



Bridging for Math Strength Resources

[Standards of Learning Curriculum Framework](#)

Standard of Learning (SOL) 3.2b Represent fractions and mixed numbers with models and symbols



Student Strengths	Bridging Concepts	Standard of Learning
Students can represent, with models and with symbols, fractional parts of a whole for halves, fourths, eighths, thirds, and sixths.	Students can identify an improper fraction as a fraction with a numerator that is larger than the denominator. Students can identify mixed numbers as a whole number and a proper fraction. Students can connect representations of an improper fraction with a mixed number.	Students can represent fractions and mixed numbers with models and symbols.

Understanding the Learning Trajectory

Big Ideas:

- Fractions are numerical representations for part of a whole or a set.
- Unit fractions are the basic building blocks of fractions and are iterated multiple times to represent other fractions. ([Common Core Progressions, p.7](#))
- Mixed numbers and improper fractions are greater than one whole.

Formative Assessment:

- [VDOE Just in Time Mathematics Quick Check 3.2b \(PDF \)](#)
- [VDOE Just in Time Mathematics Quick Check 3.2b \(Desmos\)](#)

Important Assessment Look Fors:

- Student divides an area model into the appropriate number of equal-sized pieces to represent the denominator of a given fraction.
- Student adds unit fractions to identify and name a larger fraction.

- Student draws more than one whole (of a set or an area model) to represent mixed numbers and improper fractions.
- Student names a model representing more than 1 whole as a mixed number or an improper fraction.
- Student locates improper fractions on the number in a position greater than 1 whole.

Purposeful Questions:

- Why did you represent that fraction in that way?
- What is another way you could represent that fraction?
- Can you create an addition sentence that would be equivalent to your fraction representation?

Bridging Activity to Support Standard	Instructional Tips
Routine Same but Different Fraction Talk	This website has a variety of fractions to choose as the start of a classroom discussion. The $1\frac{1}{2}$ and $\frac{3}{2}$ addresses improper fractions and mixed numbers. These images provide a wealth of conversation starters for how to represent and interpret fractions as one can interpret the whole differently. This would be a good segue into an activity where students use tangrams to represent their own unique fraction models with different definitions of a whole.
Rich Tasks Locating Fractions Greater than One on a Number Line from Illustrative Math	
Games/Tech Fun with Fractions Game Henrico County Public Schools Desmos 3.2b What Fraction Am I? Desmos 3.2b Using Benchmark Fractions on a Number Line Desmos 3.2b Fractions on a Number Line	Students create fractions that match the directions. This activity is self-checking. Students mark the location of fractions on a number line to show understanding. In this activity, students build number sense by partitioning rectangles, placing fractions on a number line, and making connections between these two representations.
Other Resources: • Henrico County Public Schools SOL3.2 • VDOE Mathematics Instructional Plans (MIPS): ○ 3.2ab - Candy Bar Fractions (Word) / PDF Version ○ 3.2b - Modeling Fractions (Word) / PDF Version ○ 3.2b - Shapely Fractions (Word) / PDF Version • VDOE Word Wall Cards: Grade 3 (Word) and (PDF)	

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 \(SOL\)](#)