

Max's Mountain Maths: Understanding Negative Numbers

Learning objective: To be able to order, compare, and calculate with negative numbers in context.

Read the story about Max the monkey's mountain trek. Use your knowledge of number lines and temperature to answer the questions below. Remember that numbers further from zero on the negative side are smaller!

Max the monkey is climbing the Frosty Peaks to study the weather. At the base of the mountain, the temperature is 5°C . As Max climbs higher, the air gets colder. By the time he reaches the first plateau, the temperature has dropped by 8 degrees. He continues to climb another 4 degrees lower until he reaches the summit. At the summit, he finds a local shop selling warm scarves for £12.50. Max has £10.00, so he is £2.50 short. He writes his observations in his notebook, marking the mountain's temperature zones relative to zero.

Word bank: Negative · Positive · Ascending · Descending · Difference · Interval · Below zero

1. What was the temperature at the first plateau after it dropped 8 degrees from 5°C ? (2 marks)

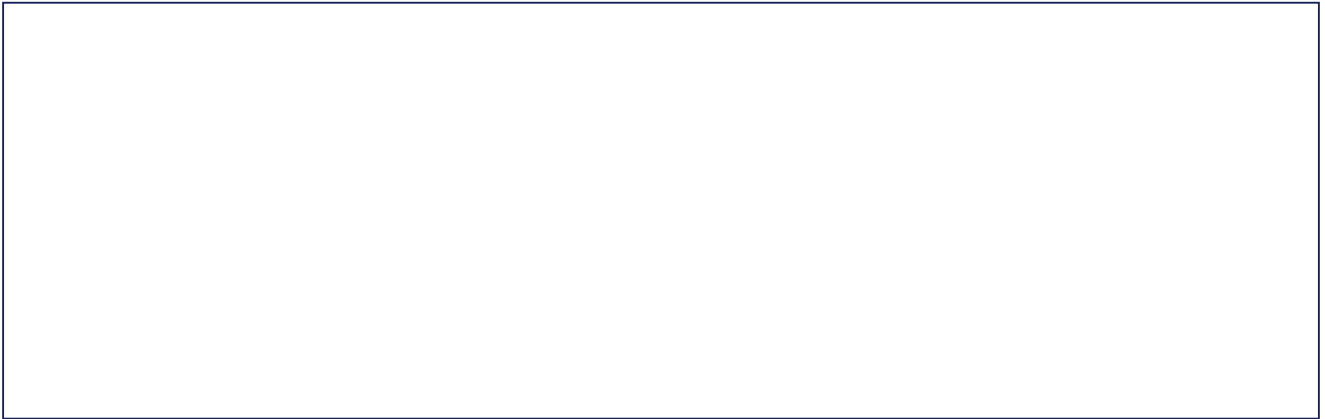
2. If the temperature drops another 4 degrees from the first plateau, what is the temperature at the summit? (2 marks)

3. Max finds a thermometer that shows -12°C in a shaded cave. Is -12°C warmer or colder than the summit temperature you calculated in question 2? Explain how you know. (2 marks)

4. Max wants to buy a scarf for £12.50 but only has £10.00. Using negative numbers to represent his debt, how much money does he have? (2 marks)

5. Order these temperatures from coldest to warmest: -5°C , 2°C , -10°C , 0°C , -1°C . (2 marks)

Draw: Draw a vertical number line representing the Frosty Peaks. Label the ground level as 0°C , and plot the temperatures for the base (5°C), the first plateau, and the summit.



Extension challenge: If the temperature at the summit rises by 7 degrees by midday, what will the new temperature be? Write a short sentence explaining how adding a positive number to a negative number changes the value.