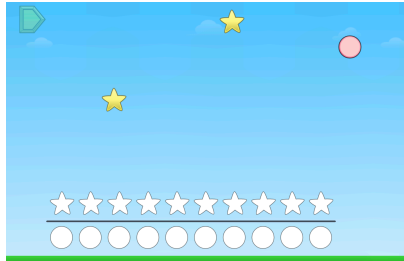


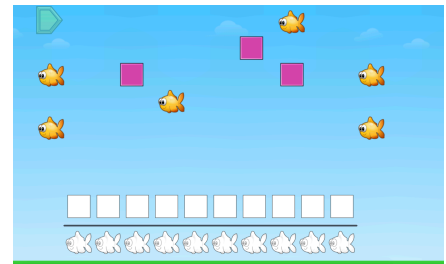
Materials

Paper and pencil or whiteboards and dry erase markers
cubes or other counters

Directions


- Give students whiteboards and dry erase markers. Display the first puzzle in Level 1. Ask students, “What do you notice? How could we represent what is happening in this puzzle?” Have students Think, Pair, Share with a neighbor.
- Solve 1 or 2 more puzzles and then say to students, “These puzzles establish a relationship between the objects. How could we use a puzzle like this to represent the relationship between units in a measurement system, such as inches and feet or centimeters to meters?”
- Discuss students’ thinking.

- Show a puzzle from Level 1 that can be represented with more than one ratio (e.g., 4 mice, 8 shoes).
- Have students represent the puzzle manipulatives and record their solutions. Share out student solutions.



- Show a puzzle from Level 3 with a 3 to 6 ratio. Have students represent the puzzle and solve the puzzle. Share students’ solutions.
- Show a puzzle from Level 3 with a 4 to 6 ratio. Have students represent the puzzle with manipulatives and record their solution. Share out student solutions.
- Say to students, “How could we prove that the ratio can be 2 to 3 or 4 to 6?” Have students turn and talk to a neighbor. Discuss why 2 to 3 is the same as 4 to 6 by writing both as fractions and proving they are equivalent.
- Solve the remaining puzzles in Level 3.

Sample Questions

- Why will/won’t that solution work?
- Explain why you agree/disagree with _____’s solution.
- Could there be multiple solutions for this puzzle? Explain.
- How do these puzzles relate to converting measurements?
- How could we express this relationship as a fraction?
- How could we prove these two ratios are equivalent?

What to look for

How does the student:

- determine how to group the objects? (can they find multiple ways to show the rates)
- relate the different ways to find the ratio of the objects to finding the ratio of a common measurement?
- find or prove equivalent ratios?