Year 6 Maths Assessment: Probability and Chance

Learning objective: To understand, calculate, and describe the probability of events using fractions, decimals, and percentages.

Read each question carefully. Show your working out where possible. Max the monkey is helping you with these calculations today!

Max the monkey has a bag of coloured marbles. Inside the bag, there are 5 red marbles, 3 blue marbles, and 2 green marbles. He picks one marble at random without looking.

Word bank: Impossible · Unlikely · Even chance · Likely · Certain · Sample space · Outcome · Fraction

1. Using the word bank, describe the probability of Max picking a purple marble from his bag. Explain why. (2 marks)

2. What is the probability of picking a red marble? Write your answer as a simplified fraction. (2 marks)

3. If Max picks a marble, records the colour, and puts it back 100 times, how many times would you expect him to pick a green marble? (3 marks)

4. Max adds 5 yellow marbles to the bag. What is the new probability of picking a blue marble? Show your working clearly. (4 marks)

5. Explain the difference between 'impossible' and 'even chance' using an example for each that does not involve marbles. (4 marks)

6. Max has a spinner with 8 equal sections. 4 are blue, 2 are red, 1 is yellow, and 1 is green. Write a short report explaining the probability of landing on each colour. Use fractions and percentages to justify which colour is most likely to be landed on and why. (10 marks)

Draw: Draw a spinner divided into 8 equal sections that would give you an 'even chance' of landing on blue, and a 25% chance of landing on red.

Extension challenge: Total: /25