



Topic D

Fractions on the Number Line

3.NF.2ab, 3.NF.3cd

Focus Standard:	3.NF.2	Understand a fraction as a number on the number line; represent fractions on a number line diagram.
		a. Represent a fraction $\frac{1}{b}$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $\frac{1}{b}$ and that the endpoint of the part based at 0 locates the number $\frac{1}{b}$ on the number line. b. Represent a fraction $\frac{a}{b}$ on a number line diagram by marking off a lengths $\frac{1}{b}$ from 0. Recognize that the resulting interval has size $\frac{a}{b}$ and that its endpoint locates the number $\frac{a}{b}$ on the number line.
	3.NF.3	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
		c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. <i>Examples: Express 3 in the form $3 = \frac{3}{1}$; recognize that $\frac{6}{1} = 6$; locate $\frac{4}{4}$ and 1 at the same point of a number line diagram.</i> d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, $<$, and justify the conclusions, e.g., by using a visual fraction model.
Instructional Days:	6	
Coherence		
-Links from:	G2–M8	Time, Shapes, and Fractions as Equal Parts of Shapes
-Links to:	G4–M5	Fraction Equivalence, Ordering, and Operations

In Topic C, students compared unit fractions and explored the importance of specifying the whole when doing so. In Topic D, they apply their learning to the number line. Number bonds and fraction strips serve as bridges into this work. Students see intervals on the number line as wholes. They initially measure equal lengths between 0 and 1 with their fraction strips. They then work with number lines that have endpoints other than 0 and 1 or include multiple whole number intervals. This naturally transitions into comparing fractions with the same denominator, as well as fractions and whole numbers on the number line. As students compare, they reason about the size of fractions and contextualize their learning within real world applications.

A Teaching Sequence Toward Mastery of Fractions on the Number Line

- Objective 1:** Place fractions on a number line with endpoints 0 and 1.
(Lesson 14)
- Objective 2:** Place any fraction on a number line with endpoints 0 and 1.
(Lesson 15)
- Objective 3:** Place whole number fractions and fractions between whole numbers on the number line.
(Lesson 16)
- Objective 4:** Practice placing various fractions on the number line.
(Lesson 17)
- Objective 5:** Compare fractions and whole numbers on the number line by reasoning about their distance from 0.
(Lesson 18)
- Objective 6:** Understand distance and position on the number line as strategies for comparing fractions.
(Optional.)
(Lesson 19)