BOX OFF

A New Solitaire Board Game

By Steven Meyers

The goal of Box Off is to remove all the stones from a rectangular board of squares. A lesser goal is to remove as many stones as possible.

The usual board size is an 8×6 array of squares, but a 12×8 array and other board sizes also work well. You begin with three differently colored sets of stones (four sets are recommended for the 12×8 board size, or five for a mega-challenge on a 15×12 board) in quantities sufficient to place one on every board square. For an 8×6 board, 16 stones of each of three different colors are needed.

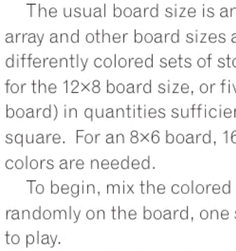
To begin, mix the colored stones together and distribute them randomly on the board, one stone per square. You are now ready to play.

Play consists of making a series of "moves," where each move consists of removing a single pair of same-colored stones from the board. A pair may only be removed if it occupies a rectangle of squares containing no other stones. At the start, the only possible kind of move is to remove a pair of adjacent same-colored stones, which can be thought of as occupying a 1×2 rectangle of squares. As more and more board squares become empty, the number of choices of possible moves grows. Sometimes the choice of moves will be critical: One choice will allow the position to be "solved"—i.e., all the stones will eventually be removed—while the other choice leaves a position in which a solution no longer is possible.

Not all starting positions are solvable, even with perfect play (which in any case is hard to achieve). But with practice, you will find you can remove all the stones from at least half the random setups you make.

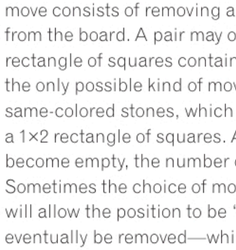
To illustrate some legal moves, we will examine two positions on a small board (Diagrams A and B below).

DIAGRAM A



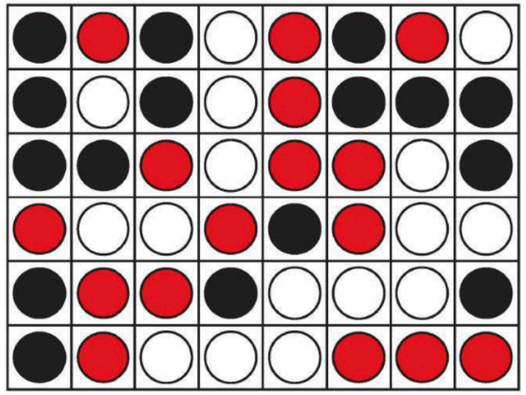
Because the 4×3 rectangle of squares occupied by the white pair of stones also contains two black stones, the white stones may not be removed yet. But the two black stones may, since they are part of a 1×3 rectangle of squares that is otherwise empty. When the two black stones are removed, it becomes legal to remove the two white stones.

DIAGRAM B



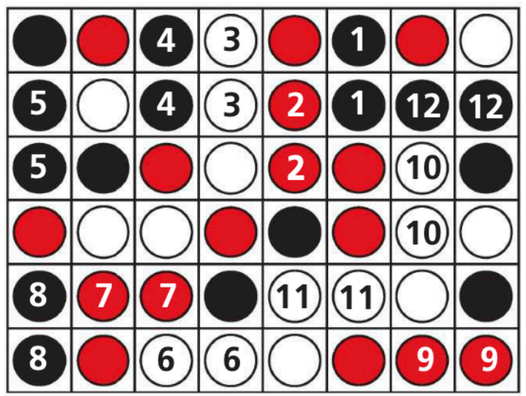
Here the two red stones form the corners of a 4×2 rectangle that is otherwise empty, so they can be removed. No further progress is possible after that, because the black and white stones each occupy the other's rectangle and block further removals.

GAME-DIAGRAM 1



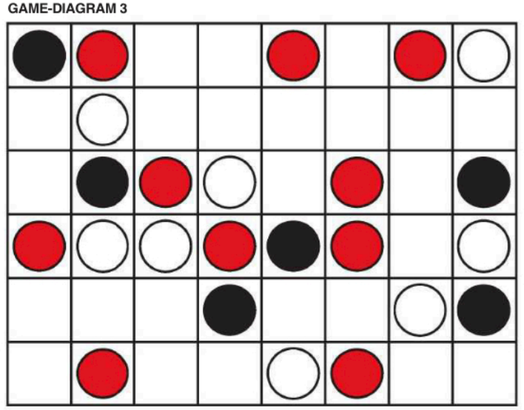
Here's a sample game on an 8x6 board, using three colors of stones. This is the starting position. You decide to begin by removing 12 pairs of adjacent same-color stones that are marked by the numbers in the next diagram.

GAME-DIAGRAM 2



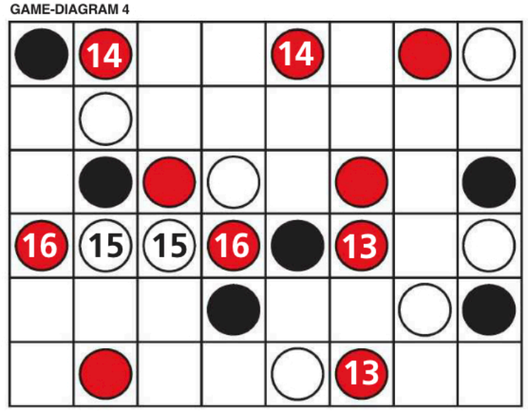
You are now left with the following position.

GAME-DIAGRAM 3

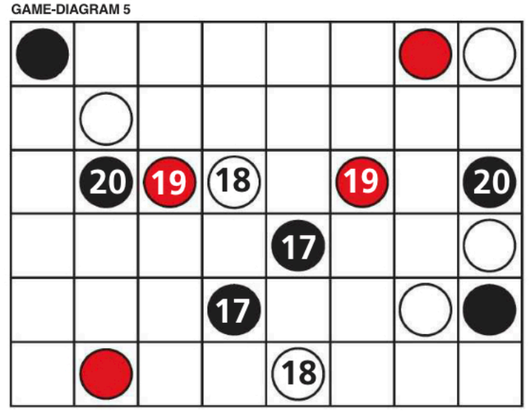


With careful play, you can clear the board by removing the pairs in numerical order shown in the next three diagrams.

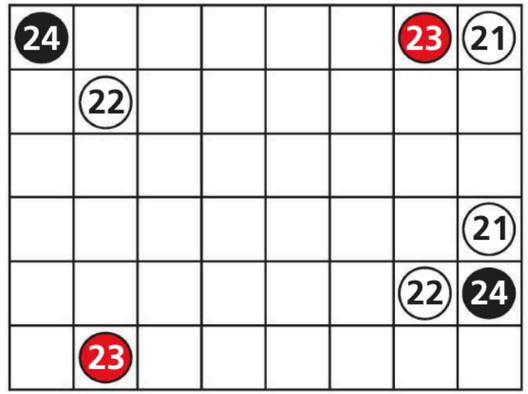
GAME-DIAGRAM 4

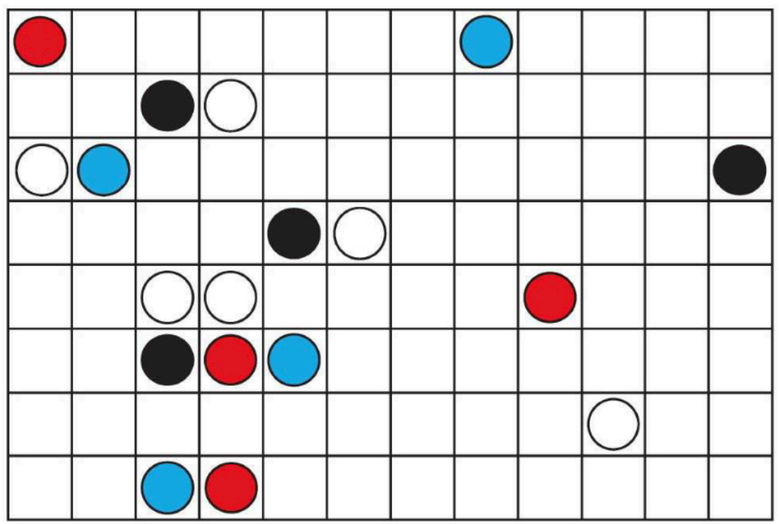


GAME-DIAGRAM 5



GAME-DIAGRAM 6





Finally, here's a puzzle. What series of plays will result in the board being cleared of stones?

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