

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 $1/b$ 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 $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line.
- b. Represent a fraction a/b on a number line diagram by marking off a lengths $1/b$ from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.

Please Note: Develop understanding of fractions as numbers. Denominators are limited to 2, 3, 4, 6, and 8 in third grade.

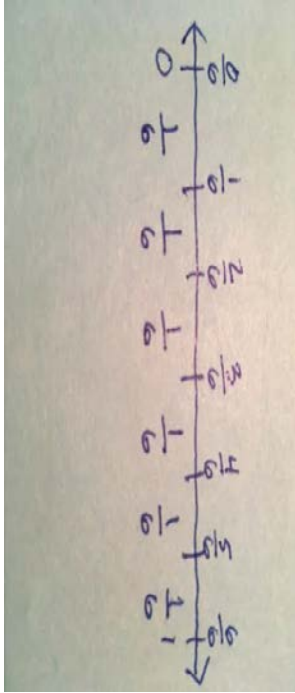
Key Elements:

- Helping students break up the number line into equal parts is very tricky. For example, if a student wants to break up the number line into 6 equal parts, they often draw six lines, which will then give the 7 equal parts. It is important to make sure that they students are counting the number of spaces between the lines, not the number of lines.
- Having students label each equal part on the number line will help them check their work to make sure that the equal parts $1/b$ are identified.
- Identifying $1/b$ on the number line, as stated in indicator a, helps build their number sense, particularly with their understanding of the meaning of the denominator. This helps the students understand that the smaller the number is in the denominator, the bigger the piece that it represents. Also the reverse, in that as the number representing the denominator gets bigger, the unit fraction gets smaller, thus representing a smaller piece.
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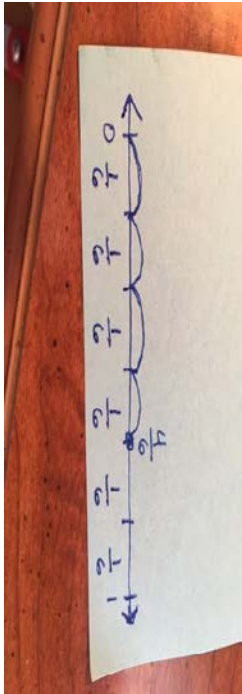
Grade Progression:

- When they identify each part of the number line as $1/b$ it helps build their conceptual knowledge of unit fractions. This acts as an introduction for what they learn in **fourth grade**. They also cover it in **sixth grade** when they learn about unit rate.

Indicator a:



Indicator b:



Good instructional videos:

https://www.youtube.com/watch?v=SJ46hL_WRzQ

https://www.youtube.com/watch?v=k5C5PdZ_Yys&t=12s

<https://www.youtube.com/watch?v=D3Va4gt1bPY> (Only the first part is for third grade)