



Bridging for Math Strength Resources

Standards of Learning Curriculum Framework (SOL)

Bridging Standards of Learning (SOL) for Grade 6

Bridging Standard of Learning (SOL) 6.2b Compare and order positive rational numbers



Student Strengths	Bridging Concepts	Standard of Learning
Students can compare and order fractions and/or decimals in a given set using models or a computational strategy.	Students can use multiple strategies to compare and order fractions, mixed numbers, and decimals.	Students can compare and order positive rational numbers.

Understanding the Learning Trajectory

Big Ideas:

- Any number can be represented in an infinite number of ways that have the same value and can be compared by their relative values (Charles, p.10, p.14). In order to use reasoning skills when comparing fractions, it is important to have students notice what happens to the size of fractions when the numerator increases and also when the denominator increases.
- In terms of decimal reasoning, students need to develop the notion that there is what we call decimal density where in between any two decimals there are an infinite number of other decimals (Widjaja et al., 2008).
- Since fractions, decimals and percents are essentially the same numbers in different forms, they can be compared and ordered. Fractions, decimals, and percents can be compared and ordered using a variety of strategies including using benchmarks (0, halves, wholes), naming equivalencies, and other reasoning strategies.
- Decimal to fraction-to percent equivalents can be named not just through procedures but through sense-making with our base-ten system (e.g. $\frac{4}{10} = \frac{40}{100} = 40\% = 0.4$). For example, although one can use division with the fraction to find the decimal equivalent, another way is to find an equivalent decimal fraction with 10 or 100 in the denominator to find the decimal and percent equivalent (e.g. $\frac{12}{50} = \frac{24}{100} = 0.24 = 24\%$).

Formative Assessment:

- [Just in Time Mathematics Quick Check 6.2b Word](#)
- [Just in Time Mathematics Quick Check 6.2b PDF](#)

- [Just in Time Mathematics Quick Check 6.2b Desmos](#)

Important Assessment Look Fors:

- Students can use a variety of strategies to order and compare rational numbers (close to 0, 1 or $\frac{1}{2}$, converting to a different representation, using a model, using benchmarks, using equivalencies, etc...)
- The student demonstrates an understanding of percents that include a decimal point.
- The student demonstrates understanding of symbols repeating decimals.
- The student can explain the strategy and reasoning used to determine the order of the rational numbers.
- The student can determine a fraction, decimal, or percent that can fit a series of given criteria (less than, greater than, or between two quantities).

Purposeful Questions:

- Can you explain to me how you were able to determine that quantity a is less than/greater than/equal to quantity b ?
- What strategy/strategies did you use in order to compare/order your numbers? Why was this an effective strategy?
- How are the strategies you use to compare and order fraction similar or different to the strategies you use to compare decimals and percents?
- How do you know ___ is greater/less than ___? (fill in rational numbers in the problem)
- Where might you place these numbers on the number line?
- What other way could you represent this rational number?

Bridging Activity to Support Standard	Instructional Tips
Routine Clothesline Math	Students write down a fraction, decimal or percent. As a small group, they order their examples in a given order, either ascending or descending. Then have the students order their examples as a whole class, hanging them over a string, in ascending order.
Rich Tasks Venn Diagram Task , Mr. Barton Math	There are a variety of venn diagram tasks to choose from comparing fractions, decimals and percents.
Games/Tech FDP Spoons , Education.com FDP Matching Game , Mathshell Desmos 6.2b Compare and order fractions on a number line	Played like the card game spoons, cards are passed until someone has a simplified fraction, decimal and percent that are equivalent. Check out pages 14-17 for a matching game. Learners place fractions, decimals, and percents on a number line, a collaborative project with a partner using a fraction comparison tool. Teacher notes provide the "code" for each slide for the learners to check their placement.
Other Resources: • Open Middle (slide 45 edit to remove negative symbols) • VDOE Mathematics Instructional Plans (MIPS) ◦ 6.2b - Compare and Order Rational Numbers (Word) / PDF Version • VDOE Co-Teaching Mathematics Instruction Plans (MIPS) ◦ 6.2ab - Order Rational Numbers (Word) / PDF Version	

- VDOE Algebra Readiness Formative Assessments
 - [SOL 6.2b](#) (Word) / [PDF](#)
- VDOE Algebra Readiness Remediation Plans
 - [Index Card Game](#) (Word) / [PDF](#)
 - [Zero, Half, Whole?](#) (Word) / [PDF](#)
- VDOE Word Wall Cards: [Grade 6](#) (Word) | ([PDF](#))
 - Equivalent Relationships
- VDOE Instructional Videos for Teachers
 - [Models for Teaching Fractions](#)
- Desmos Activity
 - [Ordering Fractions, Decimals, and Percents on a Number Line](#)

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.

Curriculum Framework for All Grades -[Standard of Learning Curriculum Framework \(SOL\)](#)

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)