

Not Your Normal Tic Tac Toe



Strands:

Number & Quantity	
Algebra	
Functions	
Geometry	
Statistics & Probability	
Logic & Reasoning	

Materials:

- Game boards
- 2 colors of game pieces, 3 each for 3 X 3 board or 5 each for 4 X 4 board (Colored paper clips, coins, different colored sugar packets on restaurant tables are possible game pieces.)

Where:

Outside	
Inside	X
On-line	
On-site	

Play the classic game of Tic Tac Toe in a fun new way in this game for 2 players! No cats' games in this version!

Set-Up:

- Print out a game board or create one by drawing the classic Tic Tac Toe game board. (See image in upper right corner.)
- Find game pieces, 2 different colors of 2 different kinds of small objects. Do not use dry erase markers or pens; the game pieces are moved during game play.

Object of the Activity: Use logic and strategy to play a classic game in a new way.

3 X 3 Game:

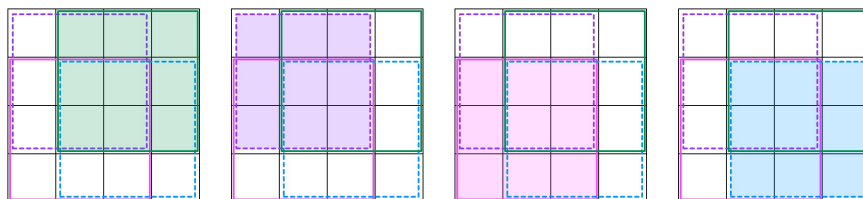
- Use the 3 X 3 Tic Tac Toe Board and 3 game pieces per player.
- Alternating turns, place a game piece in one of the spaces on the 3 X 3 board with the goal of getting three in a row.
- Once both players have played all three of their game pieces and no player has won, continue to alternate turns. Move one game piece to a spot that you think will help you get three in a row.
- The player to get three in a row first wins.

4 X 4 Game:

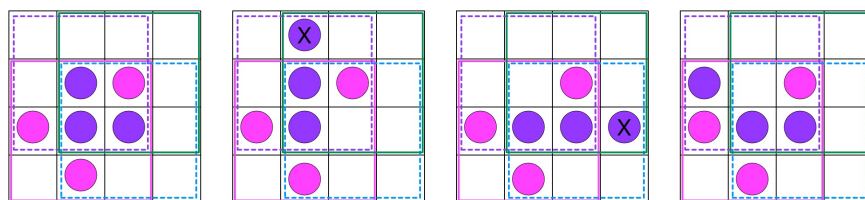
- Use the 4 X 4 Tic Tac Toe Board and 5 game pieces per player.
- Follow the same rules as in the 3 X 3 version except now players must get 4 in a row or 4 corners of a 2 X 2 or 4 X 4 square to win.

Floating 3 X 3 Game:

- Use the 3 X 3 Floating Tic Tac Toe Board and 3 game pieces per player.
- Follow the same rules as in the 3 X 3 version. Your 3 X 3 board now floats within a 4 X 4 board. See the figure below to see each of the possible 3 X 3 boards.



- On your turn, the final position of your game piece must stay inside a 3 X 3 square with all of the other game pieces. However, the 3 X 3 board can move within the 4 X 4 board. Consider the example below. The first figure shows all 3 game pieces for each player positioned; it is Purple's turn. Purple cannot move into the positions shown in the second and third figures because the floating board would no longer be a 3 X 3 square. Purple can move into the position shown in the fourth figure. What other positions can Purple take?



Assume Purple moved to the position shown in the final figure above and it is Rose's turn. Rose can move into any position in the first three columns. If Rose moves into the top row (in one of the first 3 columns, moving the piece in the bottom row), the 3×3 board changes to the 3×3 square in the upper left corner of the board. Regardless of the piece chosen, Rose cannot move into the final column. Do you see why?

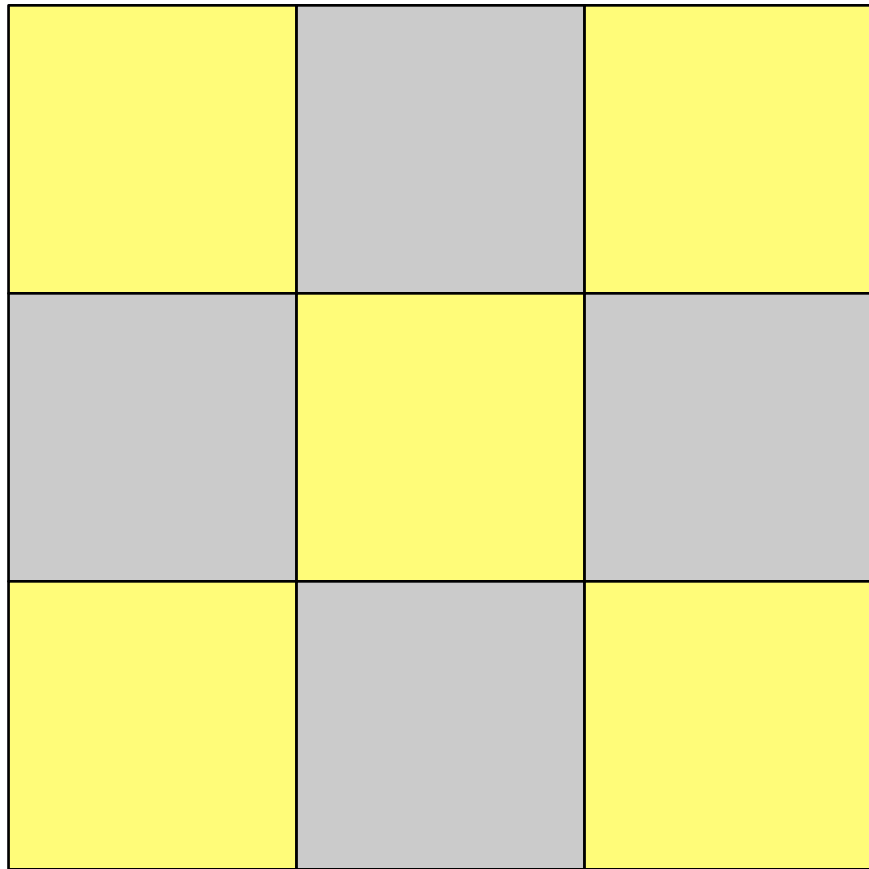


Think About It:

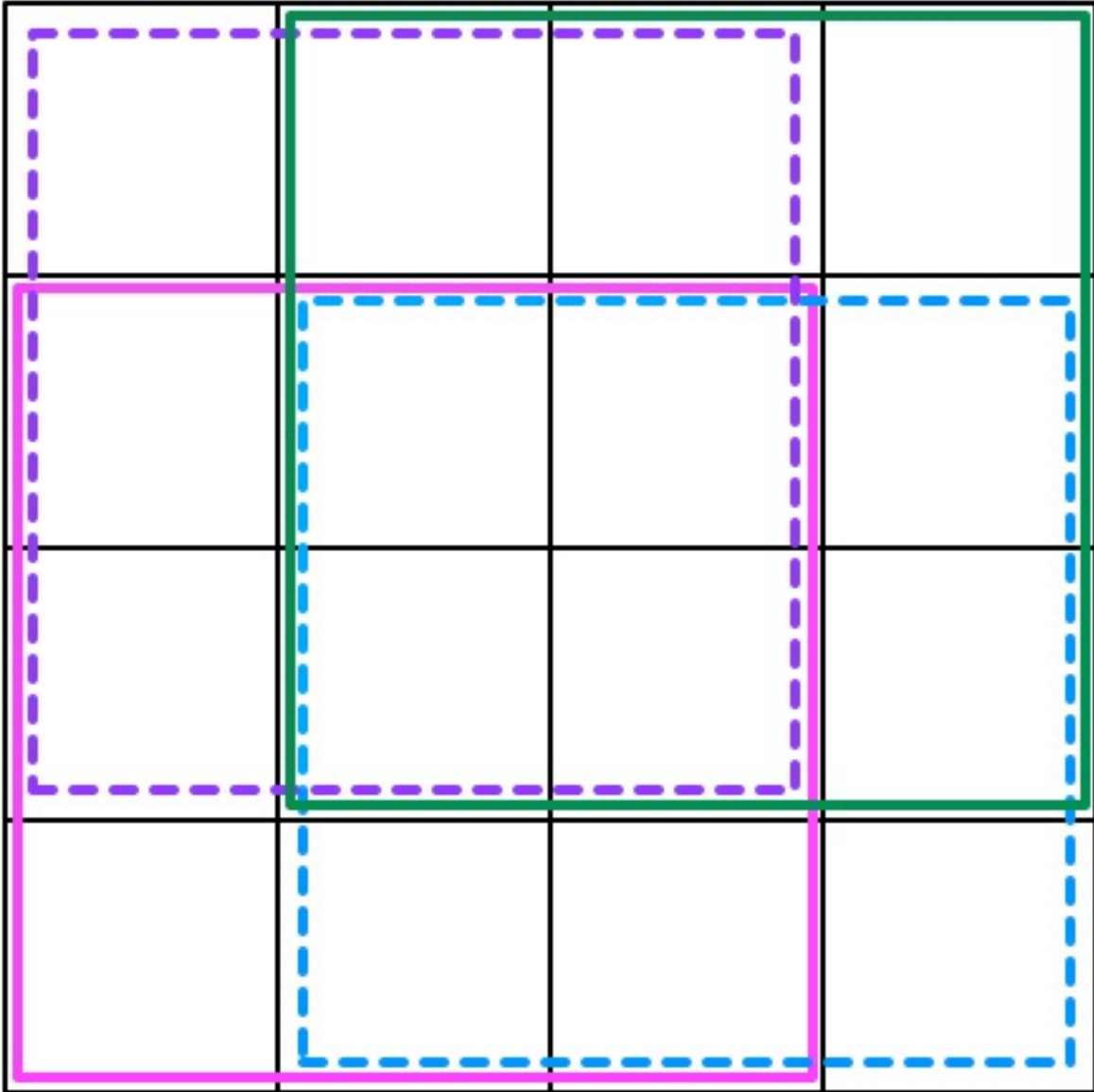
1. What strategies will you use next time you play?
2. What arrangement of your game pieces always causes your opponent to lose the game? Why do you think so?
3. In the 3×3 Floating Board game, what arrangements of game pieces allows you to “float” the board? What arrangements force you to not be able to “float” the board?

Helpful Hints:

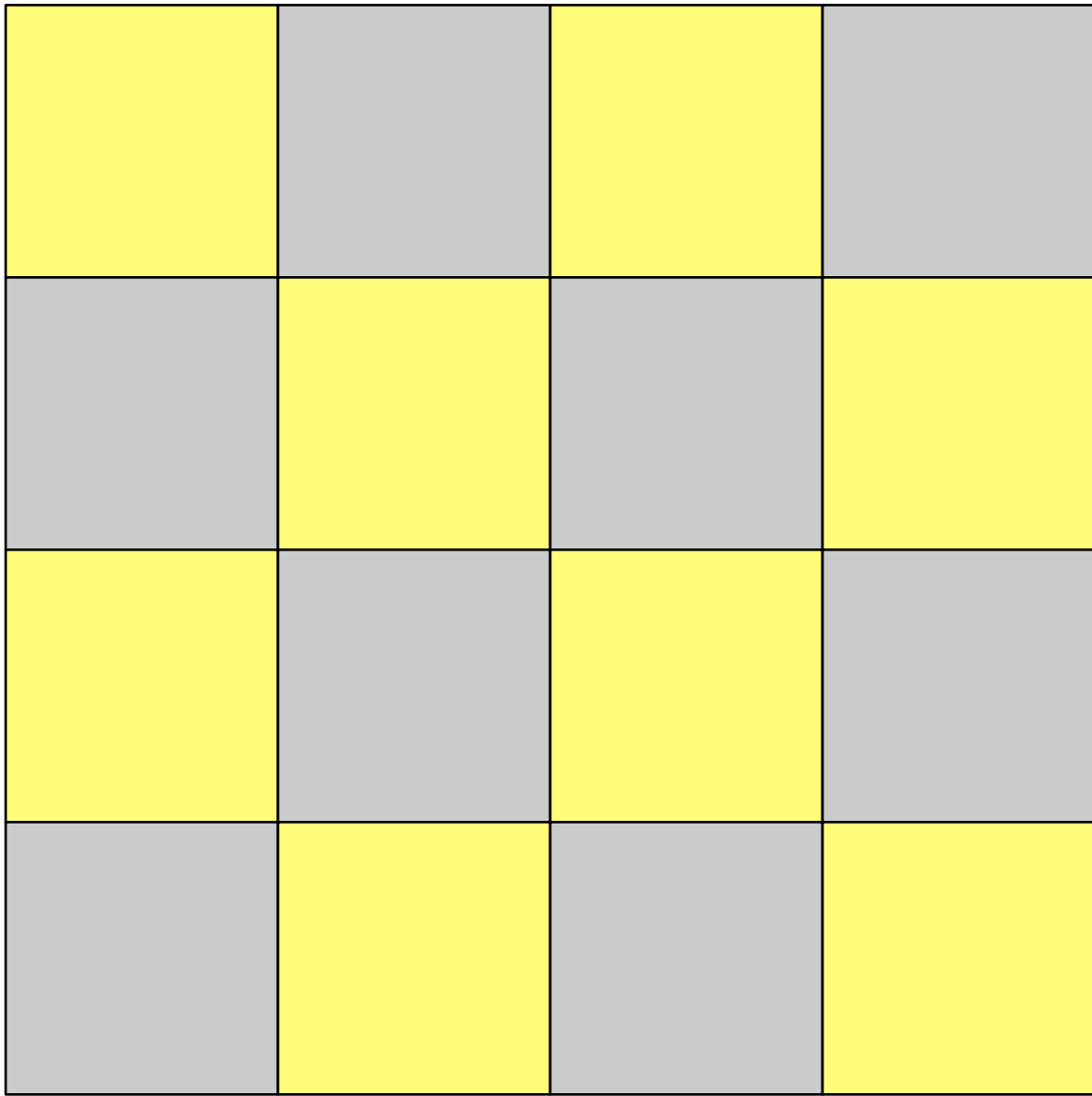
- Keep an eye on your opponent's game pieces. Can your opponent move a piece to make 3 (or 4) in a row on their next move?
- Start with the first variation, with the normal 3×3 board. Once you've played that, then try one of the other more challenging variations.



3 X 3 Tic Tac Toe Board



3 X 3 Floating Tic Tac Toe Board



4 X 4 Tic Tac Toe Board