Investigation Guide: Jumping Kangaroos

This Investigation Guide assumes that you have first worked on the Task Card.
Now use the materials to help you investigate these questions:

You can use the counters in the original task or make your own with paper.

1. Set the markers up as in the picture and try to make the kangaroos swap positions. Count the number of moves. It can be done. If you are having trouble, try just two kangaroos on each side first: or even just one on each side.

2. Enter your results in the following table. Also try to predict from the pattern what the results will be for 4 or 5 or 6 or 7 kangaroos on each side. Then set these up and try to solve the puzzle.

Number each side	1	2	3	4	5	6	7
Number of moves							

3. Are you using a systematic way of moving the kangaroos? Describe it so that someone else could use it.

4. What is a general way of describing the number of moves for any number of kangaroos? What would it be for 10 on each side, or 20, or even 100? As soon as someone tells you how many on each side, can you calculate the answer? Write down your rule.

5. Here are the results for someone solving the puzzle. How many kangaroos were on each side in each case?

Number each side							
Number of moves	99	143	1323	2,600	11,880	5,928	999,999

6. Could the puzzle still work if you had three on one side and only two on the other? Investigate changing the numbers on each side. Can you find a rule or rules to cover these situations?