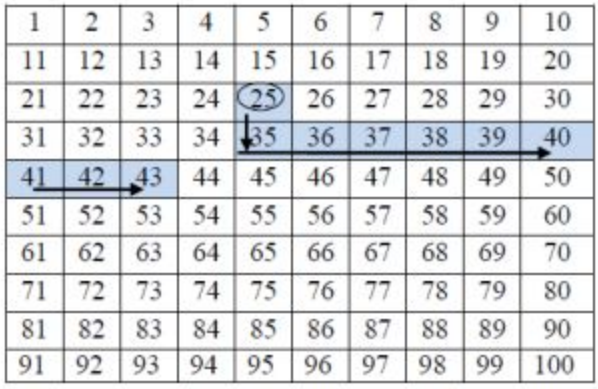
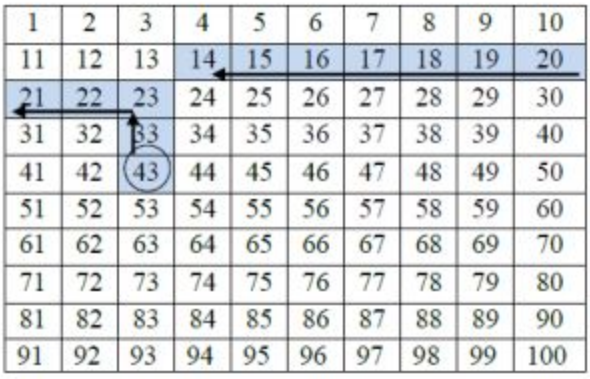
Step 1	I used place value blocks and made a group of 25 and a group of 18. When I counted them I had 3 tens and 13 ones which is 43.	
Step 2	I then wanted to remove blocks until there were only 14 left. I removed blocks until there were 20 left.	
Step 3	Since I have two tens I need to trade a ten for 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 $25 + 18 - \_\_\_ = 14$.	

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. (review 1st grade fluency strategies: +/-1 &2, make ten, +/- 10 and introduce doubles in this unit)

This standard mentions the word *fluently* when students are adding and subtracting numbers within 20. Fluency means accuracy (correct answer), efficiency (within 3 seconds), and flexibility (using strategies such as making 10s or breaking apart numbers). Research indicates that teachers can best support students' memorization of sums and differences through varied experiences with strategies such as making 10s, breaking numbers apart, doubles, etc. rather than repetitive timed tests.

Example: 9 + 5 = ___

Student 1: ***Counting On***

I started at 9 and then counted 5 more to get 14.

Student 2: ***Decomposing a Number to Make 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 a Problem with the Same Difference***

I added 1 to each of the numbers to move the problem to create a new problem that has the same difference.
14 minus 10 is 4 so 13 minus 9 is also 4.

OA.3 Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.

This standard calls for students to apply their work with doubles addition facts to the concept of odd or even numbers. Students should have ample experiences exploring the concept that if a number can be decomposed (broken apart) into two equal addends (e.g., 10 = 5 +5), then that number (10 in this case) is an even number. Students should explore this concept with concrete objects (e.g., counters, place value cubes, etc.) before moving towards pictorial representations such as circles or arrays.

Example:
Is 8 an even number? Prove your answer.

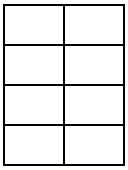
Student 1

I grabbed 8 counters. I paired counters up into groups of 2. Since I didn't have any counters left over, I know that 8 is an even number.

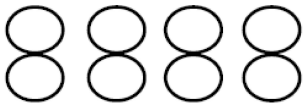
Student 2

I grabbed 8 counters. I put them into 2 equal groups. There were 4 counters in each group, so 8 is an even number.

Student 3
I drew 8 boxes in a rectangle that had two columns. Since every box on the left matches a box on the right, I know 8 is even.



Student 4
I drew 8 circles. I partnered the circles with each other. Since they all have one partner, I know that 8 is an even number.

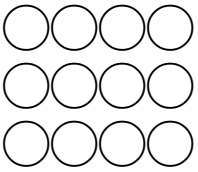


Student 5 I know that 4 plus 4 equals 8. So 8 is an even number.

OA.4 Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

Second graders use rectangular arrays to work with repeated addition, a building block for multiplication in third grade. A rectangular array is an arrangement of objects in equal rows and columns. Students explore this concept with concrete objects (e.g., counters, bears, square tiles, etc.) as well as pictorial representations on grid paper or other drawings. Due to the commutative property of multiplication, students can add either the rows or the columns and still arrive at the same solution.

Example: What is the total number of circles below?



Student 1
I see 3 counters in each column and there are 4 columns. So I added: 3 + 3 + 3+ 3. That equals 12.

Student 2
I see 4 counters in each row and there are 3 rows. So I added 4 + 4 + 4. That equals 12.

MD.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.(nearest hour and half hour in this unit)

This standard calls for students to tell (orally and in writing) and write time after reading analog and digital clocks. Time should be to 5 minute intervals, and students should also use the terms a.m. and p.m. Students should make the connection between skip counting by 5s and telling time on an analog clock.

Example:
The time on the clock shows when Josie's class goes to recess. What time does the clock show?
Student: I know the hour hand is a little past the 1 and the minute hand is on the 2. The time would be 1:10 p.m. since recess could be in the afternoon (not the middle of the night).

Fayette County MD.11 Identify bills by name and value. ($1 and $5 only in this unit)

This standard calls for students to identify the above U.S. bills by name and value.

Example:

- When shown a bill, the student should call the bill by name.
- The student should be able to tell the value of each bill and write that value using a dollar symbol appropriately (no decimal).—$1, $5, etc.

Fayette County MD.12 Count money and write the amount using the appropriate symbol. (dimes and pennies only in this unit)(Do not use decimal notation.)

Although this standard calls for students to count money and write the amount, at this point students should count combinations of dimes and pennies only. Students will also explore the similarities and differences between tens and ones and dimes and pennies.

Example:

- When shown 3 dimes and 4 pennies, the student should write 34¢. (The student should not write $0.34 which is decimal notation.)
- 3 dimes and 4 pennies is like 3 tens and 4 ones because a dime is worth 10 cents and a penny is worth 1 cent.