

Terminology:

Block:

- a square of one color, or
- a square that is subdivided into 4 equal-sized blocks.

Level:

top-level block (the largest one) is at level 0, each sub + 1

Maximum allowed depth:

maximum depth n means can go up to level n

Unit Cells:

blocks at the maximum allowed depth

Actions and Moves:

Actions:

	Restriction	Definition	Cost
Rotate clockwise			0
Rotate counterclockwise			0
Swap Horizontally		$\begin{array}{cc} A & B \\ C & D \end{array} \rightarrow \begin{array}{cc} B & A \\ D & C \end{array}$	0
Swap Vertically			0
Smash	only to blocks with no children and not a unit cell	break it to 4 randomly-generated sub-blocks	3
Paint	only to unit cells	set a new specified color	1
Combine	only to blocks at level (max - 1)	combine according to majority color (tie is not valid)	1
Pass			0

Move:

Action on a specific block (can be on any block at any level)

Goals and Scoring:

Goals are randomly-generated.

There are two types of goal:

- **Blob goal**
aim for creating largest "blob" of a given color
score: number of unit cells in the largest blob of the given color - total action cost
- **Perimeter goal**
aim to let the outer perimeter of the board be touched by a given color
score: length of all parts of the outer perimeter that's touched by a given color - total action cost

Player and Game Types:

Player Type:

- human player
- random player
- smart player (generate n moves, choose the one yields best score)

Game Type:

	human player	random player	smart player
sample game	1	1	1
auto game	0	0	2 (with different n)
two-player game	2	0	0
solitaire game	1	0	0