

Max's Market Challenge: Mastering Decimals

Learning objective: To identify the value of digits in numbers given to three decimal places and multiply and divide numbers by 10, 100, and 1000.

Max the monkey is helping at the local community market. Use your knowledge of place value and decimals to solve his inventory puzzles. Remember to keep your columns aligned and ensure your units are correct when working with £. Read each question carefully and justify your mathematical reasoning.

Word bank: tenths · hundredths · thousandths · place value · decimal point · multiply · divide · equivalent

1. Max has 4.5kg of apples. If he divides the total weight into 10 equal bags for the market stall, what will be the weight of one bag? Explain the change in the position of the digits. (2 marks)

2. A rare antique book is priced at £12.85. If the price increases by 100 times due to its historical value, what is the new price? Show your working out. (2 marks)

3. Compare 0.7, 0.70, and 0.700. Are they equivalent? Justify your answer by explaining the value of the digits in the hundredths and thousandths columns. (3 marks)

4. Max finds a price tag that says £5.629. Round this price to the nearest penny (£). Explain why you chose to round up or down. (2 marks)

5. If Max multiplies a decimal number by 1000, the digits move three places to the left. What might happen if he were to divide that same number by 1000 instead? Describe the movement of the digits. (3 marks)

6. Max is selling jars of honey for £3.45 each. If he sells 100 jars, calculate the total revenue. Explain how the decimal point moves when multiplying by 100. (3 marks)

Extension challenge: Design a 'Market Price List' for Max. Include five items with prices up to three decimal places. Create a 'Bulk Buy' challenge for a customer where they must buy 10, 100, or 1000 of an item, and calculate the final total using your knowledge of decimal place value shifts.