Max’s Snowy Mountain Maths

Learning objective: To order, compare, and calculate using negative numbers in a real-world context.

Read the story below and use your knowledge of number lines and temperatures to help Max solve his winter puzzles. Remember to show your working out.

Max the monkey is visiting the Snowy Peaks to study how temperature changes at different heights. At the base of the mountain, the temperature is 4°C. As Max climbs higher, the temperature drops by 6 degrees. When he reaches the Windy Ridge, the thermometer reads -2°C. Max knows that as the numbers go further below zero, the weather gets much colder. He needs your help to track the temperature changes across the mountain trails.

Word bank: negative · positive · degrees · celsius · below zero · difference · interval

1. If the temperature at the base is 4°C and it drops by 6 degrees, why is the new temperature -2°C? Explain using a number line. (2 marks)

2. Max climbs even higher to the Frosty Peak, where it is 3 degrees colder than the Windy Ridge (-2°C). What is the temperature at the Frosty Peak? (1 mark)

3. Later in the day, the temperature rises by 5 degrees from the Frosty Peak. What is the new temperature? (1 mark)

4. Put these temperatures in order from the coldest to the warmest: 2°C, -5°C, 0°C, -1°C, 4°C. (2 marks)

5. Max finds a frozen pond. The water temperature is -4°C. How many degrees would it need to rise to reach 0°C (freezing point)? (1 mark)

Draw: Draw a vertical thermometer showing the temperatures -5°C, 0°C, and 5°C marked clearly. Shade the area from 0°C down to -3°C in blue to show the freezing zone.

Extension challenge: Max finds a hidden cave where the temperature is exactly halfway between -6°C and 2°C. What is the temperature inside the cave? Explain your method for finding the middle value.