

## Bonus Hustle Effect 2

### The Napkin Game



Take a paper napkin, open it out, fold the two opposite corners together and tear off the excess to make a perfect square. Fold the other two opposite corners together. This way, when you unfold it they will have a square with the centre position marked where the diagonal creases cross. Then you offer to play the game.

Get a pile of coins, all the same value - two-pence pieces are good for this. The challenge is that you and your opponent will take it in turns to place a coin on the napkin. The loser is the person who can't place their final coin without it going over the edge of the napkin.

Now the first trick. Ask your opponent if they want to go first or second. If they ask you to go first, place your first coin exactly on the middle of the napkin square. If they say they want to go first, then 'remind' them of another rule of the game: to begin there is a coin placed exactly on the centre and then it's their go. Either way there will be a coin in the middle, right over the central creases, and they will have to make the next move.



You have won already! The rest of the game is just you and your knowledge of symmetry. Wherever your opponent places a coin, you place your coin symmetrically around the centre coin, on the opposite side. For example if they put a coin 1cm away from the centre coin at the 12 o'clock position, you place your coin 1cm away from the centre coin at the 6 o'clock position.

Since they have to always place their coin before yours (because you ensured that centre coin was in position and that they would play right after it was placed) and you mirror their moves, they must run out of coin space on the napkin before you do. It's simple symmetry. Fancy a game?