

AFRICAN INSTITUTE FOR MATHEMATICAL SCIENCES

SCHOOLS ENRICHMENT CENTRE (AIMSSEC)

AIMING HIGH

IN A BOX



This is a game for two players. You can use strips of coloured paper in a box or in an envelope instead of ribbons in a box. The important rule is that each player takes two ribbons without being able to see their colour.

Najwa and Zuki play this game.

They put two red and four blue ribbons in a box. They pull out two ribbons without looking at the colours.

Najwa wins if both ribbons are the **same colour**. Zuki wins if the two ribbons are **different colours**.

Play this game with your family at home.

Who wins more often? Is this a fair game? If not, why is it unfair?

Now suppose that you change the game so that there are two red and four blue ribbons in the box? Is this a fair game? Why or why not?

If the game is not fair, how would you change the game to make it fair? Is there any skill in this game or is it just luck?

HELP

Call the ribbons R1, R2, B1, B2, B3 and 43. Make a list of all the possible pairs of ribbons that you can take out. For example, R1-B3 means you take R1 first then B3 and B3-R1 means you take B3 first then R1.

Count the number of draws for which Najwa wins, and the number of draws for which Zuki wins? Is this fair? What assumptions are you making?

NEXT

Make up a similar game that is fair. Draw a tree diagram for this game.