

Max's Mental Maths Challenge: The Marketplace Expedition

Learning objective: To apply mental strategies including partitioning, compensation, and using known number facts to solve complex multi-step problems involving currency and decimals.

Max the monkey is visiting the local market to buy supplies for a group feast. Use your mental maths skills to calculate the costs and remain within budget. You must show your mental strategy for each step (e.g., partitioning, rounding to adjust, or doubling/halving). Do not use a written column method; focus on how you manipulate the numbers in your head.

Word bank: partitioning · compensation · equivalent · total · remainder · estimate · decimal point · fluency

1. Max buys 4 bags of apples at £1.75 each. Explain your mental strategy for calculating the total cost without using a written multiplication method. (3 marks)

2. The market stall offers a 'buy one, get one half price' deal on berries costing £2.40. If Max buys two punnets, what is the total? Justify your calculation method. (3 marks)

3. Max has a budget of £20.00. If he spends £8.65, calculate the change remaining. Explain how you used compensation to reach your answer. (3 marks)

4. Compare and contrast: Why might rounding £3.99 to £4.00 be a more efficient mental strategy than adding £3.99 directly to a total? (4 marks)

5. What might happen if Max misplaces the decimal point when calculating the cost of 10 items? Explain the impact this has on his total budget. (3 marks)

6. Max finds a rare fruit that costs £5.50. If he shares the cost equally between himself, Leo, and Pip, how much does each pay? Show your mental division. (3 marks)

Extension challenge: Design your own 'Marketplace Challenge' word problem for a peer. Your problem must require at least two different mental operations (e.g., addition and subtraction of decimals) and include a 'Greater Depth' hint that suggests a specific mental strategy for them to try.