

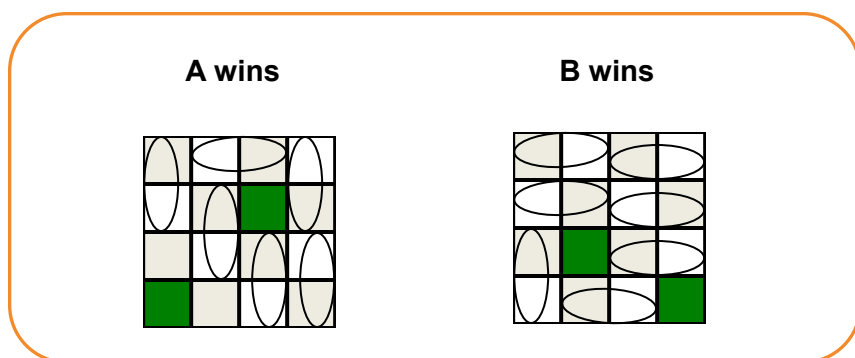
Divide the class into pairs. Pass out **1 checkerboard**, **2 square tiles** and **7 paper clips** to each pair.

In this game students try to figure out the pattern that ensures a win every time they play.

Player “A” begins by placing tiles on any two squares. Player “B” then places paperclips on the board so that each paperclip lies on two squares that share a common side. The paper clips may not overlap each other and cannot be placed diagonally. To win, Player “B” has to place seven paperclips so that they lie on the fourteen squares not occupied by the tiles. If Player “B” cannot do this Player “A” wins.

## MATERIALS:

- Checkerboard sheet
- Square tiles
- Paper clips



Have the students play the game a few times while they take turns placing the chips and the paperclips.

- ? If you place the tiles on two gray squares, what is the total of the other remaining white squares? 8 Gray squares? 6
- ? According to the rules, each paperclip has to be placed on two squares that share a common side. What can be concluded about the colors of these two squares? *They are different colors.*
- ? What is the relationship between the color of the squares the tiles are placed on and the winner of the game? *If the tiles are placed on different colored squares, Player “B” wins.*
- ? What deductive reasoning is required to win this game? *There must be 7 squares of each color on the board after the tiles are placed.*

# Checkerboard

