

Core Content

Cluster Title: Use place value understanding and properties of operations to perform multi-digit arithmetic. (Note: A range of algorithms may be used.)

Standard 1: Use place value understanding to round whole numbers to the nearest 10 or 100.

MASTERY Patterns of Reasoning:

Conceptual:

Students will understand the basic principles of rounding whole numbers (if the digit is five or greater the digit to the left moves up one number, if the digit is four or less the digit to the left stays the same).

Procedural:

- Students can identify the place to which they are rounding.
- Students can identify the digit that affects how the number is rounded.
- Students can identify the rounding choices (digit stays the same or rounds higher).
- Students can round whole numbers to the nearest 10 or 100.

Representational:

Students can represent rounding using number line, place value drawings, base ten blocks, or hundreds charts.

Supports for Teachers

Critical Background Knowledge

Conceptual:

Students will know place and value of whole numbers less than or equal to 1,000.

Procedural:

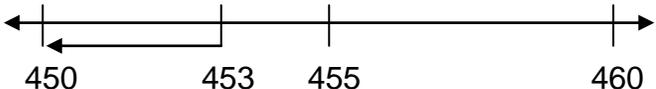
Students can read and write multi-digit whole numbers less than or equal to 1,000.

Representational:

Students can model numbers less than or equal to 1,000 (e.g., base-ten numerals, number names, expanded form, number lines, base-ten blocks, hundreds chart).

Academic Vocabulary and Notation

base-ten, benchmark number, compare, digits, expanded form, order, place value, round a whole number, standard form

(number name), whole number, word form	
Instructional Strategies Used	Resources Used
<p>Determine the place value to which you are rounding.</p> <p>Step 1: Identify the two benchmark numbers on either side of the target number. Step 2: Find the halfway point between the target numbers. Step 3: Place the target number on the number line. Step 4: Choose the benchmark number that is closer to the target number. What do you do if the number is at the halfway point?</p> <p>Example: Round 453 to the nearest 10.</p> <p>Step One:</p>  <p>Step Two:</p>  <p>Step Three:</p>  <p>Step Four:</p>  <p>Use tasks such as the following to allow students to think deeply about rounding:</p>	<p>Dalton, Julie. <i>Farmers Market Rounding</i>. Children's Press, 2007.</p> <p>Arvoy, Marsha. <i>Rounding My Path to Math</i>. Crabtree, 2010.</p> <p>http://www.funbrain.com/tens/index.html</p> <p>http://www.ehow.com/way_5182955_math-games-rounding.html</p> <p>http://math.pppst.com/rounding.html</p> <p>http://www.wartgames.com/themes/math/rounding.html</p> <p>http://www.ixl.com/math/grade-3</p>

Ming wants to make a game using blocks. The game will be for 11 people, and each would need 5 blocks. She wants to be sure she has extra blocks in case some get lost. Using rounding determine how many blocks Ming should get to the nearest 10.

Your parents are looking for a new apartment. You want to be sure your furniture will fit beneath the windows, so you have measured the width of your table, bed, and sofa. The table is 64 inches, the bed is 79 inches, and the sofa is 93 inches. The landlord told you the space between the windows in the kitchen (for the table) is 70 inches, the space for the bed is 80 inches, and the space for the sofa is 90 inches. She told you she rounded the numbers to the nearest ten.

1. If you round your furniture's measurements, what do you get?
 Table _____ Bed _____ Sofa _____

2. Between which benchmark numbers do the measurements in the apartment lie since they have been rounded?

 Kitchen window space _____

 Bedroom window space _____

 Living room window space _____
3. In which spaces will your furniture fit for sure?
 Where are you not sure your furniture will fit?
4. What area or areas should you ask the landlord to remeasure? (Hint: The rounded amount may seem too small, but it may not be.)

Adapted from: Arrowood, Janet C., *Mathematics for ESL Learners*. Rowman & Littlefield, 2004, p. 46.

<p>Play rounding games (e.g., rounding bingo, rounding war).</p>	
<p>Assessment Tasks Used</p>	
<p>Skill-Based Task: Round 17 to the nearest ten. Round 22 to the nearest ten. Round 234 to the nearest hundred. Round 650 to the nearest hundred. Round 459 to the nearest hundred. Round 987 to the nearest hundred.</p>	<p>Problem Task: If you round 250 to the nearest ten, would you still say that Kent has about 300 books on his shelf? Explain why or why not? Use a number line to explain why 450 is the least number that rounds to 500.</p>