Max’s Mathematical Mystery: Factors and Multiples Challenge

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

Join Max the monkey as he swings through the jungle of numbers! Use your knowledge of multiplication and division to solve these 10 rapid-fire puzzles. Read each question carefully and circle the best answer.

Answer Key: 1.C, 2.True, 3.12, 4.B, 5.False, 6.A, 7.True, 8.4, 9.C, 10.15. Explanations: 1. Factors are numbers that divide exactly. 2. 7x4=28. 3. Factors of 6 are 1, 2, 3, 6; factors of 4 are 1, 2, 4. Largest common is 2? No, wait: Factors of 12 are 1, 2, 3, 4, 6, 12. 4. Multiples of 8: 8, 16, 24, 32. 5. Prime numbers have only two factors. 6. 1, 3, 7, 21. 7. 6 is a multiple of 3. 8. Common factors of 8 and 12 are 1, 2, 4. 9. 25, 30, 35. 10. 15 is the first common multiple.

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

1. 1. Max has 12 bananas. Which of these is a factor of 12? A) 5, B) 8, C) 3*, D) 7 (1 mark)

2. 2. True or False: 28 is a multiple of 7. (1 mark)

3. 3. What is the largest factor of 12? (1 mark)

4. 4. Which of these is a multiple of 8? A) 14, B) 24*, C) 30, D) 44 (1 mark)

5. 5. True or False: All odd numbers are prime numbers. (1 mark)

6. 6. Which set contains all the factors of 21? A) 1, 3, 7, 21*, B) 1, 2, 3, 21, C) 3, 7, 14, D) 1, 7, 21 (1 mark)

7. 7. True or False: 6 is a multiple of 3. (1 mark)

8. 8. What is the highest common factor of 8 and 12? (1 mark)

9. 9. Which number is a common multiple of 5 and 6? A) 15, B) 20, C) 30*, D) 45 (1 mark)

10. 10. What is the lowest common multiple of 3 and 5? (1 mark)

Draw: Draw Max the monkey hanging from a tree branch, surrounded by coconuts grouped in sets of 3 or 4 to illustrate multiples.

Extension challenge: 1. Explain why the number 1 is considered a factor of every whole number. 2. Compare and contrast prime numbers and composite numbers; provide an example of each. 3. Justify your answer: Is it possible for a prime number to have more than two factors? 4. What might happen if we tried to find a 'highest' multiple for any given number? 5. Max finds a mystery number that is a multiple of 4, 6, and 8. What is the smallest possible number it could be? 6. If Max buys 5 bunches of bananas for £2 each and 3 bunches for £4 each, calculate the total cost and identify which of your answers (5, 3, 2, 4, total) are factors of the final amount.