

Max's Mathematical Factors and Multiples Challenge

Learning objective: To identify, name, and write factors and multiples of numbers up to 144, including recognising prime numbers and patterns.

Help Max the monkey solve these number puzzles! Read each question carefully, choose the correct option or write your answer clearly. Good luck, maths explorers!

Answer Key: 1) C (6), 2) B (24), 3) True, 4) False (3 is a factor), 5) 7, 6) 12, 7) A (1, 2, 4, 5, 10, 20), 8) True, 9) 11, 10) 4. Explanation for Q10: A square number is a product of a number multiplied by itself. $2 \times 2 = 4$.

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

1. Max is looking for a factor of 12. Which of these is a factor? A) 5, B) 8, C) 6*, D) 7 (1 mark)

2. Which of these is a multiple of 8? A) 10, B) 24*, C) 30, D) 44 (1 mark)

3. True or False: 10 is a multiple of 2. (1 mark)

4. True or False: 3 is NOT a factor of 15. (1 mark)

5. What is the largest factor of 7 that is not 1? (1 mark)

6. Max wants the smallest multiple of 4 and 3 (the lowest common multiple). What is it? (1 mark)

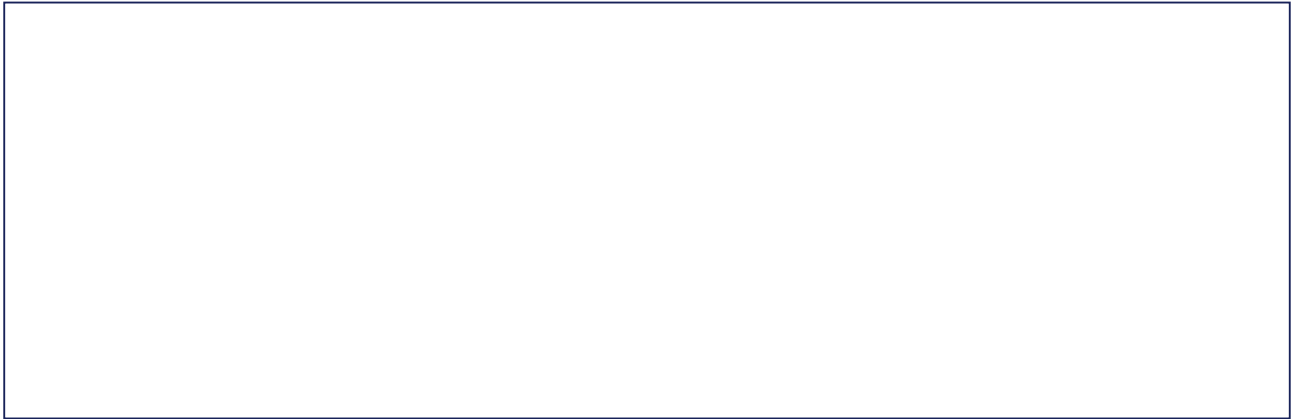
7. Which list contains all the factors of 20? A) 1, 2, 4, 5, 10, 20*, B) 1, 2, 5, 20, C) 2, 4, 5, 10, D) 1, 4, 5, 10 (1 mark)

8. True or False: All multiples of 5 end in either a 0 or a 5. (1 mark)

9. What is the next prime number after 7? (1 mark)

10. Max finds a square number that is a multiple of 4. What is the smallest square number greater than 1? (1 mark)

Draw: Draw a 'Factor Tree' for the number 24. Show the branches splitting into smaller factors until you reach prime numbers at the bottom.



Extension challenge: Greater Depth Challenge: 1) Explain why a prime number only has two factors. 2) Compare and contrast factors and multiples—how do they behave differently as numbers get larger? 3) Justify your answer: Is it possible for a number to be its own multiple and its own factor? 4) What might happen if you tried to find the largest multiple of 6? 5) If Max has £12 to spend on apples costing £3 each, explain how factors help him know he can buy exactly 4 apples. 6) Create your own number riddle involving a mystery number, its factors, and its multiples for a friend to solve.