Applying Probability to Real Life

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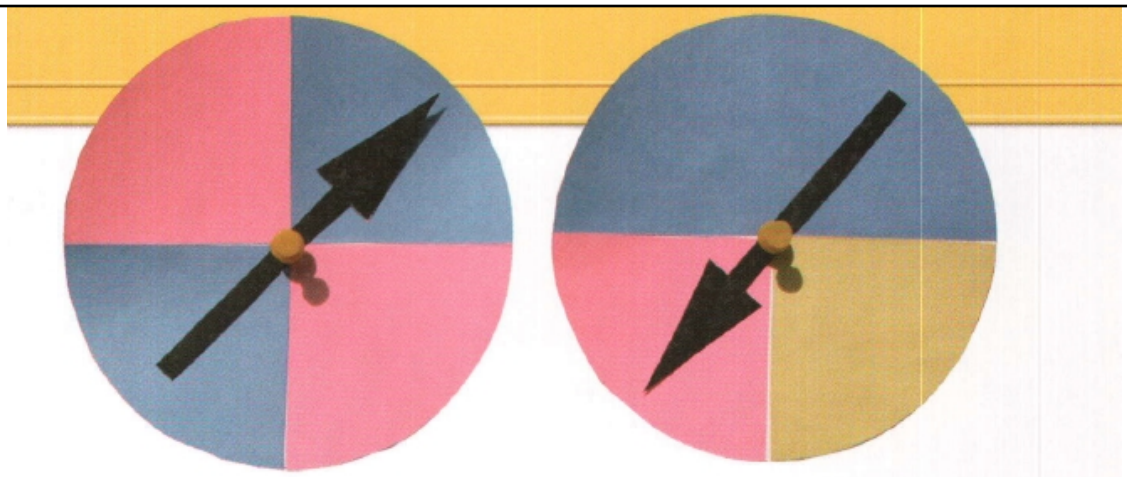

Games allow you to practise your skills in a fun way. Some games are designed to be unfair. What could be unfair about the spinners in this photograph?

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The game *Matching Spins* is played in pairs. Here is how you play.
- Players take turns spinning the spinners.
- Player 1 wins one point if the colours on the spinners match. Otherwise, Player 2 wins.
- The first player to reach 10 points wins!

1. Create two spinners with four equal-sized sections. Colour the sections of the spinners as shown in the photograph.

2. Create a tally chart to act as a score sheet.

3. Before playing the game, write two explanations:
   a) why you think Player 1 might win
   b) why you think Player 2 might win

4. Play the game for 10 min. Record who wins each game. How many times did Player 1 win? How about Player 2?

5. **Reflect**
   a) Which player has a greater chance of winning? Explain.
   b) How could you change the game to give each player an equal chance of winning?

a) Player 1 → $\frac{6}{16}$

Player 2 → $\frac{10}{16}$

	B	B	P	Y
P	N	N	M	N
B	M	M	N	N
P	N	N	M	N
B	M	M	N	N

M = Match (player 1)

N = No match (player 2)

b) You could change the yellow section to pink. This would then make 8 of each outcome

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Example 1: Probability in Weather

The local forecast predicts a 70% chance of rain today.
a) What is the probability of rain as a fraction?
b) What is the probability of no rain today?

a) $70\% = \frac{70}{100} = \frac{7}{10}$

b) 30% chance of no rain

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Example 2: Probability in Polling

There are three people running in the School Board election. A poll is held to determine the standings of the candidates. Of 500 people polled, 150 chose Eric, 225 chose Eliana, and 125 chose Karina.

a) Based on the poll, what is the probability of Eliana winning the election?

b) What percent of the people polled chose Eric?

c) Who is the least likely to win the election? State the probability.

a) $\frac{225}{500} = \frac{11}{20}$

b) $\frac{150}{500} = \frac{3}{10} = 30\%$

c) Karina because she had the least votes in the poll $\frac{125}{500} = \frac{1}{4}$

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Key Ideas

- In some real-life games, the probability of things happening can be predicted. Predicted probability can help you make a decision in a game.
- In other real-life situations, like sports and weather, the probability of things happening is based on experimental data.

A 20% chance of rain means that, if you stay in that location, you will get rained on 20 days out of 100.

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