

Max's Algebra Adventure: Solving the Unknown

Learning objective: To express missing number problems algebraically and use simple formulae to find solutions.

Max the monkey has been busy setting up a fruit shop to practise his maths! Help him solve these algebraic puzzles by identifying the variables and calculating the missing values. Follow the steps in each box to show your working clearly.

Word bank: variable · expression · formula · unknown · equation · substitute · calculate · value

1. The Fruit Formula: Max sells apples for £x each. If he sells 5 apples for £3.00, write an algebraic equation to represent this and find the value of x. (3 marks)

2. Banana Bundles: Max puts 3 bananas in a bunch plus 2 extra loose ones. If b is the number of bunches, write an expression for the total number of bananas. (2 marks)

3. Price Check: Max uses the formula $P = 2n + 1$ to price his melon slices, where n is the number of slices. How much would 4 slices of melon cost? (3 marks)

4. The Missing Variable: If $3y + 5 = 20$, explain the steps you would take to isolate y and find its value. (3 marks)

5. Max's Challenge: Create your own algebraic word problem for a friend. Use a variable like 'a' for the price of a pear and provide a total cost for them to solve. (4 marks)

Extension challenge: Design a 'price list' for a shop using algebraic expressions for each item (e.g., 'Grapes: $2g + 50p$ ') and challenge a partner to calculate the cost if $g = 10$.