Fifteen Square Lab

HOST GUIDE - includes solutions | A4 | v1.0.0

2-6 players, with an adult host | Suggested ages 8-11 | Plan 20-30 minutes

Keep this guide with the adult host. Let the group try before offering hint 1, then hint 2. Read the explanation only when the group is ready to check its work.

Support your group

Provide the unused numbers as a written list. Work on a line with two known numbers first. An adult can handle subtraction while a younger player checks for duplicated numbers.

Warm-up: find three gaps

Hint 1: Start with the rows.

Hint 2: Each row has exactly one missing number.

Answer: 8 1 6 / 3 5 7 / 4 9 2

Top middle is 15-8-6=1; centre is 15-3-7=5; bottom middle is 15-4-2=9. The columns and diagonals then also sum to 15.

Round 1: use the centre

Hint 1: The top-left to bottom-right diagonal is almost complete.

Hint 2: 15-5-2=8.

Answer: 8 1 6 / 3 5 7 / 4 9 2

Top-left is 8 from the diagonal through 5 and 2. Top-middle is 1; middle-left is 3; bottom-middle is 9. The remaining lines confirm the arrangement.

Round 2: a new orientation

Hint 1: Use the middle row first.

Hint 2: 15-5-1=9.

Answer: 4 3 8 / 9 5 1 / 2 7 6

The middle row needs 9, the top row needs 3, and the bottom row needs 6. The top-right diagonal is 8+5+2=15.

Final: verify all eight lines

Hint 1: Finish the top and middle rows first.

Hint 2: Use the middle column to find the bottom-middle number.

Answer: 2 7 6 / 9 5 1 / 4 3 8

The top-right is 6, middle-left is 9, bottom-middle is 3 and bottom-right is 8. All eight sums are 15; the nine cells contain 1-9 once each.

How to close the session

The final square is complete only after the group checks three rows, three columns and two diagonals, and confirms that 1-9 each appears once.

If a result differs, return to the stated rule and compare the written steps. An answer revealed by the host is help, not an independently solved puzzle.

Mechanism reference: Project Gutenberg 49137, THE MAGIC NINE, OR THE PUZZLE OF FIFTEEN.. New session instructions and examples.

Age and time are planning estimates. No child playtest or physical print trial is claimed.