

Max's Mathematical Factors and Multiples Investigation

Learning objective: To identify, describe, and apply knowledge of factors and multiples, including finding common factors and common multiples of two numbers.

Max the monkey is organising his fruit collection! Use this fact-file template to help him solve his number puzzles. Read each section carefully and use your knowledge of multiplication tables and division to complete the tasks.

Word bank: factor · multiple · product · prime number · composite number · common factor · common multiple · divisible

1. The Factor Finder: Choose a number between 20 and 50. List all the factors of your chosen number. How do you know you have found them all? (3 marks)

2. The Multiple Maker: Choose two small numbers (e.g., 3 and 4). List the first six multiples for each, then identify the lowest common multiple (LCM). (3 marks)

3. Compare and Contrast: Explain the difference between a 'factor' and a 'multiple' using your own examples. Why is it impossible for a multiple of a number to be smaller than the number itself? (4 marks)

4. The Challenge of Primes: Max says: 'All even numbers greater than 2 are composite numbers.' Justify this statement by explaining what a prime number is. (3 marks)

5. Problem Solving: If you have £24 to spend on packs of stickers that cost £3 each, or £4 each, which price allows you to spend the exact amount with no change? Explain your reasoning. (3 marks)

6. Creative Synthesis: What might happen if we only used prime numbers to build the number system? How would our multiplication tables look? (4 marks)

Extension challenge: Design a 'Number Pattern Poster' for Max. Create a sequence of numbers that follow a specific rule involving multiples (e.g., 'The multiples of 6 that are also factors of 60'). Write a short explanation for your peers on why these numbers share a relationship.