

Sudoku & Brain Games

Tips & Tricks — Think logically, spot patterns and solve with confidence

1. What Makes a Good Brain-Game Solver?

Brain games help us practise observation, logical thinking, memory, pattern recognition, concentration and problem solving. They are not only about speed.

Tip 1 — Slow Down and Look Carefully

Before making a move, study the whole puzzle. Careful observation can reveal the easiest next step.

Tip 2 — Work With What You Know

Start with information that is certain. Avoid guessing when a logical move is available.

Tip 3 — Keep Your Working Neat

Write possibilities clearly and cross them out as you learn more. Good organisation reduces mistakes.

2. Sudoku Basics

A standard Sudoku has a 9×9 grid divided into nine 3×3 boxes. The numbers 1 to 9 must appear exactly once in each row, each column and each 3×3 box.

The 3 Sudoku Rules

1. Each row must contain the numbers 1 to 9 once.
2. Each column must contain the numbers 1 to 9 once.
3. Each 3×3 box must contain the numbers 1 to 9 once.

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Sudoku Strategies — From simple observations to logical deductions

3. Sudoku Strategy 1 — Scan for Missing Numbers

Choose a row, column or box with many numbers already filled. Identify which numbers are missing. Then check where each missing number can legally go.

Example

If a row contains 1, 2, 4, 5, 7, 8 and 9, the missing numbers are 3 and 6. Check the empty cells against their columns and boxes to decide where each number can go.

4. Sudoku Strategy 2 — Look for a Single

Sometimes an empty cell has only one possible number. Once you place it, scan the affected row, column and box again.

Golden Rule

If you can prove a number must go in one cell, place it. Do not choose a number simply because it looks right.

5. Sudoku Strategy 3 — Candidate Numbers

When a cell cannot be solved immediately, write down the numbers that could fit. These possible numbers are called candidates. Remove a candidate whenever a new number makes it impossible.

Example: if a cell is in a row containing 1, 4 and 8, a column containing 2 and 6, and a box containing 3 and 9, the possible candidates are 5 and 7.

6. Sudoku Strategy 4 — Hidden Singles

A number may have several possible cells in a row, column or box, but sometimes only one of those cells can actually contain it. That number is a hidden single.

- Choose one number, such as 7.
- Scan the row, column or box.
- Cross out cells where 7 is impossible.
- If only one cell remains, 7 must go there.

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Sudoku Strategies — Pair thinking and systematic solving

7. Sudoku Strategy 5 — Naked Pairs

If two cells in the same row, column or box contain exactly the same two candidates, those two numbers must occupy those two cells. You can remove those candidates from the other cells in that group.

Think of it this way

Two cells have only two possible numbers between them. Those numbers are reserved for those two cells, so other cells in the same group cannot use them.

8. Sudoku Strategy 6 — Box and Line Thinking

Sometimes all possible positions for a number inside a 3×3 box lie in the same row or column. If so, that number cannot appear elsewhere in that row or column outside the box.

Ask yourself

Where can this number go in this box? If every possible place is on one line, can I eliminate it from the rest of that line?

9. A Smart Sudoku Routine

1. Scan all rows, columns and boxes for easy missing numbers.
2. Place obvious singles.
3. Add candidates to cells that need more thought.
4. Search for hidden singles.
5. Look for pairs and line-based eliminations.
6. After every placement, rescan the affected row, column and box.
7. Repeat the process rather than jumping randomly around the puzzle.

10. What If You Get Stuck?

Do not immediately guess. Return to the puzzle and look for a row, column or box with the fewest empty cells. Recheck your candidates and make sure no earlier placement was based on an assumption.

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Brain Games — Thinking tools that work beyond Sudoku

11. Pattern Puzzles

Look for what changes from one step to the next. Ask: Is the pattern adding, subtracting, doubling, alternating or repeating?

1. What comes next? 3, 6, 9, 12, ____
2. What comes next? 2, 4, 8, 16, ____
3. What comes next? 20, 17, 14, 11, ____
4. What is the repeating pattern? A, B, B, A, B, B, ____

12. Logic Puzzles

- Read every clue carefully before deciding anything.
- Separate facts from guesses.
- Use a table or simple grid when several possibilities are involved.
- Cross out impossible combinations.
- When one possibility remains, check it against every clue.

13. Odd-One-Out & Classification

Do not only look for the obvious difference. Ask what rule connects the other items. Choose the rule that explains the largest group consistently.

5. Which number does not belong? 8, 16, 24, 31, 40
6. Which shape would come next in a repeating pattern? Draw your own sequence and challenge a friend.

14. Memory & Observation Games

- Study a picture or list briefly, then cover it.
- Recall items in order and then in reverse order.
- Compare two similar pictures and find changes.
- Group information into smaller chunks to make it easier to remember.

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Challenge Page — Put your thinking skills to work

15. Brain-Game Challenge

7. A number is greater than 20, less than 40, even, and divisible by 3. What numbers could it be?
8. I am thinking of a number. Double it and add 6 to get 24. What is the number?
9. A sequence begins 5, 10, 20, 40. What is the next number? What rule are you using?
10. Four friends stand in a line. Mia is not first. Sara is before Mia. Leo is after Mia. Who could be first?
11. A puzzle has 12 pieces. You place 3 pieces every minute. How many minutes will you need if all pieces are placed at the same rate?
12. Create a 5-step number pattern that uses addition and subtraction. Swap it with a friend and ask them to find the rule.

16. The Best Brain-Game Habits

- Be curious — ask why a pattern works.
- Be patient — difficult puzzles often need more than one attempt.
- Be organised — neat working helps your brain see possibilities.
- Be flexible — if one approach does not work, try another.
- Check your answer — a correct-looking answer should still fit all the rules.
- Enjoy the process — the goal is thoughtful problem solving, not just speed.

Think • Try • Check • Improve

Every puzzle is a chance to make your thinking stronger.

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Answer Key — Challenge and pattern questions

Answer Key

1. 15
2. 32
3. 8
4. A
5. 31 — the other numbers are multiples of 8.
6. Answers will vary.
7. 24, 30 and 36
8. 9
9. 80; multiply by 2.
10. Sara could be first. The clues do not give enough information to determine one unique order.
11. 4 minutes
12. Answers will vary.

Sudoku Quick Reference

1. Check the row.
2. Check the column.
3. Check the 3×3 box.
4. Find singles.
5. Write and eliminate candidates.
6. Look for hidden singles and pairs.
7. Rescan after every placement.
8. Avoid guessing unless deliberately using an advanced method.

Maths Tricks & Tips

Use logic, patterns and careful thinking to solve with confidence.