Grade 5 Math Assessment: Square Numbers

Learning objective: To recall, identify, and apply knowledge of square numbers up to 12 x 12 and their properties.

Read each question carefully. Show your working out where possible to gain marks. Max the monkey is helping you with these puzzles!

Max the monkey is organising his fruit collection. He likes to arrange his favorite snacks into perfect square shapes on his table. He says, 'If I have 4 apples, I can make a 2 by 2 square. If I have 9, I can make a 3 by 3 square!' Max needs your help to solve some square number puzzles.

Word bank: Product · Square · Multiply · Integer · Array · Dimension

1. Write down the first five square numbers, starting from 1. (2 marks)

2. Max has 49 bananas. Is this a square number? Explain your answer by showing the multiplication calculation. (2 marks)

3. Calculate the value of 8 squared (8^2). (1 mark)

4. If a square garden has a side length of 11 metres, what is the total area of the garden? Give your answer in square metres. (2 marks)

5. Max buys a bag of nuts for £3. He decides to buy a number of bags equal to 6 squared. How much money does Max spend in total? Show your working. (3 marks)

6. Identify the missing number in this sequence: 1, 4, 9, ___, 25, 36. Explain the rule used to find the next number. (3 marks)

7. Max claims that the sum of 3 squared and 4 squared is equal to 5 squared. Prove whether Max is correct by calculating both sides of the equation and showing the comparison. (4 marks)

8. Max is planning a fruit display for the jungle festival. He has 100 strawberries. Explain, using your knowledge of square numbers, how he could arrange these into a large square, and then describe a different way he could arrange a smaller square using only a portion of those strawberries. Include calculations for both. (8 marks)

Draw: Draw a visual representation of 3 squared (3x3) using small circles to show how it forms a square shape.

Extension challenge: Total: /25