Bridging for Math Strength Resources

Standards of Learning Curriculum Framework

Standard of Learning (SOL) 4.3b Round decimals to the nearest whole number.



Student Strengths	Bridging Concepts	Standard of Learning
Students can round whole numbers to an identified place value. Students can compare the value of two sets of coins and bills.	Students can read, write, and represent decimals expressed through thousandths. Students are also familiar with representing decimals using a number line and using base ten blocks.	Students can round decimals to the nearest whole number.

Understanding the Learning Trajectory

Big Ideas:

- The base-ten place value system extends infinitely in two directions, to very tiny values to large values. (Van de Walle et al., 2018)
- Students extend their understanding of the base-ten system to the relationship between adjacent places, how numbers compare, and how numbers round for decimals to thousandths. (Common Core Standards Writing Team, 2019).
- A strong understanding of decimal place value is important for the development of number sense when exploring problems that involve rounding numbers.
- The use of a number line to determine which whole number a given decimal is closer to is a strategy that develops conceptual understanding of rounding instead of learning rules or mnemonics when rounding. (VDOE Quick Checks SOL 4.3b)
- Strategies for rounding whole numbers can be applied when rounding decimals expressed through thousandths. (VDOE Curriculum Framework, Grade 4)

Formative Assessment:

- VDOE Just in time Quick Check SOL 4.3b PDF / Desmos

Important Assessment Look Fors:

- The student is able to use a model, such as a number line, to represent a conceptual understanding of rounding

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a decimal to the nearest whole number.

- The student is able to justify the closest whole number when rounding a decimal.
- The student is able to round a decimal expressed through thousandths to the nearest whole number.
- The student is able to round a number with multiple places values to the nearest whole (example: 34.987 rounds to 35 when rounding to the nearest whole number.)
- The student is able to identify decimals that would round to a given whole number.

Purposeful Questions:

- What strategy did you use when rounding the decimal to the nearest whole number?
- Can you create a model, such as a number line, to represent which two whole numbers the given decimals round to?
- Can you identify a decimal that would round to the given whole number? Is there more than one answer?
- Which digit can be placed in the tenth place so that the given decimal will round to the next whole number? Is there more than one answer?

Bridging Activity to Support Standard	Instructional Tips
Routine Open Middle	Open Middle is a number sense routine that allows for students to create multiple numbers. Using the digits 0 to 9, place a digit in each box to create a whole number expressed through thousandths. This game can be modified to round to the nearest whole. This number sense routine can extend to decimal place value, comparing decimals, creating a model and/or representing decimals on a number line. □.□□□ □.□□□
Would You Rather?	Would you Rather is a routine that engages students in math based conversations that encourage students to select an option and justify their ideas. Below is an examples of a Would you Rather routine where students can use estimation and rounding to decide which option is preferable. 

Rich Tasks Decimal Rounding Task Henrico County Public School	Below are three leveled tasks students can explore when determining decimals that would round to the given whole number. These tasks are real world scenarios that are leveled and would be great to use as an introduction to connect the concepts of money and decimal place value. **What's the Range? Decimals- Level 1** Heidi bought a pack of pencils for school. The cost of the pack of pencils was about $6.00. What might be the exact cost of the pack of pencils? Name as many possible amounts as you can. Explain your thinking using pictures, words, and symbols. **What's the Range? Decimals- Level 2** Johan bought a backpack for hiking. The cost of the backpack was about $45.00. What might be the exact cost of the backpack? Name as many possible amounts as you can. Explain your thinking using pictures, words, and symbols. **What's the Range? Decimals - Level 3** The Gabriel family purchased a new computer for their house office. The price of the computer was about $250.00. What might be the exact cost of the computer? Name as many possible amounts as you can. Explain your thinking using pictures, words, and symbols.
Games/Tech Desmos 4.3b Get Close to Me	This activity was inspired by clothesline math. Students explore rounding numbers to the nearest whole. They can notice and discuss patterns that will help them round.

Other Resources:

- VDOE Mathematics Instructional Plans (MIPS)
  - 4.3b - Rounding Decimals (Word) / PDF Version
- VDOE Algebra Readiness Remediation Plans
  - Rounding with Number Lines (Word) / PDF
- VDOE Word Wall Cards: Grade 4 (Word) | (PDF)
  - Decimal place value position
  - Round

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)