

Saesara

A Game of Induction

The experts tell us there are two kinds of reasoning. **Deduction** builds chains of logic, moving from general laws (“All humans are mortal”) to specific conclusions (“Socrates is mortal”). **Induction** identifies patterns, moving from specific evidence (“Socrates died... Plato died... Aristotle died...”) to general rules (“Hey, I think *all* philosophers die.”) Now, deductive games, where you apply known rules—those are a dime a dozen.

But inductive games, where you determine unknown rules—well, those are rare. Not only rare, but special. Not only special, but a riveting model of scientific inquiry. And not only a riveting model of scientific inquiry, but pretty darn fun, too.

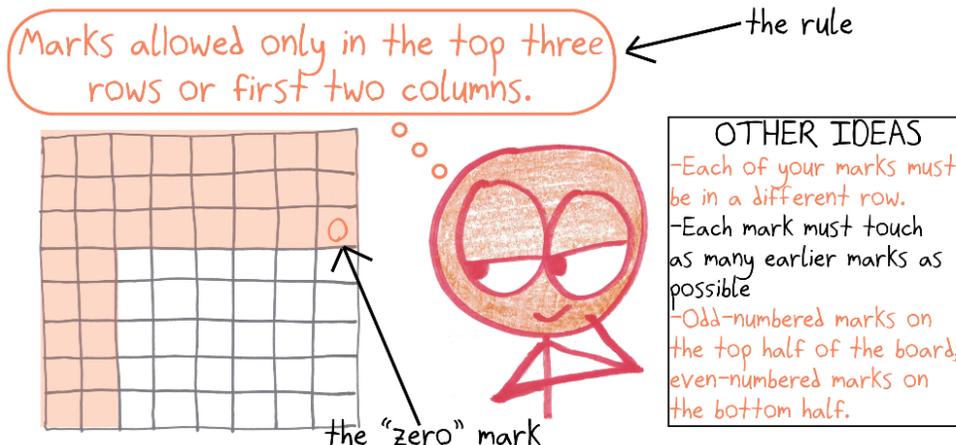
How to Play

What do you need? Three to five players, each with a pen or pencil. Also, for each round, an 8-by-8 grid (with amply sized squares).

What’s the goal? Figure out the secret rule for placing marks.

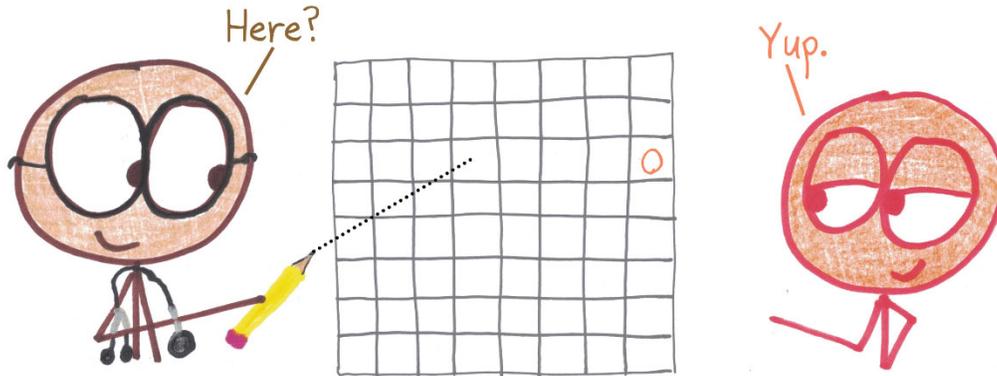
What are the rules?

1. To begin the round, one player—the **Arbiter**—comes up with a secret rule for writing marks on the grid, and places a “zero mark” to get the game started.¹

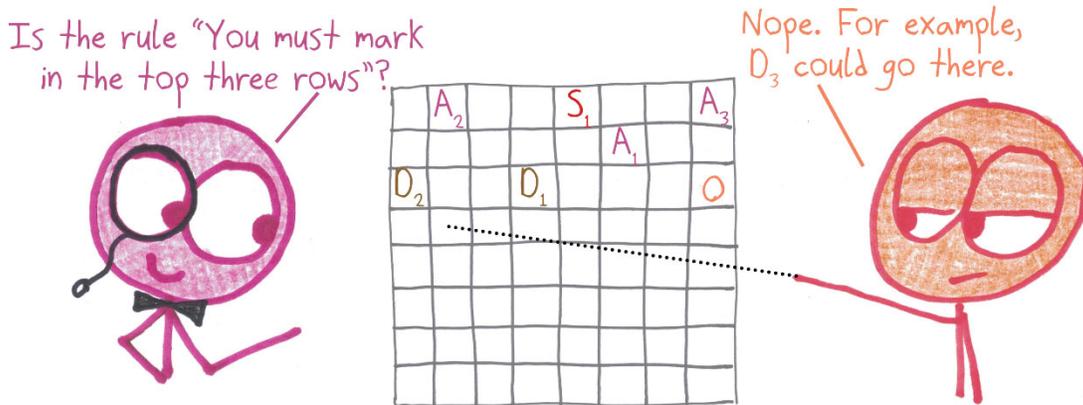


¹ Many good rules require a “previous mark” to play off. Even if not, place the zero mark anyway. Also, if you’re using a number-based rule, note that zero is even.

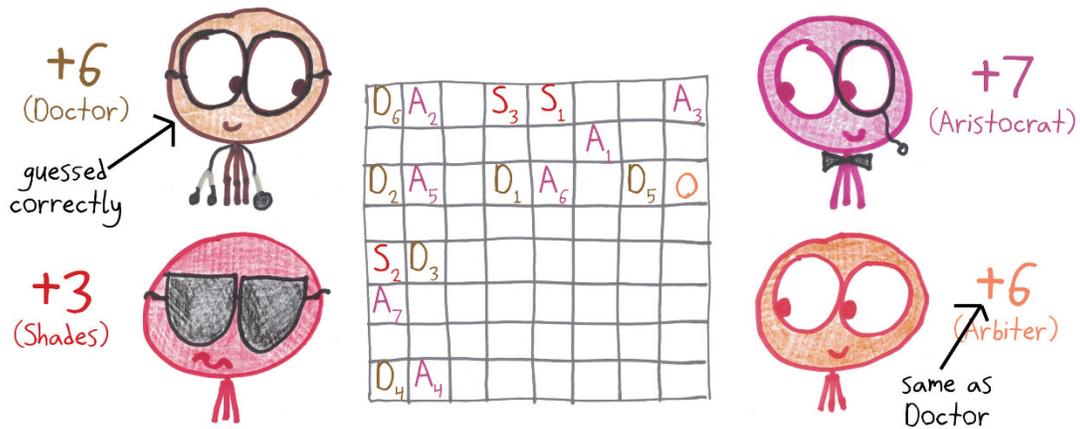
- Other players then take turns attempting to place marks by pointing a pencil at a square and asking the Arbiter, “**May I place a mark here?**” If the Arbiter says “yes,” then write your mark, which is **your first initial, along with a number** (1 for your first mark, 2 for your second, and so on). If the Arbiter says “no,” don’t write anything.



- On any turn, instead of trying to place a mark, you may **try to guess the rule**. If you’re wrong, **the Arbiter must demonstrate**, by showing either (A) an allowed move that your rule would have forbidden, or (B) a forbidden move that your rule would have allowed. No other hints or feedback are permitted.



- If you **guess the rule correctly**, then the round ends. Each player scores **one point per successful mark**, and the Arbiter receives the **same score as whoever guessed the rule**.



5. However, the round can end in two other ways: (1) if the trailing player places their eighth mark, or (2) if the trailing player has no legal moves left. In either case, the round is considered a stalemate, and everyone scores exactly eight points.



6. Play until everyone has had **one turn each as Arbiter** (or, if you prefer, two turns each). Highest total score wins.

Tasting Notes

How should you design your rule? First, two requirements:

1. **Treat all players equally.** No referring to specific letters. "A's must go on the edges, and B's and C's in the interior" is a bogus rule.
2. **Make it guessable.** Not too complex; not too weird; not too restrictive (lest you run out of legal squares); and not too permissive (lest the trailing player reach eight marks too fast). Stalemates are bad for the Arbiter's score, and even worse for enjoying the game.

Beyond that, the sky's the limit. In general, you'll want to incorporate some combination of these factors:

- **Board Geography.** E.g., “If the grid were colored like a checkerboard, then you may only place marks on the black squares.”
- **Your Earlier Marks.** E.g., “Each mark must be a knight’s move away from one of your earlier marks, or from the zero mark.”
- **Other Players’ Earlier Marks.** E.g., “Each move must be along a diagonal shared by the mark that was placed most recently.”
- **The Mark’s Number.** E.g., “Odd-numbered marks must touch an earlier mark; even-numbered marks must *not* touch an earlier mark.”

Be forewarned: **rules are harder to figure out than you expect!** What’s maddeningly obvious to the Arbiter may be maddeningly obscure to everyone else. My advice: start simple, and build complexity as you build expertise.

As for the guessers? Well, you want to figure out the rule as fast as possible. Then you can leverage your knowledge to place lots of marks while your opponents are stumbling in the dark. Finally, just when they’re catching on, guess the rule, bringing the round to an end.

But be careful! Waiting too long risks squandering your strong position on a stalemate. Be prepared for your guesses to miss the target.

Variations and Relatives

RULE TWEAKS: Here are some options for adjusting the pace and flow of the game.

- *Board Size.* To allow for tougher rules, a 10-by-10 board. For quicker rounds, 6-by-6.
- *Stalemates.* Instead of requiring the trailing player to reach eight marks, you may lower the threshold to six, or even four (especially if playing on a smaller board).
- *Scoring.* If players keep declining to guess the rule, you may award a bonus point (or three) for a correct guess. The Arbiter’s score will reflect these points as well.

JEWELS IN THE SAND: Perhaps the simplest (and most elegant) inductive game. For 2 to 8 players. One player, the Judge, makes up a secret rule for distinguishing jewels vs. sand. The Judge then provides the other players with the following information:

1. The category of objects to classify (e.g., numbers)
2. An example jewel (e.g., 2000)
3. An example of sand (e.g., 7)

On your turn, name an object, and ask either “Is it a jewel?” or “Is it sand?” If the judge says “yes,” then you keep asking questions. If the judge says “no,” then your turn ends.

At any point during your turn, you may attempt to guess the rule (e.g., “Numbers 100 and up are jewels; numbers below 100 are sand”). If you’re wrong, then the Judge demonstrates by giving a counterexample (e.g., “12 is a jewel” or “9,999 is sand”), and your turn ends. If you’re right, then you win, and serve as Judge for the next round.