Max’s Market Probability Challenge

Learning objective: To calculate and compare the probability of independent events using fractions and percentages, and to express outcomes using probability language.

Max the monkey is helping at the local community market. He has set up a game stall to help him practice his math. Read the scenarios below and determine the probability of each outcome. Write your answers as a fraction in its simplest form and as a percentage. Explain your reasoning using the vocabulary provided in the word bank.

Word bank: certain · likely · unlikely · impossible · even chance · numerator · denominator · percentage

1. Max has a bag containing 20 fruit tokens: 10 are apples, 5 are bananas, 3 are pears, and 2 are oranges. If a player picks one token at random, what is the probability of picking an apple? Show your fraction and percentage. (2 marks)

2. In the same bag of 20 tokens, what is the probability of picking a pear? Express this as a fraction in its simplest form and as a percentage. (2 marks)

3. Max adds a special 'Golden Monkey' token to the bag. If there is only 1 Golden Monkey token in the bag of 21 tokens, is it likely or unlikely that a player will pick it? Explain your reasoning. (2 marks)

4. The stall has a box of 50 mystery prizes. 25 are stickers and 25 are bookmarks. What is the probability of picking a sticker? Use the term 'even chance' in your explanation. (2 marks)

5. If Max replaces all 20 fruit tokens with 20 identical strawberry tokens, what is the probability of picking a strawberry? Use the correct probability term from the word bank to describe this outcome. (2 marks)

Draw: Draw a probability line from 0 to 1. Place a mark for 'Impossible', 'Even Chance', and 'Certain'. Then, draw Max the monkey holding his bag of fruit tokens standing near the line.

Extension challenge: Design your own game stall for the market. Create a bag of items with different quantities and write three probability questions for a partner to solve, ensuring at least one answer requires a simplified fraction.