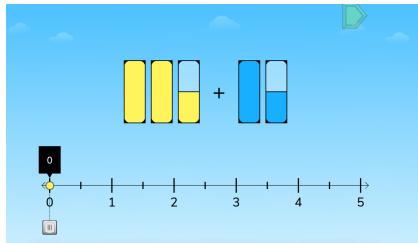
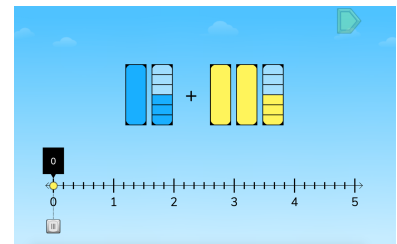


**Materials**

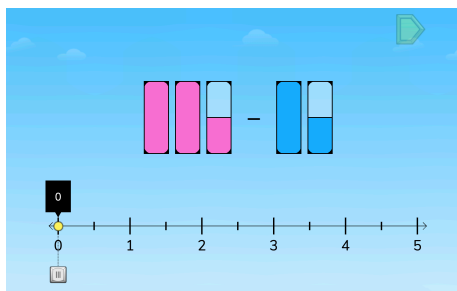
Blank paper  
Linking cubes and/or strips of paper for creating fractions  
Whiteboards and dry erase markers

**Directions**


- Give students whiteboards and dry erase markers. Display the first puzzle in Level 1. Say to students, “What do you notice? What do you think we need to do to solve this puzzle?” Have students turn and talk to a neighbor to share their ideas.
- Try a student’s solution. Watch and discuss the animation. Ask students to explain what is happening with the bars and the number line.



- Display the next puzzle. Ask students to write down an equation to represent the bars at the top and then solve the puzzle.
- Have students share their answers and strategies. Ask students if the whole numbers need to be added first or if the fractions need to be added first. Solve the puzzle.
- Continue with the rest of the puzzles in Level 1. Try to show a few incorrect solutions and discuss why the solution was



- Display the first puzzle in Level 4. Ask students, “How is this puzzle different than the ones we just solved? How can you use what you know from the other puzzles to help you solve this one?” Have students Think, Ink (write down their solution), Pair, Share with a neighbor.
- Share students’ solutions. Discuss their strategies for subtracting fractions. Ask students to write an equation to represent what is happening with the bars.
- Repeat with the remaining puzzles in Level 4. Ask students to talk about how addition and subtraction of whole numbers compares to addition and subtraction of fractions.

**Sample Questions**

- How does the model (bars) relate to the number line?
- What are some things you need to understand about units fractions to be able to solve this puzzle?
- Where do you see halves in this problem? How about \_\_\_\_\_?
- What is your first step when adding mixed numbers?
- How did you know where to place the dot on the number line?

**What to look for**

How does the student:

- explain the fractions they see in the visual model? (Can they see wholes and parts in the model? On the number line?)
- understand the relationship between mixed numbers and fractions greater than 1? (Do they understand that  $1 \frac{1}{4}$  would be  $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$ .)
- represent addition and subtraction on the number line?
- explain the relationship between the visual model representation and the number line representation?