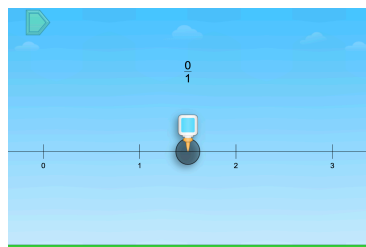
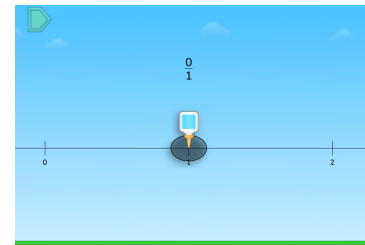


Materials

whiteboard and dry erase marker

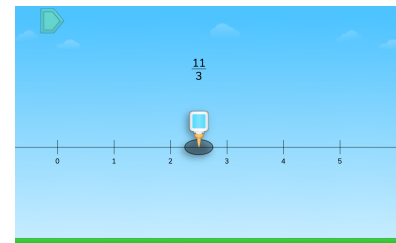
Directions

- Give students a whiteboard and dry erase marker. Display the first puzzle in Level 1. Ask students to draw a 0-2 number line to match the one in the puzzle.
- Ask students, “What do you notice? How do you think we solve this puzzle?” Have students Think, Pair, Share their thinking with a partner.
- Share students’ thinking and solutions. Try a student’s solution and watch the feedback. Discuss how they knew how to partition the number line and how to count the fraction pieces to place the fraction in the correct spot.
- Repeat with the remaining puzzles in Level 1. Ask students questions about the variety of fractions that show up in the puzzles. For example, “What does a numerator of 0 tell us? What does a numerator of 1 tell us? How do we know a fraction is greater than 1?”



- Display the first puzzle in Level 2. Ask students how the number line has changed. Have students change the number line on their whiteboards to match the puzzle.
- Solve the puzzles in Level 2, asking the same types of questions from Level 1.
- Display the first puzzle in Level 3. Ask students, “How has the number line changed? How does this change our answers?” Discuss with students that as the number line extends to bigger numbers, the spaces between our whole numbers get smaller.

- Ask students, “Is $\frac{1}{2}$ in the same location on the first number line we used (0-2) as it is on this number line (0-5)? Why or why not?” Have students turn and talk to a neighbor.
- Have students share their thinking. Prove that the *location* of $\frac{1}{2}$ doesn’t change- it’s still halfway between 0 and 2- but the *size* of the $\frac{1}{2}$ has gotten smaller because the size of the wholes on the number line have gotten smaller.
- Solve the remaining puzzles in Level 3.


Sample Questions

- What do you know about the fraction in this puzzle?
- What do you know about this number line? How is it different from the number line in the last puzzle?
- What does the denominator tell us? The numerator?
- Is this fraction greater than, less than or equal to 1? How do you know?
- How does the size of our number line affect the size of the fraction pieces? Explain.
- How do we represent 1 on this number line?

What to look for

How does the student:

- discuss the role of the numerator and denominator in locating a fraction on the number line?
- create a and partition a number line to locate fractions?
- count fraction parts to place a number on a number line?
- represent 1 as a fraction on a number line?
- compare number lines?