



Bridging for Math Strength Resources

Standards of Learning Curriculum Framework (SOL)

Bridging Standards of Learning (SOL) for Grade 8

Standard of Learning (SOL) 8.1 Compare and order real numbers



Student Strengths	Bridging Concepts	Standard of Learning
Students can represent and determine equivalencies among, and order fractions, mixed numbers, decimals, percents, exponents, perfect squares, and integers. Ordering may be in ascending or descending order.	Students can represent and determine equivalencies square roots and numbers written in scientific notation. Ordering may be in ascending or descending order.	Students can compare and order real numbers.

Understanding the Learning Trajectory

Big Ideas:

- The density property states that between any two real numbers lies another real number. The set of real numbers is **all the numbers that have a location on the number line**.
- The real numbers include natural numbers or counting numbers, whole numbers, integers, rational numbers (fractions and repeating or terminating decimals), and irrational numbers.
- Patterns help us to order and compare real numbers.
- In mathematics, we can compare and order real numbers by converting between different forms of numbers (ie. fractions → decimals or scientific notation → standard notation).
- There are numbers that are not rational. We can approximate them using rational numbers ([Achieve the Core](#))

Formative Assessment:

- [Just in Time Mathematics Quick Check 8.1 Word](#)
- [Just in Time Mathematics Quick Check 8.1 PDF](#)

- [Just in Time Mathematics Quick Check 8.1 Desmos](#)

Important Assessment Look Fors:

- The student can differentiate between negative and positive integers and place them on the correct side of zero.
- The students can convert between scientific notation and decimals.
- The student can use a number line as a tool to correctly order numbers.
- The student can approximate irrational numbers using rational numbers.

Purposeful Questions:

- What does it mean if a number is negative or positive? How does that affect its placement on the number line?
- What does a negative exponent mean? What does a positive exponent mean?
- When a value isn't listed on the number line, how do you determine its placement? Does it matter where it goes if there isn't a given label?

Bridging Activity to Support Standard	Instructional Tips
Routine Approximating Irrationals 1 Approximating Irrationals 2	Start with this to make sure students are able to approximate irrational numbers in order to include them in the ordering and comparing piece later on. The teacher can project this problem, giving students time to work on it individually before discussing it as a class or in purposeful small groups.
Rich Tasks Ordering Competition	HCPS - 8.1/8.2 Supporting Documents From Henrico County Public Schools
Games/Tech Rags to Riches Desmos 8.1 Polygraph: Rational Numbers Desmos 8.1 Fraction, Decimal Repeat	This should be done as a class. Have students write their answers on a white board and hold it up (or hold up a number of fingers for A, B, C, or D). This is because each question can help the teacher identify student misconceptions. This Custom Polygraph is designed to spark vocabulary-rich conversations about rational numbers. Key vocabulary that may appear in student questions includes: numerator, denominator, positive, negative, proper, improper, simplified, equivalent, terminating, repeating, closer to 1, and closer to 0. Converting decimals with repeating patterns of numbers into fractions
Other Resources: • VDOE Mathematics Instructional Plans (MIPS) ◦ 8.1 - Ordering Numbers (Word) / PDF Version • VDOE Algebra Readiness Formative Assessments ◦ SOL 8.1 (Word) / PDF • VDOE Algebra Readiness Remediation Plans ◦ Zero, Half, Whole? (Word) / PDF ◦ Index Card Game (Word) / PDF • VDOE Word Wall Cards: Grade 8 (Word) (PDF) ◦ Comparing Real Numbers • Other VDOE Resources ◦ 8.1 – Building A Number Line [eMediaVA]	

- Desmos Activity
 - [8.1 - Polygraph: Rational Numbers](#)
 - [8.1 - Fractions, Decimals Repeat](#)

Mashup math video -What are real numbers? <https://www.youtube.com/watch?v=tC7NkH5xwBM>

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 \(SOL\)](#)