***SECOND GRADE MATHEMATICS***
***UNIT 2 STANDARDS***

Dear Parents:

Below you will find the standards we will be learning in Unit Two. 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.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:

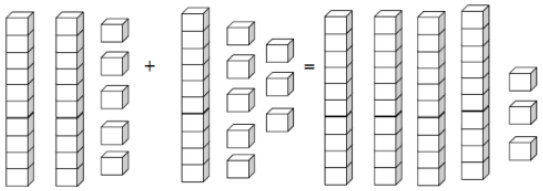
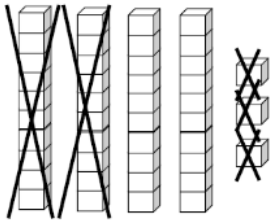
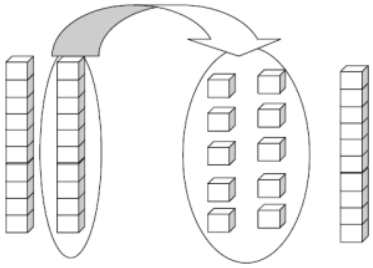
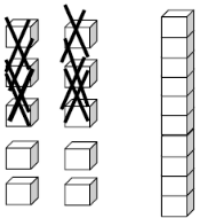
| **Result Unknown** | **Change Unknown** | **Start Unknown** |
|---|---|---|
| There are 29 students on the playground. Then 18 more students showed up. How many students are there now? *(29 + 18 = ___)* | There are 29 students on the playground. Some more students show up. There are now 47 students. 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:

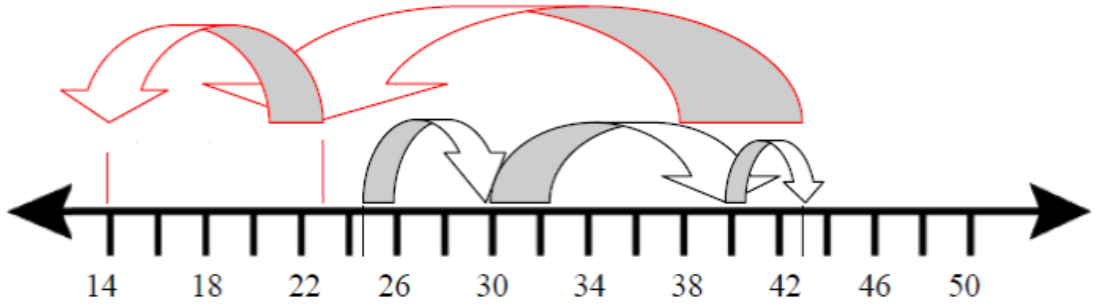
> In the morning there are 25 students in the cafeteria. 18 more students come in. After a few minutes, some students leave. If there are 14 students still in the cafeteria, how many students left the cafeteria? Write an equation for your problem.

## Student 1

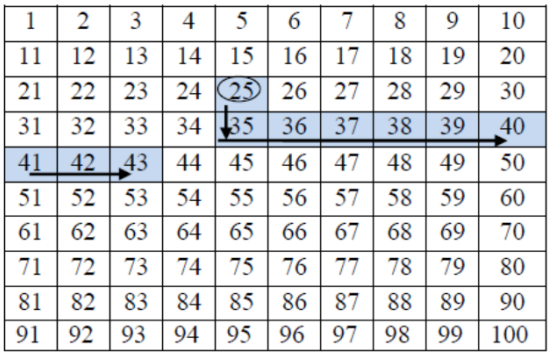
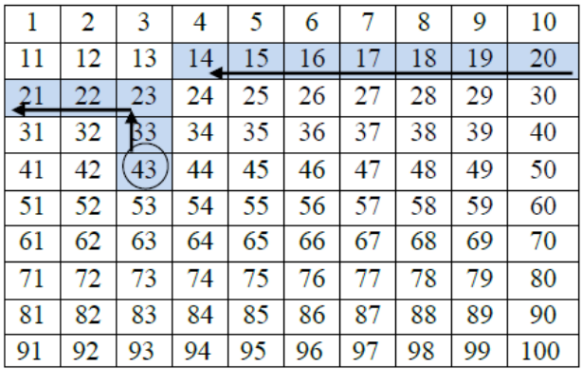
| | |
|---|---|
| Step 1 | I used place value blocks and made a group of 25 and a group of 18. When I counted them. I had 3 tens and 13 ones which is 43.  |
| Step 2 | I then wanted to remove blocks until there were only 14 left. I removed blocks until there were 20 left.  |
| Step 3 | Since I have two 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.<br><br>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. | |

**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.**

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*** | **Student 2: *Decomposing a Number Leading to a Ten*** |
|---|---|
| I started at 9 and then counted 5 more. I landed at 14. | 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*** | **Student 2: *Creating an Easier Problem*** |
|---|---|
| I know that 9 plus 4 equals 13. So, 13 minus 9 equals 4. | 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.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.**

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 4-5 seconds), and flexibility (using strategies such as making 10 or breaking numbers apart).

This standard calls for students to use pictorial representations or strategies 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** | **Counting On and Decomposing a Number Leading to Ten** | **Commutative Property** |
|---|---|---|
| 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 counted on to my next ten. 67 plus 3 gets me to 70. Then I added 2 more to get to 72. I then added my 20 and got 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 broke apart both 63 and 32 into tens and ones. I know that 2 plus 1 equals 3, so I have 1 left in the ones place. I know that 3 plus 3 equals 6, so I have a 3 in my tens place. My answer has a 1 in the ones place and 3 in the tens place, so my answer is 31. |

**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?**

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?

It is suggested that money be taught daily through the daily math maintenance routine. For more information, please refer to pages 34-37 of the Second Grade Curriculum Overview.

Further information on teaching coin values:
http://www.kentuckymathematics.org/docs/PIMSERMoney-teaching%20the%20value%20of%20coins.pdf

Develop an understanding of equivalency using resources such as: Coins for Unitary Thinkers-downloadable visual/mats http://ccgpsmathematicsk-5.wikispaces.com/1st+Grade Although this resource is located on the 1st grade page of the wiki, it is useful in 2nd grade as well.

**MGSE2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. This standard continues throughout the second grade year.**
This standard calls for students to work with categorical data by organizing, representing and interpreting data. Students should have experiences posing a question with 4 possible responses and then work with the data that they collect.

Example: Students pose a question and the 4 possible responses. Which is your favorite flavor of ice cream: Chocolate, vanilla, strawberry, or cherry?

Students collect their data by using tallies or another way of keeping track. Students organize their data by totaling each category in a chart or table. Picture and bar graphs are introduced in 2nd Grade.

| Flavor | Number of People |
|---|---|
| Chocolate | 12 |
| Vanilla | 5 |
| Strawberry | 6 |
| Cherry | 9 |

Students display their data using a picture graph or bar graph using a single unit scale.