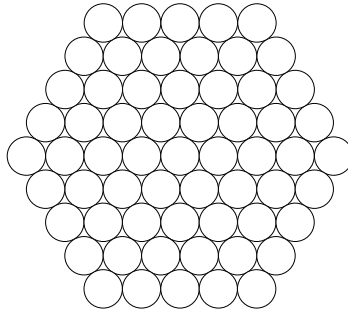


# Dustin

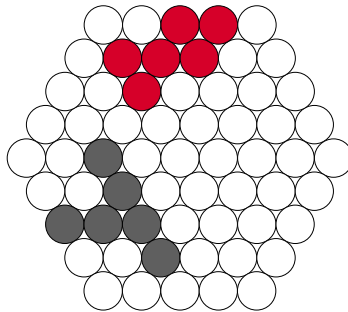
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Dustin is a game for 2 players, with stones of 2 colors, on a board that looks like this:



## Definitions:

1. A *connected group* of stones is a set of stones on the board, all of the same color, for which it is possible to trace a continuous path between any two of them by stepping between adjacent stones of that color.
2. The *size* of a connected group is the number of stones in it. The picture below shows a board with two connected groups on it, each of size 6:



## Rules:

1. The board begins empty.
2. Players take turns. On each turn a player places one stone of *either* color onto any empty space.
3. The game ends when the board is full. Player 1 wins if there are an odd number of connected groups of at least size 5 on the board, and Player 2 wins otherwise. When counting connected groups, add up the total number of connected groups of *both* colors.

## Notes:

1. At the end of his turn, each player should state whether the current number of groups that meet the minimum size requirement is odd or even, to eliminate the need for recounting in the middle of the game.
2. One can change the character of the game by increasing or decreasing the minimum size which a group must have in order to be counted at the end. If you should find a solution to the game, decrease that minimum size, or just play on a bigger board.

# Odd

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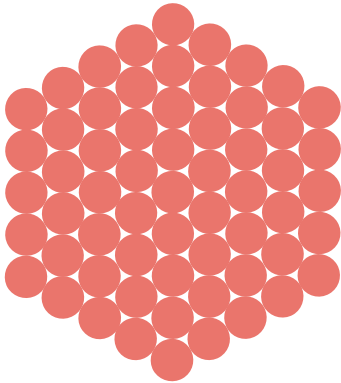


Figure 1: the board

Odd is a game for two players, played with black and white stones, on the board shown in Figure 1.

## Definitions

1. A group of stones is a set of stones on the board, all of the same color, for which it is possible to trace a continuous path between any two of them by stepping between adjacent stones of that color.
2. The size of a group is the number of stones in it. The picture below shows a board with two groups on it, each of size 6:

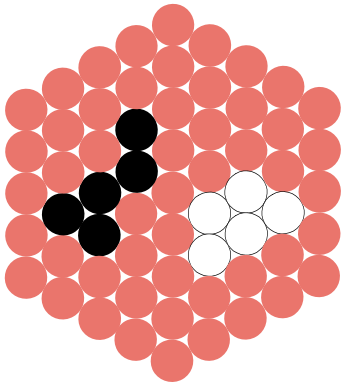


Figure 2: Two groups,  
Both size 5.

## Rules of the Game

1. The board begins empty.
2. Players take turns. On each turn a player places one stone of either color onto any empty space.
3. The game ends when the board is full. Player 1 wins if there are an odd number of groups of at least size 5 on the board, and Player 2 wins otherwise. Important: When counting groups, add up the total number of groups of both colors.

## Notes:

1. One can change the character of the game by increasing or decreasing the minimum size which a group must have in order to be counted at the end. Try minimum group sizes of 4, 6, or 7.
2. In practice, it will become obvious who the winner will be well before the board becomes completely full. In this case, the loser-to-be should resign, so that a new game can begin.
3. Figure 3 shows a completed game. There are three groups on the board of at least size 5 (1 white group and two black groups), so player 1 wins.

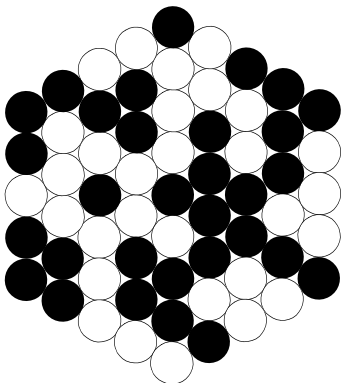


Figure 3

### Odd Boards, for playing Odd with colored pencils or markers

