Using an algorithm

Tic Tac Toe

You've probably played noughts and crosses

It's easy to play and is ancient – similar games are known to have been played in Ancient Egypt and the Romans definitely played it

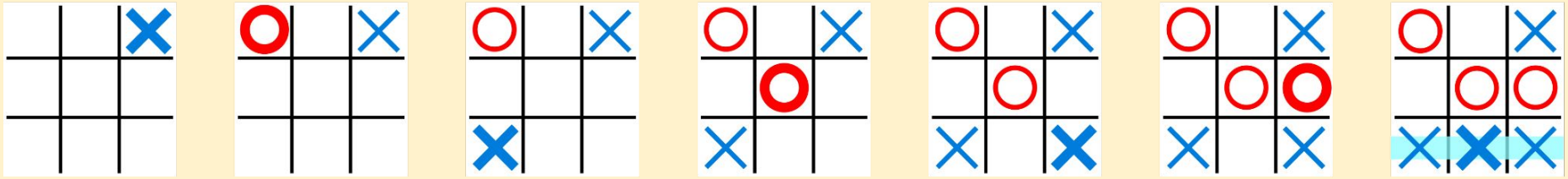
In America it's called Tic Tac Toe

In other parts of the world it's simply called Xs and Os

Using an algorithm

Tic Tac Toe

You probably know how to play it. But how often do you win?



Note: the first player always takes X

Using an algorithm

Tic Tac Toe

Prediction: it's **impossible** to lose tic tac toe

This uses an **algorithm**

Using an algorithm

Here's the algorithm to use **if you go first. First player is always X**

Move 1: Go in a corner.

Move 2:
IF the other player did not go in the opposite corner, THEN go there.
ELSE, then go in a free corner.

Move 3:
IF there are 2 Xs and a space in a line, THEN go in that space.
ELSE, IF there are 2 Os and a space in a line, THEN go in that space.
ELSE, go in a free corner.

Move 4:
IF there are 2 Xs and a space in a line, THEN go in that space.
ELSE, IF there are 2 Os and a space ina line, THEN go in that space.
ELSE go in a free corner.

Move 5:
Go in the free space

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Tic Tac Toe

Task 1:

Play Tic Tac Toe against yourself and test if the algorithm works

Task 2:

What if it’s the second player? What needs to be changed about the algorithm to avoid losing? How should O play?

Write this new algorithm and test it