

## Fractions: Number Lines

Bright, G., Behr, M., Post, T., & Wachsmuth, I. (1988). Identifying fractions on number lines. *Journal for Research in Mathematics Education.*, 19(3), 215-232.

Tian, J. & Siegler, R. S. (2017) Fractions learning in children with mathematics difficulties. *Journal of Learning Disabilities.*, 50(6), 614-620.

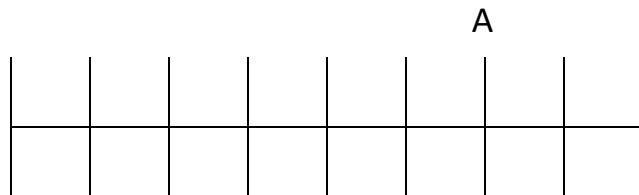
**This targeted intervention consists of the number line for understanding proper and improper fractions. Research suggests that the number line is a more useful tool for understanding equivalent fractions rather than the traditional part-whole interpretation.**

### Materials:

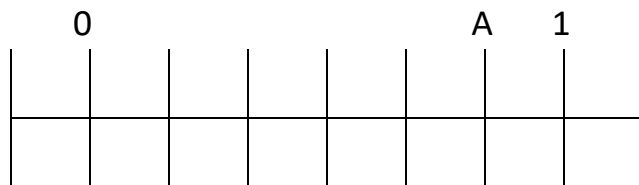
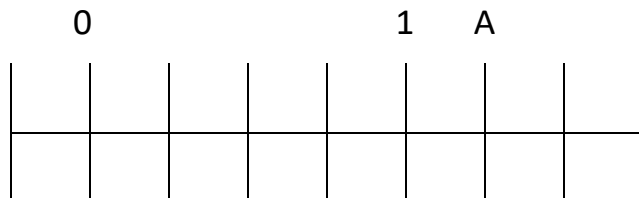
- Number line models representing units.

### Examples:

(1) No numerical meaning



(2) Two possible number line meanings



Steps:

1. The teacher models how to associate whole numbers, fractions, and mixed numbers with points on the number line. The teacher provides guided practice with feedback. Once the student understands this association, then the teacher moves to Step 2.
2. The teacher models how to use number lines to help connect improper fraction names to mixed number names. The teacher provides guided practice with feedback. Once the student is able to connect improper fraction names to mixed number names, the teacher moves to Step 3.
3. The teacher models how to use numbers line to determine which of two fractions is less or whether they are equivalent. The teacher provides guided practice with feedback. Once the student is able to identify whether two fractions are less or equivalent, the teacher moves to Step 4.
4. The teacher models how to use number lines to generate equivalent fractions. The equivalent fractions include numbers less than one, improper fractions, and mixed numbers. The teacher provides guided practice with feedback. (Example:  $2\frac{2}{6}$  and  $2\frac{1}{3}$  are compared directly on the number line rather than by emphasizing the process for reducing  $\frac{2}{6}$  to  $\frac{1}{3}$ .)