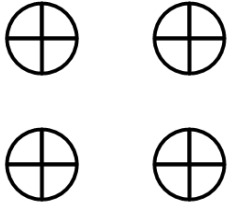
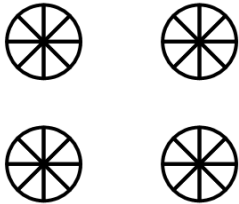
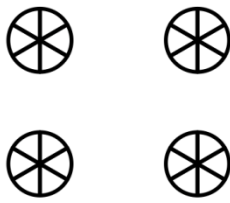


Table I Comparing and contrasting activity in the instruction phase for problem-solving step 1

Examples for typical erroneous student solutions and the canonical solution	Activity of the instructor in the role of the teacher
	Step 0: Estimation question: Does a boy (and girl respectively) get more or less than an entire pizza?
Student solution 1: 	Step 1: Drawing student solution 1, counting the number of pieces and highlighting the absence of drawing through the central point
Student solution 2: 	Step 2: Drawing student solution 2 and counting the number of pieces of pizza (=16) Step 3: Dividing 16 pieces of pizza by 6 boys which results in 2 pieces for each boy with a remainder of 2 pieces Step 4: Guiding students' attention to the goal of dividing equally and fairly which is not yet reached by cutting the pizzas into quarters Step 5: Finding another way of cutting the pizza into pieces
Student solution 3: 	Step 6: Repeating Steps 2-5 for student solution 2 Step 7: Asking how the number of boys is linked to the number of pieces of pizza?
Canonical solution: 	Step 8: Presenting the canonical solution by contrasting it with the previous student solutions
Answer: A single boy receives 4 pieces of pizza (i.e. four sixths) 	