Bridging for Math Strength Resources

Standards of Learning Curriculum Framework (SOL)

Standard of Learning (SOL) 5.1 Given a decimal through thousandths, will round to the nearest whole number, tenth, or hundredth

Student Strengths	Bridging Concepts	Standard of Learning
Students can round a decimal to the nearest whole number; identify decimal place values through thousandths; and round a whole number to any given place value and make generalizations about this process.	Students can round decimals expressed through tenths and hundredths to the nearest whole number. Students can name the halfway point between two decimal locations with or without a number line.	Students can be given a decimal through thousandths and round to the nearest whole number, tenth, or hundredth.

Understanding the Learning Trajectory

Big Ideas:

- The base-ten system helps students see a relationship between adjacent place values which in turn helps them compare decimals and thus supports their ability to round them. For example, it is important to deepen understanding and fluency with decimals in the different forms, seeing .57 as 5 tenths and 7 hundredths as well as 57 hundredths (Common Core Standards Writing Team, 2019, p. 64). This ability to rename and decompose decimals can help students round to the nearest whole number, tenth or hundredth.
- A decimal point separates the whole number and decimal places. Place values extend infinitely in two directions from a decimal point.
- In mathematics, decimals can be written correctly by remembering that any decimal less than one can include a leading zero (e.g., 0.125). This number may be read as “zero and one hundred twenty-five thousandths” or as “one hundred twenty-five thousandths.”
- A decimal number lies between other decimal places and/or whole numbers. For example 5.65 lies between 5.6 and 5.7 as well as whole numbers 5 and 6.

Formative Assessment:

- Just in Time Mathematics Quick Check 5.1 PDF
- Just in Time Mathematics Quick Check 5.1 Desmos

Important Assessment Look Fors:

- The student writes the decimal quantity accurately, placing the decimal point correctly.
- The student uses base-10 models to support their reasoning for rounding.
- The student uses a number line to round a decimal. The student locates a number on the number line, determines the closest multiples of whole numbers, tenths, or hundredths that it lies in between, and identifies which it is closer to. In other words, the student can determine the consecutive whole numbers/tenths/hundredths between which a given number lies.
- The student determines numbers that round or do not round to a given benchmark.

Purposeful Questions:

- How did you determine the start, end, and midpoint of your numberline?
- How did you determine the relative location of your decimal?
- How did you decide which location to round to on your number line? Why did you decide to round in that direction?
- What do you look at when rounding to the nearest tenth? To the nearest hundredth? To the nearest whole number?
- How would your answer change if you rounded to a different place value?

Bridging Activity to Support Standard	Instructional Tips
Routines Would you Rather? Find more on Would you rather link	Review place value before reviewing rounding with decimals to assess student understanding.
Rich Tasks Walking Distances	In this task, students will identify two decimals with different numbers of digits that can be rounded to the same whole number.
Games/Tech Make it Close (modified game originally created by Origo) Desmos 5.1 Rounding Decimals	This strategy game practices rounding while also reviewing comparison of decimals. Change the difficulty by doing fewer decimal places/dice and have students round to the nearest whole. Consider using dice with digits up to 9. Number lines can be used to support students while playing this game. In this Desmos activity, students will round decimals through the thousandths to the nearest whole, tenth, and hundredth using the number line as a tool to build conceptual understanding.

Other Resources:

- Open Middle Problem, Rounding Decimal 3: This problem addresses the full standard. Teachers can ask students: How can you have values that are equivalent when rounded to the nearest tenth yet have different whole number values? Many students will try to put answers that when rounded have equivalent tenths places but different whole numbers - this can lead to a fruitful conversation about how a number can have 0 tenths, and how sometimes rounding the nearest tenth is actually to the nearest whole.
- Printable Blank Decimal Grids: Print and laminate to have students color in to show given fractions/decimals. OR shade these in yourself to create a deck of decimal cards.

- Team up to Round Decimals- Practice rounding decimals in pairs. For accountability, have students record a few examples and explain their reasoning. Teachers can model the process first with a student and then have students complete the game together.
- Rounding Decimals Online skill practice rounding to the nearest whole.
- Rounding to tenths and hundredths Students see an unknown value "n" on a number line that lies between 0 and 0.1. Though this task deals most directly with rounding, it also requires students to understand or figure out that one-tenth of 0.1 is 0.01.
- Rounding Decimals Study Jams-Step by step assistance on how to round a decimal from hundredths or tenths to the nearest whole in real-life situations. Students can go through the step by step assistance to practice rounding decimals. Students can then complete the test yourself to test their knowledge. Note: this should not be used as an introduction to the topic of rounding decimals. This should be used later when learning how decimals are rounded in real life situations.
- VDOE Mathematics Instructional Plans (MIPS)
    - 5.1 Decimal Rounding (word)/PDF Version
- VDOE Co-Teaching Mathematics Instruction Plans (MIPS)
    - 5.1 Decimal Rounding (word)/PDF Version
- VDOE Algebra Readiness Formative Assessments
    - SOL 5.1 (Word) / PDF
- VDOE Algebra Readiness Remediation Plans
    - Rounding with Number Lines (Word) / PDF
- VDOE Word Wall Cards: Grade 5 (Word) | (PDF)
    - Decimal Place ValueRound

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.

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.

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)