Max’s Prime Number Maze

Learning objective: To identify, describe, and solve problems involving prime numbers up to 100, distinguishing them from composite numbers.

Max the monkey is trying to find the path through the Great Forest. Only stepping on stones labelled with prime numbers will help him reach the treehouse safely. Use your knowledge of factors to help Max navigate. For every number you identify as a prime, explain why it qualifies. If it is not a prime, identify it as a composite number and provide one factor pair (excluding 1 and itself).

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

1. Max is standing on the number 13. Is 13 a prime number? Justify your answer by explaining how many factors it has. (2 marks)

2. Max sees the number 21. Explain why 21 is a composite number, not a prime number. (2 marks)

3. Compare and contrast the numbers 2 and 9. Why is 2 considered unique among prime numbers? (2 marks)

4. Max needs to cross the stream using stones marked 37, 49, and 51. Which of these are prime? Show your reasoning for the composite ones. (2 marks)

5. If Max finds a stone marked with £17, he says it is a 'lucky prime price'. What might happen if he tried to divide this £17 into equal piles of money between 4 friends? Does the fact that 17 is prime help us understand why this is impossible? (2 marks)

6. Is 1 a prime number? Justify your answer using the definition of a prime number. (2 marks)

Draw: Draw a map of Max's forest path. Include a series of stepping stones across a river, labelling the stones with a mix of prime and composite numbers between 1 and 50. Colour the prime stones green and the composite stones brown.

Extension challenge: Challenge: Investigate 'Twin Primes' (two prime numbers that have a difference of 2, such as 3 and 5). List all the pairs of twin primes you can find up to 100. Write a short paragraph explaining the pattern you notice in the numbers between these twin pairs.