Max’s Prime Number Puzzle Trail

Learning objective: To identify, represent and estimate prime numbers up to 100 and use knowledge of factors to solve problems.

Help Max the monkey organize his collection of numbered puzzle blocks. Read the information below and answer the questions to ensure Max has his prime numbers in the correct order.

Max is busy sorting his wooden blocks. He only wants to keep the prime numbers in his special 'Prime Treasure Chest'. A prime number is a whole number greater than 1 that has exactly two factors: 1 and itself. For example, 7 is a prime number because only 1 and 7 can divide into it. Numbers like 9 are composite numbers, because 1, 3, and 9 are all factors. Max reminds us that 1 is not a prime number because it only has one factor! Remember, all prime numbers (except for the number 2) are odd, because if they were even, they would be divisible by 2.

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

1. Max has the following numbers on his desk: 2, 9, 13, 21, and 29. List all the prime numbers from this set and explain why the other numbers are not prime. (3 marks)

2. True or False: 'All odd numbers are prime numbers.' Use an example to prove your answer. (2 marks)

3. Max wants to buy some stickers that cost £11 per pack. If he buys 7 packs, how much will he spend in total? Is the total cost a prime number? Why or why not? (3 marks)

4. Find all the prime numbers between 20 and 40. (2 marks)

5. Why is the number 2 considered a very special prime number according to Max? (1 mark)

Draw: Draw a picture of Max the monkey sitting next to his 'Prime Treasure Chest', showing him placing blocks numbered with prime numbers inside it.

Extension challenge: Research the 'Sieve of Eratosthenes'. Can you use this method to find all the prime numbers up to 50 on a hundred square?