Max’s Snowy Day Maths: Exploring Negative Numbers

Learning objective: To be able to count backwards through zero to include negative numbers and solve problems involving temperature changes.

Read the story about Max the monkey visiting the icy mountains. Use your knowledge of number lines to help him solve his temperature puzzles. Remember that numbers below zero are called negative numbers.

Max the monkey was on an adventure in the High Peaks. During the day, the temperature was a pleasant 5°C. However, as the sun set behind the mountains, the temperature began to drop rapidly. By midnight, the thermometer showed -4°C. Max noticed that for every hour that passed, the temperature dropped by 2 degrees. He checked his woolly hat and scarf, glad that he knew how to count backwards past zero to keep track of the cold.

Word bank: negative · positive · degrees Celsius · below zero · difference · interval · ascending · descending

1. If the temperature is 3°C and it drops by 5 degrees, what will the new temperature be? Show your working on a number line. (2 marks)

2. Max finds a frozen pond. The temperature is -2°C. By midday, it rises by 6 degrees. What is the new temperature? (2 marks)

3. Put these temperatures in order, starting with the coldest: 2°C, -5°C, 0°C, -1°C, 4°C. (2 marks)

4. What is the difference in degrees between -3°C and 4°C? (2 marks)

5. Max has £5 in his pocket. He buys a hot chocolate for £6. If he borrows the money from a friend, how much money does he 'owe'? Write this as a negative number. (2 marks)

Draw: Draw a vertical thermometer showing the scale from -10 to 10. Mark the point where water freezes (0°C) and colour the section below zero in a light icy blue.

Extension challenge: Max wants to record the temperature every hour for 6 hours starting at -4°C. If the temperature rises by 3°C each hour, what will the temperature be at the 6th hour? Can you write out the sequence?