RED STONE
by Mark Steere

Fig. 1 - Three black groups, one white group, and 18 liberties.

Fig. 2 - Black captures white group.

Fig. 3 - White captures one white group and two black groups.

Fig. 4 - Black can't place on green spots. Fills black eye instead.

Fig. 5 - White captures black group by filling black eye, the black group's last remaining liberty.

INTRODUCTION Red Stone is a variant of Go in which red stones are used to capture. Red stones are permanent. They cannot themselves be captured. "Adjacent" will mean orthogonally (horizontally or vertically) adjacent here.

The two players, Black and White, each have unlimited stones of their own color. They also share an unlimited supply of red stones. Draws cannot occur in Red Stone. Mark Steere designed Red Stone in February, 2012.

OBJECT OF THE GAME You must annihilate your opponent, removing all of his stones from the board.

PLAY Starting with Black, the two players take turns placing stones onto unoccupied points on the board, subject to restrictions, one stone per turn. On his first turn, Black must place a black stone. Likewise for White. On subsequent turns, players must place either a stone of their own color or a red stone, subject to restrictions, but not both.

Passing is not allowed in Red Stone. Players will always have a placement available and must make one. Red Stone makes use of the pie rule.

GROUPS AND LIBERTIES A group is an orthogonally interconnected collection of like-colored stones. Only black groups and white groups will be discussed here, not red groups. A liberty is an unoccupied point adjacent to a (black or white) group. In **Figure 1**, the liberties are shown with small green spots.

CAPTURES A capturing placement deprives at least one group of its last remaining liberty. Such a placement must, and can only be, made with a red stone. Said red stone is permanent. It cannot itself be captured. In **Figure 2**, Black captures a white group with a red stone. Self capture is allowed.

When multiple groups are bounded (deprived of their last remaining liberties) by a placement, all such groups are removed immediately following said placement, regardless of the groups' colors. If a temporarily bounded group is unbounded by the removal of a neighboring, enemy group, said temporarily bounded group is still removed. In **Figure 3**, White captures one white group and two black groups.

If your placement eliminates all enemy stones from the board, you win. If your placement eliminates all black and white stones from the board, you win. If your placement eliminates all of your own stones while enemy stones remain on the board, you lose.

EYES An eye is an isolated, unoccupied point (i.e. not adjacent to any other unoccupied points) belonging either to Black or to White, but not both. If an isolated, unoccupied point is adjacent to at least one black stone and no white stones, then said point is a black eye. Likewise for white eyes. An isolated, unoccupied point with at least one black adjacency and at least one white adjacency is not an eye.

If an eye is **not** the last remaining liberty of a group, then the eye's owner may place a stone of his own color on it. You cannot place a stone of any color on an enemy eye which is not the last remaining liberty of an enemy group. In **Figure 4**, Black is not allowed to fill either of the white eyes (marked with green spots) because neither eye is the last remaining liberty of a white group. Instead, Black fills a black eye with a black stone (not a red stone, since said eye is not the last remaining liberty of a black group).

If an eye **is** the last remaining liberty of a group, then either player may place a red stone on it, capturing (or self-capturing) said group. In **Figure 5**, White captures a black group by placing a red stone on a black eye, the last remaining liberty of said group. A red eye is an isolated, unoccupied point with neither black nor white adjacencies, i.e. with only red adjacencies. Players are not allowed to place a stone of any color on a red eye.
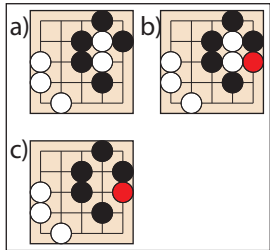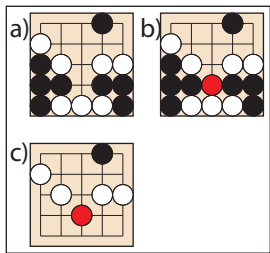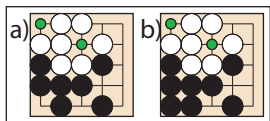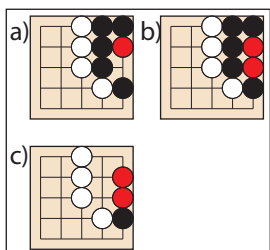
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