Max’s Market Probability Challenge

Learning objective: To understand and calculate the probability of events, expressing them as fractions, decimals, and percentages.

Read the scenario below carefully. Use your knowledge of probability to answer the questions. Remember to simplify your fractions where possible.

Max the monkey is helping at the local community market stall. He has a box containing 20 pieces of fruit for a lucky dip. Inside the box, there are 8 apples, 5 oranges, 4 pears, and 3 plums. Max wants to ensure he understands the odds before he lets the children choose a piece of fruit. He knows that every time a child reaches into the box, they have an equal chance of picking any piece of fruit.

Word bank: Probability · Outcome · Likely · Unlikely · Certain · Impossible · Fraction · Percentage

1. What is the probability of picking an apple? Give your answer as a fraction in its simplest form. (2 marks)

2. If a child picks a piece of fruit, what is the probability that it is NOT a plum? Express your answer as a percentage. (2 marks)

3. Max adds 5 more pears to the box. Explain why the probability of picking a pear has changed. (2 marks)

4. Is it more likely to pick an orange or a pear? Support your answer with the numerical probability of each. (2 marks)

5. Max decides to sell a 'mystery bag' for £2.00. He says it is 'impossible' to pick a banana from the current box. Explain why he is correct. (2 marks)

Draw: Draw a bar chart to represent the number of each fruit type in Max's original box (8 apples, 5 oranges, 4 pears, 3 plums). Label your axes clearly.

Extension challenge: If Max wants the probability of picking an apple to be exactly 50%, how many more apples would he need to add to the original box of 20 fruits?