

## 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)**

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**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)**

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**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)**

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**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)**

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**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)**

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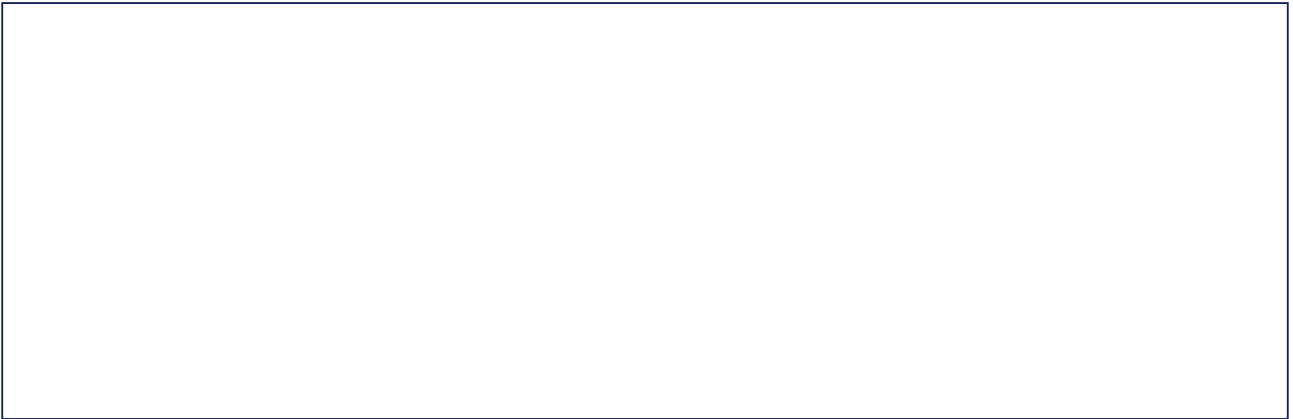
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**6. What might happen if Max tried to arrange 17 oranges into equal rows of 3? Explain your reasoning using your knowledge of multiples. (3 marks)**

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**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.*