

Year 5 Mathematics Assessment: Mastery of Place Value

Learning objective: To demonstrate secure understanding of place value in numbers up to 1,000,000, including ordering, partitioning, rounding, and negative numbers.

Read each question carefully. Show your working out clearly, as marks are awarded for your mathematical reasoning. You have 45 minutes to complete this assessment.

Max the monkey is organising his jungle marketplace. He has been counting his collection of golden acorns and silver pebbles to ensure he can trade fairly with his friends. Help Max solve these puzzles by applying your knowledge of numbers up to one million.

Word bank: partition · ascending · descending · thousandths · place value · interval · digit · magnitude

1. Max has 456,782 acorns. Write this number in words and partition it into its constituent parts (e.g., 400,000 + ...). (2 marks)

2. Compare these two values using the symbols $<$, $>$, or $=$. Explain your reasoning: 890,102 ___ 890,012. (2 marks)

3. Max finds a chest containing £745,299. Round this amount to the nearest 10, 100, 1,000, and 10,000. (4 marks)

4. The temperature in the jungle dropped from 4°C at noon to -3°C by midnight. Calculate the total difference in temperature. (2 marks)

5. Order these numbers in descending order: 678,901; 679,001; 678,099; 687,000. (3 marks)

6. Max says: 'If I add 10,000 to 995,000, the answer is 1,005,000.' Justify why Max is correct, referencing the change in the hundred-thousands column. (4 marks)

7. Write a short paragraph explaining the importance of the zero placeholder in the number 504,060. What might happen to the value of the number if the zeros were removed? (5 marks)

8. If a digit '7' is moved from the tens place to the hundred-thousands place, how many times larger does its value become? Show your calculation. (3 marks)

Draw: Draw a number line ranging from 200,000 to 300,000. Mark the positions of 225,000, 275,000, and 299,000 accurately.

Extension challenge: Imagine you are designing a new number system for a secret jungle society. If you only had five digits (0, 1, 2, 3, 4) to work with, how would the value of the number '44,444' change compared to our current base-10 system? Explain the potential challenges of using a base-5 system for large-scale counting. Total: /25