

Max's Mountain Expedition: Navigating Negative Numbers

Learning objective: To understand and use negative numbers in context, and calculate intervals across zero.

Max the monkey is exploring the 'Frozen Peaks' mountain range. The base camp is at 0 metres above sea level. Help Max track his altitude as he climbs up and treks down into deep valleys. Complete the sequence for each expedition by calculating the final temperature or altitude. For each question, show your working out to gain full marks.

Word bank: altitude · interval · sea level · degrees Celsius · negative · positive · descend · ascend

1. Max starts at an altitude of 15 metres. He descends 25 metres into a valley. What is his new altitude? (2 marks)

2. The temperature at the mountain peak is 4°C. During the night, the temperature drops by 9°C. What is the new temperature? (2 marks)

3. Max is at an altitude of -8 metres. He climbs 12 metres upwards. What is his final altitude? (2 marks)

4. In a deep cave, the temperature is -3°C. The temperature outside is 7°C warmer. What is the temperature outside? (2 marks)

5. Max starts at -5 metres, climbs 10 metres, and then descends 8 metres. What is his final position? (2 marks)

Draw: Draw a vertical number line representing the mountain, showing the sea level at 0. Label the positive numbers as 'Mountain Peaks' and the negative numbers as 'Deep Valleys'. Draw Max the monkey standing at the -5 metre mark.



Extension challenge: Imagine Max finds a treasure chest at -15 metres. If he starts his journey at 5 metres above sea level, how many metres in total does he need to descend to reach the chest? Write a short explanation of how you calculated the difference.