

Clarification of Standards for Parents
Grade 3 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 ☺

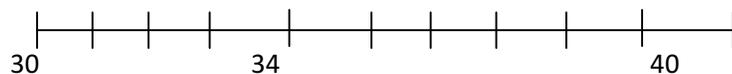
MGSE.3.NBT.1 Use place value understanding to round whole numbers to the nearest 10 or 100.

This standard refers to place value understanding, which extends beyond an algorithm or procedure for rounding. The expectation is that students have a deep understanding of place value and number sense and can explain and reason about the answers they get when they round. Students should have numerous experiences using a number line and a hundreds chart as tools to support their work with rounding.

For example:

Question: Round 34 to the nearest ten.

Student thinking: Let me locate 34 on a number line. I know that it takes four jumps (ones) to get back to 30 and six jumps (ones) to get to 40. This means that the closest ten would be 30.



MGSE.3.NBT.2 Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

This standard refers to fluently, which means accuracy, efficiency (using a reasonable amount of steps and time), and flexibility (using strategies such as the distributive property). The word algorithm refers to a procedure or a series of steps. There are other algorithms other than the standard algorithm. Third grade students should have experiences beyond the standard algorithm. A variety of algorithms will be assessed.

Problems should include both vertical and horizontal forms, including opportunities for students to apply the commutative and associative properties. Students explain their thinking and show their work by using strategies and algorithms, and verify that their answer is reasonable.

Example: There are 178 fourth graders and 225 fifth graders on the playground. What is the total number of students on the playground?

Student 1

$$100 + 200 = 300$$

$$70 + 20 = 90$$

$$8 + 5 = 13$$

$$300 + 90 + 13 = 403 \text{ students}$$

Student 2

I added 2 to 178 to get 180. I added 220 to get 400. I added the 3 left over to get 403.

Student 3

I know 75 plus 25 equals 100. Then I added 1 hundred from 178 and 2 hundreds from 275. I had a total of 4 hundreds and I had 3 more left to add. So I have 4 hundreds plus 3 more which is 403.

Student 4
 $178 + 225 = ?$

$178 + 200 = 378$

$378 + 20 = 398$

$398 + 5 = 403$

Common Misconceptions

The use of terms like “round up” and “round down” confuses many students. For example, the number 37 would round to 40 or they say it “rounds up”. The digit in the tens place is changed from 3 to 4 (rounds up). This misconception is what causes the problem when applied to rounding down. The number 32 should be rounded (down) to 30, but using the logic mentioned for rounding up, some students may look at the digit in the tens place and take it to the previous number, resulting in the incorrect value of 20. To remedy this misconception, students need to use a number line to visualize the placement of the number and/or ask questions such as: “What tens are 32 between and which one is it closer to?” Developing the understanding of what the answer choices are before rounding can alleviate much of the misconception and confusion related to rounding.

MGSE.3.OA.8 Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

This standard refers to two-step word problems using the four operations. The size of the numbers should be limited. Adding and subtracting numbers should include numbers within 1,000, and multiplying and dividing numbers should include single-digit factors and products less than 100.

This standard calls for students to represent problems using equations with a letter to represent unknown quantities.

This standard refers to estimation strategies, including using compatible numbers (numbers that sum to 10, 50, or 100) or rounding. The focus in this standard is to have students use and discuss various strategies. Students should estimate during problem solving, and then revisit their estimate to check for reasonableness.

Example: Here are some typical estimation strategies for the problem:

On a vacation, your family travels 267 miles on the first day, 194 miles on the second day and 34 miles on the third day. How many total miles did they travel?

Student 1

I first thought about 267 and 34. I noticed that their sum is about 300. Then I knew that 194 is close to 200. When I put 300 and 200 together, I get 500.

Student 2

I first thought about 194. It is really close to 200. I also have 2 hundreds in 267. That gives me a total of 4 hundreds. Then I have 67 in 267 and the 34. When I put 67 and 34 together that is really close to 100. When I add that hundred to the 4 hundreds that I already had, I end up with 500.

Student 3

I rounded 267 to 300. I rounded 194 to 200. I rounded 34 to 30. When I added 300, 200, and 30, I know my answer will be about 530.

The assessment of estimation strategies should only have one reasonable answer (500 or 530), or a range (between 500 and 550). Problems should be structured so that all acceptable estimation strategies will arrive at a reasonable answer.

(Adapted from Henry County Schools)