Clarification of Standards for Parents
Grade 1 Mathematics Unit 1

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. ☺

MGSE1.NBT.1 Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

This standard calls for students to rote count forward to 120 by Counting On from any number less than 120. This standard also 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 cubes, place value (base 10) blocks, pictorial representations or other concrete materials. As students are developing accurate counting strategies they are also building an understanding of how the numbers in the counting sequence are related—each number is one more (or one less) than the number before (or after).

In first grade, students build on their counting to 100 by ones and tens beginning with numbers other than 1 as they learned in Kindergarten. Students can start counting at any number less than 120 and continue to 120. Although not required by the standards, it is important for students to also count backwards from a variety of numbers. It is important for students to connect different representations for the same quantity or number. Students use materials to count by ones and tens to build models that represent a number. They connect these models to the number word they represent as a written numerals. Students learn to use numerals to represent numbers by relating their place-value notation to their models.

They build on their experiences with numbers 0 to 20 in Kindergarten to create models for 21 to 120 with grouped (examples: dried beans and a small cup for 10 beans, linking cubes, plastic chain links) and pre-grouped materials (examples: base-ten blocks, dried beans and beans sticks (10 beans glued on a craft stick), strips (ten connected squares) and squares (singles), ten-frame, place-value mat with ten-frames, hundreds chart and blank hundreds chart). Students represent the quantities shown in the models by placing numerals in labeled hundreds, tens, and ones columns. They eventually move to representing the numbers in standard form, where the group of hundreds, tens, then singles shown in the model matches the left-to-right order of digits in numbers. Listen as students orally count to 120 and focus on their transitions between decades and the century number. These transitions will be

MGSE1.MD.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.
This Standard continues throughout the 1st 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 3 possible responses and then work with the data that they collect. For example:

Students pose a question and the 3 possible responses: *Which is your favorite flavor of ice cream? Chocolate, vanilla or strawberry?* 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.

What is your favorite flavor of ice cream?	
Chocolate	12
Vanilla	5
Strawberry	6

Students interpret the data by comparing categories.

Examples of comparisons:

- What does the data tell us? Does it answer our question?
- More people like chocolate than the other two flavors.
- Only 5 people liked vanilla.
- Six people liked Strawberry.
- 7 more people liked Chocolate than Vanilla.
- The number of people that liked Vanilla was 1 less than the number of people who liked Strawberry.
- The number of people who liked either Vanilla or Strawberry was 1 less than the number of people who liked chocolate.
- 23 people answered this question.

Picture graphs and bar graphs are not introduced until 2nd grade. Students in first grade are asked to construct tables and charts. Teachers may introduce vocabulary words to students in first grade as a pre-teaching opportunity.

(Adapted from Henry County Schools)

Clarification of Standards for Parents
Grade 1 Mathematics Unit 2

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 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. ☺

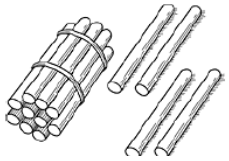
Standard MGSE1.NBT.1 is taught in Unit 1. Students should continue building towards 120.

MGSE1.NBT.1 Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

This standard calls for students to rote count forward to 120 by Counting On from any number less than 120. This standard also 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 cubes, place value (base 10) blocks, pictorial representations or other concrete materials. As students are developing accurate counting strategies they are also building an understanding of how the numbers in the counting sequence are related—each number is one more (or one less) than the number before (or after).

MGSE1.NBT.2 Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:

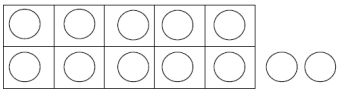
a. 10 can be thought of as a bundle of ten ones – called a "ten."
This standard asks students to unitize a group of ten ones as a whole unit: a ten. This is the foundation of the place value system. So, rather than seeing a group of ten cubes as ten individual cubes, the student is now asked to see those ten cubes as a bundle – one bundle of ten.



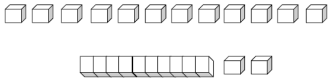
b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
This standard asks students to extend their work from Kindergarten when they composed and decomposed numbers from 11 to 19 into ten ones and some further ones. In Kindergarten, everything was thought of as individual units: ―ones‖. In First Grade, students are asked to unitize those ten individual ones as a whole unit: ―*one* ten‖. Students in first grade explore the idea that the teen numbers (11 to 19) can be expressed as *one* ten and some leftover ones. Ample experiences with ten frames will help develop this concept.
Example:

For the number 12, do you have enough to make a ten? Would you have any leftover? If so, how many leftovers would you have?

Student 1:
I filled a ten-frame to make one ten and had two counters left over. I had enough to make a ten with some left over. The number 12 has 1 ten and 2 ones.

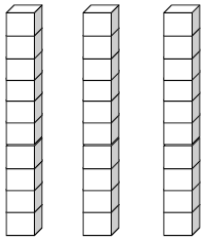


Student 2:
I counted out 12 place value cubes. I had enough to trade 10 cubes for a ten-rod (stick). I now have 1 ten-rod and 2 cubes left over. So the number 12 has 1 ten and 2 ones.



c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).

This standard builds on the work of CCGPS.1.NBT.2b. Students should explore the idea that decade numbers (e.g., 10, 20, 30, 40) are groups of tens with no left over ones. Students can represent this with cubes or place value (base 10) rods. (Most first grade students view the ten stick (numeration rod) as ONE. It is recommended to make a ten with unfix cubes or other materials that students can group. Provide students with opportunities to count books, cubes, pennies, etc. Counting 30 or more objects supports grouping to keep track of the number of objects.)



MGSE1.NBT.7 Identify dimes, and understand ten pennies can be thought of as a dime. (Use dimes as manipulatives in multiple mathematical contexts.)

MGSE1.OA.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

This standard builds on the work in Kindergarten by having students use a variety of mathematical representations (e.g., objects, drawings, and equations) during their work. The unknown symbols should include boxes or pictures, and not letters.

In unit two, students focus on using addition and subtraction to solve word problems within 10.

Teachers should be cognizant of the three types of problems. There are three types of addition and subtraction problems: Result Unknown, Change Unknown, and Start Unknown.

Use informal language (and, minus/subtract, the same as) to describe joining situations (putting together) and separating situations (breaking apart).

Use the addition symbol (+) to represent joining situations, the subtraction symbol (-) to represent separating situations, and the equal sign (=) to represent a relationship regarding quantity between one side of the equation and the other.

A helpful strategy is for students to recognize sets of objects in common patterned arrangements (0-6) to tell how many without counting (subitizing).

Addition Examples:

Result Unknown	Change Unknown	Start Unknown
There are 9 students on the playground. Then 8 more students showed up. How many students are there now? *(9 + 8 = ____)*	There are 9 students on the playground. Some more students show up. There are now 17 students. How many students came? *(9 + ____ = 17)*	There are some students on the playground. Then 8 more students came. There are now 17 students. How many students were on the playground at the beginning? *(____ + 8 = 17)*

MGSE1.OA.6 Add and subtract within 20.

a. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).

b. Fluently add and subtract within 10.

In unit two, students focus on using strategies to add and subtract within 10.

It is important to move beyond the strategy of counting on, which is considered a less important skill than the ones here in 1.OA.6. Many times teachers think that counting on is all a child needs, when it is really not much better than counting all and can become troublesome when working with larger numbers.

Example: 8 + 7 = ___

Student 1: *Making 10 and Decomposing a Number*	Student 2: *Creating an Easier Problem with Known Sums*
I know that 8 plus 2 is 10, so I decomposed (broke) the 7 up into a 2 and a 5. First I added 8 and 2 to get 10, and then added the 5 to get 15. 8 + 7 = (8 + 2) + 5 = 10 + 5 = 15	I know 8 is 7 + 1. I also know that 7 and 7 equal 14 and then I added 1 more to get 15. 8 + 7 = (7 + 7) + 1 = 15

Example: 14 – 6 = ___

Student 1: *Decomposing the Number You Subtract*	Student 2: *Relationship between Addition and Subtraction*
I know that 14 minus 4 is 10 so I broke the 6 up into a 4 and a 2. 14 minus 4 is 10. Then I take away 2 more to get 8. 14 – 6 = (14 – 4) – 2 = 10 – 2 = 8	6 + □ is 14. I know that 6 plus 8 is 14, so that means that 14 minus 6 is 8. 6 + 8 = 14 so 14 – 6 = 8

Algebraic ideas underlie what students are doing when they create equivalent expressions in order to solve a problem or when they use addition combinations they know to solve more difficult problems. Students begin to consider the relationship between the parts. For example, students notice that the whole remains the same, as one part increases the other part decreases. 5 + 2 = 4 + 3

(Adapted from Henry County Schools)

Clarification of Standards for Parents
Grade 1 Mathematics Unit 3

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 ☺

MGSE1.MD.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.
This standard calls for students to indirectly measure objects by comparing the length of two objects by using a third object as a measuring tool.

Example:
Which is longer: the height of the bookshelf or the height of a desk?

Student 1:	**Student 2:**
I used a pencil to measure the height of the bookshelf and it was 6 pencils long. I used the same pencil to measure the height of the desk and the desk was 4 pencils long. Therefore, the bookshelf is taller than the desk.	I used a book to measure the bookshelf and it was 3 books long. I used the same book to measure the height of the desk and it was a little less than 2 books long. Therefore, the bookshelf is taller than the desk.

It is beneficial to use informal units for beginning measurement activities at all grade levels because they allow students to focus on the attributes being measured. The units need to correspond to standard units of measurement and this relationship should always be expressed by the teacher.

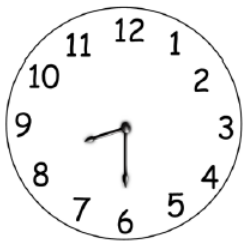
MGSE1.MD.2 Express the length of an object as a whole number of length units, by lying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. ***Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*** (*Iteration*)

This standard asks students to use multiple copies of one object to measure a larger object. This concept is referred to as iteration. Through numerous experiences and careful questioning by the teacher, students will recognize the importance of making sure that there are not any gaps or overlaps in order to get an accurate measurement.

Example:
How long is the paper in terms of paper clips?

MGSE1.MD.3 Tell and write time in hours and half-hours using analog and digital clocks.

This standard calls for students to read both analog and digital clocks and then orally tell and write the time. Times should be limited to the hour and the half-hour. Students need experiences exploring the idea that when the time is at the half-hour the hour hand is between numbers and not on a number. Further, the hour is the number before where the hour hand is. For example, in the clock at the right, the time is 8:30. The hour hand is between the 8 and 9, but the hour is 8 since it is not yet on the 9.



MGSE1.MD.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

This standard is taught throughout the first 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 3 possible responses and then work with the data that they collect. For example:

Students pose a question and the 3 possible responses: *Which is your favorite flavor of ice cream? Chocolate, vanilla or strawberry?* 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.

What is your favorite flavor of ice cream?	
Chocolate	12
Vanilla	5
Strawberry	6

Students interpret the data by comparing categories.

Examples of comparisons:

- What does the data tell us? Does it answer our question?
- More people like chocolate than the other two flavors.
- Only 5 people liked vanilla.
- Six people liked Strawberry.
- 7 more people liked Chocolate than Vanilla.
- The number of people that liked Vanilla was 1 less than the number of people who liked Strawberry.
- The number of people who liked either Vanilla or Strawberry was 1 less than the number of people who liked chocolate.
- 23 people answered this question.

(Adapted from Henry County Schools)

Clarification of Standards for Parents
Grade 1 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 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. ☺

MGSE1.OA.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
This standard builds on the work in Kindergarten by having students use a variety of mathematical representations (e.g., objects, drawings, and equations) during their work. The unknown symbols should include boxes or pictures, and not letters.

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Teachers should be cognizant of the three types of problems. There are three types of addition and subtraction problems: Result Unknown, Change Unknown, and Start Unknown.

Use informal language (and, minus/subtract, the same as) to describe joining situations (putting together) and separating situations (breaking apart).

Use the addition symbol (+) to represent joining situations, the subtraction symbol (-) to represent separating situations, and the equal sign (=) to represent a relationship regarding quantity between one side of the equation and the other.

A helpful strategy is for students to recognize sets of objects in common patterned arrangements (0-6) to tell how many without counting (subitizing).

Addition Examples:

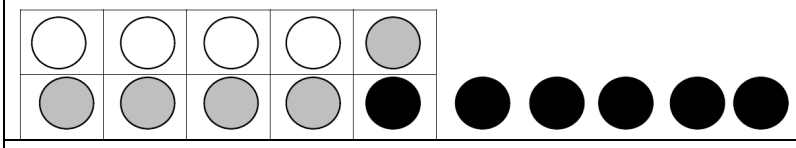
Result Unknown	Change Unknown	Start Unknown
There are 9 students on the playground. Then 8 more students showed up. How many students are there now? *(9 + 8 = ____)*	There are 9 students on the playground. Some more students show up. There are now 17 students. How many students came? *(9 + ____ = 17)*	There are some students on the playground. Then 8 more students came. There are now 17 students. How many students were on the playground at the beginning? *(____ + 8 = 17)*

MGSE1.OA.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
This standard asks students to add (join) three numbers whose sum is less than or equal to 20, using a variety of mathematical representations.

This objective does address multi-step word problems.

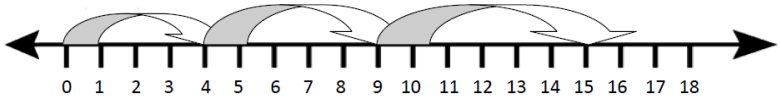
Example:
There are cookies on the plate. There are 4 oatmeal raisin cookies, 5 chocolate chip cookies, and 6 gingerbread cookies. How many cookies are there total?

Student 1: *Adding with a Ten Frame and Counters*
I put 4 counters on the Ten Frame for the oatmeal raisin cookies. Then I put 5 different color counters on the ten-frame for the chocolate chip cookies. Then I put another 6 color counters out for the gingerbread cookies. Only one of the gingerbread cookies fit, so I had 5 leftover. One ten and five leftover makes 15 cookies.



Student 2: *Look for Ways to Make 10*
I know that 4 and 6 equal 10, so the oatmeal raisin and gingerbread equals 10 cookies. Then I add the 5 chocolate chip cookies and get 15 total cookies.

Student 3: *Number Line*
I counted on the number line. First I counted 4, and then I counted 5 more and landed on 9. Then I counted 6 more and landed on 15. So there were 15 total cookies.



MGSE1.OA.3 Apply properties of operations as strategies to add and subtract. Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.)

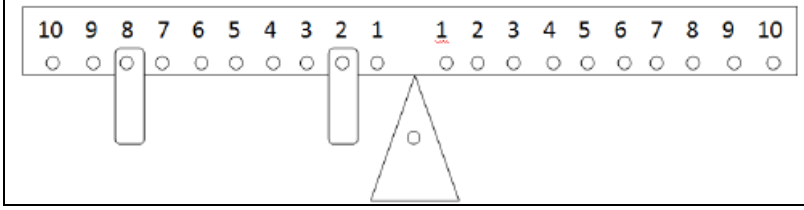
This standard calls for students to apply properties of operations as strategies to add and subtract. Students do not need to use formal terms for these properties. Students should use mathematical tools, such as cubes and counters, and representations such as the number line and a 100 chart to model these ideas.

Example:
Student can build a tower of 8 green cubes and 3 yellow cubes and another tower of 3 yellow and 8 green cubes to show that order does not change the result in the operation of addition. Students can also use cubes of 3 different colors to "prove" that (2 + 6) + 4 is equivalent to 2 + (6 + 4) and then to prove 2 + 6 + 4 = 2 + 10.

Commutative Property of Addition
Order does not matter when you add numbers. For example, if 8 + 2 = 10 is known, then 2 + 8 = 10 is also known.

Associative Property of Addition
When adding a string of numbers you can add any two numbers first. For example, when adding 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12

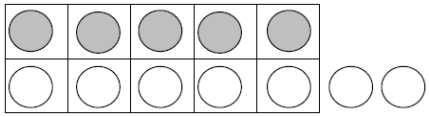
Student Example: *Using a Number Balance to Investigate the Commutative Property*
If I put a weight on 8 *first* and *then* 2, I think that will balance if I put a weight on 2 *first* this time and *then* on 8.



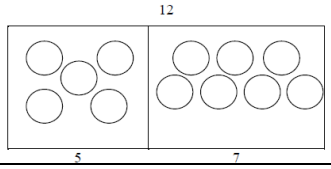
MGSE1.OA.4 Understand subtraction as an unknown-addend problem. ***For example, subtract 10 – 8 by finding the number that makes 10 when added to 8. Add and subtract within 20.***

This standard asks for students to use subtraction in the context of unknown addend problems. Example: 12 – 5 = __ could be expressed as 5 + __ = 12. Students should use cubes and counters, and representations such as the number line and the 100 chart, to model and solve problems involving the inverse relationship between addition and subtraction.

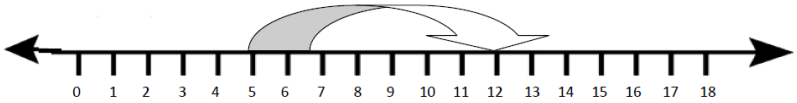
Student 1
I used a ten-frame. I started with 5 counters. I knew that I had to have 12, which is one full ten frame and two leftovers. I needed 7 counters, so 12 – 5 = 7.



Student 2
I used a part-part-whole diagram. I put 5 counters on one side. I wrote 12 above the diagram. I put counters into the other side until there were 12 in all. I know I put 7 counters on the other side, so 12 – 5 = 7.



Student 3: *Draw a Number Line*
I started at 5 and counted up until I reached 12. I counted 7 numbers, so I know that 12 – 5 = 7.



MGSE1.OA.5 Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).

This standard asks for students to make a connection between counting and adding and subtraction. Students use various counting strategies, including counting all, counting on, and counting back with numbers up to 20. This standard calls for students to move beyond counting all and become comfortable at counting on and counting back. The counting all strategy requires students to count an entire set. The counting and counting back strategies occur when students are able to hold the start number in their head and count on from that number.

Example: 5 + 2 = ___

Student 1: *Counting All*
5 + 2 = ___. The student counts five counters. The student adds two more. The student counts 1, 2, 3, 4, 5, 6, 7 to get the answer.

Student 2: *Counting On*
5 + 2 = ___. Student counts five counters. The student adds the first counter and says 6, then adds another counter and says 7. The student knows the answer is 7, since they counted on 2.

Example: 12 – 3 = ___

Student 1: *Counting All*
12 – 3 = ___. The student counts twelve counters. The student removes 3 of them. The student counts 1, 2, 3, 4, 5, 6, 7, 8, 9 to get the answer.

Student 2: *Counting Back*
12 – 3 = ___. The student counts twelve counters. The student removes a counter and says 11, removes another counter and says 10, and removes a third counter and says 9. The student knows the answer is 9, since they counted back 3.

MGSE1.OA.6 Add and subtract within 20.

a. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).

b. Fluently add and subtract within 10.

It is importance to move beyond the strategy of counting on, which is considered a less important skill than the ones here in 1.OA.6. Many times teachers think that counting on is all a child needs, when it is really not much better skill than counting all and can become troublesome when working with larger numbers.

Example: 8 + 7 = ___

Student 1: *Making 10 and Decomposing a Number*	Student 2: *Creating an Easier Problem with Known Sums*
I know that 8 plus 2 is 10, so I decomposed (broke) the 7 up into a 2 and a 5. First I added 8 and 2 to get 10, and then added the 5 to get 15. 8 + 7 = (8 + 2) + 5 = 10 + 5 = 15	I know 8 is 7 + 1. I also know that 7 and 7 equal 14 and then I added 1 more to get 15. 8 + 7 = (7 + 7) + 1 = 15

Example: 14 – 6 = ___

Student 1: *Decomposing the Number You Subtract*	Student 2: *Relationship between Addition and Subtraction*
I know that 14 minus 4 is 10 so I broke the 6 up into a 4 and a 2. 14 minus 4 is 10. Then I take away 2 more to get 8. 14 – 6 = (14 – 4) – 2 = 10 – 2 = 8	6 + □ is 14. I know that 6 plus 8 is 14, so that means that 14 minus 6 is 8. 6 + 8 = 14 so 14 – 6 = 8

Algebraic ideas underlie what students are doing when they create equivalent expressions in order to solve a problem or when they use addition combinations they know to solve more difficult problems. Students begin to consider the relationship between the parts. For example, students notice that the whole remains the same, as one part increases the other part decreases. 5 + 2 = 4 + 3

MGSE1.OA.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.

This standard calls for students to work with the concept of equality by identifying whether equations are true or false. Therefore, students need to understand that the equal sign does not mean —answer comes next, but rather that the equal sign signifies a relationship between the left and right side of the equation.

The number sentence 4 + 5 = 9 can be read as, four plus five is the same amount as nine. In addition, Students should be exposed to various representations of equations, such as: an operation on the left side of the equal sign and the answer on the right side (5 + 8 = 13) an operation on the right side of the equal sign and the answer on the left side (13 = 5 + 8) numbers on both sides of the equal sign (6 = 6) operations on both sides of the equal sign (5 + 2 = 4 + 3). Students need many opportunities to model equations using cubes, counters, drawings, etc.

MGSE1.OA.8 Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. ***For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = _ – 3, 6 + 6 = _ .***

This standard extends the work that students do in 1.OA.4 by relating addition and subtraction as related operations for situations with an unknown. This standard builds upon the think addition for subtraction problems as explained by Student 2 in MGSE1.OA.6.

Student 1 5 = ___ – 3 I know that 5 plus 3 is 8. So 8 minus 3 is 5.

(Adapted from Henry County Schools)

Clarification of Standards for Parents
Grade 1 Mathematics Unit 5

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. ☺

MGSE1.OA.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
This standard builds on the work in Kindergarten by having students use a variety of mathematical representations (e.g., objects, drawings, and equations) during their work. The unknown symbols should include boxes or pictures, and not letters.

The unknown symbols should include boxes or pictures, and not letters.

Teachers should be cognizant of the three types of problems. There are three types of addition and subtraction problems: Result Unknown, Change Unknown, and Start Unknown.

Use informal language (and, minus/subtract, the same as) to describe joining situations (putting together) and separating situations (breaking apart).

Use the addition symbol (+) to represent joining situations, the subtraction symbol (-) to represent separating situations, and the equal sign (=) to represent a relationship regarding quantity between one side of the equation and the other.

A helpful strategy is for students to recognize sets of objects in common patterned arrangements (0-6) to tell how many without counting (subitizing).

Addition Examples:

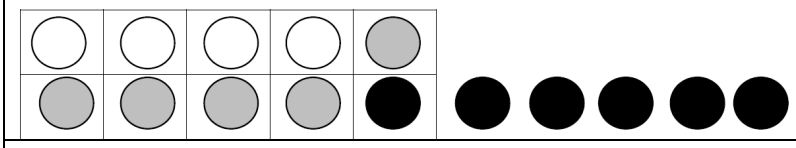
Result Unknown	Change Unknown	Start Unknown
There are 9 students on the playground. Then 8 more students showed up. How many students are there now? *(9 + 8 = ____)*	There are 9 students on the playground. Some more students show up. There are now 17 students. How many students came? *(9 + ____ = 17)*	There are some students on the playground. Then 8 more students came. There are now 17 students. How many students were on the playground at the beginning? *(____ + 8 = 17)*

MGSE1.OA.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
This standard asks students to add (join) three numbers whose sum is less than or equal to 20, using a variety of mathematical representations.

This objective does address multi-step word problems.

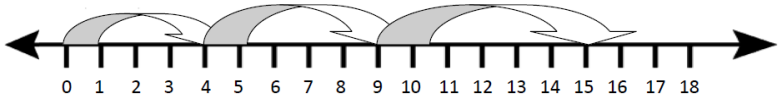
Example:
There are cookies on the plate. There are 4 oatmeal raisin cookies, 5 chocolate chip cookies, and 6 gingerbread cookies. How many cookies are there total?

Student 1: *Adding with a Ten Frame and Counters*
I put 4 counters on the Ten Frame for the oatmeal raisin cookies. Then I put 5 different color counters on the ten-frame for the chocolate chip cookies. Then I put another 6 color counters out for the gingerbread cookies. Only one of the gingerbread cookies fit, so I had 5 leftover. One ten and five leftover makes 15 cookies.



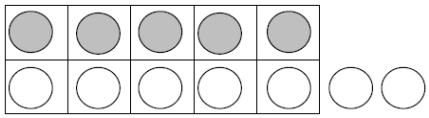
Student 2: *Look for Ways to Make 10*
I know that 4 and 6 equal 10, so the oatmeal raisin and gingerbread equals 10 cookies. Then I add the 5 chocolate chip cookies and get 15 total cookies.

Student 3: *Number Line*
I counted on the number line. First I counted 4, and then I counted 5 more and landed on 9. Then I counted 6 more and landed on 15. So there were 15 total cookies.

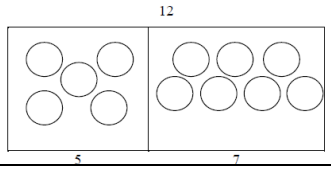


MGSE1.OA.4 Understand subtraction as an unknown-addend problem. *For example, subtract 10 – 8 by finding the number that makes 10 when added to 8. Add and subtract within 20.*
This standard asks for students to use subtraction in the context of unknown addend problems. Example: 12 – 5 = __ could be expressed as 5 + __ = 12. Students should use cubes and counters, and representations such as the number line and the 100 chart, to model and solve problems involving the inverse relationship between addition and subtraction.

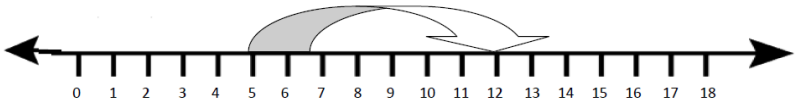
Student 1
I used a ten-frame. I started with 5 counters. I knew that I had to have 12, which is one full ten frame and two leftovers. I needed 7 counters, so 12 – 5 = 7.



Student 2
I used a part-part-whole diagram. I put 5 counters on one side. I wrote 12 above the diagram. I put counters into the other side until there were 12 in all. I know I put 7 counters on the other side, so 12 – 5 = 7.



Student 3: *Draw a Number Line*
I started at 5 and counted up until I reached 12. I counted 7 numbers, so I know that 12 – 5 = 7.



MGSE1.OA.6 Add and subtract within 20.

a. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).

b. Fluently add and subtract within 10.

It is importance to move beyond the strategy of counting on, which is considered a less important skill than the ones here in 1.OA.6. Many times teachers think that counting on is all a child needs, when it is really not much better skill than counting all and can become troublesome when working with larger numbers.

Example: 8 + 7 = ___

Student 1: *Making 10 and Decomposing a Number*	Student 2: *Creating an Easier Problem with Known Sums*
I know that 8 plus 2 is 10, so I decomposed (broke) the 7 up into a 2 and a 5. First I added 8 and 2 to get 10, and then added the 5 to get 15. 8 + 7 = (8 + 2) + 5 = 10 + 5 = 15	I know 8 is 7 + 1. I also know that 7 and 7 equal 14 and then I added 1 more to get 15. 8 + 7 = (7 + 7) + 1 = 15

Example: 14 – 6 = ___

Student 1: *Decomposing the Number You Subtract*	Student 2: *Relationship between Addition and Subtraction*
I know that 14 minus 4 is 10 so I broke the 6 up into a 4 and a 2. 14 minus 4 is 10. Then I take away 2 more to get 8. 14 – 6 = (14 – 4) – 2 = 10 – 2 = 8	6 + □ is 14. I know that 6 plus 8 is 14, so that means that 14 minus 6 is 8. 6 + 8 = 14 so 14 – 6 = 8

Algebraic ideas underlie what students are doing when they create equivalent expressions in order to solve a problem or when they use addition combinations they know to solve more difficult problems. Students begin to consider the relationship between the parts. For example, students notice that the whole remains the same, as one part increases the other part decreases. 5 + 2 = 4 + 3

MGSE1.OA.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.

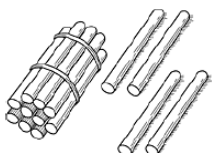
This standard calls for students to work with the concept of equality by identifying whether equations are true or false. Therefore, students need to understand that the equal sign does not mean —answer comes next, but rather that the equal sign signifies a relationship between the left and right side of the equation.

The number sentence 4 + 5 = 9 can be read as, four plus five is the same amount as nine. In addition, Students should be exposed to various representations of equations, such as: an operation on the left side of the equal sign and the answer on the right side (5 + 8 = 13) an operation on the right side of the equal sign and the answer on the left side (13 = 5 + 8) numbers on both sides of the equal sign (6 = 6) operations on both sides of the equal sign (5 + 2 = 4 + 3). Students need many opportunities to model equations using cubes, counters, drawings, etc.

MGSE1.NBT.2 Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:

a. 10 can be thought of as a bundle of ten ones – called a "ten."

This standard asks students to unitize a group of ten ones as a whole unit: a ten. This is the foundation of the place value system. So, rather than seeing a group of ten cubes as ten individual cubes, the student is now asked to see those ten cubes as a bundle – one bundle of ten.



b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.

This standard asks students to extend their work from Kindergarten when they composed and decomposed numbers from 11 to 19 into ten ones and some further ones. In Kindergarten, everything was thought of as individual units:

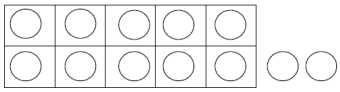
—ones. In First Grade, students are asked to unitize those ten individual ones as a whole unit: —*one* ten‖. Students in first grade explore the idea that the teen numbers (11 to 19) can be expressed as *one* ten and some leftover ones. Ample experiences with ten frames will help develop this concept.

Example:

For the number 12, do you have enough to make a ten? Would you have any leftover? If so, how many leftovers would you have?

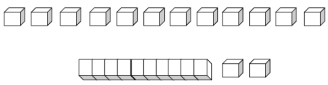
Student 1:

I filled a ten-frame to make one ten and had two counters left over. I had enough to make a ten with some left over. The number 12 has 1 ten and 2 ones.



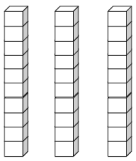
Student 2:

I counted out 12 place value cubes. I had enough to trade 10 cubes for a ten-rod (stick). I now have 1 ten-rod and 2 cubes left over. So the number 12 has 1 ten and 2 ones.



c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).

This standard builds on the work of MGSE1.NBT.2b. Students should explore the idea that decade numbers (e.g., 10, 20, 30, 40) are groups of tens with no left over ones. Students can represent this with cubes or place value (base 10) rods. (Most first grade students view the ten stick (numeration rod) as ONE. It is recommended to make a ten with unfix cubes or other materials that students can group. Provide students with opportunities to count books, cubes, pennies, etc. Counting 30 or more objects supports grouping to keep track of the number of objects.)



MGSE1.NBT.3 Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.

This standard builds on the work of MGSE1.NBT.1 and MGSE1.NBT.2 by having students compare two numbers by examining the amount of tens and ones in each number. Students are introduced to the symbols greater than (>), less than (<) and equal to (=). Students should have ample experiences communicating their comparisons using words, models and in context before using only symbols in this standard.

Example: 42 ___ 45

Student 1:

42 has 4 tens and 2 ones. 45 has 4 tens and 5 ones. They have the same number of tens, but 45 has more ones than 42. So 45 is greater than 42. So, 42 < 45.

Student 2:

42 is less than 45. I know this because when I count up I say 42 before I say 45. So, 42 < 45.

MGSE1.NBT.4 Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, 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 and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.

This standard calls for students to use concrete models, drawings and place value strategies to add and subtract within 100. Students should not be exposed to the standard algorithm of carrying or borrowing in first grade.

Example:
There are 37 children on the playground. When a class of 23 students come to the playground, how many students are on the playground altogether?

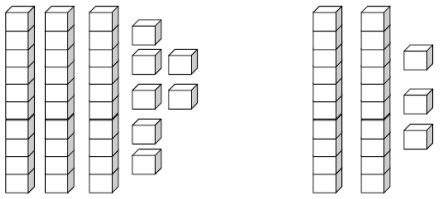
Student 1

I used a hundreds chart. I started at 37 and moved over 3 to land on 40. Then to add 20 I moved down 2 rows and landed on 60. So there are 60 people on the playground.

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

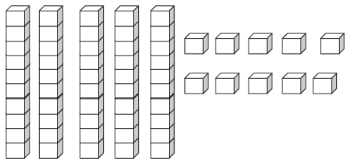
Student 2

I used place value blocks and made a pile of 37 and a pile of 23. I joined the tens and got 50. I then joined the ones and got 10. I then combined those piles and got 60. So there are 60 people on the playground. Relate models to symbolic notation.



Student 3

I broke 37 and 23 into tens and ones. I added the tens and got 50. I added the ones and got 10. I know that 50 and 10 more is 60. So, there are 60 people on the playground. Relate models to symbolic notation.

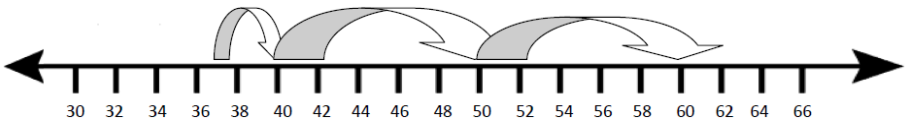


Student 4

Using mental math, I started at 37 and counted on 3 to get 40. Then I added 20 which is 2 tens, to land on 60. So, there are 60 people on the playground.

Student 5

I used the number line. I started at 37. Then I broke up 23 into 20 and 3 in my head. Next, I added 3 ones to get to 40. I then jumped 10 to get to 50 and 10 more to get to 60. So there are 60 people on the playground.



<u>MGSE1.NBT.5 Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.</u>

This standard builds on students' work with tens and ones by mentally adding ten more and ten less than any number less than 100. Ample experiences with ten frames and the hundreds chart help students use the patterns found in the tens place to solve such problems.

Example:

There are 74 birds in the park. 10 birds fly away. How many are left?

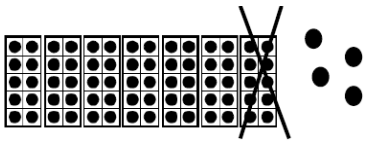
Student 1

I used a 100s board. I started at 74. Then, because 10 birds flew away, I moved back one row. I landed on 64. So, there are 64 birds left in the park.

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

Student 2

I pictured 7 ten-frames and 4 left over in my head. Since 10 birds flew away, I took one of the ten-frames away. That left 6 ten-frames and 4 left over. So, there are 64 birds left in the park.



MGSE1.NBT.6 Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), 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 and explain the reasoning used.

This standard calls for students to use concrete models, drawings and place value strategies to subtract multiples of 10 from decade numbers (e.g., 30, 40, 50).

Example:

There are 60 students in the gym. 30 students leave. How many students are still in the gym?

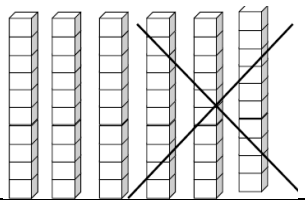
Student 1

I used a 100s chart and started at 60. I moved up 3 rows to land on 30. There are 30 students left.

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

Student 2

I used place value blocks or unifix cubes to build towers of 10. I started with 6 towers of 10 and removed 3 towers. I had 3 towers left. 3 towers have a value of 30. So there are 30 students left.

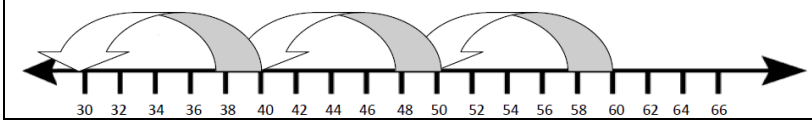


Student 3

Using mental math, I solved this subtraction problem. I know that 30 plus 30 is 60, so 60 minus 30 equals 30. There are 30 students left..

Student 4

I used a number line. I started with 60 and moved back 3 jumps of 10 and landed on 30. There are 30 students left.



MGSE1.NBT.7 Identify dimes, and understand ten pennies can be thought of as a dime. (Use dimes as manipulatives in multiple mathematical contexts.)

(Adapted from Henry County Schools)

Clarification of Standards for Parents
Grade 1 Mathematics Unit 6

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. ☺

GSE CLUSTER #2: REASON WITH SHAPES AND THEIR ATTRIBUTES.
Students compose and decompose plane or solid figures (e.g., put two triangles together to make a quadrilateral) and build understanding of part-whole relationships as well as the properties of the original and composite shapes. As they combine shapes, they recognize them from different perspectives and orientations, describe their geometric attributes, and determine how they are alike and different, to develop the background for measurement and for initial understandings of properties such as congruence and symmetry.

MGSE1.G.1 Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.
This standard calls for students to determine which attributes of shapes are defining compared to those that are non-defining. Defining attributes are attributes that must always be present. Non-defining attributes are attributes that do not always have to be present. The shapes can include triangles, squares, rectangles, and trapezoids.

Defining attributes are attributes that help to define a particular shape (# angles, # sides, length of sides, etc.). Non-defining attributes are attributes that do not define a particular shape (color, position, location, etc.). The shapes can include triangles, squares, rectangles, and trapezoids. MGSE1.G.2 includes half-circles and quarter-circles.

Example:
All triangles must be closed figures and have 3 sides. These are defining attributes. Triangles can be different colors, sizes and be turned in different directions, so these are non-defining.

Which figure is a triangle? How do you know this is a tri angle?

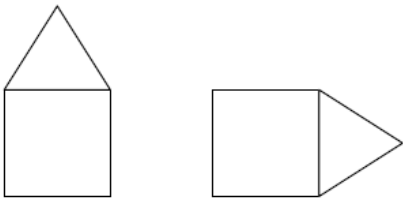
Student 1

The figure on the left is a triangle. It has three sides. It is also closed.

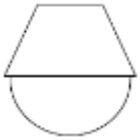
MGSE1.G.2 Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, rectangular prisms, cones, and cylinders) to create a composite shape, and compose new shapes from the composite shape.
This standard calls for students to compose (build) a two-dimensional or three-dimensional shape from two shapes. This standard includes shape puzzles in which students use objects (e.g., pattern blocks) to fill a larger region.

Example:

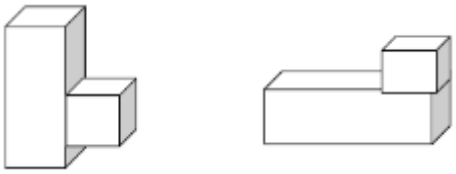
Show the different shapes that you can make by joining a triangle with a square.



Show the different shapes that you can make by joining trapezoid with a half-circle.



Show the different shapes that you can make with a cube and a rectangular prism.



MGSE1.G.3 Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves*, *fourths*, and *quarters*, and use the phrases *half of*, *fourth of*, and *quarter of*. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

This standard is the first time students begin partitioning regions into equal shares using a context such as cookies, pies, pizza, etc... This is a foundational building block of fractions, which will be extended in future grades. Students should have ample experiences using the words, *halves, fourths,* and *quarters*, and the phrases *half of, fourth of,* and *quarter of*. Students should also work with the idea of the whole, which is composed of two halves, or four fourths or four quarters.

Example:

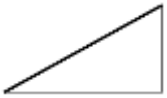
How can you and a friend share equally (partition) this piece of paper so that you both have the same amount of paper to paint a picture?

Student 1:

I would split the paper right down the middle. That gives us 2 halves. I have half of the paper and my friend has the other half of the paper.

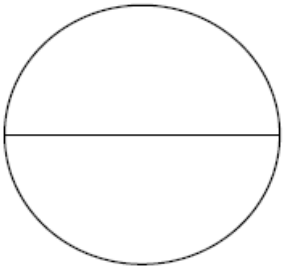
Student 2:

I would split it from corner to corner (diagonally). She gets half the paper. See, if we cut here (along the line), the parts are the same size.



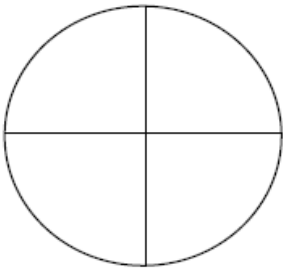
Example:

Teacher: There is pizza for dinner. What do you notice about the slices on the pizza?



Student: There are two slices on the pizza. Each slice is the same size. Those are big slices!

Teacher: If we cut the same pizza into four slices (fourths), do you think the slices would be the same size, larger, or smaller as the slices on this pizza?



Student: When you cut the pizza into fourths, the slices are smaller than the other pizza. More slices mean that the slices get smaller and smaller. I want a slice of that first pizza!

MGSE1.MD.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

This standard is taught throughout the whole 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 3 possible responses and then work with the data that they collect.

For example:
Students pose a question and the 3 possible responses: *Which is your favorite flavor of ice cream? Chocolate, vanilla or strawberry?* 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.

What is your favorite flavor of ice cream?	
Chocolate	12
Vanilla	5
Strawberry	6

Students interpret the data by comparing categories.
Examples of comparisons:

- What does the data tell us? Does it answer our question?
- More people like chocolate than the other two flavors.
- Only 5 people liked vanilla.
- Six people liked Strawberry.
- 7 more people liked Chocolate than Vanilla.
- The number of people that liked Vanilla was 1 less than the number of people who liked Strawberry.
- The number of people who liked either Vanilla or Strawberry was 1 less than the number of people who liked chocolate.
- 23 people answered this question.

(Adapted from Henry County Schools)