Max's Algebraic Adventures

Learning objective: To express missing number problems algebraically and solve simple equations involving one or two steps.

Help Max the monkey solve these number puzzles. Remember, in algebra, we use letters or symbols to represent numbers we don't know yet! Show your working out clearly.

Max the monkey is organising his fruit collection. He has a secret number of bananas in his basket, which he calls 'b'. He adds 5 more bananas to the basket, and now he has 12 bananas in total. Max writes this as: b + 5 = 12. To find out what 'b' is, Max needs to work backwards by subtracting 5 from 12. If Max has 3 baskets each containing 'n' apples, and he has 15 apples in total, he writes: 3n = 15. Max loves using maths to find the hidden value of his snacks!

Word bank: variable · equation · unknown · expression · balance · operation

1. Max has a secret number of coconuts, 'c'. If he doubles his coconuts (2c) and ends up with 18, what is the value of 'c'? (2 marks)

2. Ellie the elephant has 'e' peanuts. She eats 4 peanuts and has 7 left. Write an equation to show this and solve for 'e'. (3 marks)

3. If x + 9 = 20, what is the value of x? Explain how you found your answer. (2 marks)

4. Zara the zebra has 4 packets of crayons, each with 'k' crayons inside. If she has 32 crayons in total, write an equation and solve for 'k'. (3 marks)

5. Look at this equation: 2y + 3 = 11. First, subtract 3 from 11, then divide by 2 to find the value of y. (2 marks)

Draw: Draw a set of scales to show the equation 'x + 4 = 10'. Put 10 items on one side and 'x' plus 4 items on the other to show how they balance.

Extension challenge: Create your own algebraic word problem for a friend to solve. Use a letter to represent an unknown amount of items, like pens, stickers, or coins (£), and provide the total.