Bridging for Math Strength Resources

Standards of Learning Curriculum Framework

Standard of Learning (SOL) 3.1b Round whole numbers, 9,999 or less, to the nearest ten, hundred, and thousand

Student Strengths	Bridging Concepts	Standard of Learning
Students can read, write, and identify the place and value of each digit in a three-digit numeral, with and without models. Students can round two-digit numbers to the nearest ten.	Students have an understanding of place value in the base-10 system. Students use estimation to find landmark numbers and benchmarks.	Students can round whole numbers to the nearest ten, hundred, and thousand.

Understanding the Learning Trajectory

Big Ideas:

- An understanding of the structure of the base-ten number system is based upon a simple pattern of tens, where each place is ten times the value of the place to its right.
- When rounding to the nearest 10, 100, or 1,000, the goal is to approximate the number by the closest number with no ones, no tens and ones, or no hundreds, tens, and ones. (Common Core Standards Writing Team, 2019)
- A number line can be used to locate a given number and determine the closest multiples of ten, hundred, or thousand.

Formative Assessment:

- Just in Time Mathematics Quick Check 3.1b (PDF)
- Just in Time Mathematics Quick Check 3.1b (Desmos)

Important Assessment Look Fors:

- Student writes the number accurately with the appropriate number of digits.
- Student identifies the tens, hundreds, thousands place in order to round.
- Student uses placeholders (0) after the rounded place value.
- Student determines the closest multiple of ten, hundred, or thousand for the given number.

Purposeful Questions:

- How did you know to round _____ to _____? (*224 to 220*)
- What digit is in the *(tens, hundreds, thousands)* place? Why did it round to _____?
- Explain why you chose _____ to round to 3,670.

Bridging Activity to Support Standard	Instructional Tips
Routines Choral Count adapted from Theresa Wills template Clothesline Continuum Math adapted from Theresa Wills template	Have students choral count at the beginning of class. Focus on counting by tens, hundreds, and thousands. Encourage students to notice and discuss how some numbers appear in both counts (100 is in both 10s and 100s count). This encourages students to use benchmark numbers to round and conceptualize that rounding is finding the nearest number on the number line. In this template, the number line is in the shape of a wave to emphasize which benchmark number would be the closest one. Teachers can choose a template based on which place value they want to practice for rounding. They can also choose whether to have students determine what the benchmarks should be to increase student discussion.
Rich Tasks Ximena's mother says she must have about 2,000 Lego pieces. If that is true, what are three possibilities for the exact number of Legos she has? Ximena's friend says Ximena could have 2,499 pieces, but Ximena disagrees because it is more than 2,000. Who do you agree with and why? Rounding to 50 or 500 from Achieve the Core	This task could easily be modified and extended to include rounding to 5,000 or any other multiple of ten, hundred, and thousand.
Games/Tech ABC Ya Rounding Numbers Level 2 MathNook Rounding Games Desmos 3.1b Is it Closer to 1,000 or 2,000?	MathNook has several online games for rounding. The Math Dog Game has three levels (nearest 10, 100, and 1000). This game asks "Which number rounds to 6,000?" Which is a tougher question for rounding. Students locate numbers between 1,000 and 2,000 on an open number line. Then they determine whether the number is closer to 1,000 or 2,000. Students reflect on their work. Then they locate a final number between 1,000 and 2,000 on an open number line that has a tick mark in the middle. Students reflect on why the tick mark does or does not help them decide whether the number is closer to 1,000 or 2,000. The goal is to have a conversation that brings students to consider the importance of halfway points (benchmarks) when rounding numbers.

Other Resources:

- World Record Auditions adapted from *Classroom Ready Rich Tasks Gr. 2-3*
- Mystery Number (from *Daily Routines to Jump-Start Math Class* from Corwin)
- Rounding Practice on a Number Line Henrico County Public Schools

- Mystery Number Riddles
- VDOE Mathematics Instructional Plans (MIPS):
  - 3.1b Round It (Word) / (PDF)
  - 3.1b Rounding Whole Numbers (Word) / (PDF)
  - 3.1abc Place Value Mat Activities (Word) / (PDF)
- VDOE Word Wall Cards: Grade 3 (Word) / (PDF)
  - Round
  - Place Value Position
- VDOE Instructional Videos for Teachers:
  - Using a Beaded Number Line Grades K-2

Learning Trajectory Resources:

Charles, R. (2005). Big ideas and understandings as the foundation for elementary and middle school mathematics. *Journal of Mathematics Education Leadership*, *7*(3), NCSM.

Clements, D. H., & Sarama, J. (2019). Learning and teaching with learning trajectories [LT]2. Marsico Institute, Morgridge College of Education, University of Denver. https://www.learningtrajectories.org/

Common Core Standards Writing Team. (2019). Progressions for the Common Core State Standards for Mathematics. Tucson, AZ: Institute for Mathematics and Education, University of Arizona.

Richardson, K. (2012). How Children Learn Number Concepts: A Guide to Critical Learning Phases. Bellingham: Math Perspectives Teacher Development Center.

Van De Walle, J., Karp, K. S., & Bay-Williams, J. M. (2018). *Elementary and Middle School Mathematics: Teaching Developmentally.* (10th edition) New York: Pearson (2019:9780134802084)

VDOE Curriculum Framework for All Grades - Standard of Learning Curriculum Framework (SOL)