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 One.  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.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. Students should have ample experiences with concrete materials and pictorial representations examining that numbers all numbers between 100 and 999 can be decomposed into hundreds, tens, and ones.

Use 10 as a benchmark number to compose and decompose when adding and subtracting whole numbers.

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

MGSE2.NBT.1a calls for students to extend their work from 1st Grade by exploring a hundred as a unit (or bundle) of ten tens.

**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).**

MGSE2.NBT.1b builds on the work of MGSE2.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
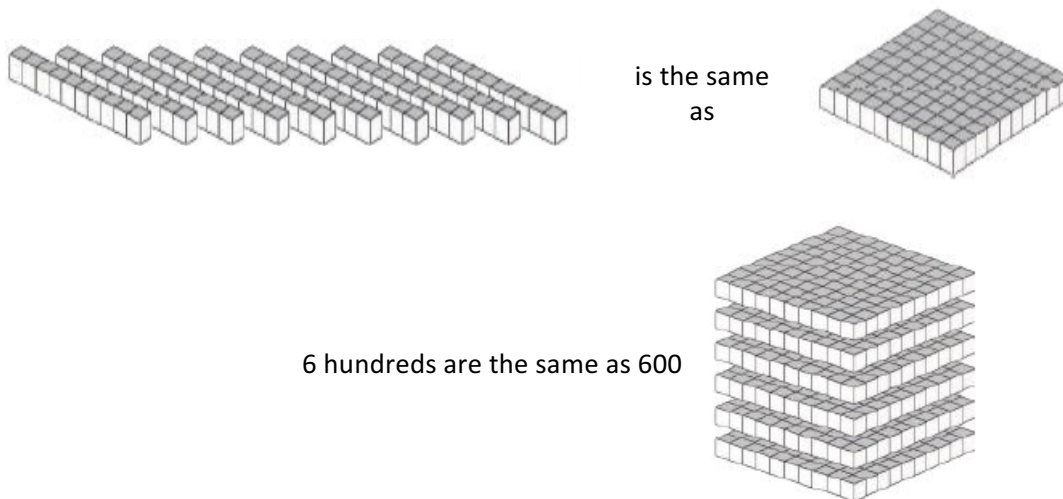
**MGSE2.NBT.2 Count within 1000; skip-count by 5s, 10s, and 100s.**

This standard calls for students to count within 1,000. This means that students are expected to —count on from any number and say the next few numbers that come afterwards.

Students should understand that counting by 2s, 5s and 10s is counting groups of items by that amount.

Example:

What are the next 3 numbers after 498? 499, 500, 501.

When you count back from 201, what are the first 3 numbers that you say? 200, 199, 198.

This standard also introduces skip counting by 5s and 100s. Students are introduced to skip counting by 10s in First Grade. Students should explore the patterns of numbers when they skip count. When students skip count by 5s, the ones digit alternates between 5 and 0. When students skip count by 100s, the hundreds digit is the only digit that changes, and it increases by one number.

### MGSE2.NBT.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

This standard calls for students to read, write and represent a number of objects with a written numeral (number form or standard form). These representations can include place value (base 10) blocks, pictorial representations or other concrete materials. Please be mindful that when reading and writing whole numbers, the word "and" should not be used.

Example:
235 is written as two hundred thirty-five.

### MGSE2.NBT.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.

This standard builds on the work of MGSE2.NBT.1 and MGSE2.NBT.3 by having students compare two numbers by examining the amount of hundreds, tens and ones in each number. Students are introduced to the symbols greater than (>), less than (<) and equal to (=) in First Grade, and use them in Second Grade with numbers within 1,000. Students should have ample experiences communicating their comparisons in words before using only symbols in this standard.
Example: 452 ___ 455

| Student 1 | Student 2 |
|---|---|
| 452 has 4 hundreds, 5 tens, and 2 ones.  455 has 4 hundreds, 5 tens, and 5 ones.  They have the same number of hundreds and the same number of tens, but 455 has 5 ones and 452 only has 2 ones.  452 is less than 455.  452 < 455. | 452 is less than 455.  I know this because when I count up I say 452 before I say 455.  452 < 455. |

### 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.

In unit one, students focus on using addition and subtraction within 100 to solve one-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? <br><br>*(29 + 18 = ___)* | There are 29 students on the playground.  Some more students show up.  There are now 47 students.  How many students came? <br>*(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? <br>*(___ + 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.

**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.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.

In unit one, students focus on solving word problems with pennies, nickels, and dimes.

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

**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 2ⁿᵈ grade year.**
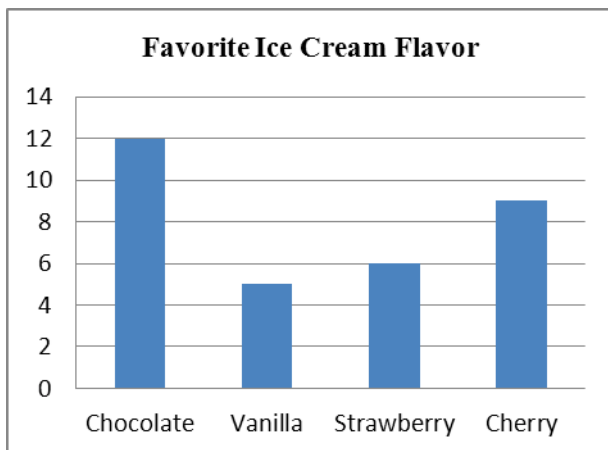This standard calls for students to work with categorical data by organizing, representing and interpreting data. Students should have experiences posing a question with 4 possible responses and then work with the data that they collect.

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.

| Favorite Ice Cream 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.



*(Adapted from Henry County Schools)*

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.
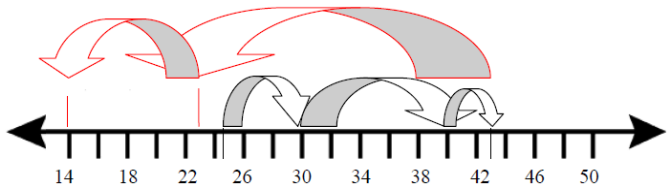
Example:

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. 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. | <table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr><tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr><tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr><tr><td>41</td><td>42</td><td>43</td><td>44</td><td>45</td><td>46</td><td>47</td><td>48</td><td>49</td><td>50</td></tr><tr><td>51</td><td>52</td><td>53</td><td>54</td><td>55</td><td>56</td><td>57</td><td>58</td><td>59</td><td>60</td></tr><tr><td>61</td><td>62</td><td>63</td><td>64</td><td>65</td><td>66</td><td>67</td><td>68</td><td>69</td><td>70</td></tr><tr><td>71</td><td>72</td><td>73</td><td>74</td><td>75</td><td>76</td><td>77</td><td>78</td><td>79</td><td>80</td></tr><tr><td>81</td><td>82</td><td>83</td><td>84</td><td>85</td><td>86</td><td>87</td><td>88</td><td>89</td><td>90</td></tr><tr><td>91</td><td>92</td><td>93</td><td>94</td><td>95</td><td>96</td><td>97</td><td>98</td><td>99</td><td>100</td></tr></table> |
| 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. |

*(Adapted from Henry County Schools)*

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 Three.  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.MD.1  Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.**
This standard calls for students to measure the length of objects in both customary (inches and feet) and metric (centimeters and meters). Students should have ample experiences choosing objects, identifying the appropriate tool and unit, and then measuring the object. The teacher should allow students to determine which tools and units to use.

Foundational understandings to help with measure concepts:
- Understand that larger units can be subdivided into equivalent units (partition).
- Understand that the same unit can be repeated to determine the measure (iteration).
- Understand the relationship between the size of a unit and the number of units needed (compensatory principle).
- Understand the measuring of two-dimensional space (area) using non-standard units.

**MGSE2.MD.2  Measure the length of an object twice, using length units of different measurements; describe how the two measurements relate to the size of the unit chosen. Understand the relative size of units in different systems of measurement.** *For example, an inch is longer than a centimeter.* **(Students are not expected to convert between systems of measurement.)**
This standard calls for students to measure an object using two units of different lengths.

Example: A student measures the length of their desk and finds that it is 3 feet and 36 inches. Students should explore the idea that the length of the desk is larger in inches than in feet, since inches are smaller units than feet. This concept is referred to as the compensatory principle. Note: this standard does not specify whether the units have to be within the same system.

**MGSE2.MD.3  Estimate lengths using units of inches, feet, centimeters, and meters.**
This standard calls for students to estimate the lengths of objects using inches, feet, centimeters, and meters. Students should make estimates after seeing a benchmark unit, such as the length of one inch, before making their estimate.

Example: Look at your ruler to see how long one inch is. Now, estimate the length of this paper in inches.

**MGSE2.MD.4  Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.**
This standard calls for students to determine the difference in length between two objects. Students should choose objects, identify appropriate tools and units, measure both objects, and then determine the differences in lengths.

**MGSE2.MD.5  Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.**
This standard applies the concept of length to solve addition and subtraction word problems with numbers within 100. Students should use the same unit in these problems.

Example: In P.E. class Kate jumped 14 inches. Mary jumped 23 inches. How much farther did Mary jump than Kate? Write an equation and then solve the problem.

**Student 1**

My equation is 14 + ___ = 23 since I am trying to find out the difference between Kate and Mary's jumps. I used place value blocks and counted out 14. Then I added blocks until I got to 23. I needed to add 9 blocks. Mary jumped 9 more inches than Kate.
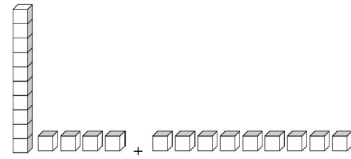
**Student 2**

My equation is 23 – 14 = ___. I drew a number line. I started at 23. I moved back to 14 and counted how far I moved. I moved back 9 spots. Mary jumped 9 more inches than Kate.
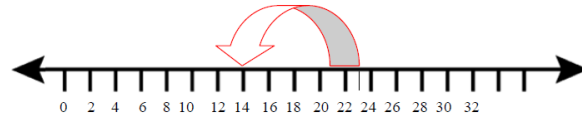
**MGSE2.MD.6  Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, …, and represent whole-number sums and differences within 100 on a number line diagram.**
This standard calls for students to create number lines using numbers within 100 to solve addition and subtraction problems. Students should create the number line with evenly spaced points corresponding to the numbers.

**MGSE2.MD.7  Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.**
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. Teachers should help students make the connection between skip counting by 5s and telling time on an analog clock.

**MGSE2.MD.9  Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.**
This standard calls for students to represent the length of several objects by making a line plot. Students should round their lengths to the nearest whole unit.

Example:  Measure objects in your desk to the nearest inch, display data collected on a line plot. How many objects measured 2 inches?  3 inches?  Which length had the most number of objects?  How do you know?
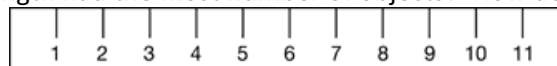
**MGSE.MD.10  Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. This standard continues throughout the second grade year.**

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.



**Favorite Ice Cream Flavor**

| | |
|---|---|
| **Chocolate** | 🍦🍦🍦🍦🍦🍦🍦🍦🍦🍦🍦🍦 |
| **Vanilla** | 🍦🍦🍦🍦🍦 |
| **Strawberry** | 🍦🍦🍦🍦🍦🍦 |
| **Cherry** | 🍦🍦🍦🍦🍦🍦🍦🍦🍦 |
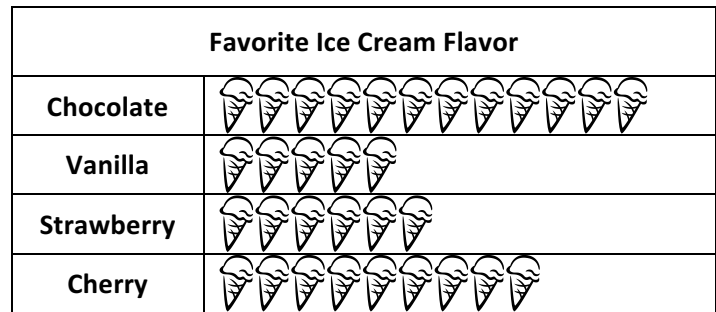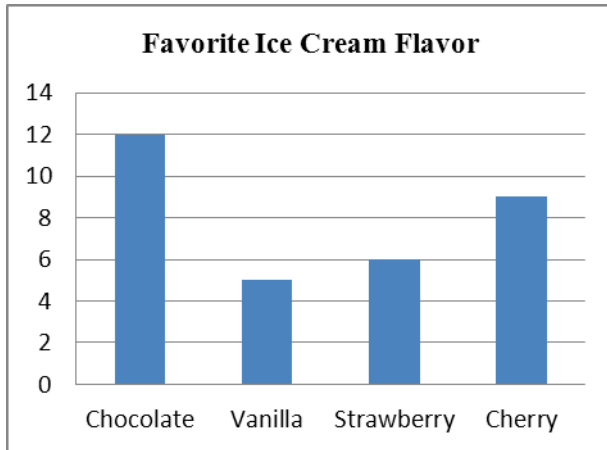
🍦 represents 1 student

Dear Parents,
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**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.

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**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 = ___

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**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
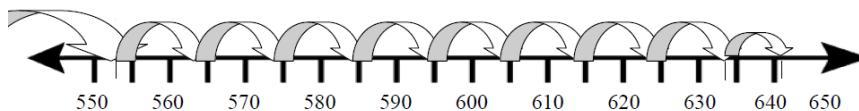
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**Student 2**

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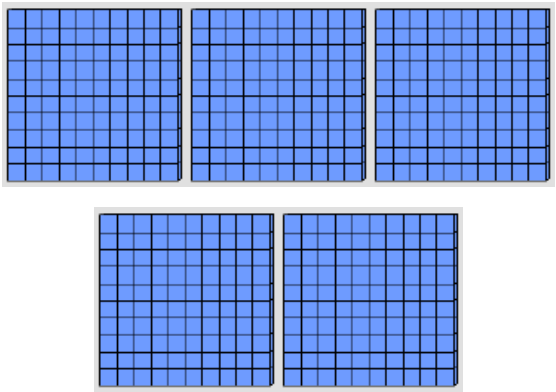I first added the ones.4 + 7 = 11.
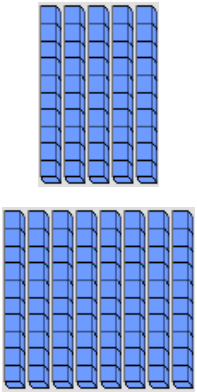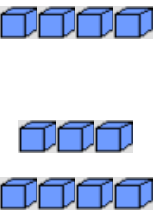I then added the tens. 50 + 80 = 130.
I then added the hundreds. 300 + 200 = 500.
I then combined my answers. 500 + 130 = 630. 630 + 11= 641

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**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 |
|---|---|---|

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**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.
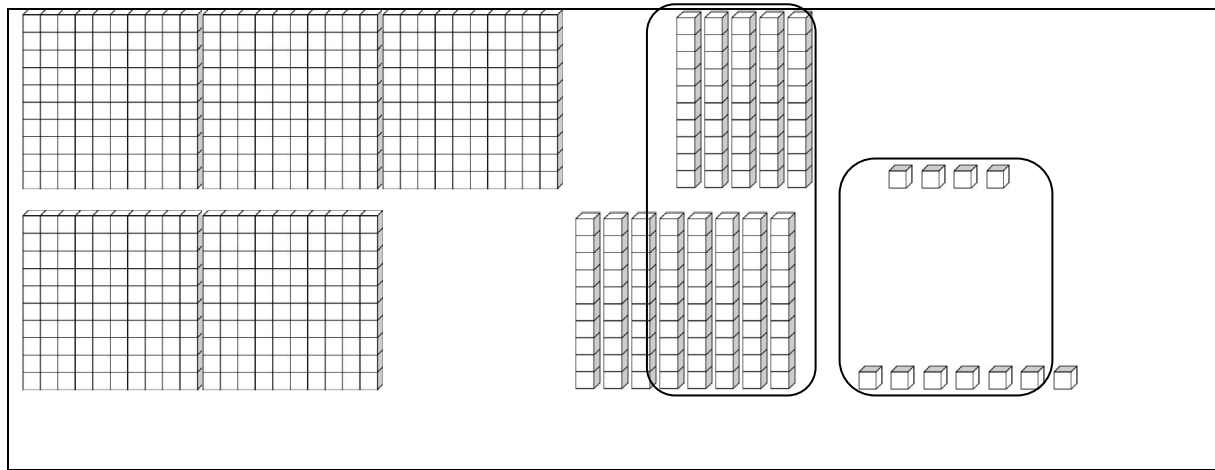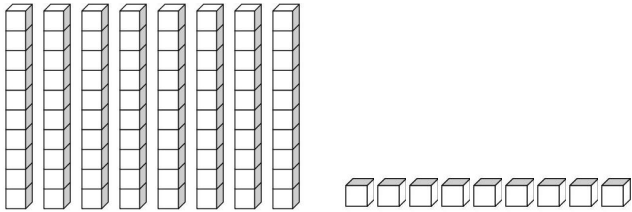
Example:  213 – 124 = ___

**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<br>**213** |  |
| --- | --- |
| Step 2<br>**113** |  |
| Step 3<br>**93** |  |
| Step 4<br>**89** |  |

| Final Answer 89 |  |
|---|---|

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**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.



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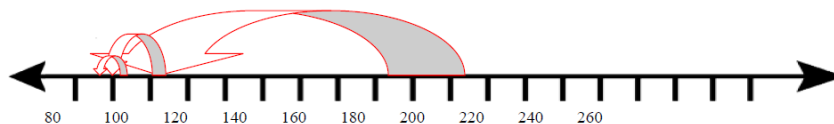
**Student 3**

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.

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**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.

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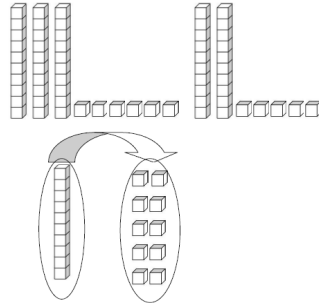
Students could also have experiences examining strategies and explaining why they work. Also include incorrect examples for students to examine.

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.
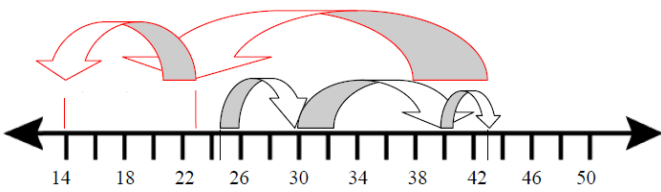
Example:

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.

14   18   22   26   30   34   38   42   46   50

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. | <br>1 2 3 4 5 6 7 8 9 10<br>11 12 13 14 15 16 17 18 19 20<br>21 22 23 24 (25) 26 27 28 29 30<br>31 32 33 34 35 36 37 38 39 40<br>41 42 43 44 45 46 47 48 49 50<br>51 52 53 54 55 56 57 58 59 60<br>61 62 63 64 65 66 67 68 69 70<br>71 72 73 74 75 76 77 78 79 80<br>81 82 83 84 85 86 87 88 89 90<br>91 92 93 94 95 96 97 98 99 100 |
|---|---|---|
| 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. | <br>1 2 3 4 5 6 7 8 9 10<br>11 12 13 14 15 16 17 18 19 20<br>21 22 23 24 25 26 27 28 29 30<br>31 32 33 34 35 36 37 38 39 40<br>41 42 (43) 44 45 46 47 48 49 50<br>51 52 53 54 55 56 57 58 59 60<br>61 62 63 64 65 66 67 68 69 70<br>71 72 73 74 75 76 77 78 79 80<br>81 82 83 84 85 86 87 88 89 90<br>91 92 93 94 95 96 97 98 99 100 |
| 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.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)*

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 Five. 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.G.1 Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.  Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.**
This standard calls for students to identify (recognize) and draw shapes based on a given set of attributes. These include triangles, quadrilaterals (squares, rectangles, and trapezoids), pentagons, hexagons and cubes.

Example:  Draw a closed shape that has five sides. What is the name of the shape?

**Student 1**

I drew a shape with 5 sides.  It is called a pentagon.
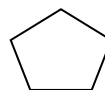
**MGSE2.G.2 Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.**
This standard calls for students to partition a rectangle into squares (or square-like regions) and then determine the total number of squares. This relates to the standard 2.OA.4 where students are arranging objects in an array of rows and columns.

Example:  Split the rectangle into 2 rows and 4 columns. How many small squares did you make?
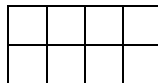
**MGSE2.G.3 Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.**
This standard calls for students to partition (split) circles and rectangles into 2, 3 or 4 equal shares (regions). Students should be given ample experiences to explore this concept with paper strips and pictorial representations. Students should also work with the vocabulary terms halves, thirds, half of, third of, and fourth (or quarter) of. While students are working on this standard, teachers should help them to make the connection that a whole is composed of two halves, three thirds, or four fourths.

This standard also addresses the idea that equal shares of identical wholes may not have the same shape.

Example:  Divide each rectangle into fourths a different way.
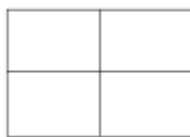
*(Adapted from Henry County Schools)*

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 Six.  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.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.
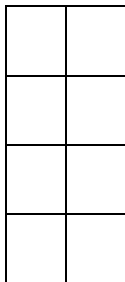
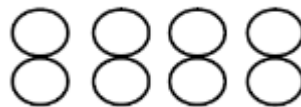| **Student 1** | **Student 2** |
|---|---|
| I grabbed 8 counters.  I paired counters up into groups of 2.  Since I didn't have any counters left over, I know that 8 is an even number. | I grabbed 8 counters.  I put them into 2 equal groups.  There were 4 counters in each group, so 8 is an even number. |

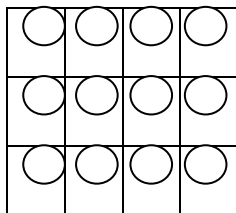| **Student 3** | **Student 4** |
|---|---|
| I drew 8 boxes in a rectangle that had two columns.  Since every box on the left matches a box on the right, I know 8 is even.  | I drew 8 circles.  I matched one on the left with one on the right.  Since they all match up, I know that 8 is an even number.  |

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

Find the total number of objects below.

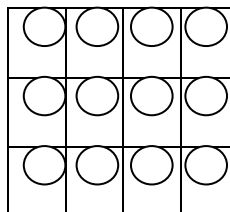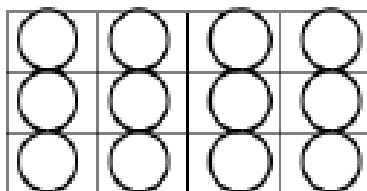| Student 1 | Student 2 |
|---|---|
| I see 3 counters in each column and there are 4 columns. So I added: 3 + 3 + 3+ 3. That equals 12. | I see 4 counters in each row and there are 3 rows. So I added 4 + 4 + 4. That equals 12. |

**MGSE2.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 any arrangement of things in rows and columns, such as a rectangle of square tiles. 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 A | Student B |
|---|---|
| I see 3 counters in each column and there are 4 columns. So I added 3 + 3 + 3 + 3. That equals 12. | I see 4 counters in each row and there are 3 rows. So I added 4 + 4 + 4. That equals 12. |
| 3 + 3 + 3 + 3 = 12 | 4 + 4 + 4 = 12 |

*(Adapted from Henry County Schools)*