

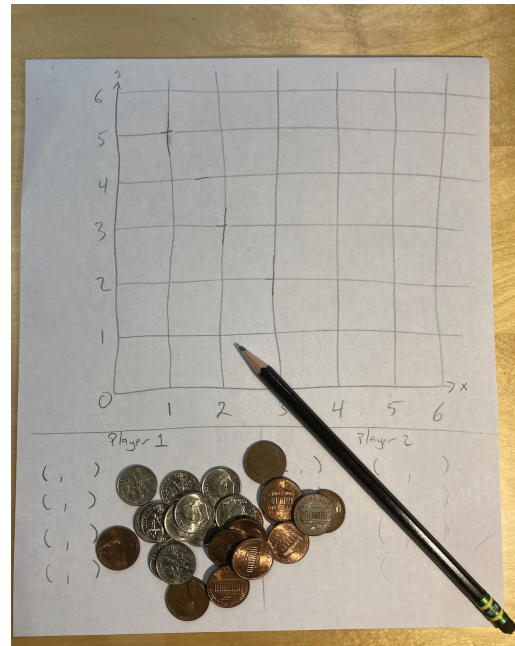
Coordinate Place Four

Object of the Game

Players take turns naming points on the coordinate grid using ordered pairs, and placing markers at those points. The first player to place four markers in a row, either vertically, horizontally, or diagonally, is the winner. The game is a draw if all markers have been placed but neither player has placed four in a row.

Materials

- 24 game markers, 12 each of two colors/sizes/types (coins, building blocks, beans, etc.)
- 1 Coordinate Place Four record sheet (or make your own)
- Pencils or pens



Skills

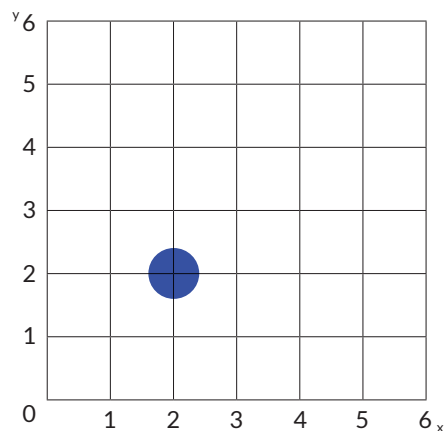
This game helps us practice:

- Identifying points on a coordinate grid, and naming coordinate points using ordered pairs of numbers.

How to Play

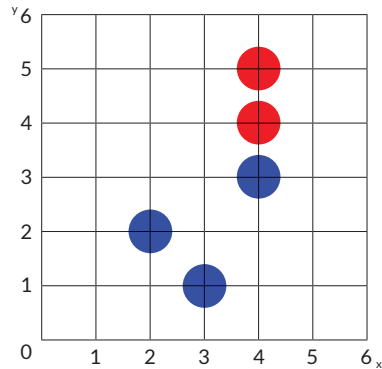
1. The youngest player is Player 1 and takes the first turn. They choose which markers they will use.
2. Player 1 decides where they want to place their first marker. They record an ordered pair on the record sheet and place a marker at its location on the coordinate grid.

Juanita is Player 1. She records the ordered pair (2, 2). To place her marker, she starts at 0, moves 2 over along the x-axis, then 2 up, and places her blue marker at that point.



Player 1		Player 2	
(2, 2) ①	(_____) ⑦	(_____) ①	(_____) ⑦
(_____) ②	(_____) ⑧	(_____) ②	(_____) ⑧
(_____) ③	(_____) ⑨	(_____) ③	(_____) ⑨
(_____) ④	(_____) ⑩	(_____) ④	(_____) ⑩
(_____) ⑤	(_____) ⑪	(_____) ⑤	(_____) ⑪
(_____) ⑥	(_____) ⑫	(_____) ⑥	(_____) ⑫

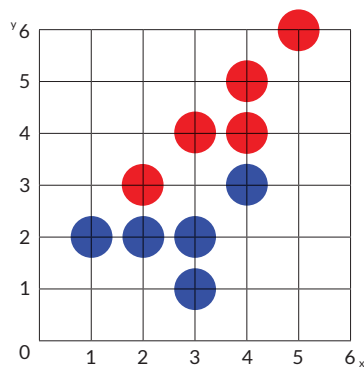
3. Player 2 records an ordered pair on the record sheet and places a marker at its location on the coordinate grid.
4. Players continue to take turns recording ordered pairs and placing markers, trying to place four markers in a row vertically, horizontally, or diagonally. Players may also place markers in an attempt to block their opponent from getting four in a row.



Player 1		Player 2	
(2 , 2)	(_____)	(4 , 4)	(_____)
(3 , 1)	(_____)	(4 , 5)	(_____)
(4 , 3)	(_____)	(_____)	(_____)

Juanita placed her third marker at (4, 3) to block Isaac from making a vertical row of four.

5. Play continues until one player has placed four markers in a row or until all 24 markers have been placed.
 - » If a player has placed four markers in a row, they win the game.
 - » If all 24 markers are placed and neither player has placed four markers in a row, the game is a draw.



Player 1		Player 2	
(2 , 2)	(_____)	(4 , 4)	(_____)
(3 , 1)	(_____)	(4 , 5)	(_____)
(4 , 3)	(_____)	(3 , 4)	(_____)
(3 , 2)	(_____)	(2 , 3)	(_____)
(1 , 2)	(_____)	(5 , 6)	(_____)
(_____)	(_____)	(_____)	(_____)

Isaac (red markers) has won the game by placing four markers in a row diagonally.

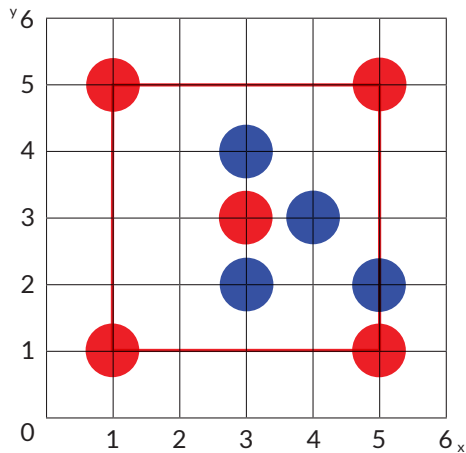
Tips for Families

- Prior to playing, review both writing an ordered pair to describe a point and locating a point described by an ordered pair.
- The horizontal axis (the bottom line with numbers increasing from left to right) is called the x-axis, and the vertical axis (the left-most vertical line with numbers increasing from bottom to top) is called the y-axis.
 - » Ordered pairs are written in an (x, y) format. That is, starting from $(0, 0)$, any ordered pair describes how far to move horizontally parallel the x-axis, and then how far to move vertically parallel to the y-axis.

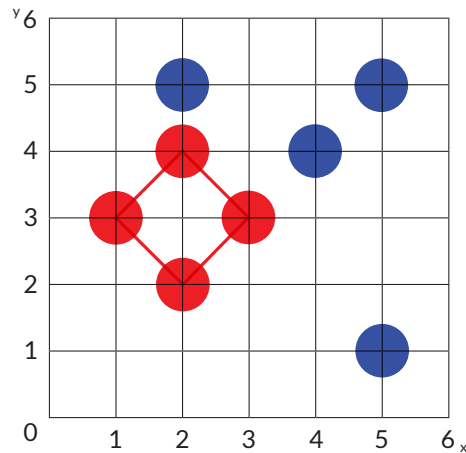
Change It Up

Making even small changes to a game can invite new ways of thinking about the math. Try making one of the changes below. How did it change your strategy for winning the game?

- Change the size of the coordinate grid, making it either smaller or larger.
- If the game ends and neither player has placed four in a row, determine a winner by awarding points for placing two or three markers in a row.
 - » 2 points for each 2-in-a-row set of markers.
 - » 3 points for each 3-in-a-row set of markers.
- Instead of trying to place four markers in a row, the object of the game is to place four markers in a square of any size. Two examples of a completed square are shown below.

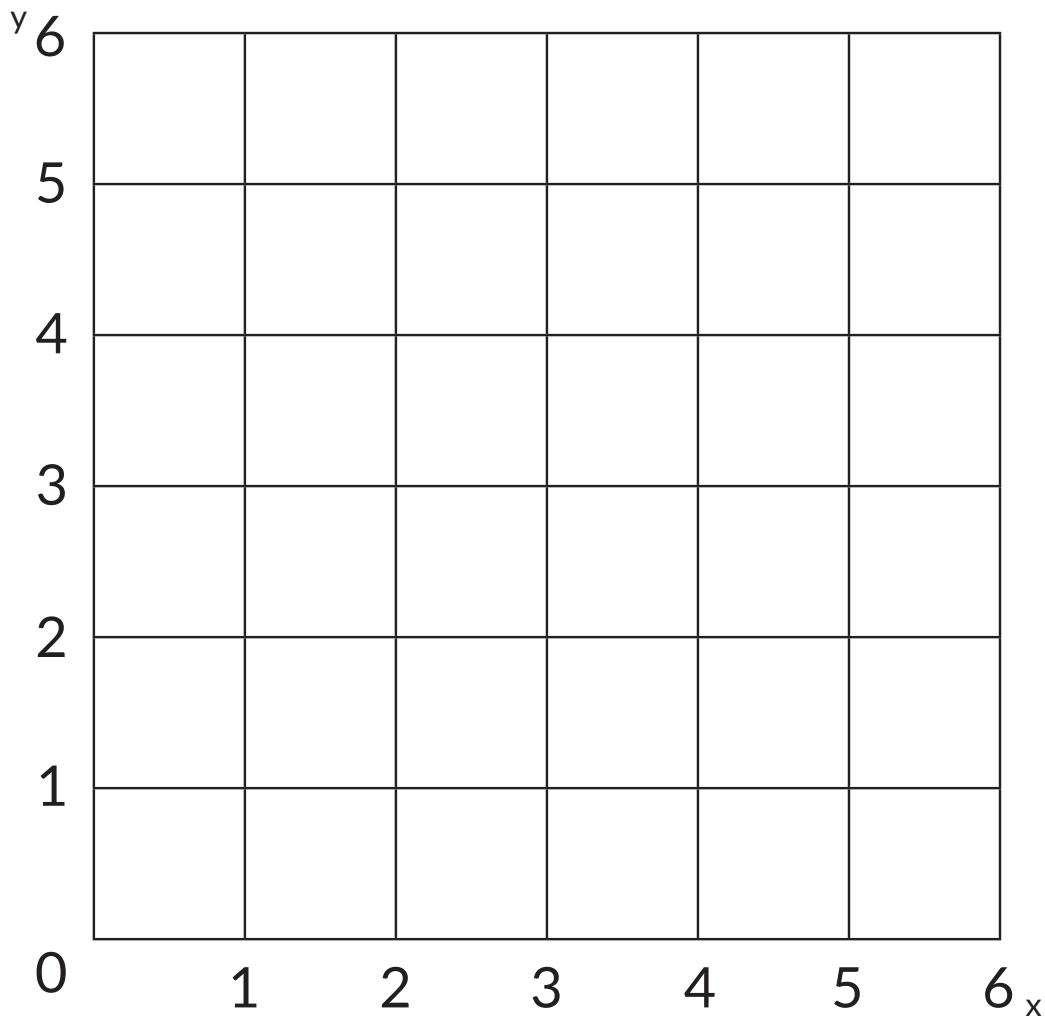


Player 1		Player 2	
(1, 5) ①	(____) ⑦	(4, 3) ①	(____) ⑦
(5, 5) ②	(____) ⑧	(3, 4) ②	(____) ⑧
(3, 3) ③	(____) ⑨	(5, 2) ③	(____) ⑨
(5, 1) ④	(____) ⑩	(3, 2) ④	(____) ⑩
(1, 1) ⑤	(____) ⑪	(____) ⑤	(____) ⑪
(____) ⑥	(____) ⑫	(____) ⑥	(____) ⑫



Player 1		Player 2	
(2, 5) ①	(____) ⑦	(2, 4) ①	(____) ⑦
(5, 5) ②	(____) ⑧	(2, 2) ②	(____) ⑧
(4, 4) ③	(____) ⑨	(3, 3) ③	(____) ⑨
(5, 1) ④	(____) ⑩	(1, 3) ④	(____) ⑩
(____) ⑤	(____) ⑪	(____) ⑤	(____) ⑪
(____) ⑥	(____) ⑫	(____) ⑥	(____) ⑫

Coordinate Place Four



Player 1		Player 2	
(____, ____) ①	(____, ____) ⑦	(____, ____) ①	(____, ____) ⑦
(____, ____) ②	(____, ____) ⑧	(____, ____) ②	(____, ____) ⑧
(____, ____) ③	(____, ____) ⑨	(____, ____) ③	(____, ____) ⑨
(____, ____) ④	(____, ____) ⑩	(____, ____) ④	(____, ____) ⑩
(____, ____) ⑤	(____, ____) ⑪	(____, ____) ⑤	(____, ____) ⑪
(____, ____) ⑥	(____, ____) ⑫	(____, ____) ⑥	(____, ____) ⑫