

Max's Mathematical Market Stalls

Learning objective: To identify factors and multiples of numbers up to 100 and apply this knowledge to solve logical problems.

Max the monkey is organising his fruit market. He needs to group his items into equal sets to display them perfectly. A 'factor' is a number that divides into another without leaving a remainder, while a 'multiple' is the result of multiplying a number by an integer. Use your knowledge of times tables to help Max sort his market stock by completing the tasks below.

Word bank: factor · multiple · product · remainder · divisible · prime · composite

1. Max has 24 juicy apples. He wants to put them into equal bags. List all the factor pairs of 24. Explain why 5 is not a factor of 24. (3 marks)

2. Max is selling bunches of bananas for £4 each. If he sells 6 bunches, he makes £24. Are 4 and 6 factors or multiples of 24? Justify your answer. (2 marks)

3. A customer wants to buy bunches of grapes. The grapes come in multiples of 7. If the customer buys 4 bunches, how many grapes do they have in total? Is this number a multiple of 7? (2 marks)

4. Compare and contrast the number 12 and the number 13. Which one has more factors? Why is 13 considered a 'prime' number in this context? (3 marks)

5. Max has a display box that holds 30 items. If he wants to arrange them in rows, name three different ways he could group them using factors of 30. (3 marks)

6. What might happen if Max tried to arrange 17 oranges into equal rows of 3? Explain your reasoning using your knowledge of multiples. (3 marks)

Draw: Draw a market stall with 12 items arranged in a perfect array (e.g., 3 rows of 4 or 2 rows of 6). Label your array with the multiplication calculation it represents.



Extension challenge: Max has a secret number. It is a multiple of 5, a factor of 40, and it is greater than 10. What could the number be? Can you find more than one possibility? Justify your findings.