

Max's Square Number Investigator Journal

Learning objective: To identify, calculate, and apply knowledge of square numbers up to 12×12 .

Max the monkey loves to find patterns in everything! Use this investigation sheet to help Max solve his square number puzzles. Fill in the boxes below to show your understanding of how numbers can grow into perfect squares.

Word bank: Product · Array · Squared · Multiplication · Integer · Calculation · Square number

1. The Definition: In your own words, explain what a 'square number' is. Think about what happens when you multiply a number by itself. (2 marks)

2. Visual Representation: If you were to draw a square array for the number 16, how many dots would be in each row and how many rows would there be? Show your working. (2 marks)

3. Calculation Challenge: List the first six square numbers (starting from 1×1). Write the multiplication sum next to each one. (3 marks)

4. Missing Square Puzzle: Max has found a sequence: 1, 4, 9, __, 25, 36. Which square number is missing? How do you know? (2 marks)

5. Application: If a square tile costs £2 each, and you need to cover a square floor that is 4 tiles wide and 4 tiles long, what is the total cost in pounds? (3 marks)

Extension challenge: Challenge: Can you find a square number between 100 and 150? Explain how you found it using multiplication.