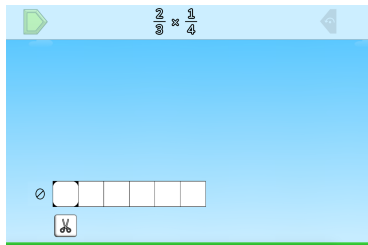
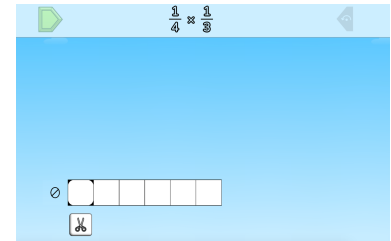


**Materials**

white boards and markers

**Directions**

- Give students whiteboards and dry erase markers. Have students think about what they know about area models for whole numbers (e.g.,  $3 \times 5$ ) and draw the area model for that problem.
- Display the first puzzle from Level 1 ( $1/a \times 1/b$ ).
  - Have students draw the area model they think will model the solution for the puzzle given.
  - Use their model to work through the solution to the puzzle.
  - Have students explain what is happening and why as they solve the problems.
- Discuss what happens to the areas of a square when they multiply it by a fraction.
- Why does that happen?



- Display the first puzzle in Level 2.
  - Compare this level to the puzzles in Level 1.
  - Give students opportunities to estimate the product before playing the puzzle.
  - Give students opportunities to create the model before playing the puzzle solution.
- Discuss the difference between what happens to the size/area when multiplying a fraction by a whole number and multiplying a fraction by a fraction less than 1. Complete the remaining puzzles in Level 2.

**Sample Questions**

- What will happen if you change the 3 in your area model to  $1/2$ ? ( $3 \times 1/2$ )
- What happens to the product?
- Why is the product of a whole number times a fraction less than 1 less than the whole number?

**What to look for**

How does the student:

- make connections between multiplying whole numbers and multiplying fractions?
- partition the squares when they represent the puzzles?
- understand that the product of the puzzle given will be less than the multipliers?