

# Line of Four

from *Making Math Meaningful: Fun with Puzzles, Games and More!*

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Grade Level: 5-9.

Number of Players: 2

Math Required: Multiplication

Time to Learn: 5 Minutes

Time to Play: 10 Minutes

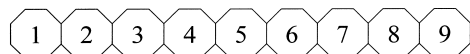
Target Situation: Small Group

This is a fun little game that is perfect for working on multiplication facts. If the student has mastered these, then he can enjoy the strategic choices of the game even more.

## Game Board

|    |    |    |    |    |    |
|----|----|----|----|----|----|
| 1  | 2  | 3  | 4  | 5  | 6  |
| 7  | 8  | 9  | 10 | 12 | 14 |
| 15 | 16 | 18 | 20 | 21 | 24 |
| 25 | 27 | 28 | 30 | 32 | 35 |
| 36 | 40 | 42 | 45 | 48 | 49 |
| 54 | 56 | 63 | 64 | 72 | 81 |

**See full-sized game board  
On the next page!!!!**



## Equipment

This game requires 38 checkers (or gemstones): 18 black, 18 white and 2 red. (Other colors also work.)

## Rules

- The first player places the two red checkers on any digit(s) shown on the octagons above. She then multiplies the two digits and covers the product on the grid above with her checker (black or white). (E.g., if the red checkers are on the octagons 5 and 6, then a black or white checker is placed on the square 30 in the grid.)
- The second player moves one of the red checkers to a new octagon number and then covers the appropriate *new* square in the grid (the product of the two red checkers) with his checker.
- Play alternates in this manner until one player has 4 checkers in a row vertically, horizontally or diagonally.
- Note that the red checkers are allowed to be placed on the same octagon, thereby allowing, for example,  $5 \times 5 = 25$ .

## Notes

- The game board can be scrambled into a different order.
- The game works well as a whole class activity with one half playing the other. A game board can be constructed using a large piece of poster board.
- There is a substantial advantage to the player who moves first. Here are two alternate rules that mitigate this imbalance. 1) The first player places only the first red checker. The second player then places the second checker and places the first checker on the grid. 2) The first player places the two red checkers and the first number on the grid. The second player has the option to either move a red checker as normal or to take the first player's move as her own. In either case, it is now the first player's move, and the game proceeds normally.
- There is a challenging variation of this game called "Line of Six". In order to play it, you must use playing pieces that are white on one side and black on the other (like in the game Othello). The object of the game is to have a line of six checkers in a row, but there is an additional rule for moving. If you place a checker at the end of a continuous row of your opponent's checkers so that it is bordered at each end by your checkers, you turn over your opponent's checkers to be your color. (This is a familiar procedure to those who have played the game Othello or Reversi.) The strategy for "Line of Four" usually revolves around controlling center squares; this is reversed in "Line of Six" where it becomes important to control the edge squares where checkers are less easily flipped.

|    |    |    |    |    |    |
|----|----|----|----|----|----|
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| 15 | 16 | 18 | 20 | 21 | 24 |
| 25 | 27 | 28 | 30 | 32 | 35 |
| 36 | 40 | 42 | 45 | 48 | 49 |
| 54 | 56 | 63 | 64 | 72 | 81 |

