NULIBOX

PRESENTED BY XIAOCHENG ZHU

HOW IT WORKS?

HAMILTON QUATERNION

$$I \times J = K$$
$$J \times K = I$$
$$K \times I = J$$

$$J \times I = -K$$
$$K \times J = -I$$
$$I \times K = -J$$

$$I \times -J = -K$$
$$J \times -K = -I$$
$$K \times -I = -J$$

FOR MULTIPLICATION WITH A NEGATIVE SIGN IN THE OPPOSITE DIRECTION, REFER TO THE ABOVE MULTIPLICATION IN THE OPPOSITE DIRECTION.

$$I \times I = -1$$
$$J \times J = -1$$
$$K \times K = -1$$
$$-1 \times -1 = 1$$

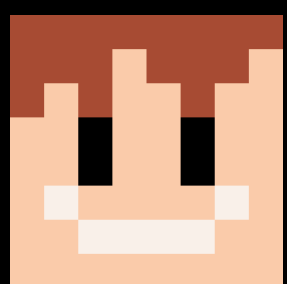THE SAME GOES FOR DARK BOXES (NEGATIVE NUMBERS)

OSU CYCLE

DEPARTMENT OF
MATHEMATICS
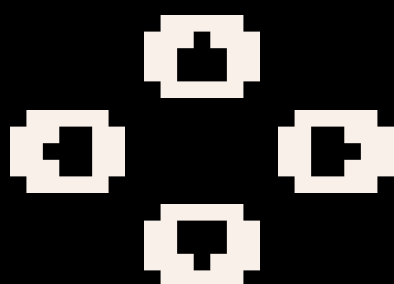
NULIBOX

PRESENTED BY XIAOCHENG ZHU
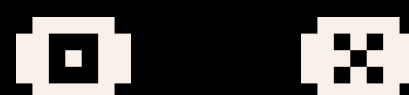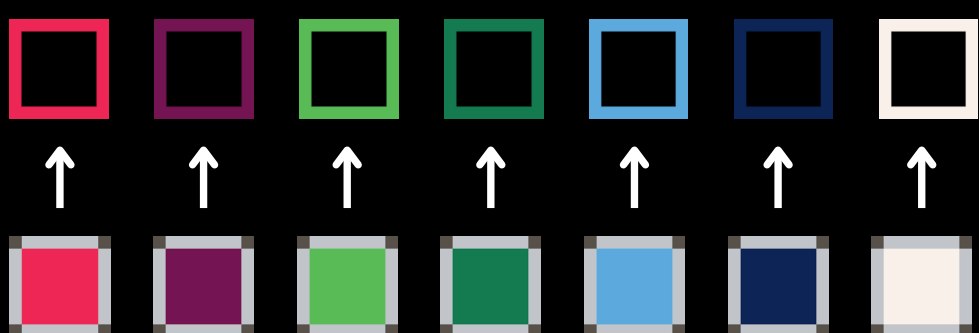
CONTROL

THE PLAYER   MOVE   UNDO/RESTART
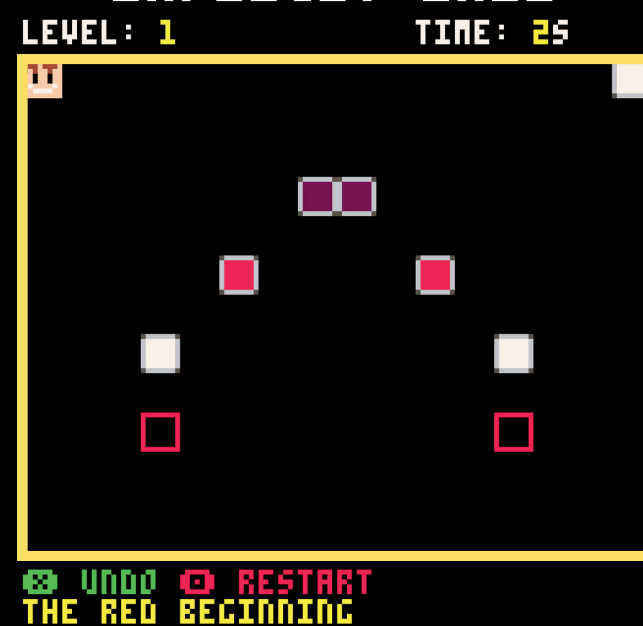
10 STEPS MAX

TARGETS

↑ ↑ ↑ ↑ ↑ ↑ ↑

WALLS

EXPLICIT WALL   IMPLICIT WALL

LEVEL: 1   TIME: 2S

1T

⊗ UNDO ⊡ RESTART
THE RED BEGINNING

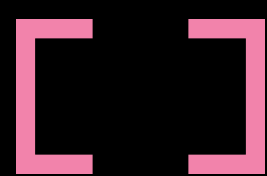## SCAN THE QRCODE TO TRY ME!
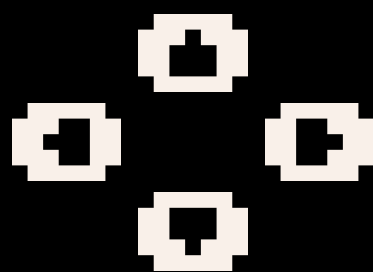
OSU CYCLE

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BRAID

PRESENTED BY XIAOCHENG ZHU

CONTROL

[ ]

CURSOR

MOVE LEFT/RIGHT SWAP

MECHANICS

TROUBLEMAKER

HE WILL RANDOMLY SWAP BRAIDS BASED ON HIS POSITION EVERY FEW SECONDS

WATER

IT WILL BEGIN TO FLOOD AFTER EVERY ROUND START. IF ANY BRAID IS BELOW THE WATER YOU WILL LOSE

TRY IT NOW!

UI EXPLAINED

BRAID **TIME 00:10** **SCORE 0** **LIMIT 1**

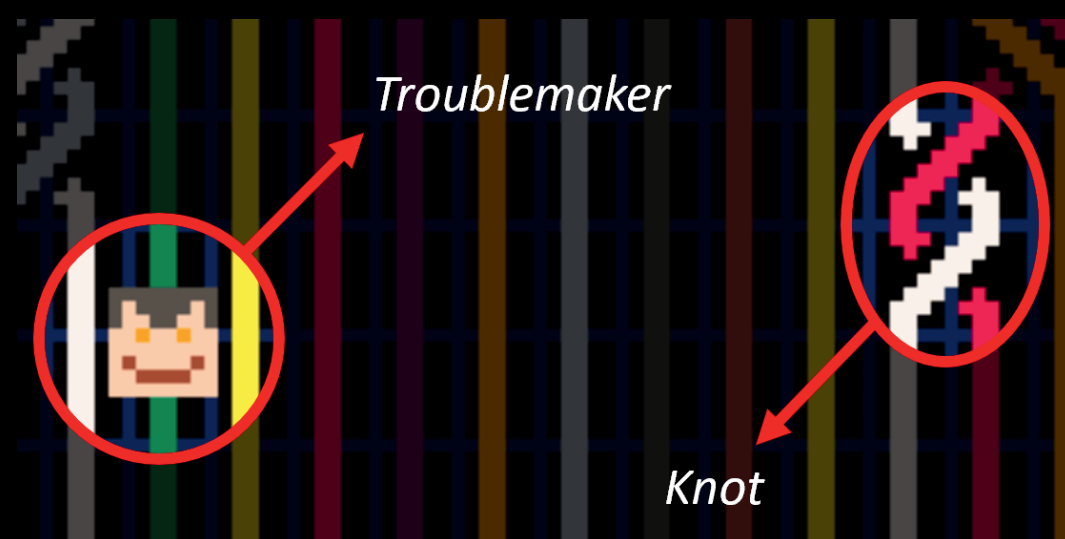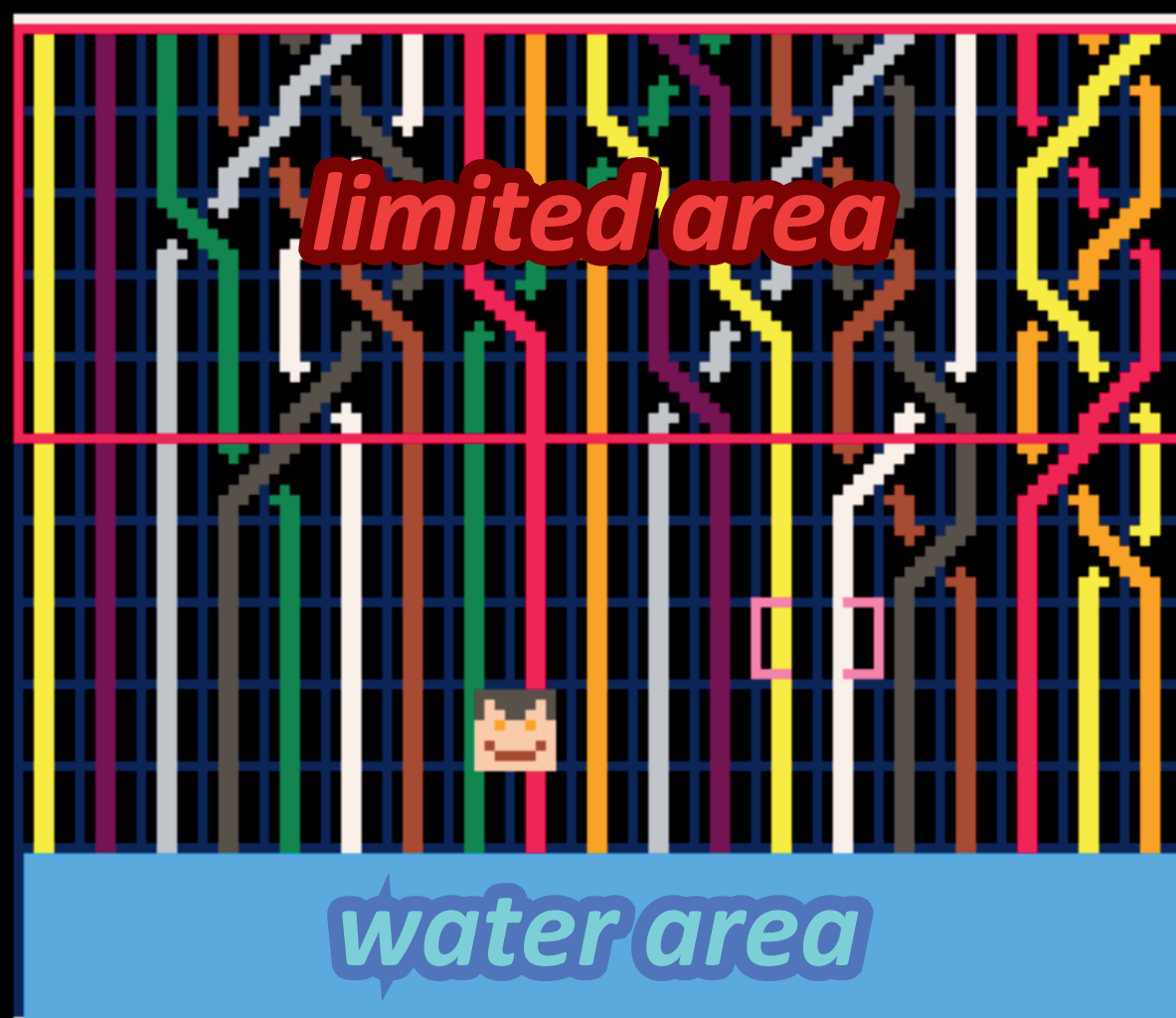Title of the game Timer Player Score Untie operation should below this height

Troublemaker

Knot

limited area

water area

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OSU CYCLE