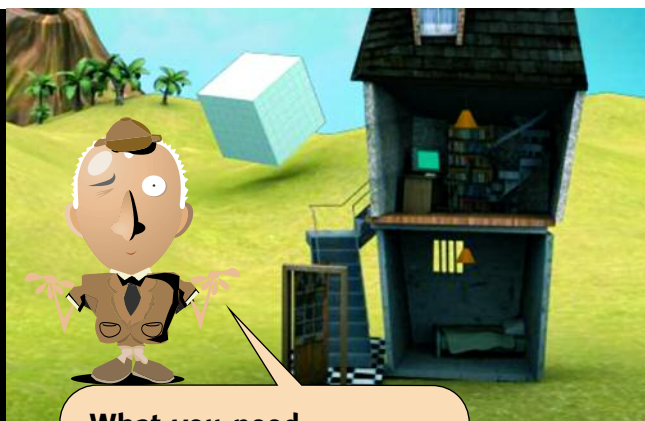


Strategy shoot out

**What you need:**

- a friend

Mathematicians love games.

Some games allow whoever takes the first move to win, some games nearly always end in a draw, and some games have a secret strategy.

You may know that in the game 'scissors, paper, stone' there is no best move. Here we've got a new game that you can play with your friends. After playing the game, try and answer the following questions:

- is the game fair? Do both players have the same chance of winning?
- what should you always do on your first go?
- is there a way to make sure you never lose (although you may never win)?
- what is your strategy for the game? Does it depend on who you are playing?

This shooting game is an example of a strategy game. Mathematicians like to study these games because they can help to understand everything from how societies behave towards each other, to how evolution can create balances between different species. The puzzle is always to find out what the best strategy would be to win, or if the best strategy is not to play the game in the first place!

Strategy shoot out



LOAD



GUARD

SHOOT



RULES:

- This game requires two players. You may want to find a referee if you think that you need one, but it is not necessary.
- On each turn, both the players must count to THREE, and then both must do one of the following actions: load, guard or shoot (see the diagram).
- The game is won when one player shoots the other.
- If you are in the 'guard' position, you cannot be shot.
- If both players shoot at the same time, that round is a draw.
- Each time you load, you put one 'bullet' into your gun's chamber. You can load as many times as you want, but make sure you remember how many bullets you have in your gun.
- Each time you shoot you use one bullet, and you cannot shoot unless you have bullets.