

Max's Mathematical Marathon: Mental Mastery

Learning objective: To develop mental calculation strategies for addition, subtraction, multiplication, and division, including scaling and multi-step reasoning.

Max the monkey is preparing for his jungle trek. Use your best mental maths strategies to solve these challenges. Show your working out where possible to explain your reasoning.

Max has 450 climbing ropes. He gives 125 to Leo and 85 to Kit. He then finds 200 more in his storage trunk. How many ropes does Max have now?

Word bank: partitioning · inverse · estimate · factor · multiple · remainder · difference · sum

1. Max has 450 ropes. After giving away 125 and 85, and receiving 200 more, how many ropes does he have? Explain the mental strategy you used to track the change. (3 marks)

2. If each climbing rope costs £4, calculate the total value of 150 ropes. How does knowing that $15 \times 4 = 60$ help you solve this mentally? (2 marks)

3. Max wants to divide 360 dried mango slices equally between his 6 friends. If he adds 12 more slices to the pile before sharing, how many slices does each friend receive? Justify your answer. (3 marks)

4. Max buys 8 packs of berries at £3.50 each. He pays with a £50 note. Calculate his change mentally. Show your method. (3 marks)

5. Compare and contrast the strategies of 'partitioning' and 'rounding to adjust' when calculating $499 + 356$. Which is more efficient and why? (3 marks)

6. Max claims that multiplying a number by 10 and then by 2 is the same as multiplying by 20. Prove this theory using an example. What might happen if he used this strategy for division? (4 marks)

Draw: Draw a diagram showing Max the monkey organising his jungle supplies into equal piles to demonstrate the division problem of 372 slices shared between 6 friends.



Extension challenge: Create your own multi-step word problem involving a trip to the market using at least three different operations (e.g., addition, multiplication, and subtraction). Exchange your problem with a partner and evaluate their mental strategy.