

Year 5 Mathematics: Mastering Factors and Multiples with Max the Monkey

Learning objective: To identify, describe, and represent factors and multiples, including finding all factor pairs of a number, and understand common factors and prime numbers.

Read each question carefully. Show your working out clearly, as method marks may be awarded even if your final answer is incorrect. Use the space provided for your calculations.

Max the Monkey is organising his collection of jungle treasures. He has 24 shiny river pebbles and 30 colourful parrot feathers. He wants to arrange them into equal groups so that none are left over, and he needs to calculate the multiples of his collection to see how many he would have if he doubled or tripled his treasure hoard.

Word bank: Factor · Multiple · Prime Number · Composite Number · Factor Pair · Common Factor · Product · Divisible

1. Max has 24 pebbles. List all the factor pairs of 24. (2 marks)

2. Identify all the common factors of 24 and 30. (2 marks)

3. Max says, '13 is a prime number because it only has two factors.' Is Max correct? Justify your answer by explaining what a prime number is. (3 marks)

4. List the first five multiples of 8. (2 marks)

5. If Max finds a bag of 12 gold coins and each coin costs £4.50, calculate the total cost. Then, explain if 12 is a multiple of 4.50. Why or why not? (4 marks)

6. Compare and contrast the properties of a square number and a prime number. Provide one example of each to support your comparison. (4 marks)

7. Max is designing a display for his treasure. He has 48 items. He claims that he can arrange them into equal rows in more ways than if he had 36 items. Justify his answer by calculating the factor pairs for both 48 and 36. Which number has more factors and why does this matter for his display? (5 marks)

8. What might happen to the number of possible factor pairs if Max chose a number that is a product of two different prime numbers, such as 15 (3×5)? (3 marks)

Draw: Draw a visual representation of the number 12 using a factor array (e.g., a grid of dots showing how 12 can be arranged into rows and columns).



Extension challenge: Total: /25. Creative Extension: Write a short, rhyming poem from Max the Monkey's perspective explaining the difference between a factor and a multiple to a younger monkey friend.