

Max's Prime Number Challenge

Learning objective: To identify, describe, and represent prime numbers up to 100 and recognize prime numbers up to 19.

Read each question carefully. Show your working out where necessary. You have 30 minutes to complete this assessment.

Max the monkey loves to sort his collection of tropical fruit into groups. He has discovered that some fruits can only be arranged in a single row or in a perfect square, while others can be split into many different groups. Max wants to see if you can help him identify the special 'prime' fruits in his basket.

Word bank: prime number · composite number · factor · multiple · divisor · product

1. Define what a prime number is in your own words. Give one example of a prime number. (2 marks)

2. Max has 15 bananas. Is 15 a prime number? Explain your answer by listing all of its factors. (3 marks)

3. Circle all the prime numbers in the list below: 2, 4, 7, 9, 11, 15, 17, 21. (3 marks)

4. Max says, 'All odd numbers are prime numbers.' Is Max correct? Use an example to prove why he is right or wrong. (4 marks)

5. Find the two prime numbers that add together to make 18. (4 marks)

6. Max is buying exotic nuts for his friends. A bag of nuts costs £7 (a prime price). If he buys 4 bags of nuts, how much does he spend in total? Is the total cost a prime number? Explain your reasoning. (4 marks)

7. Explain why the number 1 is not considered a prime number. Use your knowledge of factors to justify your answer in detail. (5 marks)

Draw: Draw an array of 7 apples and an array of 8 apples to show how one can be represented as a prime number and the other as a composite number.

Extension challenge: Total: /25