Max’s Mathematical Multiplication Mission

Learning objective: To multiply numbers up to four digits by a two-digit number using the formal written method of long multiplication.

Welcome to Max the Monkey’s Maths Lab! Max loves to break down big numbers into smaller, manageable chunks. Follow the steps below to solve your long multiplication challenges. Remember to use your placeholders (the zero) when multiplying by the tens digit, and show your regrouping clearly above each column. Take your time—accuracy is just as important as speed!

Word bank: multiplicand · multiplier · product · placeholder · regrouping · partitioning · column · calculation

1. The Breakdown: Choose a 3-digit number and a 2-digit number. Write them out and explain how you will partition the multiplier to make the calculation easier. (2 marks)

2. The First Step: Calculate the product of your 3-digit number and the ones digit of your multiplier. Show your working clearly. (3 marks)

3. The Placeholder Power: Explain why it is essential to place a zero in the ones column before multiplying by the tens digit. What might happen to your final answer if you forgot this? (3 marks)

4. The Second Step: Calculate the product of your 3-digit number and the tens digit of your multiplier, ensuring you include your placeholder. (3 marks)

5. The Final Total: Add your two partial products together to find the final result. Justify why your answer is reasonable by using estimation. (2 marks)

6. Compare and Contrast: If you swapped the order of your two numbers (e.g., instead of 234 x 12, you calculated 12 x 234), would the final product be the same? Explain your reasoning. (4 marks)

Extension challenge: Max has a challenge for you: If Max earns £145 per week collecting exotic fruits, how much does he earn in 52 weeks? Write out your full long multiplication method, then check your answer using a different method, such as partitioning or repeated addition. Can you justify which method is more efficient and why?